

Box 3

# local environment agency plan

## KENT AREA

CONSULTATION DRAFT

SEPTEMBER 1998



ENVIRONMENT  
AGENCY

# YOUR VIEWS

The Kent Area Draft Local Environment Agency Plan (LEAP) is the Agency's initial analysis of the status of the environment in the Kent Area and the environmental issues that we believe need to be addressed. It is uniquely based around the Environment Agency's Kent Area focusing upon cross boundary issues rather than issues that are specific to an individual water catchment. The local issues will be addressed in the local LEAPs; the Darent, Medway, East Rother, North Kent and Kentish Stour that will follow this plan shortly.

**We would like to hear your views :**

- Have we identified all the major issues?
- Have we identified realistic options for action?
- Do you have any comments to make regarding the plan in general?

During the consultation period for this report the Agency would be pleased to receive any comments in writing to:

The LEAPs Officer (Kent)  
The Environment Agency Southern Region  
Orchard House  
Endeavour Park  
London Road  
Addington  
West Malling  
Kent ME19 5SH

**All comments must be received by 31 December 1998.**

All comments received on the Draft LEAP will be considered in preparing the next phase - the LEAP. The LEAP will focus on updating the Draft LEAP by turning the options for action into actions that will make a difference.

Note: Whilst every effort has been made to ensure the accuracy of information in this report there may be errors or omissions which we will be pleased to note. All comments will be treated as public information and will be released on request unless you explicitly state otherwise.

## **Published Documents**

Two documents have been produced by the Agency in the LEAP process:

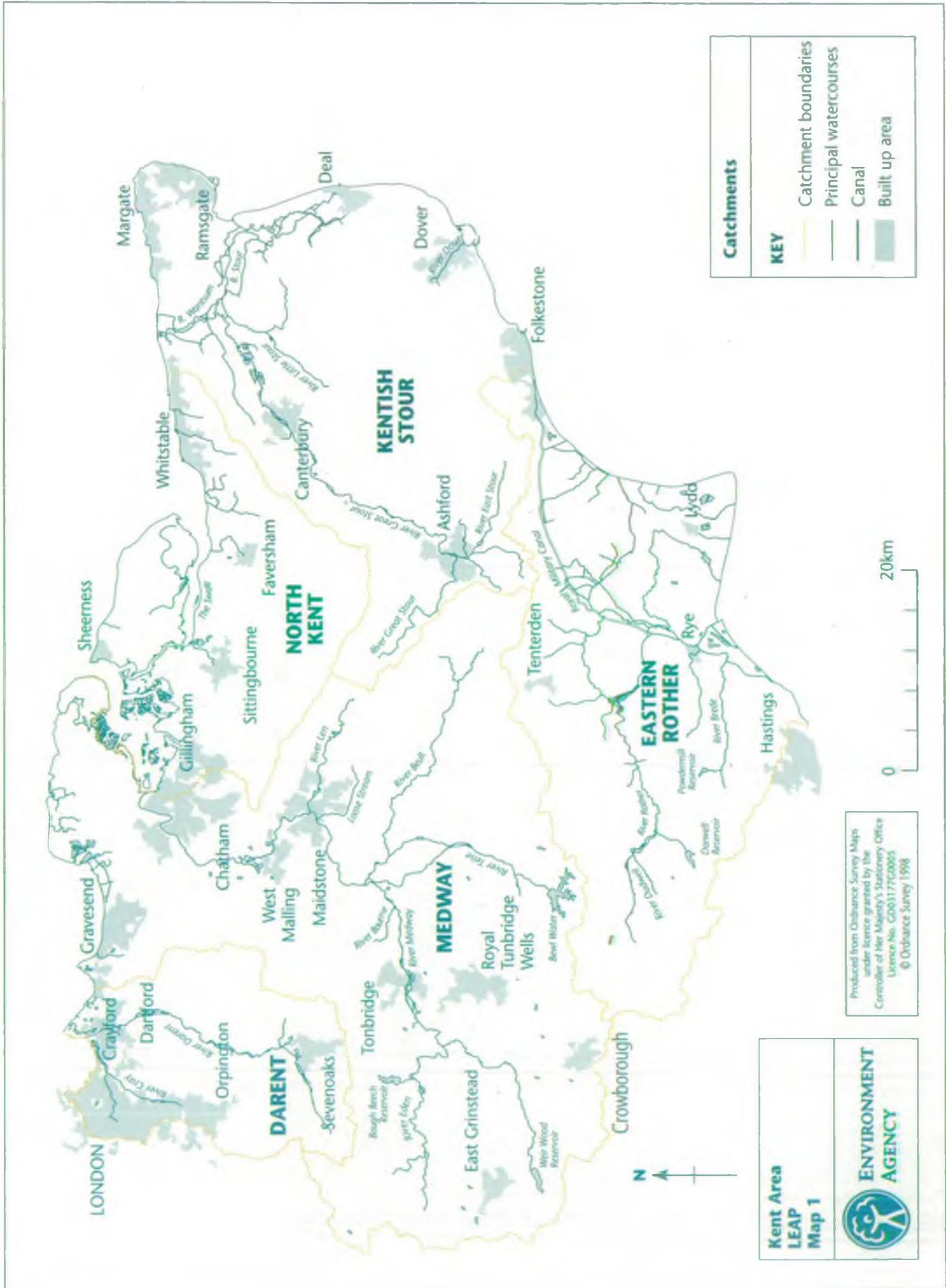
### **Draft LEAP**

This is the Draft LEAP which concentrates on the environmental issues relevant to the Agency and the identification of possible options for action to address those issues.

### **Environmental Overview**

The Environmental Overview is a separate document which is available on request. It analyses the state of the local environment looking at the impact of particular pressures, generating a list of issues that are discussed in this report.

# Catchment Overview



# Kent Area Key Details

Area (sq kms)	4763.6 km <sup>2</sup>
Coastline (kms)	217 km

## Councils and % of the Kent area they Administer

### Local Authorities:

Kent CC	75
London Boroughs	2
Medway C	4
Surrey CC	3
East Sussex CC	15
West Sussex CC	1

## Population

1991	1, 999, 000
2001(estimate)	2, 075, 400

## Rainfall

Average (mm/yr)	720
Drought Conditions (mm/yr)	570

## Licensed abstractions

Surface Water	628
Groundwater	472
Impoundments	71

## Conservation

Sites of Special Scientific Interest	133
Water Dependant SSSIs	116
NNRs	7
Ramsar or SPAs	17

## EC Designated Fisheries (km):

Cyprinid Freshwater	193.6	Tidal	23.9
Salmonid Freshwater	3.5	Tidal	4.5

EC Designated Bathing Beaches	27
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## Water Quality: Chemical GQA as % of Kent Area Rivers in 1997

Class	A	10.8
	B	37.8
	C	28.5
	D	9.5
	E	12.5
	F	0.9

Licensed Waste Sites	229
Process Industry Regulation	54

## Radioactive Substance Regulations

Nuclear Power Stations	2
Others	211

## Flood Defence

Main River(km)	973
Sea Defences(km)	85
Tidal Banks(km)	214

Length of Inland Navigation(km)	62
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## FOREWORD

The Environment Agency is one of the most powerful environmental regulators in the world. By combining the regulation of air, land and water, we have a unique opportunity to look at our environment in an integrated way.

Local Environment Agency Plans aim to provide a means for setting priorities, solving problems and protecting and improving the environment in a co-ordinated way. The Kent Area Local Environment Agency Plan (LEAP) Consultation Draft has been drawn up for consultation with those interested in the future of the local environment. This is the first LEAP produced by the Environment Agency based around the geographic boundary of an Area as a means of identifying and addressing more strategic and significant issues. Local issues specific to individual parts of the Kent Area will be examined in separate catchment based LEAPs. This LEAP provides a focus for all parties to undertake and achieve environmental improvements in a sustainable manner.

This, and subsequent plans for the Kent Area, will represent a shared vision for the future and play a vital role in the protection of our environment, whilst recognising the ever competing pressures on the environment and the need to balance cost and benefit.



**Dr Binny Buckley**  
**Kent Area Manager**

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## 1.0 THE ENVIRONMENT AGENCY

### **The Agency's vision is:**

- *A better environment in England and Wales for present and future generations.*

### **The Agency's aims are:**

- to achieve major and continuous improvements in the quality of air, land and water
- to encourage the conservation of natural resources, animals and plants
- to make the most of pollution control and river-basin management
- to provide effective defence and warning systems to protect people and property against flooding from rivers and the sea
- to reduce the amount of waste by encouraging people to re-use and recycle their waste
- to improve standards of waste disposal
- to manage water resources to achieve the proper balance between the country's needs and the environment
- to work with other organisations to reclaim contaminated land
- to improve and develop salmon and freshwater fisheries
- to conserve and improve river navigation
- to tell people about environmental issues by educating and informing
- to set priorities and work out solutions that society can afford

### **The Agency will do this by:**

- being open and consulting others about our work
- basing our decisions around sound science and research
- valuing and developing our employees; and
- being efficient and businesslike in all we do

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*".

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.

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.

One of the key outcomes of the United Nations "Earth Summit" held in Rio de Janeiro in 1992 was agreement by governments that, in order to solve global environmental problems, local action is crucial: we must all therefore think globally but act locally.

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 concerns 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

## **1.1 Local Environment Agency Plans**

The Agency is committed to a programme of Local Environment Agency Plans (LEAPs) in order to produce a local agenda of integrated action for environmental improvement. These will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

LEAPs help the Agency to identify and assess, prioritise and solve local environmental issues grouped around the nine environmental concerns, taking into account the views of local stakeholders. The outcome of the process is a local programme of integrated action for environmental improvement in order to optimise benefit for the local environment.

LEAPs replace the Catchment Management Plans which were produced by the former National Rivers Authority and build on their success by covering all the Agency's functions.

## **1.2 The LEAP Process**

Each LEAP will take a long term view of local environments and set out a five year plan of action for solving local issues. Published Draft Consultation Reports will cover all parts of England and Wales, including the Southern Region of the Environment Agency, by the end of 1999, but this is only the first milestone in what will be an ongoing national programme of LEAPs, which will be regularly updated, developed and improved.

### **1.2.1 LEAP Consultation Draft**

The LEAP Consultation Draft concentrates on the prioritisation of environmental issues relevant to the Environment Agency and the identification of possible options for action necessary to restore/improve the local environment. This document is the main focus for public consultation. The issues and options for action put forward to address those issues have been structured around the Agency's nine environmental themes, which aim to protect and enhance the environment in an integrated way and contribute towards the goal of sustainable development.

An Environmental Overview is produced as a separate document and is a factual description and analysis of the local environment, looking at the impact of stresses on its state, and generating a list of issues for consideration by the Agency and others. The Environmental Overview supports the Consultation Draft and provides the background to the issues.

The publication of this Consultation Draft marks the start of a three month period of formal consultation enabling external organisations and the general public to work with us in planning the future of the local environment.

**This is the first output of the process and is not the final plan.**

It gives you an opportunity to:

- highlight any issue/actions not already identified within the area.
- work towards establishing and implementing a five year action plan.

Please send your response in writing to the LEAP Officer at the address given on the cover of this report by 31st December 1998.

At the end of the consultation period a Statement on Public Consultation will be produced which will give the results of the process.

### **1.2.2 LEAP Plan**

The final LEAP Plan will take into account the results of consultation and will be produced by April 1999. It will contain a list of actions that take account of costs and benefits, identifying timescales and partner organisations. Agreed actions will be incorporated into the Agency's annual business plans.

