

# local environment agency plan

## IDLE AND TORNE CONSULTATION DRAFT NOVEMBER 1999



ENVIRONMENT  
AGENCY

## WHAT IS THIS REPORT ABOUT?

This report highlights the specific environmental issues in the Idle and Torne area. The issues are either under the Environment Agency's remit or can be addressed through partnerships. We have made suggestions on how the issues can be tackled. The plan area is shown in Map 1.

## WHY SHOULD I READ IT?

The Environment Agency has produced this document as part of a consultation process. We want to hear your views on the issues facing the environment in this area and what you think should be done about them. Sharing your views will enable you to contribute to environmental protection and improvement, and influence the work of the Agency and others. We will be pleased to receive any comments you wish to make, but in particular we are keen to know:

- How important do you think the issues are?
- What you think should be done about them?
- What do you think of our proposals?
- Are there problems or opportunities that we have not included?
- Can you help to tackle any of the issues?

## WHAT WILL THE AGENCY DO WITH MY COMMENTS?

We will consider your comments prior to producing the LEAP Action Plan, which will set out proposals to protect and improve the environment of the area. If you want us to, we will reply to you on your specific comments, letting you know how they have influenced our actions, and if appropriate, the actions of others. **All comments will be treated as public information unless you ask us otherwise.**

**This Consultation Draft will not be rewritten as part of the LEAP process.** However, any errors or omissions will be acknowledged in a statement of public response, to be published after the consultation period has ended on 29 February 2000.

If you want more copies of this report for colleagues or other organisations you think may be interested, we will be pleased to send them free of charge.

We hope that this LEAP will also influence the policies and actions of Local Authorities, developers and others as well as assisting the Agency in its day to day management of the plan area.

## HOW CAN I MAKE MY VIEWS KNOWN?

This plan will be launched at Worksop Town Hall on 18 November 1999. This will be open to any interested parties and will provide you with an opportunity to discuss the plan with us. If you cannot attend this launch, or are reading this plan after that date, you can contact us by:

- Using the questionnaire and freepost envelope provided.
- Writing to us and using the freepost envelope at the back of this report.
- Telephoning us on 0115 945 5722.
- Faxing us on 0115 981 7743.
- Emailing us at [anne-marie.kiely@environment-agency.gov.uk](mailto:anne-marie.kiely@environment-agency.gov.uk)

Please address your comments to:

Anne-Marie Kiely  
LEAPs Officer  
Environment Agency  
Trentside Offices  
Scarrington Road  
West Bridgford  
Nottingham NG2 5FA

PLEASE RETURN YOUR COMMENTS TO US BY 29 FEBRUARY 2000



# Questionnaire – We want to hear your views



## The aims of the Idle and Torne LEAP Consultation Draft and Leaflet are:

☞ To inform you of our vision and the issues we think need tackling, whilst providing background environmental information.

☞ To receive your views and comments. This is your opportunity to tell us what you think and you can help by completing this questionnaire or by sending a separate written statement. All comments received will be treated as public information unless you state otherwise.

- i) Please answer the following questions (it should only take 5 minutes).
- ii) Please add any further comments on the back of the sheet.
- iii) Detach the questionnaire and send it to us in the FREEPOST envelope provided.

## Questions

- 1 Have you heard of the Environment Agency before?  
Y / N
- 2 How did you find out about this Local Environment Agency Plan? (Please tick box)  
☐ Letter from the Environment Agency  
☐ Environment Agency displays  
☐ Radio  
☐ Television  
☐ Newspaper  
Other (please state) .....
- 3 Where did you get this report?  
.....  
.....
- 4 The principal aim of the Environment Agency is to "contribute to sustainable development".  
Do you understand what is meant by the term "sustainable development"? Y / N
- 5 Do you think that this LEAP works towards sustainable development? Y / N

- 6 In Chapter 3 of this plan we have identified issues that we think are important in the Plan area. Please circle five issues most important to you and rank in terms of importance.  
(1 = most important, 5 = least important)

- Issue 1 Adverse affects of peat milling on the environment
- Issue 2 Balancing the needs of the environment with the needs of surface water abstractors
- Issue 3 Low flows in the area
- Issue 4 Loss of wetlands in the plan area
- Issue 5 The need to optimise the compensation flow from the PWS borehole at Manton into the River Ryton
- Issue 6 Impact of the abstraction from the River Ryton for the Chesterfield Canal
- Issue 7 Lack of flow data in relation to the River Torne, west of Tickhill
- Issue 8 Lack of spawning substrate and holding pools for fish on the lower Idle
- Issue 9 The need for integrated water quality planning
- Issue 10 Lack of water resources to meet agricultural demand
- Issue 11 Dewatering activities associated with mineral extraction
- Issue 12 Lack of recreational access along watercourses
- Issue 13 Atmospheric pollution from power stations
- Issue 14 Groundwater quality at risk
- Issue 15 Detrimental effects of nutrients on water quality and biodiversity
- Issue 16 Impact of collieries on the environment
- Issue 17 Biodiversity of local species
- Issue 18 Biodiversity of local habitats
- Issue 19 Contaminated land from collieries
- Issue 20 Factors affecting flytipping
- Issue 21 Landspreading of waste
- Issue 22 The extent of floodplains are not clearly defined

More questions overleaf ...

