

local environment agency plan

ELY OUSE
DRAFT PLAN
OCTOBER 1998



**ENVIRONMENT
AGENCY**

Most societies want to achieve economic development to secure a better quality of life, now and in the future, whilst still protecting the environment. The concept of sustainable development, allied to precautionary principles, tries to reconcile these two objectives - meeting the needs of the present without compromising the ability of future generations to meet their own needs. We are working towards making this concept a reality without jeopardising the economic livelihoods of local communities.

We take an holistic approach to the protection and enhancement of the environment. This is achieved through our activities with others to optimise the benefit to the environment as a whole. Where possible we always take into account the effects across and within land, air and water.

In the long-term, over the next 20 years, the Vision encompasses:

- **Developing partnerships with, for example, agriculture, industry, Local Authorities, environmental groups and educational establishments.**
- **Regulating the movement, treatment, storage and disposal of controlled wastes to protect and enhance the environment by setting and enforcing consistent standards for waste management practice.**
- **Managing water resources in a sustainable way to balance the needs of the water environment with the requirements to abstract water for domestic supply, agriculture and industry.**
- **Realising opportunities to improve the biodiversity/conservation value of the plan area with particular respect to river corridors and flood plains.**
- **Maintaining and, if necessary and viable, improving flood protection along all main rivers.**

In the short-term, over the next 5 years, the Vision encompasses:

- **Realising opportunities for an improvement in water quality, particularly where targets are not presently being met, eg, Little Ouse (Botesdale to Bio Norton Ford stretch).**
- **Realising opportunities for recreational activities such as navigation, eg, working with the Fenland Waterway Regeneration Strategy group.**
- **Achieving improved fish stocks through better management, eg, the prevention of fish mortalities at Blackdyke and meeting fish biomass targets in the River Thet and River Little Ouse.**
- **Assessing flood risk areas and provide an effective flood warning system.**

The successful future management of the Plan area requires the Agency to effectively respond to changing and increasing pressures exerted on the environment of the Ely Ouse and to target resources where they are most needed.

It is through establishing strong links with Local Authorities and communities, working together with industry and agriculture and increasing public awareness of the need to protect our environment that Vision will become a reality.



your views

Publishing the Draft Action Plan marks the beginning of the Consultation Period for the Ely Ouse area. This document highlights the issues we believe need to be addressed in this area.

We hope that this report will be read by anyone who has an interest in the environment in this locality. Your views will help us finalise the Action Plan.

In particular, we want to hear your views on the following;

- Have we identified all the major issues?
- Have we identified all the potential options for action to resolve these?
- Do you agree with our Vision for the plan area?
- Have you any comments on the appearance and contents of the report?

NB Unless otherwise stated all comments received will be considered as public information.

Please comment in writing to:

The Customer Services Manager
The Ely Ouse draft LEAP
Environment Agency - Anglian Region
Central Area
Bromholme Lane
Brampton
Huntingdon
Cambs PE18 8NE

Telephone Enquiries: (01480) 414581

Fax No: (01480) 435193

All comment should reach us by 1 March 1999.

Further copies are also available at the above address.

Please Note: Whilst every effort has been made to ensure the accuracy of information in this Report, it may contain some errors or omissions which we will be pleased to correct. All written comments received on this Draft Plan will be considered in detail and summarised as part of the Final Plan.



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**THE ELY OUSE
LOCAL ENVIRONMENT AGENCY PLAN**



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Information Services Unit

Please return or renew this item by the due date

Due Date

18/Aug/04

DRAFT PLAN

December 1998

FOREWORD

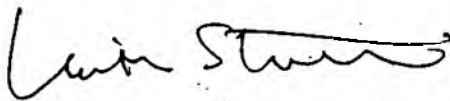
The Environment Agency is one of the most powerful environmental regulators in the world. By combining the regulation of air, land and water, we have a unique opportunity to look at the environment in an integrated way.

The Ely Ouse Draft Plan aims to promote integrated environmental management. It has been drawn up for consultation and seeks to develop partnerships with a wide range of organisations and individuals who have a stake in the future of the local environment. We will use these plans to ensure that improvements in the local environment are achieved and regularly report on our progress.

This is the fourth consultation document produced by Central Area but follows new guidance recently implemented; so I would like to draw your attention to Figure 1: The Ely Ouse LEAP Process which details the new procedures in place.

This and subsequent plans, 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.

We hope that you will find this document useful and informative and look forward to receiving your comments. Contributions from interested organisations, local authorities and members of the public will enable the Local Environment Action Plan (LEAP) to be produced.



Keith Stonell
Area Manager (Central)

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CHAPTER ONE - INTRODUCTION

This section sets out the role of the Environment Agency and Local Environment Agency Plans along with the timescale for the production of the Ely Ouse LEAP.



1.0 The Environment Agency

'Guardians of the Environment'

The Environment Agency came into being on 1 April 1996 to protect, monitor and improve the environment in its broadest sense - ultimately contributing to the worldwide goal of sustainable development. We have become one of the most powerful environmental regulators in the world. By exerting our influence on the regulation of air, land and water, we have a unique opportunity to look at our environment in an integrated and holistic manner.

Our Vision is:

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

Our 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 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; and
- To set priorities and work out solutions that society can afford.

We 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 is a new body. It has a wide range of duties and powers relating to different aspects of environmental management (refer to Appendices A and B). It is required and guided by Government to use these duties and powers in order to help achieve the objectives 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. The Agency therefore has to reflect this in the way it works and in the decisions it makes.

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.

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

Much of the UK's environmental legislation originates from the European Union. To date there have been five EC Environmental Action Programmes which have collectively given rise to several hundred pieces of legislation of relevance to environmental protection, one of the most recent being the Directive on Integrated Pollution Prevention and Control. A number of other directives are currently under consideration, covering issues such as water management, air quality and the management of waste using landfill.

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

Perhaps the most important international issue is that of climatic change. The UK is - like all nations - a contributor to the global emissions of gases such as carbon dioxide into the atmosphere which are believed to contribute to long-term climatic changes. The UK is likely to be affected in complex ways as, when and if the climate does change. It is therefore a signatory to the Framework Convention on Climate Change (as agreed at the Rio 'Earth' Summit) in 1992, and is taking an active part in international negotiations to obtain commitments beyond 2000 for credible, effective, and achievable reductions of greenhouse gas emissions.

Another outcome 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 and act locally. The Local Agenda 21 initiative set out actions needed to achieve sustainable development, including the need to make clear the links which exist between local lifestyles and environmental resources. In the UK plans have

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

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 improvements. These LEAPs will also allow the Agency to deploy its resources to best effect and optimise benefit for the local environment.

1.1 Local Environment Agency Plans

We are committed to delivering environmental improvement at the local level and one of the ways to do this will be through Local Environment Agency Plans (LEAPs). These plans will reflect our close contact with industry, the public and Local Government and will contribute towards achieving sustainable development.

The process of drawing up the plans will involve close consultation with all interested parties. It will promote the effective, accountable and integrated delivery of environmental improvement at the local level. The plans will translate policy and strategy into delivery on the ground and will result in actions, either for the Agency to fulfill, or for others to undertake through influence and partnership. We believe that the process will benefit local communities by influencing and advising external decision-makers and public opinion. It will build trust by being open and frank when dealing with all issues.

We aim to produce 132 LEAPs throughout England and Wales. They will all be published in draft by the end of 1999, with completion of consultations taking place during the year 2000.

1.2 The LEAPs Process

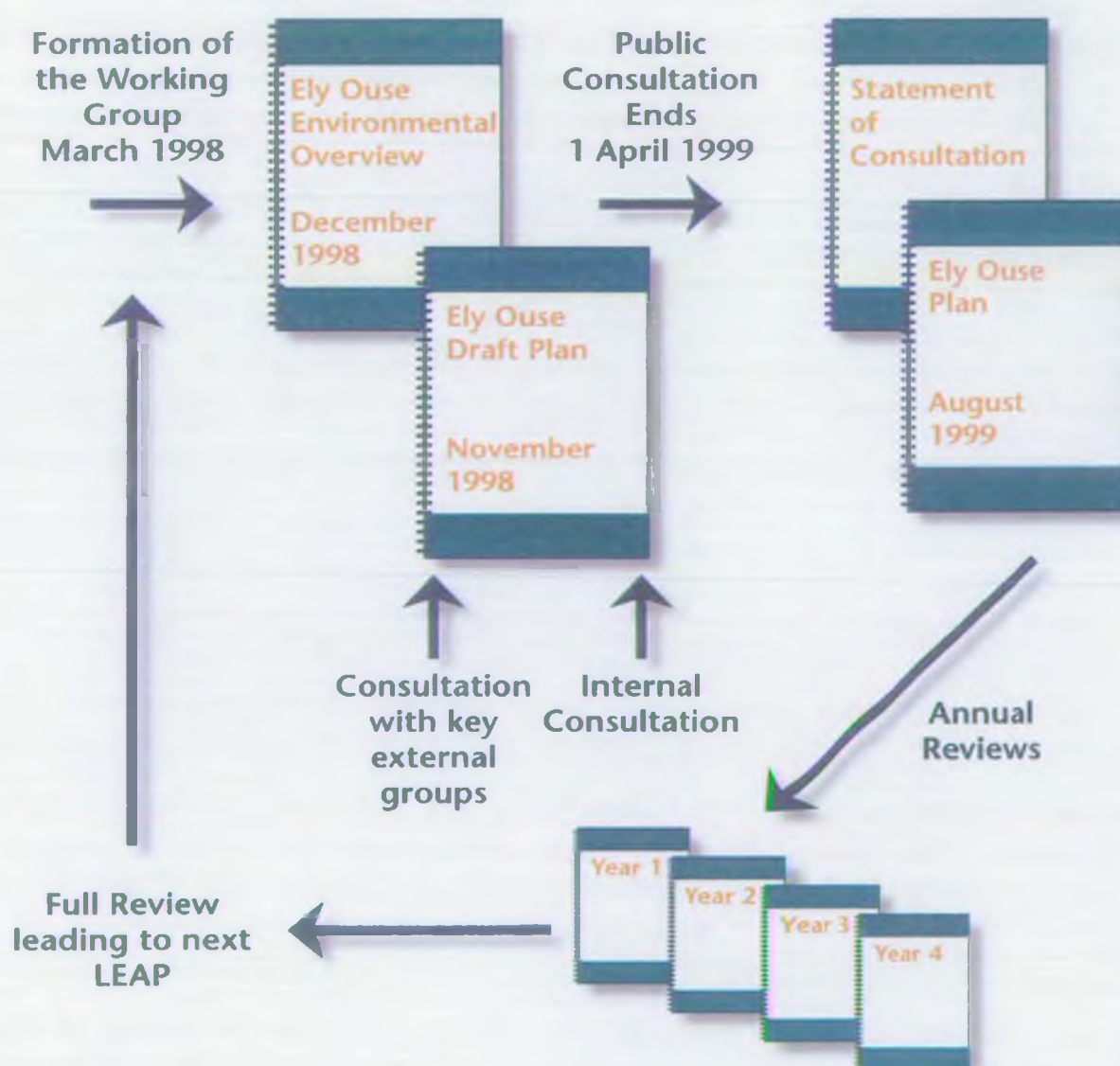
It is within the Agency's remit to assess the allocation of all natural resources, within the land, air and water environments, which are in demand from many potential users.

LEAPs are published by the Agency to draw together aspects of environmental management and planning as part of the ongoing dialogue between ourselves and other organisations/people involved in the protection and management of the environment. They contribute directly to the Agency's aims as described in Section 3.0. LEAPs build on the former National Rivers Authority's (NRA) Catchment Management Planning initiative - addressing the integrated management of land, air as well as the water environment. Catchment Management Plans (CMPs) will co-exist with LEAPs until such time that they are updated to address all of the Agency's responsibilities.

This is one of six LEAPs in the Central Area (refer to Map 1). We are aiming to complete them all by the end of 1999. This Draft Plan has been prepared as a basis for open consultation to

discuss the issues and actions to resolve them as identified in Section 3. Following the consultation period a Final Plan will be published.

Figure 1: The Ely Ouse LEAP Process



Ely Ouse Local Environment Agency Plan

Map 1



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Environment Agency Regions



Ely Ouse Area Location

KEY

- Plan boundary
- Main river
- Built up area
- Ely Ouse Plan Area
- Regional Boundary
- LEAP boundary



Ely Ouse Local Environment Agency Plan



1.3 Environmental Education Strategy

Education has to be a priority if sustainable environmental improvements are to be achieved. With this in mind we published our own education strategy, 'Green Shoots', in January 1997. In the long-term, education on environmental issues could ease the regulatory burden and associated costs.

Our education programmes are to be aimed at those working in education, industry and the community at large. The strategy acknowledges that environmental improvement and sustainable development can only be achieved with the involvement of society as a whole. It also recognises the need to share expertise and resources with other organisations in collaborative ventures in order to develop a more responsible and environmentally-aware society. It contains six objectives, which are to:

- build positive partnerships;
- help educate young people;
- improve the understanding of environmental issues through such schemes as work placements;
- work with industry to promote the prevention of pollution ;
- foster public awareness of environmental issues; and
- build on current, and develop new, international relationships to further sustainable development.

The focus for action in 1997/98 was on youth and partnership. We now plan to focus on more innovative and empowering activities, for example, the CREST Award Scheme - Environment Research Challenge (project-based research on real issues for the 11-18+ group); schools conferences to elicit potential answers for the future based on current environmental issues and 'hands-on' projects to restore and maintain environmentally damaged areas (with youth clubs). The programme for future years will build upon these initiatives to help deliver the other objectives, but the focus will change year-on-year.

This will not be an easy task, nor one achieved by the Agency alone. We do, however, have various opportunities to exploit, particularly where LEAPs provide local focus. The concept of learning by empowering people to make choices is both valuable and under-used. Our plans, Local Agenda 21 and other such avenues will be fully exploited in the future.

CHAPTER TWO - THE ELY OUSE AREA

This section provides a brief overview of the LEAP area including the local authorities and key statistics.

2.0 Overview of the Ely Ouse Area

The Ely Ouse LEAP area is a combination of seventeen sub-catchments covering 2510 km², which reflects the diversity of topography. Extensive road and rail networks can be found throughout the catchment area.

The upland areas (75% of the total area) are drained by natural rivers and streams. The lowland drainage systems have been modified by man over centuries to provide flood protection for land up to seven metres below normal high tide level.

The Ely Ouse River flows south to north with the tributaries flowing in from the south and east. The total length of designated main river is 407 km of which 161 km are embanked. The area protected by embanked channels is 495 km², with a further 71 km² of natural flood plain. The Ely Ouse and its tributaries are navigable for a length of 103 km.

The east boundary denotes the watershed of the upland rivers and streams. To the west it is a combination of the South Level Barrier Bank alongside the Hundred Foot River, and the hydrological boundary of the Littleport and Downham Internal Drainage Board (IDB). The Denver Complex provides the northern discharge point whilst balancing the outflow to the tidal river and transferring raw water via the Cut-off Channel to Essex. To the south, Hermitage Lock controls inflow from the Bedford Ouse system to the Old West River, whilst the River Cam flows into the area at Stretham. Consequently, throughout the lowland area, river levels are controlled by the sluices at Denver giving rise to operational and environmental impacts throughout the seasons.



Denver Sluice and Lock

The Ely Ouse LEAP area includes the settlements of Bury St. Edmunds, Newmarket, Thetford Ely and Mildenhall and the catchment area of the rivers Wissey, Lark, Little Ouse and their associated tributaries. Norfolk and Suffolk make up the majority of the area, but a part of Cambridgeshire is also represented (refer to Map 2).

Within this area, river valleys are an important feature of the landscape. This is particularly true in the fenland areas where the embanked watercourses, often with associated washlands, offer a sharp contrast between the intensive arable agriculture of the fen and the more 'wild' appearance of the grazed areas adjacent to the river.

The fen area is dominated by Ely, and in particular Ely Cathedral, which is visible from a large part of this low lying area.



Ely Cathedral

Much of the fen, on its eastern edge, is bounded by the Brecklands; a designated Environmentally Sensitive Area (ESA). The Brecks, characterised by their light, free draining sandy soils and forestry interests, also contain a significant number of important sites for nature conservation. The Brecks are also very rich in sites of archaeological importance.

The soil is grade I, II, III and IV farmland which explains the predominant land use; agriculture, with arable farming dominating in the fen areas. The area of urbanisation is comparatively small with only five towns with populations over 10,000 (Ely, Newmarket, Bury St Edmunds, Thetford and Mildenhall). Woodland cover accounts for only 7% of the total area. Industry type is very

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varied and is generally located at the major settlements in designated industrial areas. Notable in Cambridgeshire are the business parks at Witchford, Sutton and Ely. The major military installations include Mildenhall, Lakenheath, Feltwell and Honington and the army battle training areas north-west of Thetford and south of Swaffham.

Apart from the proposed Red Lodge settlement in Suffolk, the growth identified in the structure plans will be concentrated in the existing population centres.

2.1 Key Details

Total Area: 2510 km²

Environment Agency Organisation: Anglian Region (Central Area): Area office at Bampton and Catchment Office (north) at Ely.

Geology:	Eastern upland	Boulder Clay on chalk
	Central upland	Chalk outcrop
	Fen Areas	Clays with fen deposits and some Greensand outcrops

Main Towns:	County Councils :		District & Borough Councils:
Bury St Edmunds	Cambridgeshire	17%	Babergh
Newmarket	Norfolk	43%	Breckland
Ely	Suffolk	40%	East Cambs
Swaffham			Forest Heath
Thetford			Kings Lynn and West Norfolk
Mildenhall			Mid Suffolk
Brandon			St Edmundsbury
Watton			South Cambs
			South Norfolk

Water Utility Companies:

Anglian Water Services Limited
Cambridge Water Company
Essex & Suffolk Water Company

In addition there are a number of areas which receive no mains supply and rely on private supply boreholes

Internal Drainage Boards:

Burnt Fen, Cawdle Fen, East Harling, Haddenham Level, Lakenheath Fen, Littleport and Downham, Mildenhall, Middle Fen and Mere, Northwold, Old West, Padnal and Waterden, Southery and District, Stoke Ferry, Stringside.

Length of statutory main river:	407.3 km	Sites of Special Scientific Interest (SSSIs):	78
Embanked main river:	161 km	Water dependent SSSIs:	39
Area protected by embanked channel:	495 km²	Special Areas of Conservation:	4
Area of natural flood plain:	71 km²	Special Protection Areas:	2
Length of navigable river:	103.3 km	Scheduled Ancient Monuments:	182
Game (trout) fishery:	106 km	Sewage Treatment Works:	99
Cyprinid (Coarse) fishery:	227 km	Licensed Abstractions:	1161
No. of licenced waste sites:	63	IPC Sites:	9
		RAS Sites:	9

Water Quality:**Biological Quality Grades 1997****Chemical Quality Grades 1997**

	Grade	Length of River (km)		Grade	Length of River (km)
'very good'	a	139.9		A	0
'good'	b	183.9		B	75.2
'fairly good'	c	83.0		C	186.1
'fair'	d	22.9		D	100.0
'poor'	e	8.3		E	98.1
'bad'	f	0.0		F	0

'Natural and Character' Area

The map 'The Character of England; Landscape Wildlife and Natural Features' produced in 1997 depicts the natural and cultural dimensions of our landscape. Drawn up by the Countryside Commission (CoCo) and English Nature (EN) with the help of English Heritage, this framework is intended for those organisations with an interest in wildlife and landscape whereby issues effecting our natural heritage can be strategically assessed in a single framework. Both the character and natural areas are described and tabulated below.