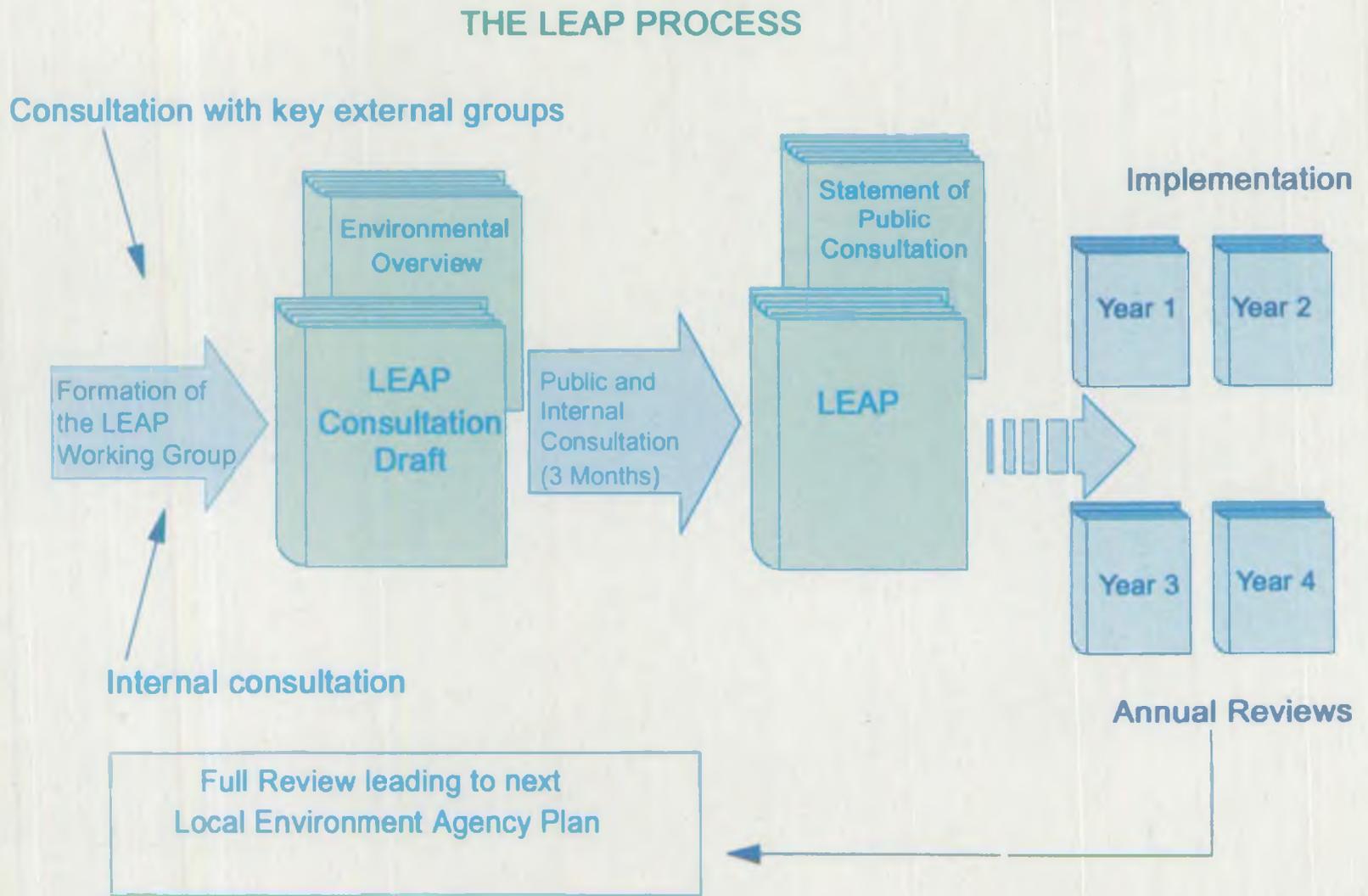
### **1.2.3 Annual Review**

The Agency will monitor implementation of the LEAP and report on progress in a published Annual Review. The Annual Review will also identify any additional actions needed to maintain progress in light of any changes in the LEAP area and also whether any actions need removing or amending where they are no longer appropriate. After five years, or sooner if required, the Agency will carry out a major review of the progress that has been made. At this stage the Agency will produce a new LEAP Consultation Draft to reflect these changes to further improve the local environment.

### **1.3 Kent Area Approach**

In the Kent Area of the Agency this Area-wide LEAP has been prepared addressing strategic and significant issues. Local issues relevant to particular river basins will be addressed in separate catchment based LEAPs for the Darent, Eastern Rother, Kentish Stour, Medway and North Kent which will be produced separately. If you would like a copy of any of these LEAPs, as they come available, please send a request to the Agency at the address on the cover.

Figure 1: The LEAPs Process



## 2.0 THE KENT AREA

The status of the environment, and consequently the Agency's operations, in the Kent Area is largely governed by its physical characteristics: geology, resultant landform, coastline and proximity to London and mainland Europe.

The Area is characterised by the clays and sandstones of the Weald and by the chalk block of the North Downs. The High Weald faces the prevailing south westerly winds which results in precipitation on to the steep clay dome. Consequently in wet weather there is rapid run-off into deeply incised tributaries and this combined with the urban development, contributes to the flashy characteristics of the Wealden rivers. This has led to the requirement for major flood retention schemes within the Kent Area. By contrast, the chalk of the North Downs presents a permeable geology; approximately three-quarters of the public water supplies are derived from the groundwater of the Chalk and Greensand. This is more than almost any other Area of the Agency and consequently the importance of protecting these resources from pollution and development is recognised in the nationally established groundwater protection policy. Remaining drinking water supplies are drawn from the lower reaches of the Stour and the Medway with a number of storage reservoirs such as Bewl Water.

With rainfall averaging 700mm per year, the Area is considerably drier than most of the country. Precipitation decreases across the Area from west to east such that north eastern Kent and Thanet receives only 500 - 600mm rainfall per year. Effective rainfall in much of the Area is less than 200mm which, combined with a population of around 2 million and other development pressures, places water resources under stress. This may be exacerbated by the effects of climate change which are likely to be more pronounced in the south-east compared to the rest of the UK. Given that water supply is administered by 6 different water companies, water resource management is an important Agency activity in the Area. In particular the chalk streams of the Darent and Little Stour are prone to low flows.

The Kent Area has a north, east and southern coastline totalling some 220 kms of which 85 kms are the sea defence responsibility of the Agency and 214 kms are a tidal defence responsibility. Key factors affecting the management of these defences are the storm surge environment of the North Kent coast and the southerly Channel coast buffeted by prevailing south westerly winds. Sea defences range from concrete sea walls to shingle beaches; in vulnerable areas the shingle has to be regularly replenished. The Channel coast is characterised by soft and hard defences facing the prevailing winds and the run of tide up the channel from the Western Atlantic: Romney Marsh alone presents 260 square kilometres of reclaimed land below sea level protected by Agency defences.

There are extensive tidal defences on the Thames and Medway estuaries and along the Swale. Two tidal flood barriers are operated in conjunction with the

Thames Barrier and the flood warning system operates to protect the population of areas at risk. Inland, flooding has been alleviated by the construction of the Leigh flood regulatory reservoir on the Medway and by similar schemes on the Stour upstream of Ashford. The Medway is navigable below Tonbridge and the Agency is the Navigation Authority and combines this function with flood defence on this stretch. The Harbour of Rye at the mouth of the Rother also has a flood defence role and is owned and managed by the Agency. The Agency plays a key role in safeguarding flood defence standards for the protection of people and property in defended areas and to the preservation of flood storage capacity in river channels and flood plains.

The extensive coastal area includes intertidal mudflats, saltmarsh and shingle much of which is designated as national and international areas of conservation interest: Sites of Special Scientific Interest (SSSIs), Special Protection Areas or Ramsar sites. The White Cliffs at Dover and Folkestone Downs have been identified as Heritage Coast. Inland there are extensive areas of ditches and dykes along the Thames and Medway Estuaries, the Swale, the River Wantsum, the flood plain of the Great Stour and on Romney Marsh again attracting national and international designations. Much of the traditional grazing pattern of the North Kent marshes is within an Environmentally Sensitive Area. The Area's ancient woodland is also of national importance as is its chalk grassland; many species not found elsewhere in Britain are present in the Area due to the proximity to the mainland of Europe.

The waters of the Kent Area support the whole range of freshwater fish species with the Rother having a notable run of sea trout and there are signs of a return of these fish to the River Medway as the water quality in the estuary improves. There are also important shell fisheries in the estuaries and around the coast, especially at Whitstable. Inland, the rivers draining the Weald are well stocked with a wide variety of coarse fish species and many reservoirs and reclaimed gravel workings have been developed into popular fisheries. The chalk streams feeding the Darent and the Stour provide suitable water quality for brown trout fisheries.

The traditional seaside resorts in the Area are used extensively by tourists and the local population and are particularly reliant on good bathing water quality for continued success in the face of competition developing from improved access to Europe. The coastline also includes 27 EC designated Bathing Beaches requiring regular monitoring by the Agency from May to September. Responsibilities for water quality protection extend to controlled tidal waters such as those of the Medway Estuary and Swale and to the open sea up to 3 miles from the coast.

Population increases in urban areas in the headwaters of small rivers have increased the need for stringent effluent standards. Rivers depending on surface run-off, such as those on the Wealden clay are particularly difficult to protect in periods of warm weather and low rainfall. Water quality is also

difficult to maintain in such circumstances since the flows are often dependent on treated sewage effluent. When pressures are applied to improve such discharges it may be more economic for the water company to provide treatment to a higher standard downstream thus further reducing flows in the rivers. The risk of pollution from agriculture is also a significant factor in the area and discharges and run-off have affected the headwaters of the Eden, Medway, Beult, Loose Stream and the Stour. The authorisation and monitoring of discharges and surface and groundwater quality is therefore an important component of the Agency's activities.

The Kent Area has over 40 major industrial processes controlled under the Integrated Pollution Control regime mainly concentrated in North Kent including power stations, incinerators, petroleum, paper, chemical and pharmaceutical plants. The Process Industry Regulation duties of the Agency cover these plants. Air quality in Kent is impacted by emissions from such sources and from the extensive road network. The Radioactive Substances Regulation responsibilities include the two Nuclear Power Stations at Dungeness as well as universities and hospitals where safe and responsible handling of radioactive material is required.

There are approximately 230 sites (as at 1 August 1998) in the Kent Area licensed for the deposit, treatment or keeping of controlled waste. There are a wide range of waste management facilities for the disposal, recovery and recycling of waste including landfill, composting, liquid waste treatment, civic amenity sites, metal recycling sites and waste transfer stations. All sites have specific operating conditions which are to prevent pollution to the environment, harm to human health and serious detriment to the amenities of the locality. The Agency monitors compliance with these conditions and has powers to take enforcement action where required.

Transfrontier shipments of waste are received in the area at the Port of Dover prior to recovery and reprocessing in this country. Movements of special waste through the area are monitored following prenotification of movement from the Area's waste producers.

Against this background and with much of the Area designated as Areas of Outstanding Natural Beauty - the Kent Downs and the High Weald - there are considerable pressures for development. The Area is one of the most populated in England. Development pressures have been stimulated by expansion of the Metropolitan Area and by development of the Channel Tunnel and consequential expansion of Maidstone, Ashford and Folkestone; the Rail Link will bring further opportunities for economic development. The Agency's planning liaison role is essential to ensure that the Agency's concerns are represented through the planning process and take account of the potential effects of new development. The challenge for the Agency is to ensure that it fulfils its regulatory duties at the same time as promoting environmental enhancement and sustainable development. The LEAP promotes the furtherance of the Agency aims and interests in the forward

planning and development control process and offers an additional opportunity to input into other authorities' plans and policies.

### 3.0 ENVIRONMENTAL ISSUES AND PROPOSED OPTIONS FOR ACTION

#### Introduction

This section of the LEAP details environmental issues directly concerning the Agency which the Agency considers need to be addressed within a future Action Plan for the Area. This initial list of issues has been identified from an Agency review of the environment together with the Area Environment Group (AEG) whose members represent a wide range of interests in the Kent Area. The Agency has also considered the concerns and aspirations of organisations with particular interests and responsibilities in the area.