# Questionnaire – Page 2



7 What best describes your interest in this LEAP?  
(Please tick box)

- ☐ An officer working for a local authority or government agency/ department
- ☐ An officer/representative of a national organisation
- ☐ A member of an environmental pressure group
- ☐ A representative of a private company
- ☐ A member of a local sports club
- ☐ A member of a local amenity society (e.g. Civic Trust)
- ☐ A local resident
- ☐ An individual interested in environmental matters

Other (please specify):

8 Are there other issues you would like to see included in the Plan? Y / N

If "yes" please give brief details (use separate sheets if necessary):

9 Are there any major errors or omissions in the report? Y / N

If "yes" please give brief details (use separate sheets if necessary):

If you would like a reply, please write your name and address below. This questionnaire will be available for public inspection.

Name: .....

Address: .....

.....

.....

.....

.....

Post Code: .....

## Comments

If you have any further comments, please write them here or continue on another piece of paper.

**Thank you for completing this questionnaire.**

Ms Anne-Marie Kiely  
LEAPs Officer  
Environment Agency  
Trentside  
Scarrington Road  
West Bridgford  
Nottingham NG2 5FA

Tel: 0115 945 5722

Fax: 0115 981 7743

E-Mail: [anne-marie.kiely@environment-agency.gov.uk](mailto:anne-marie.kiely@environment-agency.gov.uk)



# Key Details for the area

Area 1307km<sup>2</sup> Population 625,000

## Settlements

## Population

Bawtry	2,628
Crowle	3,699
Dinnington	7,970
Doncaster(part)	285,364
East Retford	21,070
Epworth	3,359
Hatfield	15,421
Maltby	12,320
Mansfield	89,065
Ollerton	6,745
Rossington	12,472
Shirebrook	9,220
Sutton-in-Ashfield	40,455
Thorne*	16,855
Warsop	13,035
Worksop	39,120

## Conservation

SSSIs	48
Scheduled Ancient Monuments	48
Sites of Importance to Nature Conservation	409
National Nature Reserve	1
Local Nature Reserves	7
Candidate Special Area of Conservation	1
Prop. Special Protection Area	1

## Fisheries

Length of designated fisheries:

Cyprinid (coarse fish)	114
Salmonid	0

## Flood Defence

Length of main river (km)	312.8
Flood alleviation schemes	3
Agency pumping stations	17
IDB pumping stations	26

## Waste Management

Landfill sites	156
Transfer stations	31
Licensed scrap yards	9
Incinerators	3

## Monitored water quality

Length of river in GQA grade (km)

Quality	Grade	Length	%
Good	A	22	4
	B	71	13
Fair	C	257	49
	D	63	12
Poor	E	102	19
Bad	F	15	3
Total		530	100

## Consented discharges:

Sewage treatment works	57
Storm tank overflows	40
Storm sewage/overflows	106
Private sewage treatment plants	45
Trade effluent/site drainage	93

## Process Industry Regulation (PIR)

Major industrial processes (Part A)	13
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## Radioactive substances

Sites with authorisations for accumulation and disposal of radioactive waste or registrations to hold radioactive materials	2
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**Idle and Torne  
Local Environment Agency Plan  
Map 1**



**ENVIRONMENT  
AGENCY**



0 5km

SE  
00  
SK

SE  
00  
SK

90

90

80

80

70

70

60

60

50

60

70

80

50

60

70

80

THORNE

CROWLE

Keadby

HATFIELD

DONCASTER

ISLE OF  
AXHOLME

EPWORTH

Owston  
Ferry

ROSSINGTON

Misterton

West Stockwith

MALTBY

Harworth

BAWTRY

Scrooby

Mattersey

Thurcroft

DINNINGTON

North Anston

South Anston

EAST RETFORD

WORKSOP

Creswell

SHIREBROOK

WARSOP

OLLERTON

MANSFIELD

SUTTON  
IN ASHFIELD

**LEAP Area**

**KEY**

- ..... LEAP area boundary
- Watercourse
- Canal
- Built up area
- Other settlement
- Motorway
- A road
- Railway

## **Our Draft Vision for the Idle and Torne LEAP area**

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The Environment Agency's vision is 'a better environment in England and Wales for present and future generations'. We aim to protect and improve the environment in an integrated way, to work towards achieving sustainable development. This means managing today's environment without compromising tomorrow's resources.

**Our vision for the Idle and Torne LEAP area is:**

**'Working with others to create a sustainable environment that improves the quality of people's lives'**

Many of the issues raised in this document reflect the demand for the natural resources available in the area, including groundwater, coal, peat, sand and gravel. The economic and social benefits of exploitation of these resources must be balanced against the impact that these activities have on the environment.

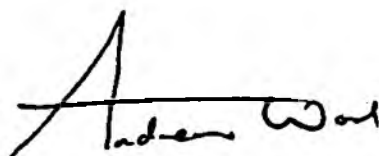
Key objectives for the area include:

- Supporting biodiversity through the protection and enhancement of species and habitats.
- Maintaining and improving the quality and quantity of the water resources of the area.
- Ensuring that the collieries in the area do not have a detrimental effect on the environment.
- Protecting the conservation potential of the area from the effects of air pollution, wetland destruction, water pollution and over-abstraction.
- Providing for the agricultural needs of land users in the area without adversely affecting the environment.
- Reducing the problem of flytipping.

We can best achieve this by:

- Partnerships. By collective action through partnerships with industry, local authorities, environmental groups and educational establishments we can manage the environment from a wider perspective.
- Enforcement. Our wide-ranging powers mean that we can regulate the activities of those who impact on the environment, through pollution prevention, education and enforcement.
- Consultation. By seeking the views of members of the public, conservation bodies, businesses, we can ensure that we take your views into account.

By applying these principles, the Agency can manage the environment in an integrated and sustainable way, to improve the quality of people's lives, ensuring that our vision becomes a reality.



**ANDREW WOOD**  
**Area Manager – Lower Trent, Midlands Region**

ENVIRONMENT AGENCY



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The Environment Agency has compiled this report with contributions from key organisations operating in the area.