Table 1: The Character of the Ely Ouse LEAP

Character Area (No)	Natural Area	Landscape Description
The Fens (46)	The Fens	'Low lying, level terrain which except for fen islands such as Ely rarely reaches 10 m above sea level. The land is predominantly cultivated with little natural or semi natural habitats remaining.'
NW Norfolk (76)	N Norfolk	'Large scale arable and grassland landscape on big rolling upland terrain ... remnant heath and ... mixed woodland; huge estates, large and widely spaced villages.'
S Norfolk & High Suffolk Claylands (83)	E Anglian Plain	'Undulating topography area of relatively small individual land holdings, with scattered parkland estates. Mix of remnant medieval ancient countryside ... and large modern fields devoid of hedges and trees.'
Mid Norfolk (84)	E Anglian Plain	'Predominantly arable, with variable field sizes, generally medium rather than large, relatively well wooded often a reflection of sporting interest within the estates ... Some areas of heathland, great density and variety of churches associated with villages and estates.'
Breckland (85)	Breckland	'Distinctive large scale landscape of pale coloured arable fields or open heath contrasting with vertical elements of pine lines, belts and forest. Long history of settlement but now sparsely populated.'
S Suffolk & N Essex Clayland (86)	E Anglian Plain	'An undulating topography ... dissected by small steep sided valleys. Characterised by small medium scale fields, and numerous small farm copses and hedgerows with trees that create a wooded appearance. However, in places a large scale arable field pattern ... gives an open feel..'
E Anglian Chalk (87)	W Anglian Plain	'Visually simple and uninterrupted character ... The smooth rolling chalkland hills have a landscape of large regular fields enclosed by low hawthorn hedges, few trees and straight roads. Both past and present evidence of mineral extraction can be found .. Cereal farming has now superseded the traditional practice of sheep farming'.
Bedfordshire & Cambridgeshire Claylands (88)	The West Anglian Plain (part of)	'Gently undulating relief with plateaux, divided by broad shallow valleys and characterised by arable cultivation. Woodland cover is generally sparse.'

CHAPTER THREE - ISSUES AND OPTIONS

In the following pages on issues are listed that have been highlighted through investigation of the LEAP area and through internal and informal external consultation. Also listed are proposed actions for the way forward.

3.0 Introduction

The following section identifies and discusses the issues facing the environment in this locality and the proposed actions for their resolution. The issues have been updated to indicate progress and new issues that have occurred since the CMP was published (February 1993). They are divided into the nine main aims as set out in the Agency-published document *An Environmental Strategy for the Millennium and Beyond* (September 1997). These nine themes and immediate environmental aims are:

-  Addressing climate change
-  Delivering Integrated River Basin Management
-  Improving air quality
-  Conserving the land
-  Managing our water resources
-  Managing Waste
-  Enhancing biodiversity
-  Regulating major industries
-  Managing our fresh water fisheries

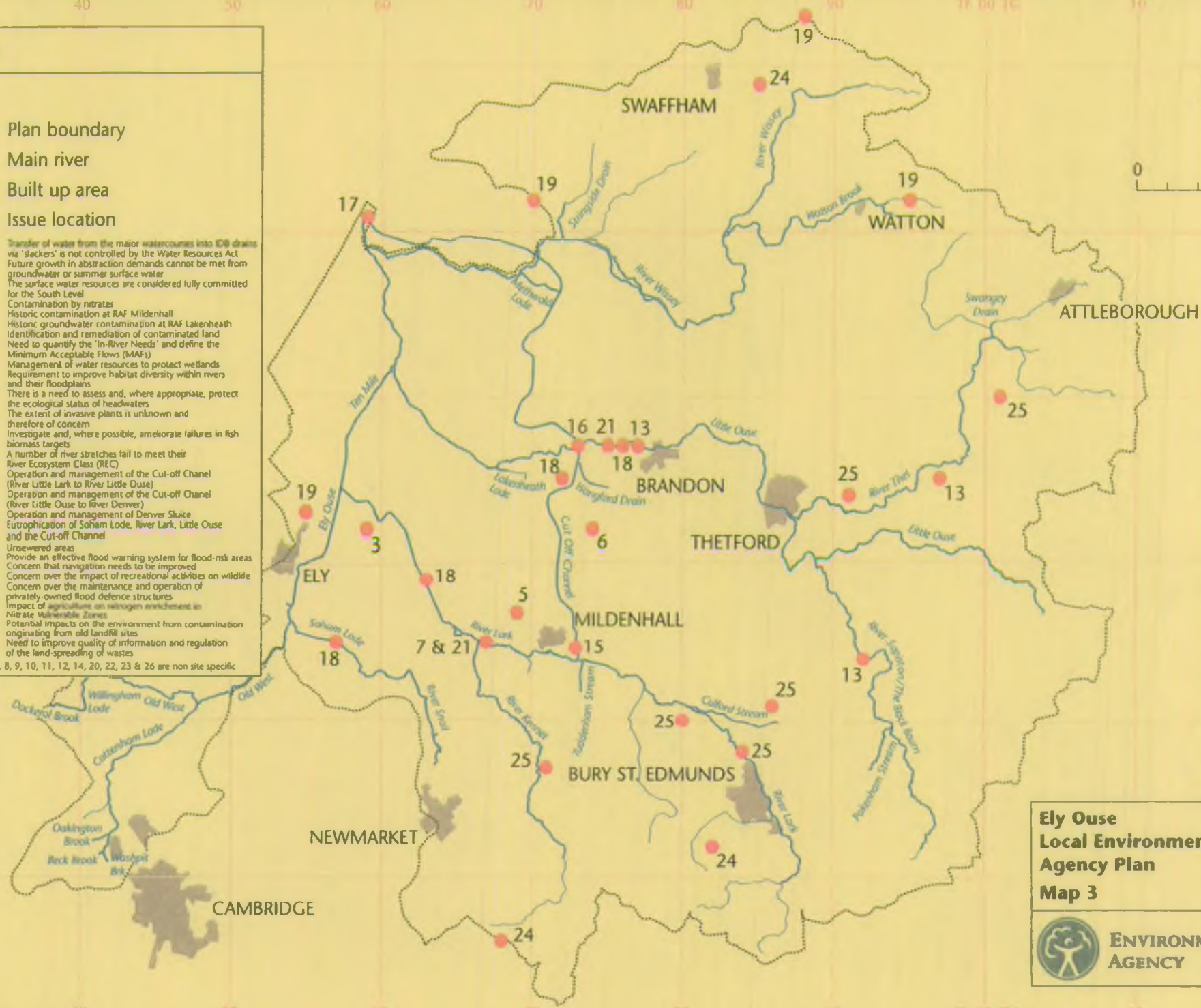
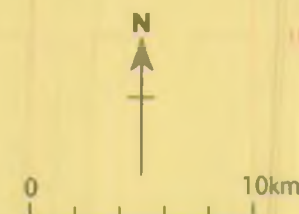
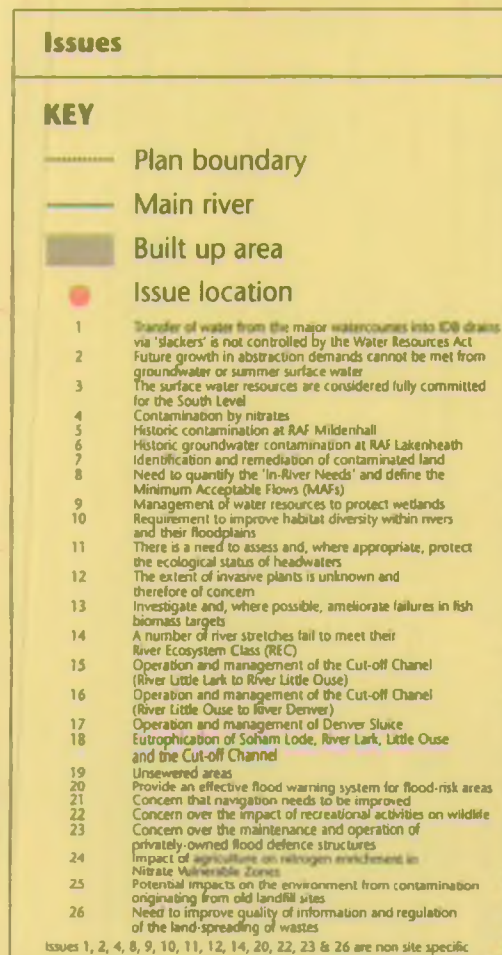
This strategy recognises the need to manage the environment in an holistic way and the value of developing partnerships.

It is hoped that you will give us your views on these issues during the consultation period which runs until 1 April 1999.

3.1 Summary of Issues

The Ely Ouse CMP highlighted 42 issues of environmental concern. Encouragingly, five years on, only 16 of these issues remain unresolved and they have been brought forward into this Draft Plan; they are indicated below. This shows how effective the CMP process was in instigating environmental improvements by identifying and addressing issues. This rolling process has evolved and improved over the years, becoming LEAPs after the formation of the Environment Agency.

The issues that have been identified are listed below and site specific issues are shown on Map 3.



Ely Ouse Local Environment Agency Plan Map 3



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3.2 Addressing Climate Change

The UK, like all countries, emits gases such as carbon dioxide into the atmosphere which are believed to contribute to long-term climatic changes. The UK is likely to be affected in complex ways as and when the climate does change. It is a signatory to the Framework Convention on Climate Change, as agreed at the Rio Summit in 1992, and is taking an active part in international negotiations to obtain commitments beyond the year 2000 for credible, effective and achievable reductions of greenhouse gas emissions.

Ultimately, the National Air Quality Strategy will address this issue and will involve the collaboration of the Agency, local authorities, industry and power generators.

We need to ensure that we incorporate best estimates of climate change into our estimates of flood risk, design for flood defence structures and options for water resources management.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will :

<ul style="list-style-type: none"> • Help to ensure that the Government's greenhouse gas emission reduction targets are met; • Develop methods to improve our estimates of the emissions of methane into the atmosphere from landfill sites; • Promote tax incentives to reduce energy production from burning fossil fuels; • Set an example by reducing our own energy and fossil fuel consumption; • Provide improved mapping of low-lying coastal areas at risk from sea-level changes; 	<ul style="list-style-type: none"> • Invest in research to predict the likely effects of climate change on the environment of England & Wales, and how to manage them; • Develop techniques to identify changes in plant life, using remote sensing techniques, to measure the effects of different weather patterns in sensitive areas; and • Contribute our knowledge and expertise to national and international forums dealing with climate change.
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On the basis of current knowledge and predictions of the potential effects of climatic changes, it appears that, over the coming decades, there may be significant environmental impacts. These include sea-level rise, altered patterns of rainfall, increased water demand, and changing patterns of land use, with consequent impacts across a wide section of economic, social and environmental issues. We believe that there should be a concerted national programme to monitor changes in climate, to improve the accuracy of modelling and to plan for the impacts. Dealing with climate change should be a key theme of the revised UK Sustainable Development Strategy.

The balance of evidence indicates a rise in average global temperature but the likely impacts at a regional scale for East Anglia are less certain. Current predictions are for an increase by 2025 of 0.5°C compared to 0.4°C for north-west Britain. Annual precipitation is predicted to increase by

1-5%, although the monthly rainfall pattern may change by becoming more concentrated between November and March but drier between April and October. Summer rainfall may actually decrease from the present long-term average by as much as 8% by 2025. These predicted changes in rainfall patterns are likely to have the effect of increasing surface run-off during winter, so increasing the risk of flooding, whilst decreasing run-off in summer resulting in summer resources being more limited.

Higher temperatures and reduced summer rainfall will generally lead to increased evaporation and higher soil moisture deficits. Therefore, greater winter rainfall will be required to reduce this deficit before infiltration and significant aquifer recharge can commence and so, although there may be higher winter rainfall in the future, groundwater recharge may become less effective.

Lower groundwater levels may become a long-term problem in the next century.

The greatest uncertainty for water management is the degree of risk of greater extremes for floods and droughts.

If these climate change predictions occur then the likely impact in the Ely Ouse are:

- Reductions in recharge to the chalk and greensand aquifers and thus in the volume of water available for abstraction from ground and surface waters. This could have potentially serious implications for the water supply industry, agriculture, and for the environment.
- Reduced aquifer recharge would result in reduced spring flow to the rivers which would mean that the environment's capacity to assimilate discharges of waste water is reduced. A deterioration in water quality would therefore be expected unless further investment in treatment is provided.
- Accelerated rates of sea level rise could impact upon the area, as it could affect water levels in the tidal river and thus affect the discharge arrangements at Denver Sluice. The Agency does take sea level rise into account in Flood Defence Schemes, and for example, it has been allowed for in the design of the recent embankment schemes which protect the Fens.
- Warmer drier summers would lead to greater demands for water for public supply and irrigation.
- If, as thought likely, the rainfall patterns alter to more high-intensity, short-duration storms followed by longer dry spells the frequency of flooding and droughts might increase.

The first stage in dealing with these potential threats is to determine the risk of them actually occurring and to predict how and where they will first become apparent. This information is likely to be determined from National Government and Agency research projects and disseminated through national policies and strategies e.g. the National Water Resources Strategy circa 2000. There are no specific short-term actions for the Ely Ouse LEAP on climatic change.

3.3 Improving Air Quality

Air quality can be discussed in both global and local terms. It is affected by air pollutants which can be particulate or gaseous in nature. Particulate air pollutants vary greatly; they can be organic or inorganic in nature and range from fine aerosols to wind-borne soil particles. Gaseous air pollutants include substances such as sulphur dioxide, carbon monoxide and ozone. The immediate impact of air pollutants is usually local but these emissions can lead to global problems, for example, acid rain. Because of this we are committed to implementing the National Air Quality Strategy in collaboration with industry and local authorities. Under the Environment Protection Act 1990 (EPA 90), responsibility for the control and monitoring of air quality is placed upon the local authorities and the Agency.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none">• Help the Government deliver its air quality strategy;• Ensure emissions from the major industrial processes to the atmosphere are reduced;• Ensure specific emissions of sulphur dioxide and oxides of nitrogen, which contribute to acid rain, are reduced;	<ul style="list-style-type: none">• Discourage the use of solvents in industry, which contribute to the production of ozone, the major photochemical pollutant; and,• Set an example in reducing emissions from vehicles by reducing our own mileage and increasing the use of public transport.
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Within this LEAP area there are nine sites that have authorisations issued under EPA90 Part 1. All of these sites are compliant with their authorisations and therefore are not considered to have an adverse effect on the local air quality (also see Theme 9: Regulating Major Industries and Section 4: A Better Environment Through Partnership).

3.4 Managing Our Water Resources

We seek to manage water resources in a sustainable manner to balance the needs of the environment with the needs of abstractors and to the benefit of all. Examples include: protecting wetland Sites of Special Scientific Interest (SSSI), meeting water supply demands and supporting rivers during periods of low flow. We monitor river flows, groundwater levels, rainfall and climate to assess the available water resource and, during dry summers, manage the resource and water transfers day-to-day. Detailed groundwater modelling the LEAP area is planned to start in 1999. Officers regulate abstraction by issuing and enforcing licences granted to agricultural, industrial and domestic interests and the operation of water transfers.

We are committed to reviewing our water resources strategy in 1999 - 2000 when we will consider our needs until 2025. It will highlight the need for the Agency, water companies, Office of Water Services (OFWAT) and local authorities to continue to work together to encourage awareness on water conservation and promote efficient water use and supply.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

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| <ul style="list-style-type: none"> • Demand a more efficient use of water by the water companies and by industry in general; • Encourage more efficient use of water by the public and a change in public attitude to water usage; • Promote the development and sale of low-water usage domestic appliances, supported by legislative changes if necessary; • Demand reductions in leakage by the water companies before considering any cases for investment in new reservoirs; • Support the imposition of compulsory selective metering where water supplies are under stress and where meters are economically sensible to install; • Support the voluntary acceptance of water meters when accompanied by other water-saving incentives for the customer; • Vigorously apply our Groundwater Protection Policy to ensure that the quality and use of our groundwaters is improved; • Examine water transfer schemes carefully to ensure that no environmental damage would result from their introduction; • Not approve the exploitation of new environmental resources until water saving measures have been introduced; | <ul style="list-style-type: none"> • Implement the current programme of alleviating low-flow rivers as quickly as possible; • Seek new legislative powers to reform the use of 'licences of right' to extract water from the environment; • Seek new powers to facilitate the inter-basin transfer of water, and for the open and transparent provision of plans and information relating to such schemes in order to broaden the public debate on these important issues; • Ensure the practical limitations arising from water supply and treatment are fully considered by providing planning authorities with all information relevant to new housing or industrial developments; • Ensure that the UK's experience and needs are reflected in the scientific and technical discussions within the development of the EC's Water Framework Directive; • Ensure that all environmental needs are fully taken into account within the next Asset Management Plans (AMPs) negotiations with water companies; and • Research into more efficient methods for the management of water, and into the potential risks for the aquatic environment arising from its mis-management. |
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Issue 1: Transfer of Water From the Major Watercourses Into IDB Drains Via 'Slackers' is Not Controlled by the Water Resources Act.

This issue was raised in the Ely Ouse CMP Action Plan and was titled 'Slacker Demand - Not Controlled by Water Resources Act 1991'. It has been brought forward here, as a voluntary agreement is still in place.

The transfer of water from the major watercourses into IDB drains via 'slackers' (pipes and valves designed to take water away from the fen) is not controlled by the Water Resources Act (1991) due to their installation primarily as land drainage structures.

The amount that is abstracted is unknown and uncontrolled and over abstraction could occur. Levels in the rivers can only be maintained by the Internal Drainage Boards (IDBs) responding swiftly to the Agency's calls for farmers to voluntarily restrict their abstraction. Despite excellent communication and goodwill between IDBs and the Agency, it is still felt that the lack of control on the systems is undesirable.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
Request IDBs to raise inlet levels of slackers.	Undertake capital works. Slacker water abstraction would be controlled by a level that restricted over-abstraction.	There are practical difficulties; this conflicts with use of slackers for land drainage and costs associated with this option.	Agency IDBs
Set up cessation levels on slacker intakes which IDBs would 'voluntarily' adhere to.	Identify cessation levels. Installation of gauge boards. Slacker abstraction would be voluntarily controlled.	Cost of investigation and installation of gauge boards.	Agency IDBs
Restrict irrigation using Section 57 of Water Resources Act 1991 (WRA91) which reduces quantity taken via slackers in critical times (present arrangement).	Control irrigation using existing legislation. This is the current situation which has been used since 1991 and has been accepted by parties concerned.	Cost of enforcement.	Agency Abstractors IDBs
Changes to legislation as highlighted in the DETR Review of Abstraction Licensing.	Better control of abstraction.	Legal costs and costs of imposed change.	Agency
Do nothing.	Cheapest option.	Limited control will continue.	

Issue 2: Future Growth in Abstraction Demands Cannot Be Met From Groundwater Or Summer Surface Waters.

Two issues were raised in the Ely Ouse CMP and were titled 'Insufficient Groundwater to meet Future Demands' and 'Insufficient Surface Water in Summer to meet Current and Future Abstractive Demands'. They have been brought together and are still pertinent as water resources are an issue within this LEAP area.