Discussion meetings were held with the AEG and various departments of Kent and East Sussex County Councils as well as English Nature in Kent and Sussex. The Agency invited comment by correspondence with other organisations interested in the area and Appendix 2 lists organisations contacted during this preliminary consultation. Comments and ideas have been incorporated wherever possible and the Agency is grateful for the contribution of the time and effort of respondents and consultees.

The initial list of issues presented in this Consultation Draft is intended to encourage debate and to seek your views on the environmental issues which face the Kent Area. Many of the issues are inter-related and this reflects the need for integrated environmental management. The issues are presented in a summary and cross-referenced to our nine environmental concerns for action as detailed in the Agency's Strategy for the Millennium and beyond. The following section gives a background to each issue and suggests potential options for action. Further information is detailed in the Environmental Overview which can be obtained from the Agency if required.

*Costing of actions has not been attempted for this Draft but have been accorded High (H - above £250,000) Medium (M - £50,000 - £250,000) and Low (L - below £50,000). It has to be remembered that these are Agency costs.*

*It can be assumed throughout that the "Do Nothing" option incurs no costs at present which could be considered as an "advantage". However it has to be remembered that this is a short term situation only since the environmental issue is not addressed in many cases, and may only delay costs until a later date when it will have to be resolved.*

*In this Kent Area-wide LEAP the Agency has tried to address those issues which relate to the Kent Area as a whole or are of particular major local significance. Other local issues will be addressed in local catchment LEAPs.*

*The issues are not arranged in any particular order of relative importance but have been grouped in accordance with the Environment Agency's nine environmental concerns as listed in the "Environmental Strategy for the Millennium and Beyond" (Environment Agency, 1997).*

**ISSUES SUMMARY**

Environment Agency Concern*	Issue
Addressing Climate Change	1 Standard of flood and coastal defences will not be adequate for predicted effects of climate change
	2 Sustainable water resources management and the effects of climate change
Improving Air Quality	3 Need for increased knowledge of impacts of Agency regulated industrial releases on air quality
Managing Water Resources	4 Deterioration in the balance of water resources
	5 Forecast demand - growth; impact on the overall balance of public supplies
Enhancing Biodiversity	6 Protection and enhancement of biodiversity
Managing Freshwater Fisheries	7 Illegal movement of freshwater fish through Kent
Delivering Integrated River-Basin Management	8 Protection and enhancement of important wetlands
	9 Declining flows in Kent Area rivers
	10 Reduction in river baseflow producing a loss of dilution capacity
	11 Deterioration in the condition of land drainage
	12 Water quality improvements
	13 Improving bathing beaches
	14 Coastal oil pollution
	15 Recreational impact on flood defences
	16 Increased managed access to the water environment for recreation
	17 Pollution prevention
	18 Lack of knowledge of significant environmental issues in Kent Area
19 Development pressures and sustainable surface water management	

Environment Agency Concern*	Issue
Conserving the Land	20 Maintenance of existing flood defences
	21 Development pressures on environmental resources
	22 Contaminated land to be made suitable for development use
	23 Environmental impact of the Channel Tunnel Rail Link (CTRL)
Managing Waste	24 Sustainable waste management
	25 Waste management facilities
	26 Sites claiming exemption from waste management licensing
	27 Pollution from the metal recycling (scrap) industry
	28 Land application of sewage sludge
	29 Danger of contamination of potable water supply
	30 Sustainable management of landfill gas
	31 Risk of illegal waste disposal (flytipping)
Regulating Major Industries	No issues identified

\* From: An Environmental Strategy for the Millennium and Beyond (Environment Agency 1997)

**Issue 1: Standard of flood and coastal defences will not be adequate for predicted effects of climate change**

The predicted effects of climate change will be exacerbated in the south-east and this will have a particular impact on flood defence levels standard. The most recent predictions from the Climate Change Impacts Review Group (CCIRG) 'the 1996 CCIRG Scenario' indicate the following:

- temperatures increasing 0.2°C per decade
- increased rainfall in winter and reduced rainfall in summer, particularly in the south
- increased seasonal wind speeds
- sea level rise at rate of 6 cm per decade - exacerbated in the south and east due to sinking land

It can be inferred from the 1996 CCIRG scenario that riverine floods are likely to become more frequent. An increased intensity in summer storms may also increase summer flooding. However, the effects are very sensitive to the physical properties of a river catchment, for example, size, topography and geology, such that small changes may create significant impacts.

A rise in sea level creates an increase in the risk of coastal flooding and the overtopping of coastal defences. A small change in mean sea level can have a major effect on the risk of water levels exceeding a particular threshold and this risk would be further increased if storm frequencies increase. Therefore coastal defences will need to be enhanced.

The implications of the predicted effects of climate change in relation to flood risk will need careful liaison between the Agency, Local Authorities, developers and the public to ensure that existing development is secure and, perhaps more importantly, proposed new development does not exacerbate the existing situation by inappropriate location (see also Issue 19). Through the South East Coastal Group the Agency liaises closely with the other coastal authorities to ensure a consistent approach to coastal management.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Coastal Strategy Plans preparation	Identify significant risk areas and focus limited resources. Justify capital expenditure to MAFF	-	H	LAs
Work with LPAs to ensure development allocations are not made in high or predicted high risk areas	Reduce future risk	-	M	LPAs Insurance companies Housebuilders
Do nothing.	Short term cost savings	Significant risk of longer term flood damage to property and health and habitat - coastal squeeze on Special Protection Areas (SPAs)	L	-

**Issue 2: Sustainable water resources management and the effects of climate change**

The Kent Area has a legacy of over abstraction of water resources, particularly for public water supply, which has created an adverse balance of water resources with the reduction in the rate of natural replenishment. The situation is further exacerbated by the predicted effects of climate change. The likely effects with regard to water resources are as follows:

- increase in river flow in winter and decrease during summer
- decrease in summer rainfall
- increased winter rainfall and increased frequency of riverine flooding
- reduced groundwater recharge due to high evaporation and drier soils
- increased demand for public water supply and irrigation

These climate change effects are predicted to be more pronounced in the south and especially in the south-east. The particular vulnerability of water resources in the Kent Area has been highlighted by the recent droughts in 1995/96 and 1996/7. There is a clear need to address these effects of climate change strategically in order to promote sustainable management of water resources.

What evidence we have to confirm climate change points to a decrease in effective rainfall in parts of the Stour catchment and North Kent Chalk. If the general trend established over the last 30 to 50 years continues, we must expect to see a further

deterioration in the balance of resources with consequences for the water environment. It is assumed that continuation of the climate change process will be marked by further drought episodes of comparable, if not greater, duration and intensity than those experienced in the last 10 years. In this event the Agency will have an increasingly demanding role in exercising its Drought Order powers to reduce environmental stress and protect low flows. Water companies will continue to seek our support for relaxation of Minimum Residual Flows (MRFs) and other controls on abstraction. Drought experience shows that even under winter flow conditions there are important environmental constraints limiting the extent to which MRFs can be reduced.

Any increase in the frequency of severe droughts could also have implications for the operational management of the major public supply reservoirs. It was, for example, anticipated that with the commissioning of the Yalding intake, the Medway Scheme, based on Bewl Water Reservoir, could be operated as a single-year critical period system; one which would therefore be capable, under average flow conditions, of complete storage recovery during a winter following a severe summer drought. Recent drought experience throws some doubt on this assumption and the critical period for the system may prove in practice to be appreciably longer and this would in turn have implications for the future drought output of the Medway scheme as a whole. A similar situation could also be developing in some of the more heavily developed groundwater resource areas, particularly Darent and Cray, Medway Estuary, West Swale and East Swale areas, insofar as the long term average annual effective rainfall is proving insufficient to effect full recovery of storage following major summer droughts such as those of 1991, 1992 and 1995. As in the case of a surface reservoir, this would effectively extend the critical period of the aquifer system and this would in turn be reflected in a progressive long-term decrease in storage. In extreme cases this could amount to the "mining" of groundwater resources.

Attention will also need to be given to the impact of increasing drought severity on summer-period peak demand. The question will be addressed at least in part by the water companies' own demand management programmes and the Agency has a role here in monitoring their effectiveness. We will also need to be alert to any evidence of sustained increases in peak rates of abstraction for irrigation and other consumptive uses and this will necessitate stringent controls to ensure compliance with the terms and conditions of the relevant abstraction licences.

The Agency is working in partnership with the water companies and Office of Water Services (OFWAT) through the SE Water Forum to develop a water resources strategy for the south-east for the next 30 years. However, there is a growing need for a water resource management strategy in the Kent Area which recognises the particular stresses and strains for the Area from both climate change and proposed development. This will require close partnerships between the Agency, water companies, Local Authorities, industry, agriculture and conservation groups. Such a strategy would promote implementation of the south-east strategy; review and update the Kent policy; promote implementation of protection and enhancement of the water environment; and periodically review the balance of water resources.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Implement the Environmental Enhancement Programme. Retain part of water resource for environmental protection and enhancement	Remediate low flow problems. Protect water dependant habitats and species	Less water available for public supply.	H	Water companies/ OFWAT LPAs EN RSPB Local conservation groups
Periodic review of balance of water resources	Monitors and updates strategies - maintains efficiency	-	M	Water companies OFWAT
Do nothing	Low cost	Increasing imbalance in water resource and irreplaceable damage to environmental systems and habitats. Increasing supply restrictions - loss of aquifers	L	-

**Issue 3: Need for increased knowledge of impacts of Agency regulated industrial releases on air quality**

The UK National Air Quality Strategy sets out a framework for improving air quality through standards and objectives for specific pollutants to be achieved by the year 2005. The pollutants are sulphur dioxide, particulates (PM<sub>10</sub>), nitrogen dioxide, carbon monoxide, lead, benzene, 1,3-butadiene and ozone.

Local Authorities are responsible for implementing the AQ Strategy. Kent County Council has developed an Air Quality Management System (AQMS) in recognition of the need for strategic and integrated assessment in sustainable development planning, and in advance of government requirements. The Kent AQMS is used by land use and transport planners, environmental health officers and highway engineers. It brings together air quality monitoring and modelling, industrial air pollution control and transport management. The Kent Air Quality Management Partnership includes Kent County Council and the district councils with co-opted members such as the Environment Agency and National Power. This partnership developed the basis of the system - an emissions inventory, air quality monitoring and air quality modelling.

The Agency can assist Local Authorities through our control of emissions from the major process industries through Integrated Pollution Control (IPC) legislation. Traditionally IPC is site-specific but we are developing methods of best practicable environmental options (BPEOs), which consider the wider impacts on the

environment, with the major industries. The Kent Area is expecting a significant number of applications for IPC authorisations in the near future. Air dispersion modelling will allow an improved understanding of the impacts of Agency regulated industrial releases to the air and the surrounding environment. Modelling gives a better understanding of combined effects from multiple sources and allows better planning of the impacts of new processes.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Add air dispersion modelling to determination procedure for IPC authorisations where appropriate	Better understanding of total impacts of releases	Resources	M	
Setting emission limits from the Process Industries to assist in the implementation of the Kent Air Quality Management System subject to Best Available Technique Not Entailing Excessive Cost (BATNEEC).	Strategic management of air quality issues		M	Kent Air Quality Partnership Process Industries
Do nothing	Low cost	Risk of exceedance of air quality standards and increase in poor air quality episodes	L	

**Issue 4: Deterioration in the balance of water resources**

Deterioration in the balance of resources has proved detrimental to the water environment and to lawful water-use interests.