The following Agency staff are members of the project group responsible for development of this report. Other members of staff have also contributed.

Dave Briggs	Environment Protection Team Leader
Chris Deakin	Tactical Planning Officer (Waste)
Keith Easton	Fisheries Management Team Leader
James Freeborough	LEAPs Planner
Angela Gallagher	Environment Protection Officer
Craig Hatcher	Water Resources Officer
Valerie Holt	Conservation and Recreation Officer
Anne-Marie Kiely	LEAPs Officer
Roy Ladhams	Flood Warning Officer
Karen Miller	FER Manager
Elfyn Parry	Water Resources Team Leader
Andrew Plant	PIR/PSR Officer
John Ratcliffe	Senior Hydrologist
Pete Sibley	Biologist
Mick Walker	Flood Defence Officer
Trevor White	Water Resources Officer
Craig Woodburn	Water Quality Planner

This is the fourth LEAP to involve the Lower Trent Area Environment Group, our local consultative panel for all aspects of Agency activity. The Agency wishes to express its thanks to the Area Environment Group, particularly the Idle and Torne sub-group for their comments and advice regarding the production of this report. The members of the sub-group and the interests they represent are as follows:

Richard Brown	Self
Nigel Fox	Minerals Industry
Peter Haines	Rambling
David Jackson	Environment/CPRE
Riley South	Internal Drainage Board

## 1.1 The Environment Agency

The Environment Agency of England and Wales was established on 1 April 1996 by the 1995 Environment Act. It is a "non-departmental public body" accountable to the Secretary of State for Environment, Transport and the Regions and has taken over the functions of previous, separate environmental regulators:

- The National Rivers Authority (NRA) which had responsibility for the water environment;
- Her Majesty's Inspectorate of Pollution (HMIP) which had responsibility for regulating the largest and most potentially polluting industrial processes and regulated the use and disposal of radioactive material;
- the 83 Waste Regulation Authorities who had responsibility for waste regulation in Local Authorities;
- a small number of technical sections from the Department of the Environment.

This merger allowed for a more comprehensive and holistic approach to the protection and management of our environment and the Environment Act also gave the Agency new responsibilities and duties.

The Agency covers England and Wales (with separate organisations for Scotland and Northern Ireland) and is divided into eight regions (see Map 2) and twenty-six areas. The Idle and Torne is one of four LEAP catchments in the Lower Trent Area of the Midlands Region. Most of the Agency's work is undertaken at Area level and this allows for an efficient and appropriate response to the local delivery of our services.



Photograph 1 - Retford Town Hall



The Environment Agency has a wide range of duties and powers relating to different aspects of environmental management. It is required and guided by government to use these duties and powers to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development as "*.. development that meets the needs of the present without compromising the ability of future generations to meet their own needs*".

At the heart of sustainable development is the integration of human needs and the environment within which we live. Indeed the creation of the Agency itself recognises the need to take a more integrated and longer-term view of environmental management at a national level. The Agency has to reflect this in the way it works and in the decisions it makes.

Taking a long-term perspective requires the Agency to anticipate risks and encourage caution, particularly where the effects on the environment may be long-term or 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, 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 the responsibility of others. The Agency can do this by working in partnership with and through others 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 given rise to several hundred pieces of legislation related to environmental protection; one of the most recent is the Directive on Integrated Pollution Prevention and Control. A number of other Directives are under consideration, covering 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, and respond to them, in different ways. The Agency's long-term strategy has to reflect these global issues and has to deliver them within the framework of international and national commitments.

Perhaps the major international issue is that of climate change. The UK is a contributor to the emission of gases (such as carbon dioxide) into the atmosphere, which are believed to contribute to long-term climate changes. The UK will be affected in a complex way 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.

Another outcome of the United Nations "Earth Summit" held in Rio de Janeiro in 1992 was agreement by governments that, to solve global environmental problems, local action is crucial: we must all think globally but act locally. The Local Agenda 21 initiative set out actions needed to achieve sustainable development, including the need to make clear the links that exist between local life-styles and the use of resources. In the UK, LA21 plans are being formulated by Local Authorities and local communities to identify and address a wide range of environmental issues including natural resource use, pollution, health, local amenity and quality of life. These programmes set out long-term solutions that take account of global implications, such as the use of resources that affect the global environment and local communities in other parts of the world.

The Agency is committed to a programme of Local Environment Agency Plans (LEAPs) to produce a local agenda of integrated action for environmental improvement. These LEAPs will also allow the Agency to deploy its resources to optimise benefit for the local environment. 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 a local level. The plans will translate policy and strategy into delivery and will result in actions, either for the Agency to fulfil, or for others to undertake through influence and partnership. We believe the process will benefit the local community by influencing and advising external decision-makers and public opinion. It will build trust by being open and frank when dealing with all issues.

### **The principal aim of the Environment Agency**

The principal aim of the Agency is to contribute to sustainable development. In doing so, the Agency must have regard to Ministerial guidance, and must take into account the likely costs and benefits. The principle aim is defined under Section 4 of the Environment Act 1995 as:

*"In discharging its functions so to protect or enhance the environment, taken as a whole, as to make the contribution towards attaining the objective of achieving sustainable development .... that ministers consider appropriate".*

### **Responsibilities of the Agency and those outside our remit**

The Agency's work and responsibilities do not cover all aspects of environmental legislation or services to the general public. There are other statutory and non-statutory bodies who have responsibilities and Table 1 summarises some of those environmental concerns the Agency has responsibility for and those we do not.