Our current assessment of the available groundwater and summer surface water resource is that they are fully committed to existing users and the water environment. Therefore, any application for more groundwater or summer surface water cannot be granted. This could mean development is limited by water supplied under existing licence conditions, unless alternative actions are taken such as more efficient use of current resources or importing new resources.

Groundwater is still currently available in areas of chalk which contribute to the upper part of the River Wissey. However, this assessment is to be reviewed and may result in a reduced quantity available for abstraction.

Issue 2: (Continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Store water from rivers during high flows.	Provide more storage of water. Allows more development. Better management of limited water resource.	Cost of reservoir development.	Agency Water Companies Farmers All PWS customers
			MAFF County Councils
Import water from areas of surplus.	Allows development. Better management of limited water resource.	Environmental costs of transfers, eg, electricity, water quality, construction costs etc.	Agency Water Companies Farmers All PWS customers
Reduce demand, eg, metering, recycling etc.	Increase use of metering, low-flush toilets, water butts in gardens etc. Better management of limited water resource.	No disadvantage but there is an issue relating to the social implications of metering and tariffs.	Agency Water Companies Farmers All PWS customers
			DETR Local planners Building Regulation
Carry out review of groundwater balance for Upper Wissey.	Ensure protection and water environment.	Cost of study	Agency
Do nothing.	Cheapest option.	Inefficient use of available water resource. Lack of water in some areas could curtail development.	Agency Water Companies Farmers All PWS customers

Issue 3: The Surface Water Resources Are Considered Fully Committed for the South Level.

This issue was raised as a new issue in the Second Annual Review of the Ely Ouse CMP (August 1996).

The amount of water in the rivers and drains (surface water) in the South Level System was severely depleted during the drought summers since 1990, and as a result the spray irrigation abstraction by farmers was restricted. This raises questions about the resource availability and its reliability, and so a temporary embargo on granting new licences is in force. This means that any new abstraction licences or increase in existing abstraction licences are not to be recommended. There are applications in hand awaiting the decision of the Agency regarding the availability of surface water resources in the South Level. The Agency is planning to complete the project determining the available resource and review their licensing policy by 1999.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
Carry out project to determine the available surface water resource.	To produce a report. Determine outstanding applications. Provides supporting information for determining licence policy.	Cost.	Agency
Maintain embargo without supporting evidence.	Hold applications in hand with applicants consent. Dissuade other applications. Maintains present situation with little cost to Agency.	Unsatisfactory for applicants awaiting decisions.	Agency
Do nothing.	None.	Misleading and will increase conflict between abstractors.	Agency

Issue 4: Contamination by Nitrates.

As required by the European Nitrate Directive (91/676/EEC), which is designed to protect water from pollution caused by nitrates from agricultural sources, the Government has designated 68 areas in England and Wales as Nitrate Vulnerable Zones (NVZs). These Zones cover the catchments of polluted waters where the nitrate limit of 50 mg/l set by the Directive for potable water supply sources has been exceeded or, in the case of groundwater, where it is likely to be exceeded. From 19th December 1998, farmers with land designated NVZs are required to implement 'action programme measures' in order to reduce the risk of nitrate pollution. The measures include restrictions on the application of fertilisers and manures. The Agency has been assigned the role of competent authority responsible for assessing the action programme measures.

Within the LEAP area NVZs have been designated around groundwater sources at Moulton, Bury St. Edmunds and Swaffham.

The Government has produced 'The Action Programme for Nitrate Vulnerable Zones (England and Wales) Regulations' which were laid before Parliament on 12th May 1998 and come into force on 19th December 1998.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Monitor and review data collected to submit to MAFF for further areas to be designated NVZs.	Protection of potable supplies. Compliance with EC Nitrate Directive.	Cost.	Agency
			MAFF DETR
Reduced risk of nitrate pollution by managing the application of fertilisers and manures within NVZs through implementation of Action Programme measures.	Reduction in diffuse nitrate source to controlled waters.	May take 40 years plus for reduction in nitrate concentrations to be measured.	Agency NFU Manufacturers
			Farming Organisations
Installation of nitrate removal plants.	Removes nitrates from potable supplies. AWS will comply with legal commitments.	Cost.	AWS
Blending with low nitrate water at water treatment works.	Dilutes nitrate concentrations in potable supplies. AWS will comply with legal commitments.	Cost. Low nitrate water often associated with high iron concentrations which requires treatment.	AWS
Do nothing.		Continued nitrate contamination of water sources.	

Issue 5: Historic Groundwater Contamination At RAF Mildenhall.

Historic contamination of the Chalk aquifer by hydrocarbons and solvents has occurred at RAF Mildenhall. This may be as a result of leakages of these substances from RAF Mildenhall. The area is in a particularly sensitive location due to the presence of an important public water supply borehole at Beck Row. Poor groundwater quality led to the closure of this source between 1983 and 1989 and the RAF Mildenhall supply borehole was closed and replaced by a new borehole further to the east. The MoD has carried out a comprehensive groundwater investigation together with a land quality risk assessment.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Support site investigation and remediation at RAF Mildenhall.	To improve pollution measures in this area and to identify more accurately the sources of existing pollution so that these can be remedied. This will lead to an overall improvement in groundwater quality.	Cost (Agency staff time).	Ministry of Defence (MoD) Defence Estate Organisation (US Forces) Local Industry
Do nothing.	The US Forces are committed to carrying out site investigation and clean up to UK/US standards whichever is the greater. The Agency should give maximum support and assistance to this project.	Failure to support may lead to further deterioration in groundwater quality.	

The investigations are being organised and funded by the MoD and United States Forces. The Agency has contributed to the project by constructing 11 monitoring boreholes.

Issue 6: Historic Groundwater Contamination At RAF Lakenheath.

Historic contamination of the chalk aquifer by hydrocarbons, solvents and pesticides has occurred at Lakenheath as a result of leakages from RAF Lakenheath. Groundwater and contaminated land investigations have been carried out and a number of areas have been identified for further investigation.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Support site investigation and remediation at RAF Lakenheath.	We aim to improve pollution measures in this area and to identify more accurately the sources of existing pollution so that these can be remedied. This will lead to an overall improvement in groundwater quality.	Cost to MoD.	MoD Defence Estate Organisation (US Forces)
			Local industry
Do nothing.	The US Forces are committed to carrying out site investigation and clean up to US standards. The Agency should give maximum support and assistance to this project.	Failure to support this project may lead to further deterioration in groundwater quality.	

The site investigations are being organised and funded by the MoD and United States Forces.

Issue 7: Identification and Remediation of Contaminated Land and Groundwater.

Past industrial and waste disposal practices were often subject to fewer controls than they are today and less account was taken of the by-products of manufacturing and extractive processes. Consequently, contamination occurred through a mixture of accidental spillage, casual disposal during the normal operation of a factory or plant and a lack of awareness of potential longer-term impacts of their actions. This contamination may stay within the ground until sites are redeveloped; this may release potentially harmful substances to the atmosphere and/or into ground and surface waters. Any redevelopment of contaminated sites (including landfill sites) must be accompanied by a detailed site investigation.

Until now the problems associated with contaminated land have tended to be addressed almost exclusively in the context of site redevelopment. The Agency and its predecessors have worked through the Town and Country Planning process to effect site clean-ups and protect the water environment. The Agency will carry out site inspections in order to improve pollution prevention measures.

The Agency has existing responsibilities relevant to land contamination under its pollution control functions. The implementation of Section 57 of the Environment Act 1995 (expected July 1999) will provide a new legal framework for dealing with contaminated land. Under this regime, the Agency will have new duties and powers which complement those of local authorities.

These will include:

- providing information to local authorities on land contamination;
- ensuring remediation of special sites,
- maintaining register of special sites remediation,
- preparing a national report on the state of contaminated land;
- providing advice to local authorities on identifying pollution of controlled waters, and
- providing advice to local authorities on the remediation of contaminated land.

There are several groundwater provinces in this LEAP area that are confirmed as contaminated under the Agency's existing powers or will need investigation under the new powers. Mildenhall Industrial Estate, British Sugar at Bury St. Edmunds, Oil and Pipeline Agency at Thetford and RAF Honnington are amongst the sites where investigations have already commenced. Other sites may become apparent once the Agency's powers under the new legislation are implemented, eg, old landfill sites such as Ingham waste disposal site. The Agency will assist in investigations into areas such as the industrial estate at Lakenheath.

Issue 7: (continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Liaise with local authorities to identify contaminated land and advise on appropriate action.	Contaminated land will be identified and cleaned up.	Cost.	Agency Local authorities
Regulate the clean up of land already identified as contaminated.	Identified contaminated land will be cleaned up.	Cost. Not funded by tax payer.	Agency Local authorities
Cause polluters to clean up contaminated land.	Contaminated land will be identified and cleaned up at limited cost to the Agency.	Could be difficult to identify original polluters and the cost will fall on current landowner.	Land owners
Continue monitoring groundwater contamination at Oil and Pipeline Agency at Thetford, Mildenhall industrial estate and Lakenheath industrial estate.	The full extent of contamination will be identified.	Cost.	Agency
Do nothing.	Cost.	Land will not be used in a sustainable manner and will pose a long-term threat to the environment. Contamination may spread more widely through the aquifer.	Agency
			Local authorities Landowners

3.5 Enhancing Biodiversity

Biodiversity, the variety of life on Earth, is thought to be declining at an alarming rate. In the UK alone, more than 100 species are believed to have become extinct this century.

The government's contribution to maintaining and enhancing biodiversity is being delivered at a national level through the UK Biodiversity Action Plan (BAP), published in 1994. This publication identifies and sets targets for those species and habitats considered both rare and in decline. The Agency is the contact point for chalk rivers and for the following 12 species:

• water vole	(<i>Arvicola terrestris</i>)
• otter	(<i>Lutra lutra</i>)
• vendace	(<i>Coregonus alba</i>)
• white-clawed (native)/Atlantic stream crayfish	(<i>Austropotamobius pallipes</i>)
• southern damselfly	(<i>Coenagrion mercuriale</i>)
• depressed river mussel	(<i>Pseudonodonta complanta</i>)
• shining rams-horn snail	(<i>Segmentina nitida</i>)
• snail	(<i>Anisus vorticulus</i>)
• glutinous snail	(<i>Myxas glutinosa</i>)
• freshwater pea mussel	(<i>Pisidium tenuilineutum</i>)
• river jelly lichen	(<i>Collema dichotomum</i>)
• ribbon-leaved plantain	(<i>Alisma gramineum</i>)

Biodiversity will be a key indicator of the successful implementation of sustainable development in a plan area. The National BAP targets will be delivered locally at a county level and undertaken by environmental organisations, including the Agency and local authorities. (For more information refer to Section 4.2: Local Agenda 21 and Biodiversity Action Plans.)

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none"> • Play a full part in implementing the EC Habitats Directive; • Play a full and active part in delivering the UK's Biodiversity Action Plan by acting as the 'contact point' for the chalk rivers plan, and for 12 species of aquatic animals and plants, including the otter, the water vole and rare species of fish, and by acting as the 'lead partner', either singly or in collaboration with others, for 10 of them; • Ensure that all aspects of the Biodiversity Action Plan are incorporated into the Agency's guidance and become part of its LEAP; • Implement a series of regional projects, in partnership with local conservation groups, to deliver biodiversity targets at specific sites; • Allocate specific resources to conservation projects aimed at increasing biodiversity; • Control eutrophication, where feasible, in order to enhance biodiversity; 	<ul style="list-style-type: none"> • Improve the management of wetlands for conservation purposes; • Use and promote best environmental practice for the protection and restoration of river habitats; • Develop and set conservation criteria for all of the Agency's environmental licensing activities; • Implement specific projects to restore habitats in rivers and lakes, increase the area of reed beds and other water plants, and improve river banks; • Ensure that there is no deterioration in the quality of the aquatic environment in particular, and deliver significant improvements in river and still water quality by tackling diffuse pollution of them; and, • Carry out research into the management of species in the aquatic environment in order to meet fully all biodiversity action plan targets.
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Issue 8: Need to Quantify the 'In-River Needs' and Define the Minimum Acceptable Flows.

This issue was raised in the Ely Ouse Cam CMP Action Plan and was titled 'In River Needs are not Quantified and Minimum Acceptable Flows need to be defined'. It has been brought forward here, as the identified work was not carried out in the last five years.

We are responsible for assessing the available water resource and allocating water for abstraction whilst protecting the river and wetland environment. The current methodology allocates water for the river using flow statistics and has proven to be adequate in most circumstances. However, more research is needed and a better approach may be to identify the 'in-river needs', ie, the water needs of the river's ecology and then allocate a more appropriate quantity from the available resource.

Anglian Region is developing an invertebrate flow index - Lotic Invertebrate Flow Evaluation index (LIFE) to help address needs. The development of Biodiversity Action Plans (BAPs) for both habitats (eg, reed-beds) and individual species (eg, water voles) will need to include specific flow criteria and thereby further this issue.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Develop BAPs for specific habitats and species, which includes flow criteria.	To identify flows necessary to protect ecology in river. Better policy to protect ecology in river.		Agency
Promote 'in river needs' study for the Ely Ouse, including development of a LIFE index.	To identify flows necessary to protect ecology in river. Better policy to protect ecology in river.	Cost.	Agency
Do nothing.	Continue with present policies. Cost.	Rivers are still protected but not using best available science.	Agency

Issue 9: Management of Water Resources to Protect Wetlands.

This issue was raised in the Ely Ouse CMP and was titled 'Catchment Areas for Wetland Sites of Conservation Needs to be Defined' and is still relevant.

The issue is a refined version of the issue raised in the CMP and questions whether or not a better approach should be adopted to identify catchment areas for wetlands and how in doing so the Agency complies with new legislation and government initiatives (Habitats Directive) and Water Level Management Plans (WLMPs). A primary aim of this issue is to collect and collate data to ensure not just maintenance of the status quo but to further enhance specific wetland habitats.

We are responsible for assessing the available water resource and allocating water for abstraction whilst protecting the river and wetland environment. The current methodology protects wetlands by calculating the effect of each abstraction proposal and calculating the risk to individual wetland sites.

The options below are not mutually exclusive some are already in progress and it is likely that most will be pursued.

In fact boreholes have already been drilled for the hydrological monitoring of wetlands. Most WLMPs have been prepared.

Issue 9: (continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Identify catchment areas for wetlands.	Produce map showing protected areas for wetlands. Ideal planning tool.	The science is not that advanced and this may not be possible and be too prescriptive.	Agency English Nature Wildlife Trusts County Councils Other environmental organisations
Carry out monitoring at 8* wetland sites.	Provide more information to better protect wetlands.	Cost of monitoring.	Agency
Produce WLMP for 16 sites identified. (Refer to 4.1 Theme 4: Enhancing Biodiversity.)	Undertake initiative introduced by MAFF. Better management and protection of sites.	Cost.	Agency MAFF English Nature Landowners
Carry out review as required by Habitats Directive.	Better protection of habitats identified under Habitats Directive. Compliance with European Directive (92/43/EEC)	Cost.	Agency Abstraction Licence Holders
Promote wetland enhancements identified in previous options.	Enhanced conservation value.	Cost.	Landowners Agency English Nature
Do nothing (not applicable to European sites under the Habitats Directive).	None.	Failure to protect wetlands to best advantage. Sites would still be protected under current policies.	Agency

*8 sites: Cavenham/Icklington Heath, Hopton Fen, Pashford Pools Fen, Weston Fen, East Wretham Fen, Middle Harling Fen, Stanford Training Area and Thompson Common (not shown on Map No 3: 'Issues')

Issue 10: Requirement to Improve Habitat Diversity Within Rivers And Their Flood Plains.

This issue encompasses 3 issues raised in the Ely Ouse CMP, namely; 'Loss of Wetland Grassland Adjacent to Rivers in Rural Areas', 'Hold Water on the Floodplains' and 'River Corridor Habitat on Embanked Watercourses'.

Historically, fisheries and general ecological issues have been presented separately in LEAPs. There is, however, often a fine line between an issue that relates to fisheries management/improvements and one that relates to the ecology of the river as a whole (of which fish are an integral part). In recognition of this fact these issues are presented in an integrated way in the LEAP. Where there is a specific issue that relates to fish and not to other aspects of the ecology of the aquatic environment, or vice versa, then this has been identified separately.

Until recently, river management across the Region was driven by agricultural policies to improve drainage within the flood plain and hence maximise the production of cereals. These activities have resulted in the loss of many in-channel and flood-plain habitats. Recent changes in land-use policies as a result of reforms, such as of the Common Agricultural Policy, provide the potential to add ecological value to some sections of the rivers through a variety of enhancement techniques where this does not undermine land-use in the flood plain.

Details of agri-environment schemes can be obtained from MAFF Regional Services Centre.

Issue 10: (continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Identify areas where flood control standards could be relaxed.	Improved habitat and biodiversity in rivers and the flood-plain. Local benefits to flood defence through flood meadow storage.	Cost.	Agency
			Land owners Local authorities
Restore flooding to natural flood-plain by construction of 'riffle' weirs to increase the water table locally.	Improved habitat and biodiversity in rivers and the flood-plain. Local benefits to flood defence through flood meadow storage.	Cost.	Agency
			Land owners FRCA Local authorities
Influence funding and policies in agri-environment schemes, eg, Countryside and Arable Stewardship Schemes.	Habitat improvement through environmentally sensitive traditional farming practices.		Agency
			Land owners FRCA Local authorities
Identify opportunities to enhance habitat diversity during flood defence works (especially BAP species and habitats.) Encourage recording of plants and animals dependant on the river corridor and associated habitats by field staff and others.	Achievement of BAP species and habitats targets. Maintain and enhance biodiversity in the wider countryside.	Costs/Resources.	Agency
Review grass cutting of flood defence banks.	The habitats for breeding birds and mammals are protected. Biodiversity enhanced.	Cost.	Agency
			Land owners FRCA Local authorities
Consider establishing buffer zones alongside rivers.	Reduced damage to banks by stock and farm machinery. Reduced soil erosion and diffuse pollution.	Cost.	Agency
			FRCA
Implement actions for rivers and wetlands BAP, eg, by encouraging creation of new habitats and appropriate management of existing habitats/species.	Achievement of BAP habitat and species targets.	Costs/Resources.	Agency
			English Nature Local authorities Land owners Wildlife Trusts RSPB

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Encourage tree planting in agreed areas and appropriate tree management/pollarding along river corridors.	Both habitat and landscape enhanced. Reduce premature decay and death. Proactive and strategic approach to flood defence needs.	Cost.	Agency
			Land owners FRCA Local authorities
Do nothing.	Cost.	Degraded habitat and landscapes remain.	

Issue 11: There is A Need to Assess and, Where Appropriate, Protect the Ecological Status of Headwaters.

Headwaters of rivers contribute significantly to the biodiversity of rivers. There are, for example, many macro-invertebrates (some of which are rare), that are exclusive to, or are predominantly found in, headwaters. Our knowledge of the status of headwaters is very limited, as is our understanding of the impact of agricultural practices, water quality and resource issues. This issue links into issues which are assessing the best use of the available water resource (including supporting headwaters).