This is a legacy of historic water resource development in response to the increase in public water supply demand and this has led in turn to progressive depletion of river flows and water table levels for six resource areas; Eden, Darent and Cray, Medway Estuary, West Swale, East Swale and Thanet Chalk. Abstraction now represents at least 75% of the annual renewable resource. The corresponding aggregate licensed commitment leaves an environmental balance equivalent to less than 10% of the total that would have been available prior to any large scale development of the resource. This level is not sustainable and requires measures to restore a more equitable balance.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Implement any powers that arise from the current licensing review	Legislative requirement. More effective regulatory position	Potential delay	M	-
In the absence of new powers, test existing legislation to redress the water resources imbalance	Better understanding of environmental powers	Compensation costs	H	-
Do nothing	Low cost	No improvement in redressing balance	-	-

**Issue 5: Forecast demand - growth; impact on the overall balance of public supplies**

Forecast demand growth for the Kent Area can be compared with the estimated total available public supply capacity (Deployable Output). Factors include: Population increase/migration; Planned growth; Strategic developments (eg Thames Gateway); per capita increases.

Forecasts for the majority of Kent Area based water companies indicate growth in average-day demand (disregarding climate change factors) of approximately 1% per annum up to year 2021. Allowing for operational headroom this would probably require provision of additional supply capacity of more than 100 Ml/d over the next 20 years, assuming achievement of agreed leakage control and selective metering targets. This cannot be met by further development of groundwater or by increases on current rates of run-of-river abstraction. There are, in practice, likely to be very few options for the development of indigenous resources that would not impose further unacceptable stress on the water environment. The Agency's role therefore includes the promotion of the most environmentally cost/effective options for meeting demand growth and these will, in the first instance, be drawn from the list of schemes identified by the South East Regional Strategy Group.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Contribute to Regional role in the development and promotion of a SE Water Resource strategy	Essential for effective water resource management	Resources commitment of all parties is necessary	L	Water companies
Develop and promote Kent Area water resource management policy (in association with above)	Clear guidance for licensing control	Resources	L	-
Do nothing	Low cost	Failure to meet duties	-	-

#### **Issue 6: Protection and enhancement of biodiversity**

In order to meet the overall objectives of Biodiversity, whilst recognising its obligations to consider costs and benefits, the Agency has adopted the following policies:

- Priority will be given to achievement of actions required under the UK Biodiversity Action Plan (BAP) before resources are dedicated to implementing additional actions in Regional or County Biodiversity Action Plans;
- Unless there is clearly evidence to the contrary, the Agency will assume that maintenance of existing environmental standards is sufficient to provide the levels of protection required by individual species and habitat plans;
- In prioritising new and existing activities to meet actions under the UK BAP the Agency will, as well as considering relative costs, give priority firstly to these plans where Agency action is required to prevent a decline in status (rather than maintain the status quo or effect an improvement) and secondly, to those that are most dependent on the powers and expertise unique to the Agency.

The Agency is committed to full participation in the production of Biodiversity Action Plans for both Kent and East Sussex and is the lead agency for a number of key species and chalk rivers.

Deterioration in baseflows of chalk streams and other rivers such as the Darent throughout the Area originate from continued development of groundwater resources, primarily for public supply. The Agency's aim is to enhance baseflows to a sufficient degree to restore and sustain the natural characteristics of these watercourses and the species diversity of the constituent fauna and flora.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Implement the Agency's UK BAP commitments including national contact for shining ram's horn snail.	National priority. Protection and action where most needed	Resources	M	EN Wildlife Trusts LAs
Implementation of the Agency's commitments under the County of Kent BAP and support the preparation of the East Sussex BAP	Complies with UK BAP and legislative requirements		M	EN Wildlife Trusts LAs BAP steering group partners
Remediate priority river low flow problems	Protect and enhance water dependent habitats and species, including fisheries	Less water available for public supply	H	Water companies OFWAT LPAs EN Conservation groups
Conserve and improve the biodiversity and area of key wetland habitats, including through surveys, collaborative initiatives and continued support of countryside projects and Agri-environment schemes.	National priority. Protection and action where most needed.	Resources	M	EN Wildlife Trusts LAs
Prepare and implement catchment action plans for key species.	National priority. Protection and action where most needed	Resources	M	EN Wildlife Trusts LAs
Promote the protection and enhancement of river wildlife corridors, including, in collaboration with others, the control of invasive and alien species, such as giant hogweed.	Fulfils Agency duty to promote nature conservation. Protects and enhances native water related species. Safety benefits.	Resources	M	LAs Landowners
Improve the diversity of watercourses maintained by the Agency through sensitive flood defence management and consider restoration of degraded habitats.	Fulfils Agency duty. Protects and enhances water related habitat and species.	Resources	M	Landowners

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Manage Agency land holdings to enhance their biodiversity where compatible with operational activities, notably at Rye Harbour Nature Reserve and Ruxley Pit Site of Special Scientific Interest.	Protects and enhances water related habitat and species	Resources	M	Countryside projects Angling Clubs
Do nothing	Low cost	Non-compliance with UK strategy	-	-

**Issue 7: Illegal movement of freshwater fish through Kent**

Given Kent's position relative to mainland Europe there is a perceived increase of the illegal importation of large carp and exotic fish. The Centre for Environment, Fisheries, Aquaculture Studies (CEFAS) is charged with regulating importations into the country and introductions to designated fish farms. The Agency's remit is to regulate the introduction of fish into inland waters. Due to weak and slightly non-complementary legislation both organisations are not being as effective in their enforcement as they could. Illegal introductions of fish into the wild particularly continental and/or exotic fish can lead to the spread of disease, loss of genetic integrity, over stocking or degradation of ecology of water.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Continue to input into the current fisheries legislative review to provide integrated, effective statutory powers and influence the results.	Better protection of fisheries	Long time scale, reorganisation training	M	Government MAFF Review Group
Set an intelligence database to increase proactive targeting of illegal activities.	Improved information gathering	Continuous updating needed	L	CEFAS Fishing Clubs
Do nothing	No cost	Risk to fisheries	-	CEFAS

**Issue 8: Protection and enhancement of important wetlands**

Significant areas of the traditional wetlands of Kent especially in the internationally recognised sites of the North Kent marshes have been altered or lost to industrial development and agricultural improvement schemes. Significant new pressures will

arise from the Channel Tunnel Rail Link and associated developments and it therefore becomes even more important to ensure that water levels are maintained in those protected areas such that the UK can meet its international commitments to protect and enhance wetlands and the species they support.

Important wetlands are defined in this section as those designated for protection by national or international legislation or those which support species given protection. Such wetlands include wet areas which may be lakes, ponds, rivers or streams. The Agency has legal obligations for the protection of wetlands under the Conservation (Natural Habitats) Regulations, 1994 and the Environment Act 1995. Although many important wetlands are now protected through some form of designation, they still require management to sustain their viability. The Agency recognises this through its own operations and supports necessary management through other mechanisms. However the Agency is only preparing Water Level Management Plans for important wetlands where it is the operating authority and advising others where its interests are likely to be affected.

This can be illustrated by the condition of a number of Chalk and Lower Greensand streams, where falling water-table levels have led to substantial reductions in baseflow. Examples include the Darent, Little Stour, Great Stour, Dour and most of the streams which formerly drained the dip slope of the North Downs.

In all instances, deterioration in the flow regime originates from the high levels of abstraction for public supply from boreholes penetrating the underlying Chalk or Greensand aquifers. The resultant decrease in spring flows which formerly sustained these streams for much of the year has reduced their ecological and recreational value as evidenced by a general impoverishment of habitats and a decrease in species diversity. Their vulnerability has been further highlighted by the severe drought episodes experienced in recent years when long sections ran dry and the Agency was obliged to undertake emergency measures to augment flows and carry out fish rescues. There is increasing concern that with future repetition of drought conditions we will see an irreversible deterioration in river and bankside habitats.

The Agency performs a number of resource-management roles relating to the need to satisfy a wide range of amenity and conservation interests dependent on the maintenance of flows and/or levels in watercourses and other bodies of controlled water throughout the area. Each class of site displays a characteristic water regime and associated habitats and their viability will depend on the sustainability of the balance of water resources.

We can recognise three principal categories:

- (1) Water-Dependent SSSIs - including the River Beult, Stodmarsh, Medway Estuary and North Kent Marshes.
- (2) Conservation Sites - Under the EC Habitats Directive, the Agency has a duty as a "Competent Authority" to review any active licence or consent likely to

impact adversely on an SPA or SAC. The outcome may in some instances indicate a need for a modification or revocation of the authorisation.

- (3) **Low Flow Alleviation** - The national programme includes 3 Kent rivers (Darent, Little Stour and Dour) designated as requiring remedial action to enhance low flows. Future additions to the programme could include a number of North Kent Chalk streams identified under AMP3.

In all instances the deterioration in the baseflow regime originates from historic development of groundwater, primarily for public supply. The Agency's aim is to enhance baseflows to a sufficient degree to restore and sustain the stream's essential natural characteristics and the species-diversity of the constituent fauna and flora. (By way of example, the objective of the Darent Action Plan is to establish a sustainable Brown Trout population).

All three categories require additional resources to be reserved for environmental protection or enhancement and these must therefore be taken into account in the management of the water balances for the respective catchments.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Retain proportion of water resources to sustain water levels, spring flows and wetland storage	Protection of important wetlands including River Beult SSSI and North Kent marshes	Cost	H	Water companies EN LPAs Landowners
Comply with obligations imposed under the Habitat Regulations, including review of environmental controls and support for a management agreement for the Thanet Coast Special Area for Conservation.	National obligation. Protect and enhance designated areas. Fulfil duty under Habitats Regulations	Potential conflict between environmental and economic considerations. Resources	M	EN Interest groups
Improve water regime management for important wetlands	Protect and enhance designated areas	Potential conflict between habitat requirements of different species	H	Water companies EN Landowners
Flow/level improvements by implementation of Water Level Management Plans (WLMPs)	Protect and enhance designated areas		H	IDBs EN Landowners RSPB FRCA
Environmentally sympathetic approach to land drainage and dredging	Protect and enhance designated areas		M	IDBs Landowners FRCA

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Produce in collaboration with English Nature River SSSI conservation strategies and consenting protocols.	Protect and enhance designated areas	-	L	EN
Identify important headwater streams and investigate opportunities for protecting their conservation interest.	Protect and enhance water related habitats and species	-	M	Wildlife Trusts,
Support collaborative projects, such as management of Stodmarsh Nature Reserve.	Protect and enhance water related habitats and species	-	M	EN
Do nothing	Low cost	Loss of wetlands	-	-

**Issue 9: Declining flows in Kent Area rivers**

The Kent Area suffers from a legacy of historical over-abstraction from the chalk and greensand aquifers for public water supply. This has led to the progressive depletion of river flows and water table levels particularly in North Kent. The situation is now becoming exacerbated by the effects of climate changes and is manifested in several ways.

The depletion of groundwater storage has led to the loss of baseflow in the spring-fed streams. This problem was identified by the NRA in 1993 with the list of 40 priority rivers in the UK requiring measures to alleviate low flows. This national list includes the rivers Darent and Little Stour which are currently subject to remedial actions. Subsequently the River Dour and the North Kent Streams are considered to be suffering significantly from loss of baseflow.

Depletion of water table levels and spring flows has resulted in the degradation of wetland habitats and a reduction in species diversity. The most vulnerable areas in this category include the North Kent Marshes.

The reduction in river baseflow has meant a loss of dilution capacity of receiving waters in the vicinity of effluent outfalls. Significant areas of concern include the Upper Great Stour at Bybrook and the River Beult at Headcorn.

Thus there is a need to restore and improve river flow, particularly in rivers in the North Kent area but also throughout the Area with rivers of environmental sensitivity.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Implementation of schemes in the national alleviation of low flow (ALF) programme	Restoration of flow in Darent and Little Stour enhances biodiversity, ensures suitable weed growth encouraging ranunculus and maintains oxygen levels for fish and invertebrates	-	H	Water companies EN LAs Conservation groups
Locally promoted ALF schemes	As above Dour, North Kent chalk streams and lower Rother	-	H	As above
Do nothing	Low cost	Failure to meet duties	-	-

**Issue 10: Reduction in river baseflow producing a loss of dilution capacity**

For many spring fed streams groundwater abstraction has led to a substantial reduction in the volume of water available for the dilution of waste water treatment works (WTW) effluent. In some cases this has been exacerbated by drought conditions and with the prospect of future climate change there is a likelihood of further deterioration in the dilution capacity of receiving waters.