### **Regional Committees and Area Environment Groups (AEGs)**

In order to support openness, objectivity and accountability, the Agency is required by law to consult committees on all aspects of its work. Membership of the regional committees consists of local people drawn from public life including industry, agriculture, Local Authorities and environment groups.

Three committees serve the Midlands Region: -

- Regional Environment Protection Advisory Committee (REPAC)
- Regional Flood Defence Committee (RFDC)
- Regional Fisheries, Ecology & Recreation Advisory Committee (RFERAC)

REPAC and RFERAC are advisory committees, while RFDC has executive powers relating to capital expenditure for flood defences.

The Lower Trent Area including the Idle and Torne plan area is served by its own Area Environment Group (AEG). Membership consists of local people who live or work in the area and who represent a wide range of interests. These include Local Authorities, industry, agriculture, conservation, amenity and recreational interests and riparian owners. The group advises the Agency on LEAPs and the delivery of local services and acts as a link between the local community, the Agency and its statutory committees. The AEG has set up sub-groups to consider all draft LEAP documents. The members of the sub-group involved with the development of this LEAP are shown on the acknowledgements page.

Table 1 - Environmental concerns: who is responsible?

Environmental concern	Responsible party
Air pollution from large industry (Part A processes)	Environment Agency
Flooding of property from Main river	Environment Agency
Low flows in rivers	Environment Agency
The use and disposal of radioactive materials	Environment Agency
Quality of watercourses	Environment Agency
Fish mortalities and pollution incidents	Environment Agency
Waste management	Environment Agency
Waste minimisation/recycling	Environment Agency
Waste planning	Environment Agency
Regulation of waste disposal operations	Environment Agency
Contaminated land	Local Authority (or Environment Agency)
Air pollution from small industry (Part B processes)	Local Authority
Air pollution from traffic	Local Authority
Co-ordinating Local Agenda 21	Local Authority
Health and hygiene issues	Local Authority
Litter (unless in a Main River & restricting flow)	Local Authority
Local planning issues	Local Authority
Noise	Local Authority
Smoke from bonfires	Local Authority
Smoke from domestic chimneys	Local Authority
Navigation on canals and rivers	British Waterways
Flooding of property from foul sewer	Water company
Problem with water supply	Water company
Burst water mains	Water company
Strange taste, smell or colour of tap water	Water company

*If you know of other environmental concerns which are not shown in the above table and would like to know who has responsibility for them then please contact us.*



## 1.2 Local Environment Agency Plans (LEAPs)

LEAPs are a first step towards environmental planning. The plans are non-statutory integrated action plans based on river catchments. They provide a focus for those concerned with the future of their local area.

LEAPs help to fulfil our principle aim of contributing to sustainable development through integrated environmental management and improvement. They also play a role in:

- promoting openness and accountability
- developing closer links with local community and other agencies
- educating and informing the public on local environmental issues
- prioritising the Agency's work through an action plan for managing and improving the local area over the next 5 years
- realising the environmental potential of the area
- forming joint actions and partnerships for environmental improvement.

### The Draft LEAP

This document, the Draft LEAP, is the first output from the LEAP process, and is not the final plan.

To assist in the preparation of this report, an informal consultation exercise was undertaken in June 1999 with a range of organisations and groups. We are grateful to those who provided advice, information and offers of partnership and we have included their comments wherever possible. Public participation is important as it increases environmental awareness and encourages greater involvement and ownership of the local environment.

Through consultation a shared vision will be developed, along with a strategy for action, the Idle and Torne Plan.

### The Environmental Overview

This document will provide the supporting and background environmental information for the area. It will provide an insight to the state of the environment in the Idle and Torne area. This document will be available from our LEAPs team at the Agency's Trentside offices by the end of 1999.

### The LEAP Plan

This is produced as a result of the consultation process outlined above. It will be published in August 2000, and will guide Agency activities in the Idle and Torne area for the next five years and influence the activities of other groups. It will set out the vision, a costed action programme for environmental improvement and supporting policies and partnerships.

Regular monitoring and updating of the LEAP will be an integral part of the process. Annual review reports will be published leading to a full review and further consultation at the end of five years.

The Idle and Torne LEAP is part of a national programme whereby every catchment in England and Wales will be expected to produce a LEAP and reach consultation stage by 31 December 1999. There are 131 LEAP catchments in England and Wales, with 4 in the Lower Trent Area. In order to achieve the deadline a timetable for LEAP production for the Lower Trent Area has been developed. This should ensure that all consultation drafts have been produced by the end of 1999. The Lower Trent Area LEAP programme is shown in Table 2 below.

Table 2 - Lower Trent Area LEAP programme

LEAP area	Start	Consultation draft	Plan	1st Annual Review
Soar	October 1995	April 1997	June 1998	July 1999
Derbyshire Derwent	April 1997	February 1998	February 1999	April 2000
Lower Trent and Erewash	March 1998	February 1999	December 1999	January 2001
Idle and Torne	March 1999	November 1999	August 2000	October 2001

**If you are reading this document after the consultation period has ended (29<sup>th</sup> February 2000), we would still be interested in hearing your comments and your views, as they will be useful for future plans, and quite possibly for our current activities. The address for sending your comments is at the front of this document.**

### LEAPS and other plans

The Agency shares the regulation and management of the environment with others. Whilst LEAPs are the Agency's plans, their content and development will reflect these shared responsibilities. LEAPs will compliment and integrate with other organisations' plans such as Waste Local Plans, Local Air Quality Management Plans, Local Development Plans and Local Agenda 21 plans.

### The Idle and Torne Catchment Management Plan (CMP)

CMPs were the predecessors of LEAPs and were introduced by one of the Agency's previous organisations, the National Rivers Authority (NRA).