The Agency has a lead role in protecting chalk rivers, eg, Rivers Little Ouse and Lark, which often support unique flora, fauna and fish populations.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Assess the level of data on headwaters and identify priorities for completing species level surveys of selected headwaters: upper reaches of rivers Thet, Lt. Ouse, Sapiston and Lark.	Fulfilment of conservation duties. Protection of chalk riverine biodiversity.	Cost.	Agency
			English Nature
Identify a strategy for the protection of headwaters.	Fulfilment of conservation duties. Protection of chalk riverine biodiversity.	Cost.	Agency
			English Nature
Do nothing.	Cost.	Risk of further loss of conservation importance of headwaters.	Agency

Issue 12: The Extent of Spread of Invasive Plants is Unknown and Therefore of Concern.

A number of non-native plant species were introduced into Britain in the nineteenth century, including giant hogweed (*Heracleum mantegazzianum*), Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*). Since their introduction they have become common throughout the British Isles.

These invasive plants crowd out native species and damage natural habitats. As they are not native species, few insects, birds or mammals are suited to utilising them as natural habitat or food. Because they grow extremely densely when they die back in autumn, it can leave river banks unprotected and vulnerable to erosion.

The giant hogweed is a risk to human health: if sap comes into contact with the skin it can cause hypersensitivity to sunlight, blistering and burning. The Wildlife and Countryside Act 1981 makes it an offence to plant, or cause to grow, giant hogweed or Japanese knotweed in the wild. We have produced a booklet entitled *Guidance for the Control of Invasive Plant Species Near Watercourses* which identifies methods for dealing with invasive plant species.

There are also aggressively invasive aquatic species, such as, *Myriophyllum aquaticum* (parrot's feather) and *Crassula helmesii* (Australian swamp stone crop or New Zealand pigmyweed) which have been introduced as ornamental plants. They appear to be spreading via garden ponds and lakes throughout Britain. These plants which can be purchased through Garden Centres can easily out compete native plants and are becoming established in the wild.

The degree of spread of all these species in the Ely Ouse area needs to be ascertained.

Issue 12: (Continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Review all current river corridor survey information to ascertain current status. Carry out a survey to identify distribution and hence the most affected areas and evaluate methods of control and eradication. Encourage recording of invasive plants by field staff and others.	Protection of native species and river banks in a cost effective manner.	Cost.	Agency
Implementation of a systematic programme of control and eradication. Carry out control on Agency managed sites, where necessary.	Protection of native species and river banks.	Cost.	Agency Local authorities
			Land owners Wildlife groups
Encourage Garden Centres not to stock invasive plants.	Prevent more introduction of non native species.		Agency
Make Invasive Plant booklet widely available. Increase awareness of the full impact of planting invasive species. (Refer to Section 4.3 Education and Awareness.)	Better public awareness. Reduced introduction and spread of invasive plants.	Resources.	Agency
			Land owners Garden Centres
Do nothing.	Cost.	Increase in spread of non-native species. Banks become eroded, increasing the risk of flooding. Could lose native species as they are out-competed.	Agency

3.6 Managing our Freshwater Fisheries

Our long-term strategy for the maintenance and improvement of salmon, trout and coarse fisheries is being developed. Our vision for fisheries is that all waters will be capable of supporting thriving fish populations and that everyone will have the opportunity to experience a wide range of good-quality fishing. We will strive to maintain and improve the quality of a river's fisheries by effective regulation and enforcement and will measure our success by a commitment to a five-year rolling programme of survey work.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none"> • Secure a more robust funding base for fisheries management by improved marketing and the setting of fair charges to anglers; • Review the economic basis of fisheries management; • Introduce a standard fisheries classification scheme; • Monitor all river fisheries over a five-year rolling cycle; • Restore spawning grounds for freshwater fish; • Tackle mine-water pollution at the head of streams to improve spawning grounds; • Implement a programme of Minimum Acceptable Flows for rivers; 	<ul style="list-style-type: none"> • Develop specific longer-term strategies for salmon, trout and coarse fisheries; • Reduce poaching to a minimum and bring rod licence evasion to under 10%; • Consider the likely cost and benefits of fixed penalty fine schemes for rod licence offences; • Consider the desirability of introducing mandatory rod licence display systems; and • Research into the factors which affect the viability of our unique freshwater fisheries population.
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Issue 13: Investigate and Where Possible, Ameliorate Failures in Fish Biomass Targets.

This issue was raised in the Ely Ouse CMP Second Annual Review and was titled 'Failure to Reach Fish Biomass Class Target'.

A number of habitat improvement schemes have since been undertaken; their objective extends beyond improving the weirs for fish since other aquatic life are also considered during project design and installation. Recent projects include the restoration of a back channel on the River Thet which provides a spawning and nursery area for coarse fish, a shelter from winter high flows in the main river. An island has also been isolated to improve the terrestrial habitat. Flow deflectors in the form of wooden croys were installed on the River Little Ouse, these should improve the instream habitat diversity in this locality and attract coarse fish.

In the current financial year we are creating fish refuges on the Old West; the planned work involves dredging, reedbed management and bushing work to the adjacent trees. The angling club who lease the fishing rights from the Agency are closely involved to ensure the maximum angling and conservation benefits are achieved.

We are continuing to monitor the fish populations and biomass through our routine fisheries survey programmes. It is anticipated that future habitat restoration and enhancement projects will also be identified.

It is recommended that we extend our investigations to include all the river of the Ely Ouse LEAP area, working closely with angling clubs and other interested parties.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Habitat enhancements as described in issue 10, on River Little Ouse upstream of Brandon and its tributaries.	Fulfills duties under Fisheries and Conservation Legislation. Fishery potential of the rivers improved/reached.	Cost.	Agency
Creation of fish 'refuges' on the Old West at the Lazy Otter.	Fulfills duties under Fisheries and Conservation Legislation. Fishery potential of the rivers improved/reached.	Cost.	Agency
Do nothing.	Cost.	Fishery potential of the rivers not improved/reached.	Agency

3.7 Delivering Integrated River Basin Management

Integrated river basin management is the need to look at river corridor habitats as a single entity, through an integrated approach, rather than looking at individual uses or users in isolation, with the aim of balancing conflicting needs.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none"> • Manage river-basins in an integrated way, via LEAPs; • Ensure that all waters are of sustainable quality for their different uses; • Deliver a continual improvement in overall water quality; • Provide effective flood defence; • Provide an effective flood warning system; • Increase the number of rivers and still waters capable of supporting viable fisheries; • Enhance and conserve inland navigation, as national assets of environmental, economic, social and recreational value; • Secure the most appropriate legislation, management systems and financial arrangements to ensure the sustainability of our navigational waters; 	<ul style="list-style-type: none"> • Work with others to improve and develop inland waterways as an integrated network; • Improve river habitat quality, as measured by river habitats surveys; • Improve wetland management; • Improve riverside landscapes; • Improve bathing water quality; • Improve estuarine waters for shell fisheries; • Increase the number of Agency-owned sites available for public recreation; and • Work with local authorities to maximise the conservation and recreational use and value of our river-basins.
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Issue 14: A Number of River Stretches Fail to Meet Their River Ecosystem Classification Target.

In the Ely Ouse Second Annual Review contained 11 issues related to River Ecosystem Classification (REC) target failures. Those that remain as issues have been consolidated into one issue.

In late 1996 the Director General of OFWAT announced his intention to review the price limits for the 29 Water Companies in England and Wales and to set new price limits to operate from 1 April 2000 to 2010. The Agency will assist the review as an independent regulator. Its key responsibilities are to identify and prioritise the improvements to both water quality and quantity that will be required over the period 2000 to 2005. This review will be the third round of Asset Management Planning (AMPs) for the water industry since privatisation.

Failure of Water Quality Objectives (WQOs) are widespread throughout the Ely Ouse LEAP area. The majority of failures are due to low dissolved oxygen (DO) concentrations and elevated Biochemical Oxygen Demand (BOD) values. Both DO and BOD are adversely affected by low flow conditions, excessive plant growth and algal blooms (refer to issue 18: Eutrophication of Soham Lode, River Lark, Little Ouse and Cut-off Channel).

Failures of WQOs along the following river stretches, have highlighted the following issues:

Cottenham Lode is a land drainage fed lowland system. The impact of the discharge from Cottenham STW and the long-term accumulation of silts have been maximised as a result of static flow conditions. The STWs has now been closed so an improvement in DO levels should be achieved.

The River Snail and the Soham Lode (a lowland reach of the River Snail) both currently fail their WQOs with respect to ammonia and DO due to the discharges from Newmarket STW.

The River Lark from Bury St Edmunds A134 Road Bridge to West Stow fails with respect to ammonia. Further investigations are needed to identify the reasons for failure.

The headwaters of the Little Ouse River fail to meet both DO and unionised ammonia targets. Low summer flows combined with both direct and diffuse sources of pollution from Kerry Foods operations cause non-compliance with REC targets. This latter problem is being addressed by Kerry Foods.

The quality of the Elmswell tributary of the Blackbourne is affected by the consented discharge from Harris Foods at Elmswell. This discharge has ceased temporarily from 1997 due to changes in production.

Issue 14: (Continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Larling Brook Continue routine monitoring.	Meet RE 2 (DO). Meet user-quality needs.	Cost.	Agency
Stringsides Stream Continue routine monitoring.	Meet RE 2 (DO). Meet user-quality needs.	Cost.	Agency
Soham Lode and River Snail Newmarket STW has been highlighted as requiring investment under AMP3 in order to achieve its river needs consent. Decisions by the Secretary of State on the funding for the environment programme will be made in March 1999.	Meet RE 3 (DO, unionised ammonia). Meet user-quality needs.	Cost to Anglian Water Services Ltd.	Anglian Water Services Ltd
River Lark Discretionary funding for improvements at Bury St. Edmunds to be completed by end December 1998. Investigate source of ammonia pollution upstream of STW and regulate and control any unconsented discharges of effluent.	Meet RE 3. Remove threat to fish life in summer. Meet user quality needs.	Cost to Anglian Water Services Ltd.	Anglian Water Services Ltd
Elmswell and Sapiston Tributary of Black Bourne Continue quality monitoring.		Cost.	Agency
Enforcement action against non-compliant discharges.	Meet RE 4 for dissolved oxygen and ammonia.	Cost.	Agency
			Anglian Water Services Ltd
			Industry
Do nothing (not an option for monitoring).	Avoid conflict between user & quality needs.	Failure to meet RE targets.	Agency
			Anglian Water Services Ltd

Issue 15: Operation and Management of the Cut-off Channel (River Little Ouse to Denver)

This issue was raised in the Ely Ouse CMP Second Annual Review and concerned the difficulties experienced by anglers in trying to fish between Wereham and Denver when there is excessive weed growth.

A broader issue of weed growth patterns and characteristics is being considered as part of a study into the operation of Black Dyke Pumping Station. This pumping station regularly becomes blocked when operated in the late summer by vast accumulations of floating weed. Weed surveys of the Cut-off Channel were carried out in 1997 and will be repeated in 1998 and 1999 with an aim of scheduling more effective weed cutting regimes.

In addition fish mortalities have occurred in recent years as congregations of fish have been pulled into the pumping station. The fish have been caught by the pull of the pump whilst they sheltered under floating weed accumulations around the screens. Various schemes have been considered to deter fish from the area including a trial and evaluation of an acoustic screen. However, the preferred option is to install bubble curtains (these have provide effective elsewhere) and to restock as necessary.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Install bubble curtains.	Fish mortalities prevented.	Cost. Effectiveness uncertain.	Agency
Review optimum times for weed cutting based on weed survey data and implement recommendations.	Excessive weed growth prevented enabling better angling and continuous operation of Black Dyke Pumping Station.	None - cost of review should be recovered by weed cutting efficiency savings.	Agency
Do nothing.	Cost.	Angling still impaired. Possible loss of improved effective and efficient weed cutting. Fish mortalities will continue.	Agency

The existing river control levels were determined in the 'Denver Operating Rule Levels' drawn up in 1985. These rules stated that the target levels in Cut-off Channel should be 99.5 to 99.7 m South Level Datum (SLD) measured at Denver during the Summer period (1st April - 31st October), and 99.3 m SLD measured at Denver during the Winter period (1st November - 31st March). These two target levels are dependant on prevailing weather and flow conditions.

The Tidal River Siltation Study is being carried out by Posford Duvier on behalf of the Agency and involves partners such as RSPB, IDBs and English Nature. The proposals to reduce siltation in the tidal river will be available early 1999. In the meantime, the levels indicated below will remain in force until the proposals are implemented.

Interim Levels

A review of the existing operating levels was recently carried out and the Agency are proposing to implement revised interim levels in the Cut-off Channel. These levels take into account the Soil Moisture Deficit (SMD) at different periods during the year, the flow conditions in the Ely Ouse and Cut-Off Channel, the operational constraints at Denver and Blackdyke and the impact that the Cut-Off Channel level has on adjacent land. However, it needs to be appreciated that some of these issues conflict which is often a feature of a man-made system with many uses like the Fens.

The proposed levels are as follows:

Normal Winter Level (SMD less than 25 mm/No Water Transfer to Essex or Flood)
Level measured at Denver: 99.3 m SLD

Drought Winter Level (SMD probably above 25 mm/Water Transfer to Essex probably on)
Level measured at Denver: 99.5 m SLD

Normal Summer Level (SMD greater than 25 mm)
Level measured at Denver: Min 99.55 m SLD to a Max 99.7 m SLD

Drought Summer Level (SMD greater than 25 mm/Water Transfer on)
Level measured at Denver: Min 99.55 m SLD to a Max 99.8 m SLD

Issue 16: Operation and Management of the Cut-off Channel (River Lark to Little Ouse)

This issue was highlighted in the Ely Ouse CMP but remains unresolved.

The Cut-off Channel is a manmade watercourse, constructed circa 1960 as part of a major flood defence scheme, used to divert water from the Rivers Lark, Little Ouse and Wissey north to the Relieve Channel. Throughout its length between the Rivers Lark and Little Ouse the water is retained by a series of four weirs.

The channel is constructed through the chalk aquifer and there appears in many reaches to be an interaction between the channel and groundwater level, and possibly groundwater abstraction adjacent to the channel.

Agricultural areas to the west of the channel rely on the channel as a source of water both by natural leakage and direct transfer. Also a nature conservation site is likely to be dependent on the cut-off channel level and leakage from it.

During dry summers the flow between the ponded reaches reduced and in the Griswell area can fall below the weirs, which can cause stress to the fish population. The Cut-Off Channel has no natural inflow and relies on a small continuous water transfer from the River Lark to maintain its integrity.

A particularly notable year for problems was 1991 when difficulties occurred in operating the transfer from the River Lark to retain the levels in the Cut-Off Channel without having a disbenefit to the River Lark. This situation occurred concurrently with irrigation bans in the River Lark catchment.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Carry out a hydrological and environmental study of the Cut-Off Channel.	More effective resource management in the Cut-Off Channel and River Lark. Improved management of the Cut-Off Channel habitats.	Cost.	Agency
			Local Abstractors, including Water Company
Prevent leakage from Cut-Off Channel into surrounding land.	Retention of level in the Cut-Off Channel. Reduced water transfer from River Lark.	Cost (may not technically feasible). Some areas adjacent to the Cut-Off Channel rely on the seepage as a source of water.	Agency
Do nothing.	Save costs.	The issue remains unresolved and problems may occur during another drought period.	Agency

Issue 17: Operation and Management of Denver Sluice.

This issue was raised in the Ely Ouse CMP and was titled 'Reduction of Ely Ouse MRF at Denver' and is still relevant.

The Denver Complex forms the focus of the flood defence system that protects the low lying lands of the fens from the inundation by the sea and freshwater floods. Its construction has a long history, and the Agency now has responsibility of ensuring that this vital flood protection to the lands, people and infrastructure of the Fens is secured.

In the recent years relatively low rainfall has caused problems in the management of Denver Sluice; the low flows in the Ely Ouse System has meant that the sluice has not been able to operate at its maximum capacity. This has had the effect of raising the tidal river bed levels, which in turn causes the lower tide level to be higher and thereby impedes gravity discharge to the tidal water. One of the most important impacts is on the drainage of the Ouse Washes through Welmore Lake Sluice. The raised river bed level also reduces the flow capacity of the waterway, with adverse effects on flood defence standards.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Operate with a higher upstream level.	To maximise the flow through Denver Sluice. Reduce the siltation in the Tidal River. Increase the discharge from the Ouse Washes.	Reduce headroom at bridges for navigation. Increase the risk of bank seepage. Mooring arrangements.	Agency
			IDB Boating organisations
Retain water in the Ouse Washes.	Give preference to Denver Sluice for discharge. Gives the opportunity for Denver Sluice to discharge.	Retaining water on the Washes would conflict with other users needs. Causeway flooded for a longer period.	Agency
			English Nature RSPB Landowners
Improve flow gauging at Denver Sluice.	Allow more flexibility in setting gate positions. Help in the management of Denver Sluice.	Increase in revenue and capital costs.	Agency
Additional telemetred river level gauges.	To aid management of the river system. Increase in information for those personnel that manage the system.	Increase in revenue and capital costs.	Agency
Do nothing.	No increase in revenue or capital costs.		

The existing river control levels were determined in the Denver operating rule levels drawn up in 1985. These rules stated that the target levels in Ely Ouse System should be 1.6 m AOD at Ely during the Summer period (1st April - 31st October), and 1.5 m AOD at Ely during the Winter period (1st November - 31st March). These two target levels are dependant on prevailing weather and flow conditions.

Tidal River Siltation Study is being carried out by Posford Duvier on behalf of the Agency and involves partners such as RSPB, IDBs and English Nature. The proposals to reduce siltation in the tidal river will be available early 1999. In the meantime, the levels indicated below will remain in force until the proposals are implemented.

Interim Levels

A review of the existing operating levels was recently carried out and the Agency are proposing to implement revised interim levels in the Ely Ouse System. These levels take into account the SMD at different periods during the year, the flow conditions in the Ely Ouse System, the operational constraints at Denver and the needs of the users of the river for agriculture and recreation. The proposed levels are as follows:-

Normal Winter Level (SMD less than 25 mm/No Water Transfer or Flood)
Level measured at Ely: 1.5 m AOD

Drought Winter Level (SMD probably above 25 mm/Water Transfer likely on)
Level measured at Ely: 1.7 m AOD

Normal Summer Level (SMD greater than 25 mm)
Level measured at Ely: 1.6 m AOD

Drought Summer Level (SMD greater than 25 mm/Water Transfer on)
Level measured at Ely: Max 1.7 m AOD to a Min 1.45 m AOD

Issue 18: Eutrophication of Soham Lode, River Lark, Little Ouse and the Cut-off Channel.

This issue was raised as a new issue in the Second Annual Review of the Ely Ouse CMP.

The definition of eutrophication as adopted by the Agency is: *The enrichment of waters, by inorganic plant nutrients, which results in the stimulation of an array of symptomatic changes. These include the increased production of algae and/or other aquatic plants, affecting the quality of the water and disturbing the balance of organisms present within it. Such changes may be undesirable and interfere with water uses.*

Phosphate is an inorganic plant nutrient and levels in the Soham Lode, Rivers Lark, Little Ouse, Ely Ouse and the Cut-off Channel exceed the concentrations in the DETR guidance for the identification of Sensitive Areas under the Urban Waste Water Treatment Directive (UWWTD). Symptoms of eutrophication vary throughout the area, but include filamentous algal growths, algal growths, algal blooms in the water column and associated higher-than-normal diurnal variations in DO levels.