Rivers such as the Beult with relatively impermeable catchments are particularly vulnerable in this respect in the sense that summer flows in their headwaters are supported almost entirely by small rural treatment works and this has the associated problem of nutrient enrichment. Effort needs to be applied to ensure continuity of flow and improvement in effluent quality with special attention to phosphate level.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Define Q95 target flows necessary to achieve RQO at key sites and take action to attain these (eg by augmentation or abstraction reduction) via periodic review and/or Section 20 agreements	Sustainable option in line with Agency Environmental Action Plan objectives	High capital costs	H	English Nature Water companies
Promote and support a water services WTW policy based on retention of dispersed treatment plants. (Oppose diversion and concentration of WTW at downstream sites)	Sustainable option in line with Agency Environmental Action Plan objectives	High capital costs	H	English Nature Water companies
Do nothing	Cost	Failure to meet Agency action plan objectives	-	-

**Issue 11: Deterioration in the condition of land drainage**

Many of the marshes and levels in Kent are drained by artificial drainage systems which often discharge to pumping stations. Many of these pumping stations were constructed during the 1960s and 1970s and are now reaching the end of their working lives. It may be difficult to prove sufficient benefit to warrant rebuilding and the associated running costs in certain locations. A strategic review would identify the present problems, the long term objectives, provide options and assess funding arrangements. The agricultural, environmental, economic and engineering issues are considerable. However, the appropriate allocation of resources needs to be determined before the condition of pumping stations becomes more critical.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Strategic review of the land drainage pumping systems in Kent Area	Reliable control of flood waters	Resources and cost	H	IDBs LAs EN Landowners and farmers
Review pumping procedures to ensure there are no adverse environmental impacts	Avoid damage to fish, invertebrates etc	Resources and cost	M	IDBs
Do nothing	Low investment for Agency	Risk of failure	-	-

**Issue 12: Water quality improvements**

In recent years there has been seen a reduction in the compliance of Kent's rivers with the River Ecosystem classification. This measures the health of the river in terms of its chemical constituents. This fall in compliance is predominantly due to reduced rainfall and lower river flows, thus resulting in less dilution for effluents that are discharged into the rivers. The effect of less dilution is expressed as lower levels of oxygen in the rivers.

There are also pressures from diffuse pollution in the form of urban and road run-off and land drainage containing soil particles and pesticides from agricultural land.

Improving the quality of the water in the rivers and streams in Kent is a high priority. Data from the various sampling programmes must be managed so that it provides information on the action the Environment Agency can take to bring about improvements to water quality. These improvements need to take account of the physical condition of the water; eg the amount of suspended solids, the water chemistry including the concentrations of hydrogen ions (pH) and the biological quality relating to living organisms within the water. There are various standards which the Agency can use to measure the quality of water, some statutory and some discretionary. Details on these measures are to be found in the LEAP Environmental Overview.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Significant combined sewer overflows currently being negotiated through AMP3	Improved water quality. Aesthetic and recreational enhancement	Cost	H	Water Companies LAs
Advise and encourage farmers and others to minimise pollution from fertilisers and pesticides	Improved water quality	Cost	L	Landowners and farmers NFU MAFF

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
and encourage Buffer Zones. Promote publication of successful prosecutions.				Highways Authority Railway operators
Advice on and encourage liquid effluent reduction through minimisation and recovery techniques and reduced water usage	Improved water quality and reduced water consumption	Resources	M	Industry
Initiate a ground-water monitoring programme	Early warning of deterioration leading to improved investigation. Improved groundwater models	Resources	M	Water companies
Publish annually a report on the physical, chemical and biological water quality of watercourses within the Kent Area, including analysis and recommendations	The report will supply information which will allow us to target resources which most effectively improve water quality	Resources	M	
Study the relationship between the quantity of water and the quality and produce a report or feed information into appropriate forums	Decisions on consent conditions and water uses will be informed by sound science	Resources	M	Water companies Industry
Do nothing	Low cost	Degraded environment. Costs of remediation	-	-

**Issue 13: Improving bathing beaches**

It is important that beaches that are frequently used by bathers are clean and free from harmful levels of bacteria and other contamination. A European Union Directive requires the Competent Authority in each Country to nominate such beaches so that they can be designated as bathing beaches and monitored and the quality of water improved over time. The Department of Environment, Transport and Regions (DETR) and Welsh Office have nominated 419 coastal or estuarine sites within the UK, 27 of these are within the Kent Area. In addition to the designated beaches in Kent the Agency sample another 11 under discretionary powers.

These bathing waters are sampled for bacteria and certain viruses, principally from sewage, during the bathing season. The levels of bacteria have to meet statutory targets for water quality. Any individual failure of a sample to meet these targets is investigated and if a certain percentage of results fails to meet the target, the beach is classified as failing to meet the required standard for water quality. The Environment Agency's Ten Point Action Plan Targets for 1998/99 has as a short term target: "Deliver a substantial improvement in bathing water compliance from current levels".

The one beach within the Area that has recently failed is Folkestone and this will be remedied by the construction of a new sewage treatment scheme at a cost of £126 million. The Folkestone/Dover Scheme is due to come on line in time for the year 2000 bathing season.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Act in response to all bathing water individual sample failures by investigating the cause within 48 hours, in the same tidal conditions where possible	Prompt investigation of individual failures leading to a minimum number of overall beach failures	Resource demand	M	Water company LAs
Improve the aesthetic quality of bathing beaches by undertaking visual monitoring on a monthly basis and liaising with the Local Authority and water company to clear up any sewage debris	Clean beaches. Good public image	Resource demand	M	Water company LAs
Do nothing	Zero resources	Failure to meet EC Directive, poor quality bathing beaches and public concern		

**Issue 14: Coastal oil pollution**

Kent Area has one of the busiest shipping lanes in the UK just off its shoreline and many of the shipping carries potentially polluting cargo such as oil and chemicals. Historically the Kent Area has played a leading role in developing expertise in dealing with oil spills and this has led to Kent staff assisting the Welsh Region in the clear up operation that followed the Sea Empress oil tanker disaster. Acting quickly and competently in response to such disasters is essential in minimising the environmental effect. It is essential that the Environment Agency works effectively with other interested parties such as Local Authorities and the emergency services. This will only happen if we have suitable plans in place.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Develop oil pollution plans in conjunction with key partners concentrating on harbours, estuaries and ports	Quick and effective responses when major oil pollution events occur	Resource demand	H	LAs Industry Port and Harbour Authorities EN
Develop a centre of expertise in oil pollution prevention	Staff with a high degree of expertise and readiness available for events inside or outside Kent Area	Resource demand	M	LAs Industry Port and Harbour Authorities EN
Do nothing	Zero resources	When there is a major oil spill off the Kent coast we will be unprepared. We will be unable to assist other regions in dealing with major oil spills. We will lose our expertise.	-	-

**Issue 15: Recreational impact on flood defences**

The Agency has a duty to promote the use of water and associated land for recreational purposes where desirable.

The Agency is one of a number of organisations which carries out operations on river, tidal and coastal defences.

Land based recreational activities, such as cycling, walking and horse riding are frequently drawn to the water's edge (an example is the cycling charity Sustrans which has been awarded a lottery grant to assist in the proposed national cycle route. Much of the national route in the Kent Area follows the coast). These activities may interfere with operations, cause damage to flood banks or may present a risk to public safety.

There is a need to investigate the impacts of recreation on flood banks and to establish guidelines that will promote the provision of recreational facilities that are not detrimental to the structures. This is currently being addressed through the Agency's own Research and Development 'Sustainable Recreational Use of riverine, Tidal and Coastal Flood Banks, Phase I'.

A code of practice would provide practical advice and information for those involved in the construction and maintenance of paths which run along or over flood defence banks, walls or other structures. The code of practice would be distributed widely to Local Authorities and voluntary groups. A more detailed assessment of the present problems may be required with associated investigation costs.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Implement R & D findings through a code of best practice.	Practical advice and information. Allow recreational activities to be promoted in appropriate areas using best practice designs	Public safety	M	LAs Voluntary groups Sustrans
Do nothing	Low cost	Risk of damage to flood defences. Public safety. Recreational activities not promoted.	-	-

**Issue 16: Increased managed access to the water environment for recreation**

The Agency has a commitment 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 and the Agency can ensure that provision for improved access is made or protected with new developments. Many areas of the Kent coast are in need of economic support and enhancement of facilities such as moorings, which are in short supply along the south coast, can be important for local economies. All such developments have to be carefully planned to ensure that issues such as safety, landscape and other users are taken into account.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Work in collaboration to produce access strategies to rivers and waterbodies	Identifies appropriate access which is optimised and integrated with other strategies and plans.	Safety considerations. Agreement of landowners.	M	LAs Landowners British Canoe Union (BCU) English Sports Council (ESC)
Consider development of a mooring and launch point strategy	Promotion of recreational facilities	May be incompatible with other users and aesthetic quality of riverscape	H	LAs RYA ESC Local clubs
Do nothing	Low cost	Failure to fulfil Agency Duty. Degradation of water edge sites	-	

#### Issue 17: Pollution prevention

In 1997 there were fifty three major pollution incidents in the Kent Area, ranging from overfilled and leaking oil tanks to major leaks of harmful chemicals into rivers and streams. Modern life is dependent on chemicals and where there are chemicals there is a danger that spillage, leakage or misuse will occur. Such releases of some of the more harmful chemicals such as pesticides can have a very serious effect on the environment, killing fish, affecting water supplies and destroying the ecological balance of water habitats. Pollution incidents can also be caused by sewage, road accidents involving the release of fuel or harmful cargoes and farms through silage and slurry. In addition there can also be underground incidents from leaking fuel tanks and lines, leaking solvents or poor drainage proposals.

Almost any significant spillage of harmful material will find its way quickly into one of the hundreds of streams or rivers within the Kent Area. Once there the material will rapidly move down stream towards larger rivers and water used for human uses. Polluting spillages also seep into the ground where they can impact on the water table and can be drawn into borehole abstractions. It is therefore essential that pollution is prevented where possible.

It is essential that the Environment Agency addresses the causes of pollution and takes whatever preventative action is appropriate in the circumstances. Pollution prevention is generally far cheaper and less damaging than addressing the effects of pollution and for this reason it must form a priority in the Kent Area. The Environment Agency's Ten Point Action Plan for 1998/99 has as a short term target "Achieve a 5% reduction in substantiated water pollution incidents from oil and construction sectors". It is therefore recognised nationally as an issue that requires action.