All actions outstanding in the old Idle and Torne CMP have been transferred into this Idle and Torne LEAP. A table in the appendix shows the transfer of actions from the CMP to this LEAP.

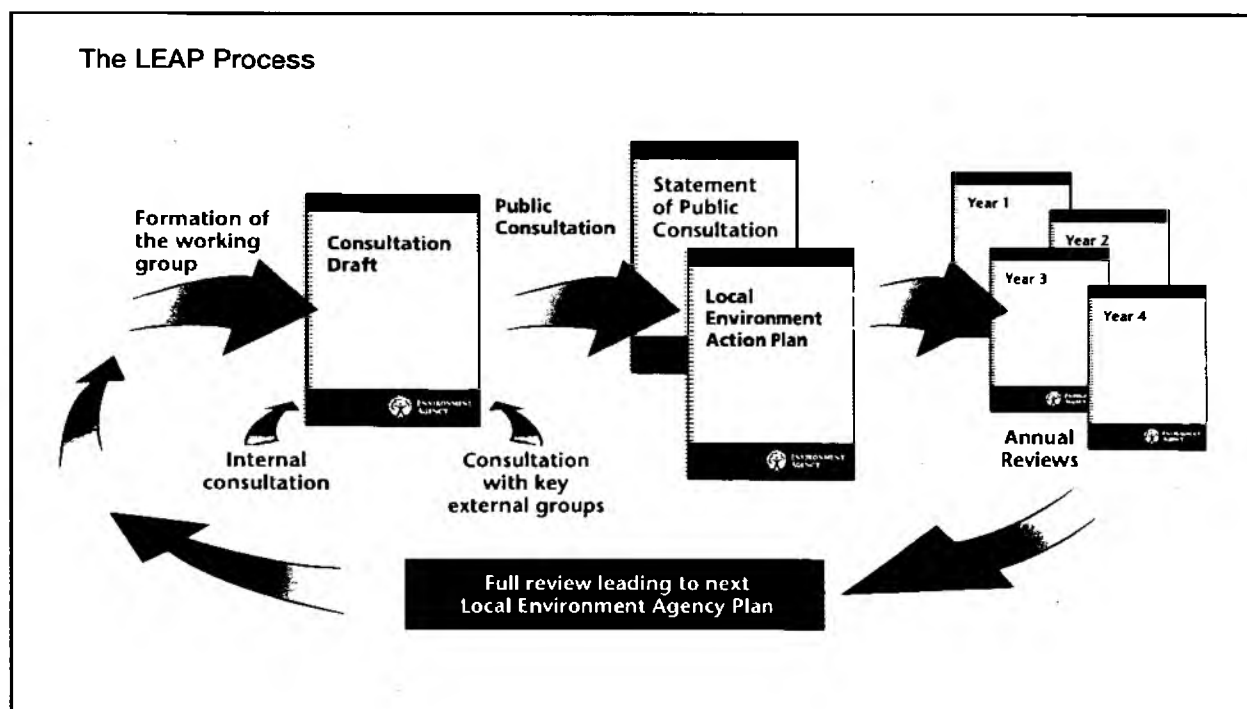


Figure 1 - The LEAP process and the main outputs in the five-year cycle



Photograph 2 - Isle of Axholme: north of the LEAP area



Photograph 3 - Mansfield: south of the LEAP area



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## Introduction

The Idle and Torne LEAP area covers 1307 square kilometres, including part of the counties of Nottinghamshire, Derbyshire, South Yorkshire and North Lincolnshire. Major settlements in the plan area include Sutton-in-Ashfield, Mansfield, Worksop, East Retford, Crowle, Hatfield and parts of the suburbs of Doncaster and Rotherham. The population of the plan area is approximately 625 000 people.

In terms of transport links, the area is well served by the road network. The M1 runs close to the western edge of the area, with the A614, the A1 (M), and the M18 running north/south, and the M180 running east/west. Railways serving the area include the east coast main line which links East Retford with Doncaster, the Sheffield-Worksop-East Retford line and the reinstated Robin Hood Line which links Nottingham and Worksop via Mansfield.

The local economy has changed significantly over the last two decades with the decline of the coal industry, which was once the area's largest employer. Major changes have affected many manufacturing industries with large declines in employment in textiles and engineering. Despite agriculture being the dominant land use in the area, employment in the agricultural industry has declined, and in line with national trends, there has been a shift from full time to part time farmers. However, these declines have in part been counterbalanced by increases in service industries, and many former colliery sites are the subjects of regeneration schemes, which aim to improve the depressed economy of the former coal mining communities.

The Idle and Torne area has a wide variety of land uses, from heavy industry to intensive agriculture. Agriculture is the dominant land use (See Map 3) especially arable cropping, with the dominant type of agriculture being cereal production. There are 13 major industrial processes in the plan area including Whitwell Quarry near Worksop.