The DETR has agreed the designation of the Cut-off Channel as a Sensitive Area (Eutrophic) and as a result, phosphate removal is required to be in place at Bury St Edmunds STW by the end of 1998.

A further review of data for potential designations of Sensitive Area (Eutrophic) under the UWWTD was undertaken in 1997 and Soham Lode and the rivers Lark and Little Ouse were submitted to DETR in December 1997 for designation. The DETR agreed these designations in July 1998 and as a result Newmarket, Soham, Mildenhall, Thetford and Attleborough STWs will be required to meet limits for phosphate by 2004. (All of these STW are equivalent to a population of more than 10 000.) The Ely Ouse was rejected by the Agency's National Panel for designation and a further review of the data collected will occur in 2001 for possible resubmission.

Phosphate control at the qualifying STW may not be sufficient to control fully the effects of eutrophication.

Issue 18: (Continued)

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Phosphate removal at Bury St Edmunds STW by 1998.	Reduction in eutrophication.	Cost to AWSL.	AWSL
As a result of the DETR designation phosphate removal will be required at Newmarket, Soham, Mildenhall, Thetford and Attleborough STWs by 2004.	Reduction in eutrophication.	Cost to AWSL.	AWSL
Review data collected for the Ely Ouse to highlight areas where phosphate removal may be advantageous.	Submission of areas to the DETR for designation of Sensitive Areas (Eutrophic) eg, Ely Ouse.	Cost/Resources.	Agency
Do nothing.		Continued eutrophication of watercourses with symptoms as discussed above.	

Issue 19: Unsewered Areas

This issue was raised in the Ely Ouse CMP and was titled 'Unsewered Villages Where Septic Tanks Discharge to Watercourses' and is still relevant.

There are several villages in the LEAP area that are unsewered. The disposal of domestic foul sewage is usually by means of septic tanks, cesspools or small sewage treatment plants. The effluent from septic tanks should be soaked away into land within the confines of individual house plots. However, much of the upper area in the Ely Ouse LEAP is overlain by boulder clay and there are outcrops of Gault clay elsewhere. Soakaways do not work well in clay soils and there is a tendency for house holders to direct effluent to ditches and streams. Cesspools are watertight storage tanks, the contents of which should be tankered away for disposal off site. Because of the distance from these unsewered villages to main watercourses, significant pollution of rivers does not occur. However, these discharges are illegal and do give rise to local ditch pollution resulting in complaints of smell and nuisance.

In some circumstances the solution may involve the installation of a private treatment plant, but the introduction of first time rural sewerage for the whole village is often the preferred solution. There are known difficulties due to absent or restricted main drainage in the following villages: Boughton, Carbrooke, Chettisham, Gt. and Lt. Dunham, Gt. Ellingham, Kenninghall and West Dereham. However, certain specified conditions must be met before AWSL are obliged to provide a public sewer.

Carbrooke, Boughton, Gt. Ellingham, Kenninghall and West Dereham have been identified for first time rural sewerage under the AMP3 process by AWSL.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Install first time sewerage.	Cessation of pollution and nuisance.	Cost. May open up hamlets and villages to residential development pressures.	Anglian Water
			Agency Local authority Householder
Do nothing.	No cost to AWSL.	Pollution complaints and nuisance.	

Issue 20: Provide An Effective Flood Warning System for Flood Risk Areas.

Although an early warning of flooding does not stop people's properties from flooding, it does give the public time to prepare for the event. The 1998 Easter flood in the Region has severely reduced the confidence of the general public in the Agency and it is imperative that this is restored.

The Agency therefore intends to investigate flood risk areas where there is an ineffective flood warning system and implement improvements by giving the public as much warning as reasonably possible in times of flood.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Ensure that there is an effective flood warning system in areas at risk from flooding.	By 2001 80% of properties in flood risk areas covered by a flood warning service receive a flood warning. Reduced the risks to life and damage to property and possessions.		Agency
			Local authorities Emergency services Media
Do nothing.		No reduced risk to life and property. Fails to achieve one of the Agency's points on the 10 point plan.	Agency

Issue 21: Concern That Navigation Needs to Be Restored and Improved.

The River Lark upstream of Jude's Ferry was previously navigable to Bury St. Edmunds. The Inland Waterways Authority (IWA) along with Inland Waterways Amenity Advisory Council and Forest Heath District Council have expressed an interest in restoring navigation as far as Mildenhall. Similarly, the River Little Ouse was previously navigable upstream as far as Thetford and interest has been shown in restoring some of that stretch for navigation.

The Agency has recently extended navigation on the River Little Ouse at Brandon, from Brandon Stauch to nearer the town centre. The extension of navigation involved constructing a new lock and providing mooring facilities.

Navigation in the River Old West has become difficult during recent dry summers due to low water levels. Options to alleviate this would include dredging to deepen the channel and the provision of more water from Hermitage Lock at Earith. (Refer to Section 4.1 Theme 6.)

The Agency is broadly supportive of groups who are interested in furthering navigation beyond the current statutory navigations where justified. However, it should be noted that the Agency already struggles financially to maintain its current navigation responsibilities before considering restoration of other waterways.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Extend navigation on the River Little Ouse by 5 km.	Length of navigable river increased.	Cost.	Agency
			Local authorities IWA
Extend navigation on the River Lark by 15 km.	Length of navigable river increased.	Cost.	Agency
			Local authorities IWA
Do nothing.	Cost.	Full potential of navigation on rivers Little Ouse and Lark not realised.	

Issue 22: Concern Over the Impact of Recreational Activities on Wildlife.

Considerable lengths of river banks within this area have designated footpaths and bridleways or are actively fished by angling clubs. In addition the Ely Ouse and lower ends of the tributaries are statutory navigation waters.

The Agency owns a significant amount of the riparian land. It is acknowledged that most people participating in recreational activities on or near watercourses take account of the conservation value of the area. However, it is recommended that the Agency should raise the profile of the sustainable approach to the utilisation of rivers and associated habitats, particularly where we are the owners.

Members of the public using our land, be it through formal angling lease agreements or the everyday walkers and birdwatchers, should be encouraged to follow a code of practice. Guidelines for boaters might also be produced in consultation with the relevant user groups. There is the potential to develop information leaflets and identify educational initiatives.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Raise awareness amongst the public of disturbance to wildlife and careful management of riverside habitats.	To ensure retention and improvement of habitat diversity for benefit of wildlife and public amenity.	Cost/Resources.	Agency Angling clubs Local authority Land owners Wildlife Trusts RSPB English Nature Boating organisations
Do nothing.	Cost.	Habitat degradation and loss of wildlife and aesthetic value.	Agency

3.8 Conserving the Land

Land use is the single most important influence on the environment and land use change can have beneficial or detrimental implications for the environment. We have a responsibility to protect and enhance the environment, however, we have limited control over the way land is developed. This is the responsibility of local planning authorities with whom we liaise closely in order to achieve our environmental goals.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none"> • Influence the Town and Country Planning system to prevent developments in the wrong places; • Implement the Flood and Coastal Defence policy as advised by MAFF and the Welsh Office; • Secure an adequate level of investment in flood defence; • Provide flood plain surveys to local planning authorities; • Discourage development in flood plains; • Work with nature to reduce coastal flooding; • Develop new methods to survey and manage flood defences; • Report regularly on the state of flood defences; • Identify the state and extent of the problem of soil erosion; • Develop a soil erosion alleviation strategy, including guidance on best practice; 	<ul style="list-style-type: none"> • Work with local authorities to identify and report on the extent of contaminated land; • Regulate identified 'special' contaminated land sites effectively; • Research into the specific risks and remediation needs of contaminated land; • Identify the needs of, and alleviate the effects of, soil acidification in upland areas; • Measure the effectiveness of steps taken to reduce nitrates in designated nitrate vulnerable zones; and, • Develop methods for monitoring the 'state' and quality of soil with respect to its pollution potential.
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Issue 23: Concern Over the Maintenance and Operation of Privately Owned Flood Defence Structures.

There are a number of flood defence structures that are within the LEAP area that are not under the direct control of the Agency. Through a lack of maintenance or disputes of ownership, some of these flood defence structures are falling into a state of disrepair.

This causes the Agency some concern because structures are not being managed in a way that is beneficial to the overall integrity of flood defences; irresponsible management of these structures could have a detrimental effect on the ecosystem of the watercourse.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Agency to assess the viability of accepting responsibility for sub-standard flood defence structures.	To ensure all structures are operated correctly and are well maintained. Minimise the risk of flooding. Ensure the integrity of the structures.	Increased capital and revenue costs.	Agency Riparian owners
			Local Authorities
Agency to consider legal action under the WRA91 to require riparian owners to carry out works.	To ensure all structures are operated correctly and are well maintained.	Complex and costly legal procedures.	Agency
			Riparian owners
Do nothing.	No increase in revenue or capital costs.	Increased risk of flooding. Risk of harming the biodiversity of the river and its floodplains.	Agency

Issue 24: Impact of Agriculture on Nitrogen Enrichment in Nitrate Vulnerable Zones.

There are a number of intensive pig rearing facilities in the LEAP area. These sites generate large quantities of manure and slurry which must be disposed of and which represent a major potential source of pollution to surface and groundwater due to their high organic and nitrogen content. Nitrate enrichment of groundwaters may occur due to the leaching of soil which has had waste spread on land, or from waste collection facilities which are not designed or maintained properly. In addition to measures introduced under the EC Nitrate Directive to control diffuse nitrate pollution from fertiliser application in NVZs, the introduction of the EC Integrated Pollution Prevention and Control (IPPC) Directive (96/61/EEC) in 1999 will bring large pig and poultry units under IPPC control.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
To enforce the new regulations in NVZs, raise awareness, persuade farmers to carry out best management practices, produce farm management plans and control large pig farms under the IPPC regime.	To achieve a reduction in nitrate concentrations in controlled waters from livestock farming.	Cost.	Agency Farming community
Do nothing.		Continued nitrate enrichment of water sources.	

3.8 Managing Waste

The management of waste is influenced by the availability and cost of disposal options. However, the need to dispose of waste safely and in an environmentally sustainable way should not be neglected by consideration of those two factors. It is preferable not to produce waste in the first place, but, as this is inevitable we all have a responsibility to reduce the amount of waste we produce. The DETR's white paper *Making Waste Work* sets out the Government's policy framework for the management of waste. It identifies ways in which waste can be managed in more sustainable ways and sets targets for achieving that aim. The strategy is based on three main objectives;

- to reduce the amount of waste produced;
- to make the best use of waste produced.; and,
- to choose waste management practices which minimise the risk of immediate and future environmental pollution and harm to human health.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none"> • Provide a high quality waste regulation service; • Develop an overall database of waste arisings and disposals; • Measure the effectiveness of taxation to reduce waste and to encourage its re-use and recycling; • Obtain information on fly-tipping and devise means of combatting it; • Implement the 'producer responsibility' regulations; • Develop life-cycle assessment methodologies for dealing with waste; • Encourage and inspire industry to develop new and improved techniques for the management of special and other industrial wastes; • Ensure achievement of national waste strategy targets for the reduction of waste disposed of to landfill; 	<ul style="list-style-type: none"> • Ensure achievement of national targets for the recovery, recycling and composting of municipal waste; • Combat organised crime, at national and international level, involving the illegal trading in waste; • Research into the technical needs of successful waste management, including best practice and best practicable environmental options; • Secure high quality management of radioactive waste in industry; • Ensure that any proposals for solid radioactive waste disposal will provide the necessary high level of protection for man and the environment; and • Commission research into the potential effects of waste entering the environment, including the potential effects of radioactive wastes.
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Issue 25: Potential Impacts on the Environment From Contamination Originating From Old Landfill Sites.

Leachate generated by the decomposition of waste in landfill sites has the potential to contaminate groundwater and surface waters. Landfill gas, consisting largely of methane (which is potentially explosive) and carbon dioxide, is produced by the anaerobic decomposition of wastes and can migrate underground into adjacent properties. These by-products are more likely to be of concern at closed sites or the older parts of current sites which were not controlled as stringently as they are today and where no containment procedures were used. Examples of such sites in this LEAP area are found at Ingham, Barton Mills, Red Lodge, Waterbeach, Lackford, Kentford, Kilverstone, Snetterton and Fornham St. Genevieve. A current holder of a Waste Management Licence for a landfill site will not be able to surrender their licence unless the Agency is satisfied that the site is unlikely to cause pollution of the environment or harm to human health and will retain responsibility for the site until that time. Responsibility for sites which closed before 1995, when licences could be given up at any time and for even older sites, which operated when there was no requirement to be licensed, lies largely with the landowner.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Continued monitoring of sites.	Identify sites that are causing problems. Assurance that sites are not giving rise to environmental problems.	Cost.	Agency Licence holders Landowners
			Local authorities
Remedial action to be taken where appropriate.	The detrimental environmental impact will be minimised.	Cost.	Agency Licence holders Landowners
			Local authorities
Do nothing.	Cost.	Emissions from landfill sites will continue but will not be controlled or contained.	Agency

Issue 26: Need to Improve Quality of Information and Regulation of the Land Spreading of Wastes.

Some waste may be suitable for spreading on land where it can be proven that the soil will be enhanced, there will be benefit to agriculture or ecological improvements and where no environmental harm or harm to human health will be caused as a result. This activity is controlled by two sets of regulations both of which are presently being updated. The spreading of sewage sludge is controlled under The Sludge (Use in Agriculture) Regulations 1989 which require that sludge and soil are tested before spreading to ensure that certain limits are not exceeded and that records are maintained by the sludge producer which detail where and how much has been spread. The use of other wastes on land is controlled by The Waste Management Licensing Regulations 1994 which require that certain information is provided to the Agency before spreading takes place. Levels of pre-notification are lower than expected and overall, we have insufficient information to establish the level of compliance with both sets of regulations.

OPTIONS	TARGETS/BENEFITS	DISADVANTAGES	LEAD PARTNERS
			OTHER ORGANISATIONS
Investigate the extent of land spreading of wastes now and possible increase in future.	Establish current level of land spreading of wastes and potential increases.	Cost	Agency Waste Disposal contractors AWSL
Increase enforcement of the regulations.	Establish current level of compliance and take action to ensure compliance where necessary.	Cost	Agency Landowners
Do nothing.	Cheapest option.	Possible impacts of pollution will be unknown ie on NVZ, Eutrophic Sensitive Areas, levels of heavy metals.	Agency

3.10 Regulating Major Industries

The effective regulation of industries can ensure that the whole environment can be protected from pollution whilst respecting economic and employment considerations. This can be accomplished with powerful legislation but ultimately success is achieved by developing excellent relationships with industry and also by the will of the industries themselves to instigate environmental improvements.

The following are our national aims as detailed in *An Environmental Strategy for the Millennium and Beyond*.

We will:

<ul style="list-style-type: none"> • Continue the efficient and effective delivery of Integrated Pollution Control; • Implement the requirements of the EC Directive on Integrated Pollution Prevention and Control; • Implement the relevant requirements of the Control of Major Accident Hazards Directive; • Develop practical working relationships with fellow regulators, particularly the Health and Safety Executive; • Develop pollution prevention control tolls including projects relating regulation to emissions, efficiency and economic benefits (3 E's project); • Encourage the use by industry of ISO 14001 accreditation; • Encourage registration under the EU Eco-management and Audit regulations; • Pay special attention to the needs of small and medium sized enterprises; • Maintain and expand the Chemical Release Inventory; • Introduce Operator and Pollution Risk Appraisal; 	<ul style="list-style-type: none"> • Play a full and active part in the EU Network for the Implementation and Enforcement of Environmental Law; • Ensure that radioactive releases from nuclear sites which result in exposure to individual members of the public are well within accepted limits; • Ensure that the total potential impact of releases from nuclear sites are environmentally acceptable; • Develop and implement toxicity based consenting methods for releases from complex industrial sites; • Ensure improvements are made to the quality of discharges to estuarine and coastal waters; • Implement the requirements of the EC Urban Waste Water Treatment Directive; • Research into effective means of ensuring that disinfectant and sterilisation techniques are safe for the environment; and, • Develop and implement tools to assess risks, costs, benefits and options in relation to the major industrial pressures on the environment.
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The area covered by this LEAP is predominantly agricultural and contains little large or complex Industry. There are only sites that have authorisations issued under the Environmental protection Act 1990 (EPA90) Part 1. There are no authorised processes beyond the boundary of this LEAP which are felt to have a major influence on the environment of this area.

All processes in this LEAP area are operating in compliance with their authorisation and as such any emissions are controlled so as not to have a detrimental impact on the local environment. There are no outstanding issues which are under the Agency's remit.

CHAPTER FOUR - A BETTER ENVIRONMENT THROUGH PARTNERSHIP

This section aims to provide the opportunity to address longer-term management issues in partnership with others.

SECTION FOUR - A BETTER ENVIRONMENT THROUGH PARTNERSHIP

4.0 Introduction

The aim of this section is to highlight broader, long-term issues and profile the types of partnership required to tackle them. Establishing close and responsive relationships with all sectors of the community are vital if we are to achieve integrated environmental management and a better environment for present and future generations.

WHY PARTNERSHIP?

Partnership is a much abused term, but it essentially means a number of different interests willingly coming together, formally or informally, to achieve some common purpose in the spirit of trust and commitment. Partnerships are desirable because they provide accountability, reduced duplication between agencies, a pooling of scarce resources and combined funding. However, any partnership takes time to develop.

We are well placed to influence many of the activities affecting the environment through the Environment Act 1995 and other legislation. For example, we are the lead regulator for the water environment and also have regulatory powers over waste management activities. In addition we share, with local authorities, the regulation of emissions to air. We have little direct control over land use which is primarily the responsibility of local authorities. We will prepare LEAPs into the next millennium to demonstrate and reinforce our commitment to integrated environmental management and the partnership approach.

This chapter is divided into three main parts: firstly a discussion of strategic issues followed by a discussion of Local Agenda 21 (LA21) and then Education. We have striven throughout to apply these concepts to the local communities of the Ely Ouse LEAP area. **We would welcome your comments on this chapter and in particular the key issues identified in the boxes.**

4.1 Strategic Environmental Issues

By long-term we mean well beyond the five year horizon of this plan and into the next millennium. As stated in Chapter 3.0 the Agency has recently published '*An Environmental Strategy for the Millennium and Beyond*' (September 1997), which highlights nine main themes for our work (and a number of key activities necessary to address them).

We have attempted to illustrate how working with others can contribute to achieving these environmental themes giving, where possible, activities focusing on the Ely Ouse LEAP itself.

Theme 1: Addressing Climate Change

The UK, like all countries, emits greenhouse gases into the atmosphere (such as CO₂) which are believed to contribute to climate change. The UK is, itself, affected by these emissions and, in becoming a signatory to the agreements made at the Framework Convention on Climate Change held in Rio de Janeiro in 1992 and at the Kyoto and Buenos Aires Summits in 1998, is playing an active part in obtaining effective and achievable reductions in greenhouse gas emissions.

The consequences of climate change could have far reaching implications for the Agency's

functions. The possibility of increased rainfall, resulting in flooding and sea-level rise, could add pressures on our Flood Defence, whereas changes in rainfall distribution are likely to affect Water Resources and Water Quality.

Key issue towards 'Climate Change': We need to ensure that we incorporate any anticipated changes in climate change into our assessments of flood risk, the design of flood defences and the options for water resources management.