Reducing the number of substantiated pollution incidents is, to an extent, dependent on awareness of the public of the Agency's role and Pollution Hotline telephone number (0800 80 70 60). Greater awareness may lead to more calls and more substantiated pollution events. However, we will seek to obtain information that takes this into account.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Analyse existing information on pollution incidents to identify key industries for a campaign of visits	"Intelligent" application of resources to apply education, information and best practice at key industries to reduce the number and seriousness of pollution incidents	Resources	M	-
Set up partnerships with key industry groups to address pollution incidents through dissemination of best practice. Review the effect of the Agency's action on the type and number of pollution incidents.	Tackles the problem of pollution by involving the key industries, sets up a partnership approach, likely to gain commitment	Resources	M	Industry Agriculture Water Companies
Do nothing	No resource demand	Financial and environmental costs of pollution	-	-

**Issue 18: Lack of knowledge of significant environmental issues in Kent Area**

Good awareness of educational issues is of paramount importance for successful environmental management. It is vital to educate and influence individuals, groups and industries to promote best environmental practice. The Agency will work in partnership with statutory and voluntary groups to carry out improvement projects and to develop a wider public awareness of environmental issues. The Agency will also work through schools and other education establishments to develop in students an ethos of caring for the whole environment.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Ensure adoption of the Agency's LEAPs and that Action Plans are made available to all interested parties, and the implementation of all actions identified is monitored and reported upon.	Increased environmental awareness, LEAP documents are actioned	None	L	All
Actively participate in Local Authority Local Agenda 21 Action Plans	Increased communication and joint projects	None	L	All

**Issue 19: Development pressures and sustainable surface water management**

Surface water run-off from existing and new development needs careful management to ensure that there are no increased risks of flooding, pollution nor adverse effects on nature conservation. Surface water run-off from developments may be stored in 'balancing' or flood attenuation ponds to be discharged at a later time. This reduces flood risk by reducing peak high flows in rivers. There is concern at the possible proliferation of such ponds and lack of maintenance and management. New developments can offer opportunities for creative design, appropriate to urban, suburban or rural environments, which will enhance conservation and recreation. Thus there is a need to promote the strategic planning of surface water management.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Review management of existing flood attenuation ponds and develop maintenance strategy	Baseline information identifies problems and indicates options for resolution		H	LAs Water Companies Developers Public
Liaison with farmers to encourage erosion reduction.	Less deposition of silt		L	Farmers
Educate and encourage best practice through publicity seminars and workshops	Improved environment and reduced pollution and flood risk	Resources	L	Farmers
Undertake Section 105 surveys of flood vulnerable sites with modelling	Improved Agency advice on flood vulnerable sites	Lack of up to date flooding information	H	MAFF Local people

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Implement any recommendations from the Agency review into the Easter 1998 flood events in the Midlands.	More effective liaison between Agency and local activities. More sustainable development	Resources	L - H	LPAs
Investigate opportunities to utilise valley flood plains for flood storage, wetland habitat creation and aquifer recharge, through a multi-functional project team	Effective water management. Flood defence, water resources and conservation benefits	Resources	H	LAs Landowners
Do nothing	Low cost	-	-	-

**Issue 20: Maintenance of existing flood defences**

Maintenance of sea defences, by the Environment Agency, is presently being reviewed under the Flood Defence Management System. The economic costs of maintaining these defences is being assessed in relation to the importance of the land protected from flooding in the context of sea level rise.

Areas protected by these defences, particularly along the North Kent coast, are often important conservation sites, including SPAs, SACs or SSSIs and used extensively for farming. The nature conservation special interest and farming interests would be significantly affected by any decision to abandon or reduce the level of sea defences. However, on a financial basis it may be difficult to justify continued maintenance of sea defences which only protect grazing marsh, since the economic value is limited.

A strategic review of priority nature conservation areas requiring protection from sea defences would assist the Agency in the review of defences. This will need to balance both protected habitats on the seaward and landward sides of defences, ie coastal squeeze of habitats vs loss of landward habitats.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Strategic review of defences unlikely to justify continued maintenance in order to determine a policy for defence of conservation areas	Assist in deciding which conservation areas should be defended	Effects on farming resources and cost	M	EN Landowners Farmers
Do nothing	Low cost	Change of habitat/ coastal squeeze	-	-

**Issue 21: Development pressures on environmental resources**

The extent of development proposed, principally from the DETR housing allocations but also including major industrial and transport pressures such as waste to energy plants and the Channel Tunnel Rail Link (see Issue No. 23), is placing particular pressure in Kent on environmental resources which are already under stress.

There is a need for us to work closely with Local Authorities and developers to ensure that development is not located in sensitive areas. We are concerned that the natural functioning of floodplains should be restored and, together with the predicted effects of climate change, development should be discouraged from areas at risk from riverine and coastal flooding.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Prioritise groundwater protection zones 1 and 2 in line with national guidelines in order to visit sites to assess the risk to groundwater pollution.	Seeks to minimise environmental risk	Resources	M	Industry Agriculture Developers
Assess the effectiveness of planning comments made by the Agency through monitoring of planning application decision notices.	Improving the effectiveness of comments and environmental protection	Influence in the planning process is below desired level	L	LPA
Monitor effectiveness of comments and recommendations made by the Agency to Local Authority Development Plans and Structure Plans.	Improving the effectiveness of comments and environmental protection	Influence in planning process is below desired level	L	LPA
Do nothing	No cost	Environment under continuing pressure	-	-

**Issue 22: Contaminated land to be made suitable for development use**

Land contamination can present a pollution risk to human health, ground and surface water, ecology and the built environment. Government is committed to the "*suitable for use*" approach and a risk assessment framework. Existing contaminated land sites offer, once suitably remediated, an opportunity for redevelopment. This helps conserve land as a resource and reduces pressures on greenfield sites, thus conserving agricultural land and natural habitats. The aim is to ensure that sites presenting the

biggest risks are dealt with first, and that risks are assessed in relation to the intended use of the land.

There are difficulties with the redevelopment of contaminated land. Remediation of the land may pose some risks to the environment so that the need for proper control during redevelopment falls into the definition of controlled waste and is subject to waste management legislation.

The Kent Area has a significant industrial legacy in the north. The increasing demands from development, especially housing, and anticipated Government guidance are creating additional attention on contaminated land.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Strategies to be prepared in conjunction with partners to identify and remediate contaminated land	Presents opportunity to meet housing needs on brownfield sites as set by Government. Allows full consideration of environmental issues of development on such sites.	Extent and number of such sites is not known. Decontamination may be expensive. Redevelopment may involve moving pollution from one site to another.	H	English Partnerships DETR LAs Industry Groundwork
Do nothing	Sites may have stabilised in respect of pollution and redevelopment may lead to reactivation of the pollution unless carefully controlled.	Sites remain as potential health and pollution risk. Pressure continues for green field development. Potential value of land not realised.		

**Issue 23: Environmental impact of the Channel Tunnel Rail Link (CTRL)**

The CTRL will be one of the UK's largest civil engineering projects and will be the largest railway development since Victorian times. At 108 km long it will cross the Stour, Medway and North Kent catchments. Whilst the alignment of the railway is now decided and approved, the Agency will continue to be consulted by both the developer and LPAs with respect to detailed design on environmental, conservation and recreation issues and will approve matters affecting groundwater, land drainage, flood defence, water resources and fisheries.

A large number of permits such as waste management licences and discharge consents will be required from the Agency prior to construction of the CTRL in order to control the activities. The need for these to be in place within a short timescale will place a high demand on staff resources during this period. During construction of the CTRL an Agency representative will ensure compliance with design details and approvals/consents granted by the Environment Agency. It will be essential that the Agency continues to liaise with the developer during preparation of the design and through to completion of the project to maximise enhancement potential and minimise risk to the environment.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Liaise with LPAs and developer to optimise environmental design, detailed routing to avoid sensitive habitats, landscape features and heritage sites	Ensure Agency objectives are achieved	Resource implications	M	Developers LPAs
Liaise with developer and operator to ensure protocols are produced for environmental protection	Minimise effects of accidents and control application of herbicides	Cost of emergency pollution containment facilities	M	Developer Operator
Do nothing	No immediate resource requirement	Increased risk of pollution and lack of mitigation with corresponding additional resource requirement	-	-

**Issue 24: Sustainable waste management**

In 1995, the Government published "Making Waste Work", a non-statutory document outlining the Government's policy for the sustainable management of waste. The document set targets in order to reduce the amount of waste that society produces, to make the best use of what is produced and to choose waste management practices which minimise the risk of environmental pollution and harm to human health. The document introduced the concept of the waste hierarchy and set the objective of increasing the proportion of waste managed by options towards the top of the hierarchy.

The Agency's principal aim is to make a contribution towards attaining the objective of achieving sustainable development. The Kent Area therefore has a role to play in helping the Government to achieve this strategy but it has to be recognised that the Agency is not the only player and that industry and society, as the waste producers, also have a role.

In order to improve our understanding of waste management and to enable the Government to develop a statutory waste strategy under the 1995 Act, the Area will carry out a survey of waste arisings at selected waste producers.

In our regulatory role we look at waste once it has been produced. The Agency wishes to encourage waste minimisation - ie the efficient use of resources by waste producers in the Area. We will do this by giving advice to waste producers on waste reduction and minimisation and encouraging process efficiency. In addition we will encourage better waste management (eg waste segregation and re-use) in order to move waste up the hierarchy. Similar actions are also applied to waste brought through the Kent Area under the transfrontier shipment regulations.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Carry out a waste survey	Gains understanding of waste produced in Area and processes involved. Identifies problem waste streams for recovery, recycling and disposal. Gives greater access to producers and allows dissemination of waste minimisation and waste management advice	Only looks at a small proportion of waste resources. Need to balance priority with regulation to prevent pollution of wastes actually produced. Requires resources.	M	None Requires co-operation from industry
Education campaigns	Tackles waste at source at top of waste hierarchy prior to waste production. Environmental benefit	Resources. Balance of priority with end of pipe controls. Difficult to quantify and assess impact and value for money	M	LAs Public Industry
Evaluate impacts of existing campaigns such as Medway and Swale Waste Minimisation Project	Assesses value for money, environmental gain, understand changes leading to best practice and examples to enable better promotion of projects in future	Resources	M	LAs Public Industry

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Introduce the emissions, economics and efficiency (3 Es) project to the area which promotes new cleaner techniques within industry	Established technique with regional expertise which should lead to companies finding new, cleaner ways of working	Resources	M	Industry
Collaborative projects for waste minimisation, industrial - commercial sector	Encourages voluntary environmental improvement. Builds on work already undertaken by others in this field	Resources	M	LAs Industry Sustainable Business Partnerships
Assess quantity of green list wastes transported through the Kent Area and ensure they are properly classified to avoid illegal activities	Ensures that only appropriate waste is imported under the transfrontier shipment regime	Avoid illegal disposal	M	Ports Customs & Excise
Do Nothing	No additional cost as no resource requirement	No impact on source of pollution as not tackling root cause of pollution; only 'end of pipe' solutions via regulation. Environmental costs not encouraging voluntary environmental improvement	-	

**Issue 25: Waste management facilities**

The deposit, keeping and treating of controlled waste (ie household, industrial and commercial waste) is regulated through the waste management licensing system under the Environmental Protection Act 1990. The waste management licensing system seeks to prevent pollution to the environment, harm to human health and serious detriment to the amenities of the locality and to ensure that licences are issued to "fit and proper" persons. The need for new facilities is decided through the land use planning system by planning authorities. It is often said that there are not enough facilities for the disposal and recovery of waste in the area and that more are required.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Analyse licensed capacities and facilities available for deposit, treatment and keeping of waste	Added value to public register and information provisions	Resources Information can be found via detailed assessments of register	L	-
Do nothing	Low cost	Increased use of existing sites	-	-

**Issue 26: Sites claiming exemption from waste management licensing**

In May 1994 the Environmental Protection Act 1990 and the Waste Management Licensing Regulations 1994 brought in tight licensing controls to a wide range of sites that deal with waste. The holders of a waste management licence must be fit and proper; ie without relevant convictions, technically competent and with adequate finances to meet their obligations under the licence. Licences contain many strict environmental controls to ensure that the activity does not lead to pollution of the environment, harm to human health or serious detriment to the local amenity, and these controls are regularly enforced through site inspections. The Agency receives fees for the licensing of sites and for the inspections undertaken.

The 1994 regulations also specify activities that are exempt from the need for a licence because they are generally re-using waste or putting it to beneficial use, or because they are intended to be small scale activities that have a low pollution potential. The control of a waste management licence would be onerous for businesses in such circumstances. Examples of exempt activities are the application of certain wastes to agricultural land to beneficially condition the soil, and the storage and treatment of recyclable materials such as paper, card and plastics.

Other than metal recycling sites (see Issue No. 27), exempt activities do not pay fees to the Agency and this lack of funding means that resources are not available to regularly inspect these activities; they are also not subject to the Landfill Tax. It is not surprising therefore that these activities are now common and that in some cases the rules are being broken.