## 2.1 Land

### Local Administration

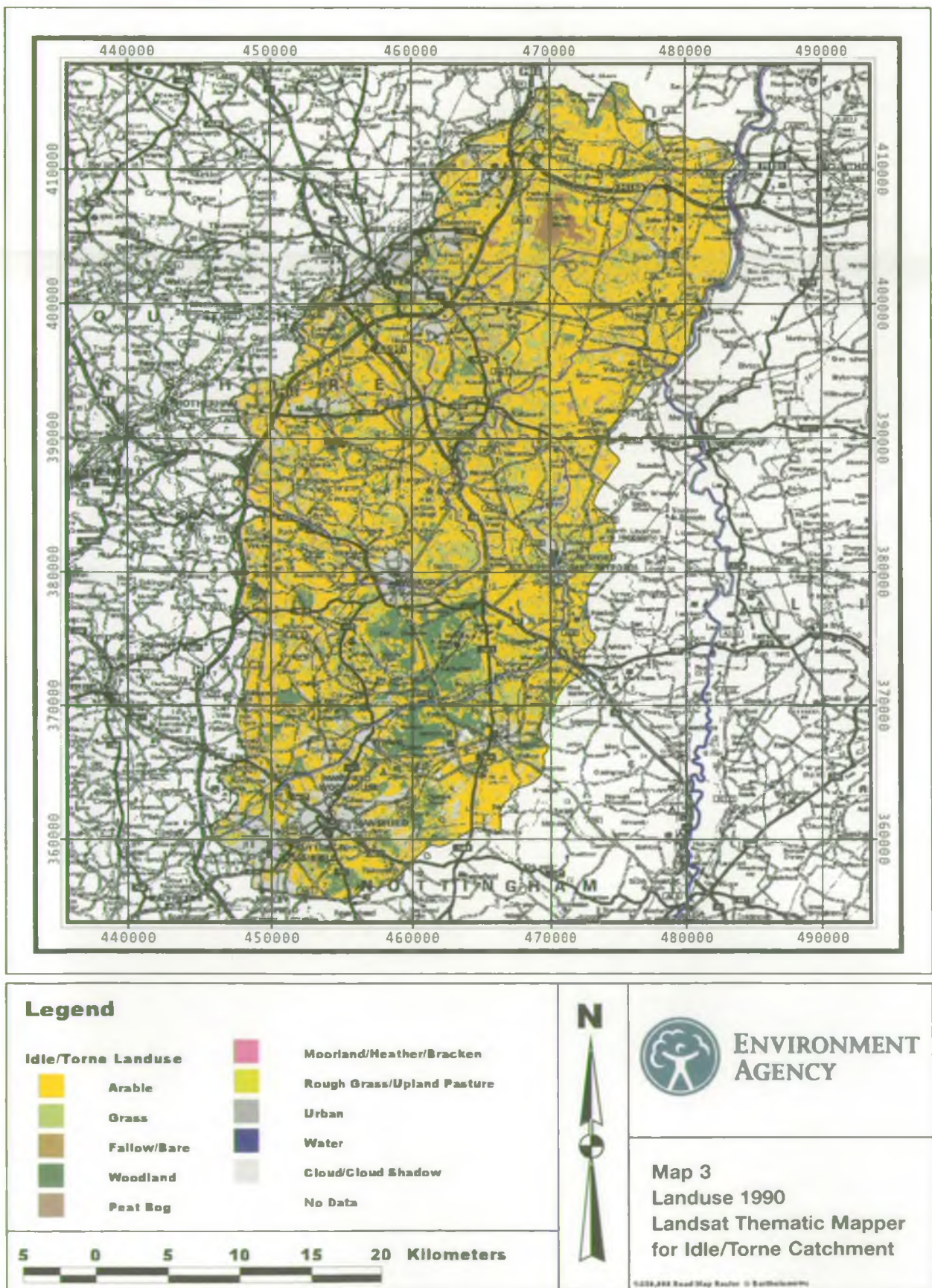
Local administration is shared between the Councils listed in Table 3 below and shown on Map 6.

**Table 3 - Local administration in the plan area**

COUNTY OR UNITARY COUNCILS	METROPOLITAN BOROUGH COUNCILS	DISTRICT/BOROUGH COUNCILS
Derbyshire County Council North Lincolnshire Council Nottinghamshire County Council	Doncaster Metropolitan Borough Council  Rotherham Metropolitan Borough Council	Ashfield District Council Bassetlaw District Council Bolsover District Council Gedling Borough Council Mansfield District Council Newark and Sherwood District Council



Map 3 – Land use / cover





## Landscape

The landscape of the LEAP area varies widely from the flat land of the Isle of Axholme and Hatfield Chase in the north, to the wooded Dukeries and heavily urbanised headwater areas around Mansfield and Doncaster. The landscape has been shaped over many hundreds of years by the cumulative effects of human occupation and industry

A comprehensive system of pumped drainage helps to support the high grade agricultural land in the plan area. Although large land areas were converted for agricultural use, woodland is still a major feature of the Idle and Torne area. Remnants of the old Royal Forest of Sherwood survive, much of which is now part of large private estates, such as The Dukeries which is comprised of the former farm estates Welbeck Abbey, Thoresby Hall and Clumber park. In addition, the LEAP area has been extensively mined for coal in the past and even though the coal industry has experienced a decline there are still 6 working collieries remaining.

The Rivers Idle and Torne rise between Nottingham and Doncaster and flow in a generally north – easterly direction to join the River Trent at large land drainage pumping stations at West Stockwith and Keadby respectively. Major tributaries of the Idle are the Rivers Ryton, Meden, Maun and Poulter. The catchment of the Snow Sewer, also known as the Warping Drain is also prevalent in the plan area and flows into the River Trent at Owston Ferry. Most of the land in the lower reaches of the plan area lies below the high tide level and is protected by an extensive system of floodbanks.

The Rivers Idle and Torne flow through a mixture of open rural and dense urban areas. The River Torne flows mainly through flat agricultural land with the headwaters situated in Sandbeck Hall Lake. It flows past the settlements of Tickhill, Rossington, Auckley, Wroot and Sandtoft. The river flows past the southern fringe of Hatfield Moors where peat extraction is taking place (Issue 1). Downstream of Auckley the river has been substantially modified with floodbanks dominating the river and sparse tree cover.