The Agency regulates industries that account for almost 50% of CO₂ releases to the atmosphere and also regulates releases of methane from landfill sites. Controlling these emissions will require increased collaboration between the Agency, local authorities and major organisations such as power generators.

Theme 2: Improving Air Quality

We are committed to helping local authorities to implement the National Air Quality Strategy in collaboration with industry through liaison and the exchange of air quality data and information under the memorandum of understanding which we operate with local authorities.

Key issue towards 'Improving Air Quality': The need for the Agency and others to be involved in local air quality management fora, so that data and expertise can be shared towards addressing the issues.

It is anticipated that the Government's recently published White Paper entitled '*A new deal for transport - better for everyone*' (1998) will lead to greater consideration of the environmental impact of transport on air quality at the planning stage. The Agency would anticipate being involved wherever environmentally sensitive areas or sites are involved and the balance between transport and the environment has to be struck.

Theme 3: Managing Our Water Resources

We are committed to reviewing our water resources strategy in 1999/2000 which will consider our needs up until 2025. This strategy will highlight the need for the Agency, water companies, OFWAT and local authorities to continue to work together to encourage awareness on water conservation and promote efficient water use and supply.

The water companies have a new duty, introduced by the Environment Act 1995, to promote efficient use of water by their customers. This duty is regulated by OFWAT, but the Agency is involved in consultation. OFWAT requires the companies to produce water efficiency plans and an appropriate level of customer charging to fund them in order to meet this duty. The Agency is keen for leakage control and demand management to be given high priority.

Key issue towards 'Managing Our Water Resources': We need to ensure that LEAPs detail all water quality and resource concerns so that they effectively inform the water companies' asset management planning (AMP) process so that leakage control, demand management and real environmental improvements are given high priority. We need to ensure all key issues identified in this LEAP are incorporated in our regional water resources strategy which will highlight options for future water resource development to 2025.

Theme 4: Enhancing Biodiversity

This is an aspiration that no single organisation can bring about. We are committed to playing our part in devising and implementing Local Biodiversity Action Plans (BAPs) and Water Level Management Plans (WLMPs).

Key issue towards 'Enhancing Biodiversity': We need to ensure that the targets agreed in BAPs and WLMPs become incorporated into the routine work of the Agency and these partner organisations so that real environmental improvements can be demonstrated.

The benefits of the partnership approach can be demonstrated by the progress of the Water Level Management Plans within this LEAP area. These plans are developed in conjunction with other environmental organisations, such as, English Nature and RSPB.

Table 2: Water Level Management Plans

County	Site	Status
Cambs	Brackland Rough	IMS prepared.
Cambs	Chippenham Fen	No progress of IMS or WLMP.
Cambs	Snailwell Meadows	IMS prepared.
Cambs	Wicken Fen	WLMP complete and endorsed by EN.
Norfolk	Didlington Park Lakes	WLMP complete and endorsed by EN.
Norfolk	Great Cressingham Fen	WLMP complete and awaiting endorsement from EN.
Norfolk	Hooks Well Meadow	WLMP complete and endorsed by EN.
Norfolk	Swangey Fen	WLMP complete and endorsed by EN and the Otter Trust.
Norfolk	Thetford Golf Course and Marsh	WLMP complete and endorsed by EN, awaiting endorsement from Forest Enterprise.
Suffolk	Blo Norton & Thelnetham Fen	WLMP complete and awaiting endorsement.
Suffolk	Cavenham/Icklingham Heaths (Fen)	WLMP complete and endorsed by EN.
Suffolk	Lackford Lakes	IMS prepared.
Suffolk	Little Ouse Washes (not notified)	IMS prepared - no WLMP planned until notification.
Suffolk	Pakenham Meadows	WLMP complete and endorsed by EN.
Suffolk	Stallode Wash, Lakenheath	WLMP complete and endorsed by EN.
Suffolk	Wangford Warren/Carr	WLMP complete and endorsed by EN.

Theme 5: Managing Our Freshwater Fisheries

The Agency's vision for fisheries is for all waters of England and Wales to be capable of sustaining a healthy and thriving fish population to give everyone the opportunity to experience a diverse range of good quality fishing. The high standard of fisheries within the Ely Ouse LEAP area will be maintained by effective monitoring and regulation.

A five year routine survey programme looks at the abundance and distribution of fish stocks, from species targeted by anglers to those protected under the Habitats Directive, for example, the spined loach.

Key issue towards 'Managing our Freshwater Fisheries': Undertake appropriate liaison with interested parties with regard to all fisheries activities in the Ely Ouse LEAP area.

Theme 6: Delivering Integrated River Basin Management

Integrated river basin management is the need to look at the river corridor habitats as a single entity, rather than looking at individual uses or users in isolation with the aim of balancing potentially conflicting needs. This aim is both intellectually and practically challenging to fulfil. However, our success is wholly dependant on the influence of all river users and riparian owners.

Examples of long-term initiatives include increasing the amount of bankside buffer strips. These areas of wilderness not only enhance habitats but can also reduce pollution from the land reaching the river. The issue in this case is the need to identify practical steps to implement this policy.

A Surface Water Action Group (SWAG) was formed in 1997 to overcome the problems of the Little Ouse River being regularly polluted by oil discharges from surface water sewers in Thetford. This pollution prevention group consisted of the Agency, Anglian Water, Breckland District Council and key industrialists. This group has met several times and a number of successful initiatives to eliminate contamination have been implemented. It is intended to increase the number of industrialists in SWAG and use it as a forum to educate companies and their employees in pollution prevention measures.

Key issue towards 'Delivering Integrated River Basin Management': Identify and resolve water quality issues with Water Companies and local industries.

The Agency has a duty to review and improve public access to inland waters. We should, where feasible, make Agency land available for appropriate recreational use.

Partnership projects are actively sort by the Agency to improve public access, through the provision of facilities such as stiles and kissing gates. These can benefit a range of users, such as, walkers, ornithologists and anglers. We are particularly keen to provide amenities for less abled people.

There are a number of footpaths and public rights of way that use river banks within this area, for example, the Fens Rivers Way Project and the Tracks in the Sand Project. The former is a collaborative project between the Agency, Cambridgeshire County Council, East Cambridge District Council, East Waste, Rural Action and Fen Rivers Way Association. The Fen Rivers Way links Cambridge with Ely via a linear footpath along the banks of the Cam and Ely Ouse (17 miles in length). The project has improved the footpath and way marked it, erected six interpretation boards and produced route maps and associated leaflets. The final stage was completed in July with a footbridge crossing the mouth of the Old West. An official opening was held on 1 August 1998. We are now looking with Norfolk County Council to extend the footpath downstream to Kings Lynn.



Other recognised riverside footpaths which are already promoted by local authorities are the Little Ouse Valley, upstream of Brandon, and the Hereward Way.

Interpretation boards containing useful information on wildlife and areas of historical interest have been installed throughout the LEAP area by the Agency. We are investigating opportunities at our Denver Complex and also collaborating with landowners, such as, the Forest Enterprise (on the River Little Ouse) to install further interpretation boards.

'An Action Plan For Navigation' was published by the Agency (1998) which describes how we intend to take forward our integrated and long-term approach to navigation. Our principal aim is to maintain and improve navigation as assets of recreational, environmental, economic and social value. However, the Agency recognises that funding to adequately invest in the infrastructure, eg, locks and weirs is the major challenge.

Key issue towards 'Delivering Integrated River Basin Management': The need to build long-term plans with local authorities to provide sustainable navigation and other recreation in this LEAP area.

Navigation and recreational facilities are limited and require improving (refer to issue 21). The increased provision of short-term moorings, waste disposal sites, water points and pump-out facilities are important navigation requirements.

There was concern that when the Eastern Council for Sport and Recreation ceased to exist that there would be no regional forum which would bring together the providers, users and other interested parties. A new smaller body - Eastern Sport - was formed in March 1996. We fully support Zone I of the Water Recreation Strategy of the Eastern Region produced by Eastern Sport and show due regard to its recommendations when drawing up our work programmes.

Theme 7: Conserving the Land

LAND USE PLANNING

Land use is the single most important influence on the environment and it can be either beneficial or detrimental. The control of land use change is primarily the responsibility of Local Planning Authorities (LPAs). Their development plans (structure and local plans) provide a framework for land use change and are key considerations in the determination of planning applications. We have a responsibility to protect and enhance the environment, however, we have limited control over the way that land is developed. Therefore, we have to work closely with the LPAs in order to achieve our environmental aims (refer to figure 2).

The policies in these plans will guide the way that land is developed. We advise planning authorities to help them to implement plans which protect the environment from harmful development. We reinforce these policies, where possible, when we comment (as a statutory consultee) on planning matters (refer to figure 3). Those Plans covering the Ely Ouse LEAP are given in Table 3 overleaf.

It is evident from the table 3 that the development plans are at various stages of review.

We are eager to be consulted on all relevant aspects of the Town and Country Planning Act system and for planning applications. We realise the importance of proper consultation, including support for subsequent issues, if required.

Figure 2: Influences On Land Use Change

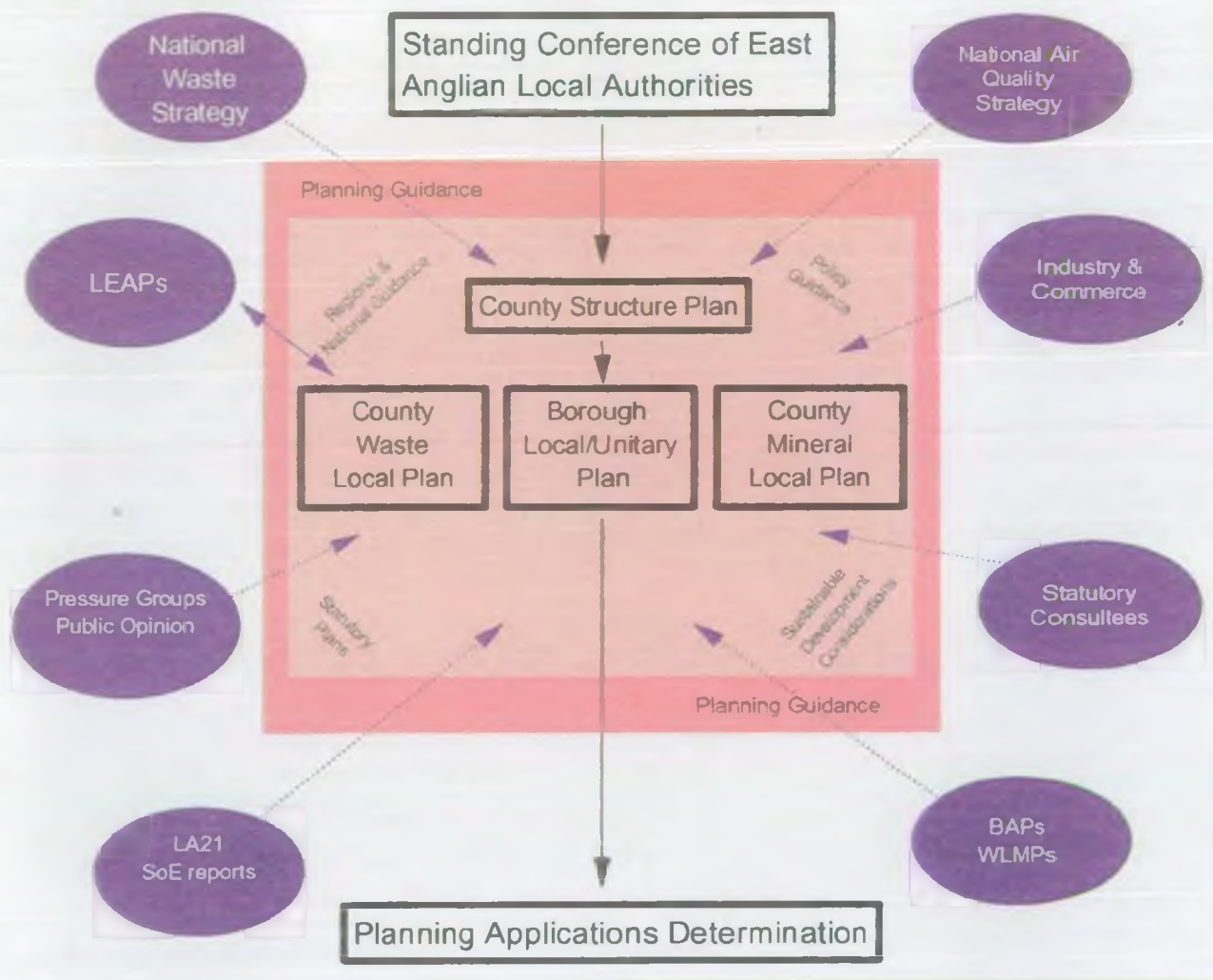
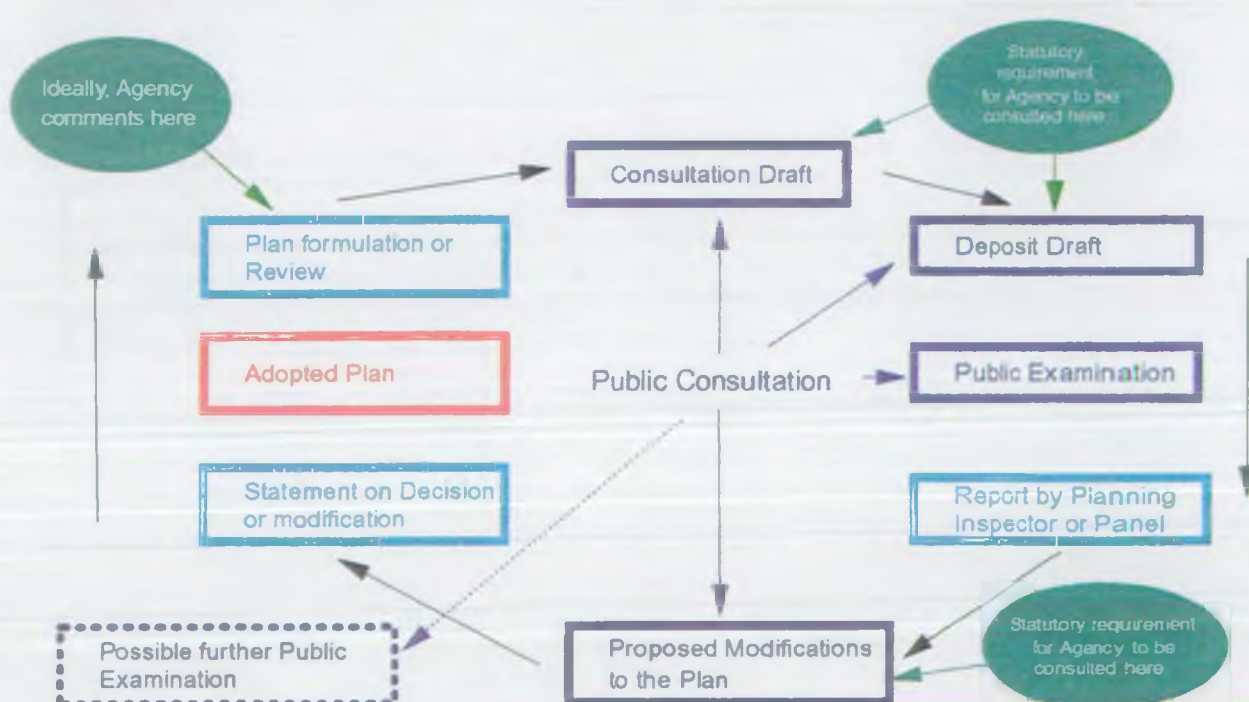


Figure 3: Simplified Development Planning Cycle
(Used to produce Structure and Local Plans)



LOCAL PLANNING GUIDANCE

Table 3. Development Plans

STRUCTURE PLANS	CURRENT STATUS
Cambridgeshire County Council	Adopted December 1996. Capacity Study undertaken in part to begin a review of this plan.
Norfolk County Council	Adopted March 1993. Consultation of the deposit draft review ended in March 1998.
Suffolk County Council	Adopted incorporating alterations 1 - 3 in June 1995. Consultations Draft May 1998.
MINERALS/WASTE PLANS	CURRENT STATUS
Although LEAPs can play a role in informing local authorities of local waste management practices and pressures they will not be driving our strategic waste planning work or seeking to identify locations for waste management facilities. We hope to be in a position to assist local authorities and regional planning conferences by producing Strategic Waste Management Assessments and local waste management statements for development planning purposes.	
Cambridgeshire Waste Local Plan	Joint Plan with Peterborough CC. Consultation Draft July 1998.
Cambridgeshire Aggregates Local Plan	Adopted August 1991, the Plan will be reviewed after the results of the National Aggregates Monitoring Survey.
Norfolk Waste Local Plan	Deposit draft consultation period ended October 1997. Public Local Inquiry scheduled for January 1999.
Norfolk Minerals Local Plan	Adopted December 1996.
Suffolk Waste Local Plan	Under development.
Suffolk Minerals Local Plan	Public Local Inquiry held May to July 1997. Proposed modifications for consultation November 1998.
LOCAL PLANS	CURRENT STATUS
Babergh District Council	Adopted June 1995.
Breckland District Council	Deposit draft plan 1996. Public Local Inquiry October 1997. Inspector's Report expected December 1998.
East Cambridgeshire District Council	Adopted December 1993(Ely Local Plan 1991). Deposit Draft plan consultation period ended October 1997. Public local inquiry currently in progress.
Forest Heath District Council	Adopted 1995.
King's Lynn and West Norfolk Borough Council	Adopted November 1998.
Mid Suffolk District Council	Adopted September 1998.
St Edmundsbury District Council	Adopted June 1998.
South Cambridgeshire District Council	Adopted June 1993. Consultation Draft Plan review consultation period ended October 1997
South Norfolk District Council	Deposits Draft May 1997. Public local inquiry currently underway.

The NRA (one of our predecessors) produced a set of statements in a document '*Guidance notes for Local Planning Authorities on the Methods of Protecting the Water Environment through Development Plans*' (1994) which provides a general guide to the policies we believe should be included and why they are important.

This guidance has been updated to cover all the Agency's functions and will be published shortly. We have also produced a document entitled '*Environment Agency - Liaison with Local Planning Authorities*' (March 1997) which explains our role and contribution to land use planning system and is intended to help local authority planners in their day-to-day contact with us.

We take a proactive approach to our involvement in the planning system - as well as commenting on regional guidance, structure and local plans, we also consider planning applications in depth.

We are required under Section 105 of the Water Resources Act 1991 and Circular 30/92 '*Development and Flood Risk*' to carry out a survey of flood defences within our area to define the nature and extent of flood risk. This includes determining the 1:100 year return period flood plain line. A pilot study to determine how this could best be achieved is currently underway. Bury St. Edmunds, Watton, Thetford, Brandon, Soham, Ely Mildenhall, Ixworth, Mundsford Dalham to Kennet are all incorporated in a priority programme which identifies the sites most at risk. This programme is expected to be undertaken over a three to five year timescale. The results of the survey will ultimately be available to local authorities to aid the production of their development plans. Until this survey information is available, existing flood level records will continue to be used to help guide development.

The planning system generally, and the use of planning conditions in particular, should not duplicate the controls imposed by the pollution control bodies, eg, the Agency and local authority Environmental Health departments. Clarification is provided in Planning Policy Guidance Note 23; *Planning and Pollution Control*.