Key exemptions that are being claimed but are not necessarily being complied with have a high potential pollution risk. These include those that involve the deposit of waste on land, and there are three relevant exemptions: the spreading of controlled waste on land for agricultural or ecological benefit (exemption 7), land reclamation (exemption 9) and the use of waste for construction work (exemption 19).

A system of internal consultation has been developed and implemented to deal with the registration of activities under exemption 7, in order to minimise pollution risks through appropriate site selection. This pro-active system works effectively but is resource intensive. It does not fully address whether the exemption is being complied

with respect to the requirement for the activity to be of agricultural or ecological benefit, and whether the relevant objectives will be met in practice.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Influence Government through national groups to obtain amendments to exemptions to require the payment of fees	Resources should then be available for effective regulation	None		
Develop and implement a system of registration for exemption 9 and 10 that follows the system set up for exemption 7.	Pro-active reduction of pollution potential	Resource demand	L	LAs
Prioritise exempt activities at the point of registration, inspect higher priority sites and assess compliance with the "relevant objectives" as set out in the 1994 regulations	Sites will be subject to inspection and control. Fairness to licensed operators. Landfill Tax being properly paid.	Large resource demand	M	Customs & Excise LAs
Develop and implement a programme of sampling at sites where agricultural benefit is alleged	Greater knowledge of potential pollution, damage to land	Resources	M	
Set up a series of seminars or demonstrations of good practice in the spreading of waste on agricultural land	Simple practical advice can help reduce some of the main sources of complaint such as odour	Resource demand	L	Farmers Commercial waste spreaders Agricultural Development and Advisory Service
Do nothing	No immediate resource demand	Pollution from sites and unfairness to those operators who are operating licensed sites adequately and paying fees. Avoidance of Landfill Tax		

**Issue 27: Pollution from the metal recycling (scrap) industry**

In 1994 it was estimated that there were approximately 200 metal recycling sites (MRS) within the County of Kent. The new Kent Area probably has approximately 250, although this is an estimate. Metal recycling plays an important part of sustainable development, but it also has the potential to cause pollution. Oil, battery acid and heavy metals such as lead and cadmium are the more obvious potential pollutants at such sites. However there are less obvious dangers from asbestos, usually in the form of pipe lagging and vehicle brakes, solvents, radioactive sources such as from military items and polychlorinated biphenyls from electrical industrial appliances, all of which are potentially very harmful. Many scrap metal sites are not situated on adequate surfaces which are properly drained and they can be operated in a substandard way. Confirmed planning permission is required before a waste management licence can be issued and lack of this can create a problem when attempting to bring these sites under regulatory control.

Legislation requires metal recycling sites to be controlled by a waste management licence or to comply with an exemption from licensing. Licensed sites are subject to tight environmental controls set by the Agency and are regularly inspected for which income is received. Exempt sites should comply with general requirements set down in a Statutory Instrument regarding drainage and activities to be undertaken. These sites should be visited annually, with a fee to cover the inspection.

Prior to the Environment Agency, resources were not available to deal effectively with this large workload and the result is that most of the 250 sites are not being properly controlled. This also gives rise to inequalities or unfair competition such as where there are two adjacent MRSs; one licensed and required to spend money improving the site infrastructure and the other escaping without this. This makes the metal recycling industry a serious issue for the Kent Area and one which will be dealt with.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Survey the Kent Area using contacts in Local Authorities, Yellow Pages, etc to establish the names and of all MRSs in the Area. Inspect all the facilities to establish basic information with which the Agency can prioritise and quantify workload. Develop, implement and review an Action Plan to obtain adequate applications for licences or exemptions for the higher priority sites.	Good quality information on which to base decisions. Prioritisation of a large workload to target the biggest pollution threats. Positive action to regulate the industry, reducing pollution.	Resource demand	H	LAs
Do nothing	No resource demand	Pollution from sites and unfairness to those operators who are operating adequately, installing site infrastructure and paying fees. Failing in statutory duty.	-	-

**Issue 28: Land application of sewage sludge**

Sewage sludge that is deposited on land for agricultural benefit in accordance with relevant legislation is not a controlled waste and is therefore not subject to waste management controls. Land application of sewage is likely to increase over the next few years due to increasing landfill costs and cessation of sea disposal for untreated sewage. Consequently effective regulation by the Agency is necessary to ensure that any spreading is for the purpose of benefit to agriculture and not merely a disposal operation, and that it is carried out without harming the environment. Careful monitoring is required to ensure that this procedure does not represent a hazard to health via the food chain. This method of waste management has the potential to cause serious pollution if not properly managed and controlled. This activity will increase in the Kent Area, with UWWTD and will require careful regulation through the Sludge (Use in Agriculture) Regulations 1989. The Agency's role in enforcing these regulations is limited to ensuring that there is no build up of heavy metals in agricultural soil through control of the sludge producers. This has been seen as a relatively low priority in the past but there may be opportunities to work more closely with other regulators and statutory water utilities to develop a system that will minimise the pollution potential of this waste management activity.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Develop and implement a system of monitoring heavy metal releases and identify sensitive surface and groundwater locations where disposal should be restricted.	Proactive means of preventing pollution	Resources	L	MAFF LAs Water companies
Do nothing	No immediate cost	Not meeting statutory obligations	-	-

**Issue 29: Danger of contamination of potable water supply**

Many of the most damaging environmental incidents of pollution result from a set of circumstances which were foreseeable ie a quantifiable risk. Once identified, most risks can be managed with the effect of greatly reducing the likelihood or severity of environmental harm occurring. Examples of these risks include oil tankers running aground, leaks in a major liquid storage depot, or the failure of a major sewage treatment plant.

Clearly the Agency will often only be one of a number of interested organisations in such incidents, but nonetheless positive action by the Agency can have a pump priming effect on our partners.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Encourage the completion of a water supply source zones and major aquifer protection plan involving the Agency's national service as appropriate.	All major pollution risks within a catchment will be identified and managed much reducing the likelihood of a serious event	Considerable resource demand. Need the active co-operation of partners. High costs	H	Water companies Industry LAs
Apply the lessons learned as above to wider areas of Kent	All major pollution risks within a catchment will be identified and managed much reducing the likelihood of a serious event	Considerable resources demand. Need the active co-operation of partners. High costs.	H	Water companies Industry LAs

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Do nothing	Zero immediate cost	Potentially huge cost, should foreseeable event occur, bad publicity and a missed opportunity	-	-

**Issue 30: Sustainable management of landfill gas**

Landfill gas is the product of the decomposition of organic waste within landfill sites. It contains many trace elements which give it odour, however the most significant component is methane. Methane is a flammable, asphyxiant and powerful greenhouse gas. There are numerous sites in the Kent Area that are producing landfill gas at rates that either detrimentally affect the locality or could contribute to the greenhouse gases in our environment.

Historically, landfill gas has been vented to atmosphere in most cases, but the effect of this on the global environment is causing considerable concern. As a result of this the Environment Agency has the following short term national target within its Ten Point Action Plan for 1998/99:-

“Encourage 30 organisations to install methane control and energy recovery systems” and “Encourage the installation of gas recovery systems with enclosed flaring at 30 landfill sites in order to reduce odours”.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Analyse the information on landfill gas emissions from landfill sites and prioritise sites where gas can be flared or used as a fuel to produce energy	Highlights those sites where action will be most beneficial in reducing the amount of methane emitted to atmosphere	Resource demand	M	LAs
Set up projects with the operators of key sites to project manage the enclosed flaring or energy recovery from landfill gas at sites. Review five key waste management licences with the view of requiring improved gas control	Partnership approach to solving an environmental problem. Will apply statutory power to the issue of gas control	Resource demand. Possibility that Agency could be challenged through an appeal to Secretary of State	L	-
Do nothing	No resource demand	Landfill gas will be emitted to atmosphere contributing to climate change	-	-

**Issue 31: Risk of illegal waste disposal (flytipping)**

The generally tight controls over the treatment and disposal of waste within the UK as detailed elsewhere in this plan, allow the Agency to protect the environment. They also make the cost of legally disposing of waste relatively high in comparison to illegal operators who undercut industry and flout the regulations.

There are many forms of illegal waste activity, but those of most concern in the Kent Area are:- flytipping, ie the deposit of waste at various unlicensed locations, the operation of unlicensed sites such as waste transfer stations where waste is bulked up and moved elsewhere for disposal, illegal landfill sites (some include burning of waste) and the "sham" recovery of waste from abroad. Sham recovery is the term applied to waste being moved into the UK allegedly for recovery but in fact for cheap disposal. Any illegal activity associated with hazardous waste will be dealt with rigorously as a priority.

The Environment Agency takes a proactive role in respect of illegal waste disposal when it is large scale or otherwise likely to cause serious harm to the environment or to human health. This is included within the core work of the Agency. However, small scale flytipping of household and commercial waste is not something that can be dealt with effectively by the Agency in most cases. This is an area of work where the Local Authority will usually take the lead role. However there is a clear need to

work closely together in defining roles and responsibilities and in acting supportively to combat this menace.

Options for Action	Advantages	Disadvantages	Financial Cost	Potential Partners
Investigate all evidence of illegal activity including small scale flytipping, bringing all cases to court where evidence exists	Reduction in workload for Local Authorities. Agency seen to be active	Very large resource demand (commensurate with reduction in workload of LAs) far in excess of the present staffing level	H	LAs
Develop agreement with Local Authorities on roles and responsibilities for flytipping by using the national draft Flytipping Protocol as a source document. Act in accordance with agreed roles. Publicise results of action	Good partnership approach, sharing resources. Playing to the strengths of each organisation. Positive action within role definition and general assistance to other body. Effective action against flytipping	Meetings needed with Local Authorities therefore a time demand. Resource demand for the resultant action	M	LAs
Do nothing	No resource demand	Harm to the environment and to human health, poor public relations, high profile criticism		

## **4.0 PROTECTION THROUGH PARTNERSHIP**

### **4.1 Introduction**

The Agency is well placed to influence many of the activities affecting the environment through the Environment Act 1995 and other associated legislation. This section examines the major opportunities for the Agency to address environmental issues through partnerships with others.

The Agency must work in partnership with others to ensure that where appropriate the options for action included in Section 3 become real actions and are implemented so that the environmental issues are addressed.

We are currently involved in many projects and activities that rely on partnerships. Close links are already established with Local Authorities, water companies, industry, farmers, landowners, conservation bodies, angling clubs and recreation groups. New partnerships will be sought, both with these organisations and others. It is hoped that this draft LEAP will help us to achieve even more by working closely with others to address issues in the Kent Area and secure a stronger basis for environmental protection and enhancement.

### **4.2 Partnership Opportunities**

Some of the major opportunities for the Environment Agency to work in partnership are highlighted below.

### **4.3 Development Control**

Land use is the single most important influence on the environment. It follows therefore that land use change has important implications for the environment which can be both positive and negative. Land use planning is administered by county, district and unitary planning authorities. Control of land use change is achieved through implementation of the Town and Country Planning Acts and a range of Government planning guidance. This guidance highlights the importance of communication between local planning authorities and the Agency and the relationship between land use and the environment.

The Agency is committed to developing close working relationships with local planning authorities (LPAs) to promote effective links between planning and environmental protection. Planning liaison is the link between the Agency's functions and local authority planners. Land use issues of particular concern in Kent Area include development in the flood plain, protection of water resources and remediation of contamination in association with development of brownfield land.

#### 4.4 Development and Water Supply

Water resources in the Kent Area are under pressure particularly in the north of the Area with heavy commitment of the existing water resources. It is this area of the plan that is also subject to the greatest development pressures.

The Environment Agency works closely with the water companies in the Kent Area and through the South East Water Forum to manage water resources in the area to achieve the proper balance between water development objectives and the needs of the environment. We operate our abstraction licensing system to regulate the water companies and other abstractors to ensure sustainable use of water resources and to protect the environment. Where water resources are fully committed locally, demand must be met either by improved management of existing resources or by transfer from other areas. However, it is vital that development takes account of the full social and environmental costs. The Environment Agency will work with the relevant water supply companies and planners to ensure this is achieved. We will want to be assured that the management of a resource is sustainable.