The River Idle is fed by the Rivers Meden, Maun and Poulter which become the Idle near Gamston. The River Ryton joins upstream of Bawtry. These watercourses flow through Mansfield, Worksop, Warsop and Ollerton. Downstream of Gamston the river flows through east Retford and has been highly modified for flood relief purposes and is embanked in some areas. This area is intensively farmed and has sparse tree cover. Some planting has been carried out on the river banks downstream of Idle Stop including low shrub cover for otters. West Stockwith pumping station dominates the landscape near its confluence with the River Trent.



Photograph 4 - West Stockwith Pumping Station

The Countryside Agency has adopted the Countryside Character initiative, which identifies character areas that provide the starting point for promoting local distinctiveness and encouraging local communities to take pride in their own environment, concepts which are an integral part of the sustainable local environment.

Each area has been analysed according to its distinctive character and broad management opportunities have been suggested to help conserve, enhance, restore or even change the character of the countryside. The Agency considers landscape character within all relevant aspects of its work.

Character Areas in the LEAP area include Sherwood, described as a well wooded, and in places, industrialised region characterised by semi-natural woodlands and heaths, historic country estates, large pine plantations, mining settlements and a planned layout of roads and fields. Also classed as a Character Area is the Idle Lowlands, described as a varied, low-lying region characterised by sparsely settled carlands, levels, and rolling sandlands with village settlements.

### Geology

The geology of the area is shown in Map 4.

To the west of the LEAP area, small areas of Coal Measures are overlain by the Lower Magnesian Limestone. These form a broad band along the western edge of the area that is separated from the overlying strata by the Middle Permian Marl which gradually becomes sparser in the south. To the south of Worksop, the Middle Permian Marl is overlain directly by Sherwood Sandstones. This is intervened in the north by Upper Magnesian Limestone and Upper Permian Marl.

The outcrop of the Sherwood Sandstone underlies the majority of the area and continues out to the east, where it is overlain by the Mercia Mudstone, which now forms a low escarpment. All the strata dip gently to the east at an angle of 2 –3°.

Recent drift deposits, including sands, gravels, silts and clays, commonly overlie these strata throughout the area. They can be glacial in origin, but alluvial deposits associated with river systems are a more dominant feature. The Doncaster area is particularly notable for its complex drift sequence, which varies in depth and spatiality.

### Hydrogeology

The Coal Measures consist mostly of impermeable strata, with occasional thin sandstone beds, from which limited supplies of groundwater can be obtained. The quality of the water can be poor, with high concentrations of chlorides and sulphates.

The Lower Magnesian Limestone is capable of providing substantial water supplies if well-developed fissure systems are intersected during drilling. However, exploratory work would need to be undertaken to determine the yield and quality of such water.

The main aquifer in the LEAP area is the Sherwood Sandstone. This also continues outside the area to the east, under the Mercia Mudstone. The significance of this, is that abstractions that take place outside of the plan area will have a 'knock-on' effect on the water resources in the Idle and Torne area, and should therefore be taken into consideration.



**Idle and Torne  
Local Environment Agency Plan  
Map 4**



**ENVIRONMENT  
AGENCY**



0 5km

SE  
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SE  
00  
SK

90

90

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70

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THORNE

CROWLE

Keadby

HATFIELD

Stainforth and Keadby Canal

DONCASTER

Armthorpe Reservoir

ISLE OF  
AN HOLME

EPWORTH

Dwston  
Ferry

ROSSINGTON

Minterton

West Stockwith

MALTBY

BAWTRY

Harworth

Scrooby

Mattersey

Thurcroft

DINNINGTON

Blyth

North Anston

South Anston

EAST RETFORD

WORKSOP

Creswell

Great Lake

Clumber Lake

WARSOP

OLLERTON

SHIREBROOK

MANSFIELD

SUTTON  
IN ASHFIELD

**Geology**

**KEY**

- ..... LEAP area boundary
- Watercourse
- Canal
- Built up area
- Other settlement
- Triassic Mercia Mudstone
- Triassic Sherwood Sandstone
- Upper Magnesian Limestone
- Permian Marl
- Lower Magnesian Limestone
- Lower and Middle Coal Measures



Groundwater in the Sherwood Sandstone flows in an east to northeasterly direction. The aquifer is heavily utilised and the patterns of abstraction cause some stretches of river to contribute water to the aquifer while others receive water from it. Over-abstraction has caused falling water levels and environmental damage in some areas, as explained in Issue 10.

The quality of the groundwater is very good, apart from the elevated levels of nitrate in the outcrop area, resulting from excessive leaching of agricultural nitrate (See Issue 14). This high nitrate does not occur under the protective cover of the Mercia Mudstone although there is a danger of high nitrate outcrop water being drawn into this confined region by abstraction.

Recharge to the sandstone is affected by the drift sequences, especially in the Doncaster area, which also make it difficult to determine how water level changes in the sandstone will affect the surface water features. The depth of the unsaturated zone can vary from 0m in the low-lying areas and 50m under the higher ground.

### **Natural Radiation**

We are all exposed to natural radiation all the time. Most people receive their greatest dose or exposure from natural radiation, mainly from radon. Radon is a natural radioactive gas. It comes from uranium that occurs naturally in all rocks and soils and is given off at the ground surface. We all breathe it throughout our lives. Out of doors, it disperses in air so levels are very low, but it can build up in enclosed spaces such as indoors where ventilation is poor.

The average radon level in homes in the plan area is about  $24 \text{ Bq m}^{-3}$ . This is very low and well below the "Action Level" dose of  $200 \text{ Bq m}^{-3}$  recommended in the National Radiological Protection Board's Control Strategy in 1990.