Key issue towards 'Conserving the Land' : Safeguard limits of floodplain areas, protect storage capacity and extent of the floodplain for flood risk areas. Operational access for maintenance activities must also be considered.

Key issue towards 'Conserving the Land' and 'Managing Our Water Resources': There is a need to ensure that the ability to supply water to new developments is assessed before a decision on the location is made. This would best be facilitated by joint discussions between planners, water companies and ourselves at the earliest possible stage.

Groundwater resources are put at risk by a wide range of human activities. These can range from specific point sources of pollution to diffuse pollution of varying intensities. These activities are controlled by legislation and may also be subject to guidelines and codes of practice which have varying degrees of statutory force. The Agency has set some rules and guidelines as to which activities can be permitted or recommended within different Groundwater Protection Zones. These are clearly tabulated in the Agency's Groundwater Protection Policy document. The aim of this is to assist in the prevention of contamination of land and groundwater through human activities.

Key issue towards 'Conserving the Land': Source Control is the umbrella term for managing surface water run-off from developed areas in such a way that the water is returned to the natural environment in a controlled manner. The aim is to minimise the risk of flooding and pollution - whilst working with nature. Examples include permeable pavements, swales and balancing ponds. We will encourage the use and maintenance of these techniques, where appropriate as part of an overall drainage assessment.

Whilst development does not actually produce water, it does increase run-off rates, it is unlikely that rural watercourses will have any residual capacity to cope with even relatively small increases in flow rates.

Where downstream watercourses cannot be improved because of riparian ownership or physical constraints it is common to attenuate surface water flows to the pre-development run-off rates. The attenuation of flows results in the need to store waters in associated balancing lagoon, pond or tank. The English Common Laws relative to riparian rights are well proven and when evoked are very powerful. With this in mind, it is prudent for the LPA to ensure that all drainage works and associated structures are publicly adopted in perpetuity with the development served.

Road transport is not our responsibility however it does affect the environment and cuts across many of our nine themes. Through our National Centre for Risk Analysis and Options Appraisal we have influenced the recent government review of trunk road schemes to highlight the potential impact they may have on the water environment and so that future plans take into account environmental impact. We consult with road builders and contractors to promote good environmental practice as road construction can have a detrimental impact on the environment. Nationally we are also working on a risk assessment of road transport to be published later this year. It will provide a way of assessing the impacts that future transport policy options may have on the environment.

Another issue with long-term implications is the management of contaminated land and 'brownfield' developments. In this case environmental protection can only be secured through the successful collaboration between local authorities, the Agency, owners and developers.

Many of the landfill sites that were closed prior to the Control of Pollution Act 1974 may be producing landfill gas. Gases such as methane are explosive and therefore have the potential to damage local properties. Other gases such CO₂ can cause asphyxiation. These sites may be subject to consideration under Contaminated Land Regulations when they are brought into force.

Theme 8: Managing Waste

Sustainable development as discussed in Chapter 1 is at the heart of the Agency's plans for the management of waste. There has been and always will be discussion concerning waste management facilities such as what type they should be and where they are best located. The two main issues regarding waste are firstly the efficient use of the resources needed to produce the goods, the volumes we produce and consume and secondly the minimisation of the impact caused by the management/disposal of waste that is unavoidably generated. The preferred waste management solution is the minimisation of waste which sits at the top of the hierarchy, followed by options which recoup value and finally disposal (refer to figure 4 below).

Figure 4: Waste Hierarchy

Key issue towards 'Managing Waste': Towards Sustainable Resource Use and Waste Management.

The Agency's role as data collector, information provider and impartial advisor sets us apart from the decisions that must be taken by local authorities on the choice of options and the development of facilities which are the subject of waste local plans and unitary development plans. The Agency will be working in partnership with several authorities to take forward the concept of sustainable waste management. Partnerships will include work with the Regional Planning Forum, the Standing Conference of East Anglian Local Authorities (SCEALA) members, which includes the Waste Planning and Disposal Authority of Suffolk, Norfolk and Cambridgeshire County Councils and the local waste collection authorities along with industry and commerce.

The information the Agency produces must take into consideration the different needs of these bodies. We need to provide data in a format that is of most use to them in discharging their duties. This includes information on waste movements, existing facilities and their capacity, the relative environmental impacts of different types of waste when disposed of or recovered at different types of facilities. This approach will allow the Best Practicable Environmental Options for particular wastes and locations to be assessed. The Agency is currently working on the production of national estimates of controlled waste arising from industry and commerce (due in early 1999). The results will be used to inform the Secretary of State to enable him to prepare a statutory waste strategy in late 1999, assist local authorities in their consideration of regional planning guidance and preparation of development plans and aid industry who develop and operate the waste treatment and disposal facilities.

The Agency is carrying out an extensive programme of research and development into the environmental burdens, and related impacts, of waste management options from cradle to grave,

which is known as Life Cycle Assessment (LCA). LCA is an objective process to evaluate the environmental burdens associated with a product, process or activity by identifying and quantifying inputs to processes and outputs to the environment, the impact of those inputs and releases on the environment, and to evaluate and implement opportunities to affect environmental improvements. A LCA tool will be available to local authorities and industry in early 1999.

This programme will assist all those concerned with waste management in assessing the options and mixes of options available for managing waste that not only consider the immediate environment but are more sustainable and will help to weigh the importance of the environmental benefits against the wider societal considerations.

The information collected through programmes such as LCA and the National Waste Survey will aid the goal of production of a Strategic Waste Management Assessment for each planning region. These will be technical reports assessing the strategic needs for waste management at a District/Unitary/County and regional levels.

Waste minimisation is the prevention or reduction of waste at source, recognising that it is cheaper to produce less waste in the first place. The Agency has an education role in getting the waste minimisation message across to industry, local authorities and schools, so influencing reductions in household, commercial and industrial waste. The Agency will provide advice to companies, raise awareness of waste minimisation, contribute to training and education and offer guidance on where more specialised advice is available. The Agency will be seeking opportunities to influence industry via involvement in Local Agenda 21 initiatives relating to waste minimisation and seeking to initiate industry waste minimisation clubs through Business Links. The Agency will support community based educational campaigns linked to Agenda 21 initiatives and is keen to offer support in this area.

We will investigate all flytipping incidents within two days of notification. Enforcement action will be taken whenever evidence is available and such action is in the public interest. Consultation is underway with local authorities on a Memorandum of Understanding on dealing with flytipping.

The best option is not to produce waste in the first place and we all have a role to play in reducing the amount of waste produced. Therefore, we are keen to stage waste minimisation awareness campaigns with green business clubs, county 'Business Link' groups, local authorities, etc.

Theme 9: Regulating Major Industries

The effective regulation of industries such as British Sugar, Fibrowatt and the activities of water companies such as Anglian Water can ensure that the whole environment can be protected from pollution whilst respecting economic and employment considerations. We can do this backed by powerful legislation but ultimately success is achieved by developing excellent relationships with industry and also by the will of the industries themselves to instigate environmental improvements.

The Action Plan covers a five year period from 1999 to 2004. During this time two European Commission Directives will have been implemented in England and Wales, with major implications for the Agency. These are Council Directive 96/61/EC (Sept 1996) concerning Integrated Pollution Prevention and Control (IPPC), and the Council Directive 96/82/EC (Dec 1996) concerning the

Control of Major Accident Hazards (COMAH) involving dangerous substances.

IPPC can be likened to the existing Integrated Pollution Control (IPC) regime introduced by the EPA90, under which the Agency regulates certain industrial processes with local authorities regulating others. IPPC, however, extends the range of processes which are to be regulated and requires consideration of other regulatory aspects such as noise pollution and energy utilisation. Following the decision of the Government as to who will regulate which processes/sites, the Agency will be required to make a major input either as the primary regulator or as an advisor to other bodies, such as, local authorities.

COMAH will replace CIMAH, and has been introduced to address some of the weaknesses and omissions which have become apparent over the years CIMAH has been in force. COMAH's aim is to prevent major accidents involving dangerous substances and limit the consequences to people and the environment if any do occur. The latter has implications for the Agency as it become a joint regulator for the legislation in conjunction with the Health and Safety Executive.

For both IPPC and COMAH there will be a need for the Agency to inform the public, amongst others, of the full details of it's role under the new legislation and the implications this could have for the environment.

4.2 Local Agenda 21 and Biodiversity Action Plans

LOCAL AGENDA 21

Agenda 21 came out of the 1992 Earth Summit at Rio de Janeiro and the concept is to set an agenda for action for the 21st century at a local level. It emphasises the need to encourage local action to implement the aims of global environmental policy; in other words '*think globally, act locally*'. This was one of a number of agreements signed by some 150 countries which include conventions on climate change and biodiversity. It is intended to be a 'comprehensive programme of action needed throughout the world to achieve a sustainable pattern of development for the next century'.

In response to the Earth Summit, the government has produced a number of strategy documents. These include the UK Sustainable Development Strategy and more recently it has published '*Indicators of Sustainable Development in the United Kingdom*'. This sets out a comprehensive list of aspects of sustainable development which should be measured and identifies indicators for each.

Local authorities are seen as the focus for promoting and encouraging local community action. Since the Earth Summit, local authorities have been charged with producing a Local Agenda 21 (LA21) for their area which aims to encourage wider access to information, greater community participation in decision making and the adoption of sustainable development principles. We support that approach by providing information, expertise and support. An Agency LA21 Information Pack was launched in March 1998.

At a local level, most councils are working with communities, employers and industry to produce their own Environmental Reports/Action Plans and subsequently their own LA21 programmes. For example:

- Cambridgeshire County Council's Environment 2000 - a Strategy for Action (July 1997) which includes a review of the County's State of the Environment report and LEAPs;
- Suffolk County Council has launched 'Suffolk's Environment...towards sustainable development'. The County Council has also produced a document entitled 'Framework for Action in 1997, Local Agenda 21' to raise public awareness of sustainable development and to gauge public opinion; and
- Norfolk County Council is to produce a State of the Environment Report in 1999.

In addition, numerous groups and forums have been established such as the Cambridgeshire LA21 RoundTable, the Norfolk 21 Initiative and at a district council level, the Breckland Environmental Forum.

Key issue towards achieving a 'LA21': The need to determine with local authorities how we can appropriately link the issues being generated by LA21 and the Agency's routine work including LEAPs. We are supporting the initiative but the long term implications and resource needs have not yet been considered.

Biodiversity Action Plans

The UK Action Plan published in 1994 sets out the broad strategy for conserving and enhancing wild species and wildlife habitats in the UK for the next 20 years. The stated overall goal is 'to conserve and enhance biological diversity within the UK and to contribute to the conservation of global biodiversity'. Biodiversity will be a key indicator of the successful implementation of sustainable development in the plan area.

At a local level, local authorities and environmental organisations, including the Agency, are compiling Biodiversity Action Plans (BAPs) which will include targets for specific habitats and species (many of which are relevant to this LEAP area such as wetlands and aquatic species, eg, reedbeds, otter and freshwater mussels).

It is crucial to the success of the BAP process that a comprehensive ownership is achieved in a realistic timescale. The Action Plans should not only be the vision of participating organisations but be shared by others throughout each county. Plans will not be achieved unless landowners, farmers and managers are involved in the decision-making process so wider community involvement is encouraged.

Table 4: Status of Biodiversity Action Planning in the Ely Ouse LEAP Area

County	Partners	Document	Date	Themes/Habitats to be considered
Cambridgeshire	Wildlife Trusts Local Authorities EN RSPB	Cambridgeshire's Biodiversity: A Framework for Action.	Dec 1997	Rivers and Wetlands Urban Woodland Dry Grassland Arable Farmland
Norfolk	Wildlife Trust Norfolk CC Agency EN RSPB	Action Plans for priority species and habitats have been completed.	1997	Cereal Field Margins Ancient Species-rich Hedgerow Coastal and floodplain Grazing Marsh Lowland Heathland Fens Reedbeds Chalk Rivers Saline Lagoons Seagrass Beds
Suffolk	Wildlife Trusts Local Authorities Agency EN FWAG NFU FRCA CoCo Forest Enterprise & Authority	Habitat and species Action Plans.	1998	Cereal Field Margins Ancient Species-rich Hedgerow Coastal Floodplain Grazing Marsh Lowland Heathland Fens

4.3 Education and Awareness

One of our key objectives for environmental protection and improvement is education. Damage is often caused, not through malicious intent to harm the environment but through a lack of awareness. Therefore, we feel we need to have a greater involvement in education at all levels. Our education strategy 'Green Shoots' (1997) which considers education into the next century, outlines the following goals:

- to help educate young people through teaching aids and other initiatives;
- to improve understanding of environmental issues, through links with education, work placements and an awards scheme;

- to work with industry and produce marketing campaigns to promote prevention of pollution rather than its remediation;
- to foster public awareness of environmental issues to encourage responsibility for the environment and its challenges; and
- to build on established and create new international relationships to further sustainable development.

A range of education material is already available on request.

We perceive education to include all aspects of our society, not just education through schools and colleges. We will be one of a number of organisations working in this realm and we are open to suggestions for joint approaches. We hope to see environmental topics dovetail into the national curriculum and are committed to providing information to 'A' level and university students where reasonable and achievable.

We welcome any feedback on how the Agency could get more involved within the Ely Ouse LEAP area.

CHAPTER FIVE - NEXT STEPS

5.0 Next Steps

This document has been produced through internal discussion and liaison with a sub-group of the Gt. Ouse Area Environment Group (AEG). The AEG consists of 28 members who have broad experience and interest in environmental matters. It is a forum through which we seek local opinion on environmental issues and we have therefore appointed an AEG sub-group of 8 individuals with technical expertise, contacts with industry, other authorities and the general public. One of the roles of the AEG is to advise and comment on the LEAPs process, its outputs and discuss priorities, proposals and key issues within the Plan. The group is fundamental in assisting us in building relationships with local communities. The purpose of this report is to consult formally with organisations, groups and individuals interested in the future of the local environment. Consultation will enable the Agency to:

- expose local issues to a wide audience and establish if any additional issues need to be considered; and,
- ensure decisions on the future management of the locality are based on accurate information and the fullest possible range of views from interested parties.

Therefore, the most important element of this process is for the Agency to gain feedback on the issues themselves and options for management which can be fed into the next stage of the process.

Consultation will begin with the following activities:

- press releases to advertise the Draft Plan;
- distribution of the Draft Plan to key partners and consultees; and,
- display of leaflets and posters at local authority offices and libraries.

Consultees can respond over the next three months (until 1 April 1999) in writing to:

The Customer Services Manager
Ely Ouse LEAP
Environment Agency
Anglian Region (Central Area)
Bromholme Lane
Brampton
Huntingdon
Cambs PE18 8NE

At the close of the consultation period, the responses are considered in detail before the Plan is produced (due August 1999). We will also prepare a Statement of Consultation Responses Report which will be available to all those who responded and details the Agency's reply to these comments.

In collaboration with the jointly responsible organisations, the Agency will aim to pursue and implement the activities outlined in the Plan. It is our intention that the plan should influence the policies and actions of planning authorities and developers, as well as assisting the day to day management of the local environment.

An annual review will be undertaken to monitor progress in implementing the Plan - which has a 'shelf-life' of five years. After this time the LEAP process will be repeated.

The information and views you provide are, therefore, very important steps in the overall process. It is hoped that you will respond positively to this initiative so that a shared vision for the Ely Ouse Area can be developed and realised.

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APPENDICES

Appendix A: 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 our work is advisory, with the relevant powers resting with other bodies such as Local Planning Authorities, for example we are not responsible for:-

- noise problems (except if it is to do with our work)
- litter (unless it is restricting the flow of a river)
- air pollution arising from vehicles, household areas, small businesses and small industry
- collecting waste in your local area
- planning permission
- environmental health
- food hygiene

These are all dealt with by your local planning authority who will contact us if necessary.

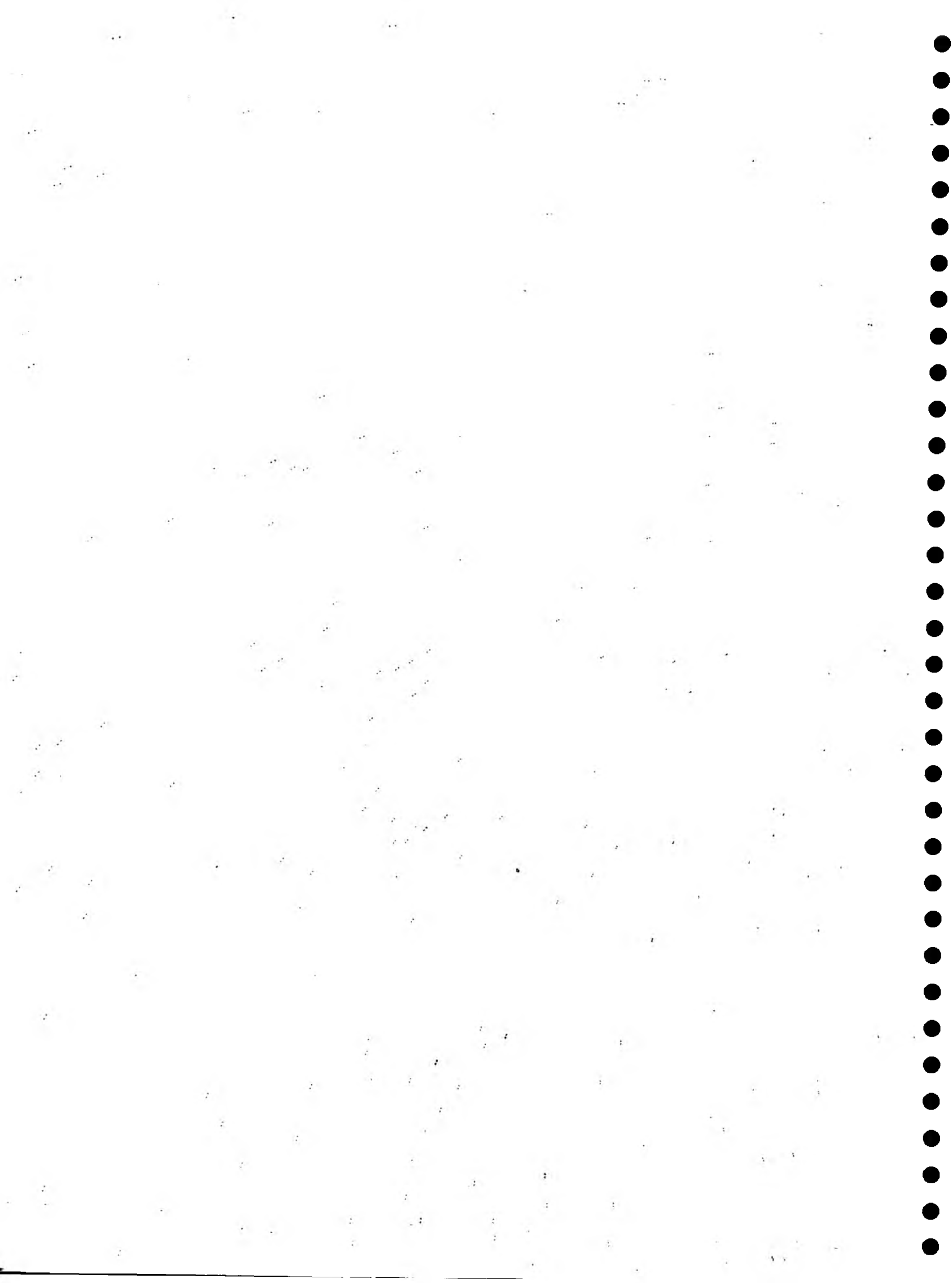
We are not responsible for the quality or supply of drinking water at the tap or for treating sewage waste, although we regulate discharges from sewers and sewage treatment works.