The Environment Agency is also placing greater emphasis on demand management (e.g. leakage control and metering) where this will reduce pressures on the environment or prevent the need for the development of new resources. We encourage measures such as leakage control and for metering programmes and initiatives to build water conservation into new developments - for example through low water use appliances.

#### 4.5 Local Agenda 21

Agenda 21 was one of four main agreements signed at the Earth Summit at Rio by representatives of 150 countries including the UK government. It is intended to be:-

*"A comprehensive programme action needed throughout the world to achieve a sustainable pattern of development for the next century".*

Agenda 21 includes initiatives to further the concept of sustainability and includes waste management issues and promotion of environmental awareness. In 1994 the Government produced a national sustainable development strategy and action plan for the UK. At the local level, most Local Authorities are working with local communities to produce their own Local Agenda 21 programmes, to promote sustainable development and to improve quality of life.

Kent County Council has responded to Local Agenda 21 through their document Greening the Garden - Environmental Action for Kent. Many other Local Authorities have also produced reports and strategies for the area.

The Agency recognises the potential of Local Agenda 21 and will continue to work with Local Authorities to ensure protection and enhancement to improve the local environment. LEAPs provide proposals for action which can feed directly into Local Agenda 21 Action Plans.

#### **4.6 Biodiversity Action Plans**

As part of the Environment Agency's input to the Government's commitment to the International Convention on Biodiversity we are part of a Biodiversity Steering Group for Kent and a biodiversity partnership for Sussex. The plans aim to identify targets and actions for specific habitats and species. The Agency plays a key role in each of these organisations and is the lead organisation for a number of species and habitats. The conservation of biodiversity will be a key environmental indicator of the successful implementation of sustainable development in the Kent Area.

#### **4.7 Air Quality**

Local Authorities' environmental health departments regulate air pollution from thousands of industrial premises under Part I of the Environmental Protection Act 1990. These are premises with generally a lesser potential to pollute than those the Agency regulates. The processes concerned are known as Part B processes and only the releases to air are controlled. Local Authorities will be required to review present and future air quality against air quality standards and objectives prescribed in regulations made by the Government. Reviews are in the form of Local Air Quality Plans for which the Agency will be a consultee.

The Kent Air Quality Management Partnership includes Kent County Council and the 14 district councils in Kent with co-opted members including the Environment Agency. This partnership is intended to develop the air quality management partnership with an emissions inventory, air quality monitoring and air quality modelling.

#### **4.8 Education**

Good awareness of educational issues is of paramount importance for all successful environmental management. The Environment Agency will seek to educate and influence individuals, groups and industries to promote best environmental practice. It will work in partnership with statutory and voluntary groups to carry out improvement projects and develop a wider public awareness of environmental issues.

The Agency considers environmental education to be vital and we are actively developing an education strategy to help schools and colleges at all levels of the curriculum. We encourage local liaison and project-related work with schools such as initiatives which assist schools with environmental enhancement projects.

It is also part of the Environment Agency's routine business to promote environmental education in other sectors of society, including business and industry, Local Authorities and other key players. The Local Environment Agency Plan process positively contributes towards education in a fundamental way. The Environment Agency also undertakes pollution prevention visits, attends shows and science fairs such as the Kent County Show and the Kent Science Festival, provides speakers, distributes educational documents and generally works in a pro-active way to protect the environment.

#### **4.9 Waste Minimisation**

In order to assist the Government in achieving its waste strategy, we are taking a key role in providing waste minimisation advice within industry and in the Kent Area the Environment Agency is involved in a number of initiatives.

In Kent over the last two years a major project (the Medway and Swale Waste Minimisation Project) helping companies minimise waste at source has been backed by the Agency, Kent County Council and coordinated by the Centre for Exploitation of Science and Technology and supported by the Government's Environmental Technology Best Practice Programme.

The Agency will also be a partner in the Sustainable Business Partnership project led by Kent County Council which is seeking to target small and medium businesses in the area.

These sort of initiatives are of particular significance in the Kent Area where voidspace for waste is valuable and there is a need to curb the increase in waste production by encouraging waste minimisation, recovery and reuse.

#### **4.10 Flood Defence**

The Ministry of Agriculture Fisheries and Food (MAFF) is the Government Department with overall policy responsibility for flood defence and coastal protection in England. The Agency works closely with MAFF and DETR on capital schemes in particular.

The Agency has specific powers relating to 'main rivers' which enable it to carry out maintenance and improvement works, to construct flood defences and to control the work of others. The Agency has a general supervisory duty over all flood defence matters which requires working in close partnership with other drainage authorities. In addition to works on 'main rivers' the Agency also has regulatory powers to control weirs and culverts which would affect flows on ordinary watercourses.

Local Authorities and, in this area, Internal Drainage Boards (IDBs) are responsible for flood defence on 'ordinary watercourses'. The appropriate legislation relating to ordinary watercourses is to be found in the Land

Drainage Act 1991, for the purpose of this Act IDBs and Local Authorities are statutorily defined as 'drainage bodies'.

Within the Kent Area there are 8 IDBs. These were set up following the Land Drainage Act (LDA) 1930, to deal with specific drainage problems in relatively low-lying agricultural areas and still carry out this work today.

The powers of the IDBs and the Agency are clearly defined by the Land Drainage Act 1991 and the Water Resources Act 1991. Within an Internal Drainage District the IDB supervises all matters relating to land drainage. These powers do not extend to any 'main river' within an Internal Drainage District. Agency staff work in partnership with the IDBs to assist them with promoting more environmentally sensitive management practices. Agency Staff work particularly closely with a number of IDBs in the Kent Area (Romney Marsh Levels, Denge & Southbrooks, Pett, Rother, Walland and Stour IDBs) for which they act as Engineers for the IDBs. Local Authorities have similar responsibilities for non-main river watercourses in their area.

Within the framework of the Shoreline Management Plan, we are continuing to develop liaison processes with the relevant district councils who have responsibilities for cliff erosion under the Coast Protection Act 1945. This will ensure that our respective coastal and sea defence activities are complementary and do not have any adverse effect on adjacent frontages.

#### **4.11 Summary**

Many other partnerships occur or are planned within the Environment Agency, all of which are designed to deliver the mutual objectives of the partners involved. The Environment Agency has a diverse network of relationships with many national, regional and local organisations as well as landowners and the general public. One significant area for future development will be the building of partnerships to aid environmental education. It is through these partnerships that we are able to fully contribute towards the goal of sustainable development.

## 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

##### Agency Duty

- The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.

##### The Agency has powers to:

- Grant or vary water abstraction and impoundment licences on application.
- Revoke or vary existing licences to reinstate flows or levels to surface-waters or groundwaters which have become depleted as a result of abstraction, and are subject to a liability for compensation.
- 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.
- 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 may 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 warning relating to main river to the public, Local Authorities and the police.
- Control through Land Drainage Byelaws 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 byelaws 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.
- Promote its fisheries duty by means of land-drainage consents, water abstraction applications and discharge applications.

**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 its recreation duty 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 Sports Council and other sports bodies.

**Partnership**

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

**Navigation**

**Agency Duty**

- The Agency has a duty to maintain and improve the non-tidal Medway navigation and to manage and operate the Port of Rye.

**The Agency has powers to:**

- Improve, conserve and operate the non-tidal Medway navigation.
- Regulate navigation by a system of licensing.
- Enforce navigation legislation.

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

- The management and operation of other 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

### CONSULTATIONS

The following organisations were consulted during the preparation of this Consultation Draft:

Council for the Protection of Rural England  
Country Landowners Association  
Countryside Commission\*  
East Sussex County Council\*  
English Heritage\*  
English Nature (Kent)\*  
English Nature (Sussex and Surrey)\*  
Farming & Rural Conservation Agency\*  
Folkestone & Dover Water Services Ltd  
Internal Drainage Boards\*  
Kent & Essex Sea Fisheries Committee\*  
Kent County Council\*  
Kent Wildlife Trust  
London Borough of Bexley\*  
London Borough of Bromley  
London Borough of Greenwich  
Mid Kent Water plc\*  
Ministry of Agriculture, Fisheries & Food  
National Farmers Union  
National Society for Clean Air  
Royal Society for the Protection of Birds  
South East Water Ltd\*  
Southern Water plc  
Surrey County Council\*  
Surrey Wildlife Trust\*  
Sussex Wildlife Trust  
Sutton & East Surrey Water plc\*  
Thames Water plc\*  
West Sussex County Council\*

\* = Response received

Supported by data and information supplied by Area and Regional staff and the National Centre for Environmental Data and Surveillance.

Meetings were held with the following organisations:

Kent County Council  
East Sussex County Council  
English Nature (Kent)  
English Nature (Sussex and Surrey)

### APPENDIX 3

#### GLOSSARY

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.
Aquifer	A layer of underground porous rock which contains water and allows water to flow through it.
Catchment	The total area of land which contributes surface water to a specified watercourse or water body.
Combined sewer overflow	An overflow structure which allows discharge from the sewerage system to a watercourse during wet weather conditions.
Controlled waters	Defined by the Water Resources Act 1991 Section 104. They included groundwaters, inland waters and estuaries.
Effective rainfall	The rain remaining as runoff after all losses by evaporation, interception and infiltration have been allowed for.
Environmentally Sensitive Area	An area defined by MAFF for which grant aid is available for appropriate agricultural and water/land management.
Floodplain	This includes all land adjacent to a watercourse over which water flows or would flow, but for flood defences, in times of flood.
Flytipping	The unregulated and, hence, illegal, dumping of waste.
Groundwater	Water which is contained in underground rocks (aquifers).
Heritage Coast	Stretches of the most undeveloped coastline, designated by the Countryside Commission, in order to protect and conserve the coast's

	vulnerable beauty, and enhance people's enjoyment of the coast without risking its conservation.
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 Acts.
Potable water	Water of suitable quality for drinking.
Ramsar sites	Internationally important wetland sites adopted from the Ramsar Convention on Wetlands of International Importance especially as waterfowl habitats (1971) and ratified by the UK government in 1976.
Sea defences	Natural or man-made features protecting land below 5m AOD contour.
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.
Special Area for Conservation	Internationally important nature conservation site designated under the EEC Habitats Directive.
Special Protection Areas	Internationally important nature conservation sites designated under the EEC Wild Birds Directive. All SPAs are also SSSIs.
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 4

### ABBREVIATIONS

AMP	Asset Management Plan
AOD	Above Ordnance Datum
AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
BATNEEC	Best Available Technique Not Entailing Excessive Costs
BPEO	Best Practicable Environmental Option
CTRL	Channel Tunnel Rail Link
DETR	Department of the Environment, Transport and Regions
FRCA	Farming and Rural Conservation Agency
IPC	Integrated Pollution Control
LA	Local Authority
LEAP	Local Environment Agency Plan
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
MRF	Minimum Residual Flows
NRA	National Rivers Authority - a predecessor body to the Environment Agency
OFWAT	Office of Water Services
PIR	Process Industry Regulation (the Agency department formerly known as IPC)
RQO	River Quality Objective
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UWWTD	EC Urban Waste Water Treatment Directive

## APPENDIX 5

### FURTHER INFORMATION

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

Sustaining Our Resources. Southern Region, Worthing. 1997

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

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

Viewpoints on the Environment. Bristol. 1997

Waste Minimisation and Waste Management, Bristol. 1997

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

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

Environment Agency Corporate Plan 1998-99. Bristol. 1998

Saving Water: Taking Action. Bristol. 1998

Saving Water: On the Right Track. Bristol. 1998

Fishing in the South. Southern Region, Worthing.

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

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

Action Plan for Land Quality, Bristol 1998.

An Action Plan for Recreation, Bristol 1998.

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

## 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.

Head Office is responsible for overall policy and relationships with national bodies including Government.

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For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

#### ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

**0645 333 111**

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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