The following table summarises our duties, powers and interests and their relationship to land-use planning.

Water Resources: The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.		
The Agency has powers to:	The Agency has an interest (but no powers) in:	Partnership
<ul style="list-style-type: none"> • Grant or vary water abstraction and impoundment licences on application. • Revoke or vary existing licences to reinstate flows or levels to surface-waters or groundwater 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. 	<ul style="list-style-type: none"> • 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. 	<p>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.</p>
Flood Defence: The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.		
<ul style="list-style-type: none"> • Control, through Land Drainage consents, development or construction of a structure that would affect the flow of an ordinary watercourse (Water Resources Act, 1991 Section 109, 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. • Consent mineral workings within 16 metres of main rivers. 	<ul style="list-style-type: none"> • 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 e.g. 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. 	<p>As a statutory consultee on planning applications within main-river floodplains, the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts or proposed floodplain development. 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.</p>
Water Quality: 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:	The Agency has an interest (but no powers) in:	Partnership
<ul style="list-style-type: none"> • 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. • Prosecute polluters and recover the costs of clean-up operations. 	<ul style="list-style-type: none"> • The control of runoff from roads and highways. This is a Highway Agency duty. • The greater use of source-control measures to reduce pollution by surface-water runoff. • Prevention and education campaigns to reduce pollution incidents. 	<p>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.</p>
Air Quality: The Agency has a duty to implement Part 1 of the Environment Protection Act 1990.		
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The vast number of smaller industrial processes which are controlled by Local Authorities. • Control over vehicular emissions and transport planning. 	<p>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.</p> <p>The Agency wishes to liaise with Local Authorities in the production of their Air Quality Management Plans.</p> <p>The Agency will advise and contribute to the government's National Air Quality Strategy.</p>
Radioactive Substances: The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radio-active materials and the disposal of radioactive waste.		
<ul style="list-style-type: none"> • To issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public. 	<ul style="list-style-type: none"> • The health effects of radiation. 	<p>The Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with MAFF to ensure that the disposal of radioactive waste creates no unacceptable effects on the food chain.</p> <p>The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites.</p> <p>The Agency will work with the HSE on worker-protection issues at non-nuclear sites.</p>
Waste Management: 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.		
<ul style="list-style-type: none"> • Vary waste management licence conditions. • Suspend and revoke licences. • Investigate and prosecute illegal waste management operations. 	<ul style="list-style-type: none"> • 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. 	<p>The Agency will work with waste producers, the waste-management industry and local authorities to reduce the amount of waste produced, increase reuse and recycling and improve standards of disposal.</p>
Contaminated Land: 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.		
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • Securing with others, including Local Authorities, landowners and developers, the safe remediation of contaminated land. 	<p>The Agency supports land remediation and will promote this with developers and Local Authorities and other stakeholders.</p>
Conservation: The Agency will further conservation, 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:	The Agency has an interest (but no powers) in:	Partnership
<ul style="list-style-type: none"> • The Agency has no direct conservation powers, but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation. 	<ul style="list-style-type: none"> • 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. 	<p>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.</p>
Landscape: 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.		
<ul style="list-style-type: none"> • The Agency must 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. 	<ul style="list-style-type: none"> • The landscape impact of new development, particularly within river corridors. This is controlled by Local Planning Authorities. 	<p>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.</p>
Archaeology: 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.		
<ul style="list-style-type: none"> • The Agency must promote its archaeological objectives through the exercise of its water-management and pollution-control powers and duties. 	<ul style="list-style-type: none"> • Direct protection or management of sites or archaeological or heritage interest. This is carried out by LPAs, County Archaeologists and English Heritage. 	<p>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.</p>
Fisheries: The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.		
<ul style="list-style-type: none"> • 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. 	<ul style="list-style-type: none"> • The determination of planning applications which could affect fisheries. 	<p>Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and Local Authorities to protect fisheries.</p>
Recreation: The Agency has a duty to promote rivers and water space for recreational use.		
<ul style="list-style-type: none"> • The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management. 	<ul style="list-style-type: none"> • Promotion of water sports. This is carried out by the Sports Council and other sports bodies. 	<p>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.</p>
Navigation: The Agency has a duty to maintain and improve navigation.		
<ul style="list-style-type: none"> • Maintain river navigation. • Maintain and operate locks and associated weirs and sluices whilst providing access to these sites. • Provide services such as moorings and pump-out facilities. • Maintain navigation by a system of licensing. • Enforce navigation legislation. 	<ul style="list-style-type: none"> • The management and operation of British Waterways navigations and other navigations within the region. 	<p>The Agency will work with British Waterways, navigation authorities and navigation users to improve navigations generally as valuable environmental, recreational, commercial and heritage resources.</p>



Appendix B: The Routine Work of the Agency

On a day-to-day basis, the Agency carries out a huge environmental monitoring and regulatory operation, most of which is to achieve statutory requirements. The aim of regulation is to balance the needs of people and the environment. The Agency works to:-

- save, redistribute and improve river, lake, reservoir and underwater supplies
- prevent and control pollution of air and water
- reduce the risk of harm from contaminated land and bring it back into use
- make sure waste is dealt with safely and legally
- make sure radioactive materials are kept, used and disposed of safely
- make sure flood risks are not created or exacerbated.

Regulating the environment takes place through licensing. The Agency manages licences for abstraction of water from rivers and boreholes, releases to air and water, the carrying and disposal of waste and to carry out work in, over, under or near a watercourse. Within Central Area we manage over 3,200 water abstraction licences, 3,200 consents to discharge to water, 300 waste management licences, over 77 authorisations under Integrated Pollution Control for processes which make releases to air and 70 permits for radioactive materials and waste. We determine approximately 400 applications each year to work on or near water.

We monitor the environment to ensure that pollution is controlled and resources are adequately protected. We regularly monitor the quantity and quality of rivers, estuaries and the sea and check emissions from the processes we regulate. Results are reported on a public register which can be inspected at the Agency's main offices. We run a 24-hour service for receiving reports of and responding to flooding and pollution incidents and emergencies in the air, water or on land. We also work with others to reduce the risk of harm from contamination and to bring land back into good use.

We work to minimise waste and prevent pollution through advice and education, including national campaigns, and through working with other environmental regulators. When necessary, we are prepared to enforce environmental legislation in a tough way. Those who show little regard for the law and who cause blatant and persistent damage to the environment can expect to be prosecuted.

The Agency also has the role of reducing risk to people and the environment from flooding by providing effective defences. Protecting life is our highest priority and to meet this aim we provide a flood forecasting and warning service and discourage development in flood-risk areas. We also manage over 900 km of flood defences and aim to protect and improve the natural environment by promoting flood defences that work with nature.

We are responsible for maintaining, improving and developing fisheries. We regulate fisheries by issuing licences for rod angling and net fishing. We carry out improvements to fisheries by improving the habitat and fish stocks and providing advice to fishery owners. The Agency seeks to ensure that wildlife, landscape and archaeological heritage are protected both in any work we carry out and also in work carried out by others.

Our principal aim for recreation is to protect, improve and promote the water environment for recreational use. We do this by protecting existing use and creating opportunities in the course of our work and by maximising the use of Agency owned sites for recreation.

Appendix C: Abbreviations and Glossary

ABBREVIATIONS

AEG	Area Environment Group
AOD	Above Ordinance Datum
AMP	Asset Management Plan
AWSL	Anglian Water Services Ltd.
BAP	Biodiversity Action Plans
BOD	Biochemical Oxygen Demand
CIMAH	Control of Industrial Major Accident Hazards Regulations 1984
CMP	Catchment Management Plan
CoCo	Countryside Commission
COMAH	Control of Industrial Major Accident Hazards Regulations
CO ₂	Carbon Dioxide
cSAC	Candidate Special Area of Conservation
DETR	Department of the Environment, Transport and the Regions
DO	Dissolved Oxygen
EC	European Community
EN	English Nature
EPA90	Environmental Protection Act 1990
FRCA	Farming and Rural Conservation Agency
IDBs	Internal Drainage Boards
IMS	Interim Management Statement
IPC	Integrated Pollution Control
IPPC	Integrated Pollution Prevention & Control
IWA	Inland Waterways Authority
LA21	Local Agenda 21
LCA	Life Cycle Assessment
LIFE	Lotic Invertebrate Flow Evaluation index
LPA	Local Planning Authority
LEAP	Local Environment Agency Plan
MAFF	Ministry of Agriculture Fisheries & Food
MoD	Ministry of Defence
MRF	Minimum Residual Flow
NFU	National Farmers Union
NRA	National Rivers Authority
NVZ	Nitrate Vulnerable Zones
OFWAT	Office of Water Services
PWS	Public Water Supply
RAF	Royal Air Force
REC	River Ecosystem Classification
RSPB	Royal Society for the Protection of Birds
SCEALA	Standing Conference of East Anglian Local Authorities
SLD	South Level Datum
SMD	Soil Moisture Deficit
SSI	Site of Special Scientific Interest
STW	Sewage Treatment Works
SWAG	Surface Water Action Group
UK	United Kingdom
UWWTD	Urban Waste Water Treatment Directive
WLMP	Water Level Management Plan
WQO	Water Quality Objective
WWT	Wildfowl and Wetlands Trust

GLOSSARY

Above Ordinance Datum	Land levels are measured relative to the average sea level at Newlyn in Cornwall. The average level is referred to as 'Ordinance Datum'. Contours on ordinance Survey maps of the UK show heights in metres above Ordinance datum.
Abstraction	The removal of water from any source, either permanently or temporarily.
Aerosol	Tiny particles of liquid or powder which stay suspended in the atmosphere.
Agenda 21	A comprehensive programme of worldwide action to achieve a more sustainable pattern of development for the next century. UK Government adopted the declaration at the UN Conference on Environment and Development (the Earth Summit) held in Rio de Janeiro in 1992.
Algal blooms	Rapid growth of phytoplankton in marine and freshwater which may colour the water and may accumulate on the surface as a green scum. Decomposing dead cells consume large quantities of oxygen in the water which may result in the waters becoming anaerobic. Some blooms (such as certain species of blue-green algae) may produce poisons.
Aquifer	A water bearing stratum situated below ground level. The water contained in aquifers is known as groundwater.
Asset Management Plan	Water Companies' Strategic Business Plans - initiated (eg AMP 2) by OFWAT as part of the periodic review of water company charges.
Biochemical Oxygen Demand	A standard test which measures over 5 days the amount of oxygen taken up by aerobic bacteria to oxidise organic (and some inorganic) matter.
Biodiversity	Diversity of biological life, the number of species present.
Borehole	Well sunk into a water bearing rock.
Brownfield Sites	Previously developed sites.
Buffer strip	Strip of land 10-100 m wide, which is used and managed to provide appropriate habitat types.
Catchment	The total area from which a single river system collects surface run-off.
Coarse Fish	Freshwater fish other than salmon and trout.
Consent (Discharge)	A statutory document issued by the Agency. It can authorize entry and indicate any limits and conditions on the discharge of an effluent to a Controlled Water. A land drainage consent is an approval for specified structural works in areas under Agency control.
Consultee	In both the Environment Agency's and other agencies' legislation there are requirements for consultation. Comments and objections which are received are noted but do not usually have the power to, in themselves, prevent the controlling authority from making a decision. An exception to this is where the Agency is Statutory Consultee, where the Agency's requirements would be taken as the minimal acceptable.
Controlled Waste	Industrial, household and commercial waste, as defined in UK legislation. Controlled waste specifically excludes mine and quarry waste, wastes from premises used for agriculture, some sewage sludge and radioactive waste.
Controlled Waters	All rivers, canals, lakes, groundwaters, estuaries and coastal waters to three nautical miles from the shore, including the bed and channel which may for the time being be dry.
Countryside Stewardship Schemes	Scheme set up by Countryside Commission in which landowners are grant aided to manage their land in an environmentally sensitive manner.
Dissolved Oxygen	The amount of oxygen dissolved in water. Oxygen is vital for life so this measurement is an important, but highly variable, indicator of the 'health' of the water. It is used to classify waters.
District Local Plans	Statutory documents produced by District or Borough Councils to implement the development strategy set out in County Structure Plans. Specific land use allocations are identified.
EC Directive	A type of legislation issued by the European Community which is binding on member States in terms of the results to be achieved but which leaves to Member States the choice of methods.
Ecosystem	A functioning, interacting system composed of one or more living organisms and their effective

	environment, in biological, chemical and physical sense.
Effluent	Liquid waste from industry, agriculture or sewage treatment plants.
Environmental Protection Act 1990	Legislation controlling the protection of the environment in all its forms, including air, land and water.
Eutrophic	A description of water which is rich in nutrients. At worst, such waters are sometimes beset with unsightly growths of algae.
Flood plain	This includes all land adjacent to a watercourse over which water flows or would flow but for flood defences in times of flood.
Fluvial	Relating to the freshwater river.
Fly-tipping	The illegal dumping of waste in places such as hedgerows, lay-bys, fields even on streets and in parks.
Gauging Station	A site where the flow of a river is measured.
Global Warming	The increase in the average temperature of the earth, thought to be caused by the build up of greenhouse gases.
Habitat	The customary and characteristic dwelling place of a species or community.
In river needs	The totality of requirements for the water environment and effluent dilution before abstraction is taken into account.
Integrated Pollution Control	An approach to pollution control in the UK which recognises the need to look at the environment as a whole, so that solutions to particular pollution problems take account of potential effects upon all environmental media.
Internal Drainage Boards	Authorities responsible for dealing with land drainage within a district. They are primarily concerned with agricultural land drainage but also may be involved with water supply to their district for agricultural purposes.
Landfill	The engineered deposit of waste into or onto land in such a way that pollution or harm to the environment is minimized or prevented and through restoration to provide land which may be used for another purpose.
Landfill Gas	A by-product of the digestion by micro-organisms of putrescible matter present in waste deposited in landfill sites. The gas is predominantly methane (64%) together with carbon dioxide (34%) and trace concentrations of other vapours and gases.
Leachate	Liquor formed by the act of leaching.
Local Agenda 21	At the Earth Summit in Rio de Janeiro in June 1992, world leaders signed a global environment and development action plan called Agenda 21. The majority of Agenda 21 cannot be delivered without the commitment and cooperation of local government. Each local authority is encouraged to adopt its individual Local Agenda 21 - its own sustainable development strategy at the local level, involving partnerships with other sectors, such as the Environment Agency, businesses, community and voluntary groups.
Local Plan	A statutory document that sets out detailed policies and specific proposals for the development and use of land.
Lotic Invertebrate Flow Evaluation Index	A measure of the impact of variable flow regimes on the macroinvertebrate communities of a river. Every invertebrate family and species have been assigned to different flow groups depending on their primary ecological affiliation.
Main River	The watercourse shown on the statutory 'Main River Maps' held by the Agency and MAFF. The Agency has permissive powers to carry out works of maintenance and improvement on these rivers.
Nitrate Vulnerable Zone	An area where nitrate concentrations in sources of public drinking water exceed, or are at risk of exceeding the limit of 50 mg/l laid down in the 1991 EC Drinking Water Directive, and where compulsory, uncompensated agricultural measures will be introduced from December 1998 as a means of reducing those levels.
OFWAT	Office of Water Industry's Financial Regulator of Water Service Companies.
Particulates	Fine solid particles found in the air or in emissions.
Permissive Powers	Powers which confer on the Agency the right to do things but not the duty.

Public Water Supply	The supply of water by companies appointed as Water Undertakers by the Secretary of State for the Environment under the Water Industry Act 1991.
Ramsar	Wetland site of International Importance that is designated under the Ramsar* convention (*a town in Iran where the international convention originally agreed in 1975 to stem the progressive encroachment on, and loss of, wetland).
Return Period	Refers to the frequency of a rainfall or flooding event. Flood events are described in terms of the frequency at which, on average, a certain severity of flow is exceeded. This frequency is usually expressed as a return period in years, eg, 1 in 50 years.
Riffle	A shallow area in a river where the substrate is composed of gravel and the flow is faster.
Riparian	Owner of riverbank and/or land adjacent to a river. Normally owns river bed and rights to mid-line of channel.
River Basin	The total area from which a single river system collects water.
River Corridor	The continuous area of river, river banks and immediately adjacent land alongside a river and its tributaries.
Scheduled Ancient Monument	Te key sites nationally for archaeology, designated by the Secretary of State for National Heritage, through English Heritage.
Septic tank	A tank used for the treatment of sewage from properties without mains drainage. The sewage is settled and some bacterial treatment occurs. Discharge of effluent is usually to a soakaway system.
Site of Special Scientific Interest	A site given a statutory designation by English Nature because it is particularly important, on account of its nature conservation value.
Slakers	Pipes and valves designed to take water away from the Fens.
Sludge	The accumulation of solids from treatment processes. Sludge can be incinerated or spread on farm land.
Sluice	Structure to control upstream river levels and downstream flows.
Soakaway	System for allowing water or effluent to soak into ground, commonly used in conjunction with septic tanks.
South Level Datum	The zero point is 100 metres below Ordnance Datum Newlyn (ie sea level) ie 100 mSLD = 0 m AOD. (Refer to Above Ordnance Datum.)
Spray Irrigation	The watering of crops by spraying which can have a high impact on water resources.
Special Area of Conservation	Areas (land and sea) that contribute most to the survival of species and habitats listed in the Habitats Directive.
Soil Moisture Deficit	The drying out of soil, occurring when the loss of water by evapotranspiration is greater than rainfall.
Structure Plans	Statutory documents produced by County Councils outlining their strategy for development over a 10-15 year time scale.
Surface Water	Water collecting on and running off the surface of the ground.
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
S105 Surveys	Section 105 of the Water Resources Act 1991 allows for Standards of Service, Assets and Flood Risk Surveys.
Water Level Management Plan	A written statement which provides a means by which the water level requirements for a range of activities in a particular area can be balanced and integrated.
Water Table	Top surface of the saturated zone within the aquifer.
Weir	A dam built across a river to raise upstream levels.
Wetland	An area of low lying land where the water table is at or near the surface for most of the time, leading to characteristic habitats.
1:10 Year Drought/Flood	A drought/flood event with a statistical probability of occurring once in a ten year period (other periods may be specified in a similar way).

Appendix D: AEG Sub-Group and Project Team Details

Representatives of the Great Ouse Area Environment Group (AEG)

Dennis Ford
Colin Clare
David Jones
Richard Hall
Derek King
Robin Upton
Ingrid Floering Blackman
Peter Shropshire

Project Team

Pat Sones:	Water Resources Manager (Project Leader)
Rona Chellew:	Team Leader - LEAPs (Plan Coordinator)
Alan Rich:	Team Leader - Planning Liaison
Pauline Jones:	Tactical Planning Officer
Terry Clough:	FER Manager (Acting)
Julie Barker:	Water Resources Engineer
Andy Newton:	Flood Defence Engineer
Alan Owers:	Regional Waste Technician
David Berridge:	Environment Protection Officer

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



**ENVIRONMENT
AGENCY**



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