### **Waste Disposal/Treatment**

Statistics regarding waste are collated in county and district areas. The LEAP area covers 9 such administrative boundaries as shown on Map 7. As Nottinghamshire is the largest county in the area, information regarding that county has been included below.

In Nottinghamshire an Agency study determined that 2.3 million tonnes of waste was landfilled in the county during 1998/99. The types of wastes landfilled were pulverised fuel ash and furnace bottom ash (39%), construction/demolition waste (20%), household wastes (17%) and trade waste (15%).

Household and some commercial waste is also incinerated, at the Eastcroft municipal solid waste incinerator in Nottingham (outside of the LEAP area) which produces heating and power for parts of the city.

Clinical waste is disposed of outside the plan area at one of the two operational incinerators in the East Midlands. There is one at Nottingham City Hospital, which mainly treats clinical waste originating from the hospital, and the other has recently been built on the site of the Eastcroft Municipal Waste Incinerator in Nottingham.

## 2.2 Air

### Air Quality

The Agency's role in the control of air quality comes mainly through regulation of emissions to air from major industrial processes. These are regulated under Part A of the Environmental Protection Act 1990. Air quality may be significantly influenced by other sources not controlled by the Agency, such as aircraft, traffic, smaller industries and domestic sources. The main responsibility for delivery of the Government's National Air Quality Strategy lies with local authorities, although the Agency plays a role through its regulation of emissions from major industries.

The National Air Quality Strategy established objectives for eight key pollutants: Benzene; 1,3 Butadiene; Carbon monoxide; Lead; Nitrogen dioxide; Ozone; PM<sub>10</sub> and Sulphur dioxide to be achieved by the year 2005. As part of the strategy local authorities have been asked to review and assess air quality within their areas and, where they identify a likely breach of those objectives, to designate them as Air Quality Management Areas.

County Councils in the plan area have set up working groups and have until the end of 1999 to produce final reports on the state of air quality in their respective authorities.

Air pollution may be in the form of gas or particulate matter and its impact may be local or widespread. Pollutant dispersion from Part A processes is complex and depends on the height at which it is discharged, its physical properties, the prevailing weather conditions and the local topography. Local effects tend to arise from polluting gases or dusts grounding prematurely rather than remaining airborne, for example odours and dust deposition. Widespread effects can include secondary formation of low level ozone (eg. from emissions of volatile organic compounds), acidification of soils and watercourses from emissions of acid gases, depletion of stratospheric ozone and the "greenhouse effect" both of which contribute to global warming.

## 2.3 Water

### Surface Water Quality

The five main tributaries, which feed the Idle/ Torne system all rise on the western edge of the plan area from coal measures or limestone strata. The headwaters are of good quality, however, it is a feature of the catchment that each of the tributaries receive significant effluent discharges in their upper sections. This is the single most important factor determining river quality in the area.

The Maun, Meden and Poulter all feed in-stream lake systems and the presence of treated sewage effluent in low dilution has raised the concentration of nutrients, causing eutrophication. The Idle, Meden and Maun catchments have been designated as sensitive areas under the EC Urban Waste Water Treatment Directive. The Rivers Ryton and Torne are also affected by sewage effluent and urban runoff. The River Ryton requires a pumped release of good quality groundwater to replace the loss of water to Chesterfield Canal and to dilute Worksop Sewage Treatment Works effluent. Both rivers recover sufficiently to support good coarse fisheries in their lower reaches.

Discharges from mines have had significant effects on all the tributary rivers in the past. Despite the colliery closure programme, there are currently discharges of minewater to each of the main rivers in the plan area (see Issue 16).

Significant quality improvements that have taken place in the River Idle and its tributaries within recent years and this has led to a large number of uses now being made of the river.

## Fisheries

The plan area provides a diverse range of fisheries. The upper reaches of the rivers Ryton, Meden and Poulter have excellent native brown trout populations. Downstream, these rivers are dominated by mixed coarse fisheries, where chub, dace, roach and eels are the most important species.

In contrast, fish populations in the River Maun have been detrimentally affected by the impact of major conurbations at the headwaters of its catchment.

The Idle is characterised by poor habitat structure and this has been highlighted in Issue 12. The fish populations are variable in quality and quantity usually associated with availability of fish holding habitat.

The Torne provides an improved fisheries habitat, given the presence of extensive aquatic plant life for refuge and spawning.

The Idle and Torne are both dominated by roach, bream and eels, with perch, tench and pike being locally important.

Stillwater fisheries are widely available in the LEAP area, providing both coarse and trout fishing, and canals in the area are popular fishing venues, with major angling events taking place on the Stainforth and Keadby and the Chesterfield Canal.

## Recreation

There are many lakes in the Idle and Torne area, some associated with the Dukeries estates. Some are fished, such as Langold, Harthill, Kingsmill, Welbeck, Thoresby and Sandbeck. Many of the numerous gravel pits are also fished. Rufford Lake is an amenity area with no fishing. The Rivers Torne, Idle, Three Rivers and Warping Drain are fished by angling clubs, whereas informal fishing tends to occur on the Rivers Ryton, Meden and Maun.

Gravel pits in the Idle catchment are used for sailing, board-sailing, jet ski-ing and power boating, and Kingsmill Reservoir is used for sailing purposes. The River Torne is occasionally used for school canoeing, and boating and canoeing takes place in the River Idle below Bawtry.

Local Authorities, riparian owners and volunteer groups have provided footpaths along various tributaries, sometimes with the help of the Agency. These provide increased access for walkers, and Issue 8 looks at recreational access along watercourses.

The River Idle, downstream of Bawtry, has an ancient right of navigation. The River Idle Flood Alleviation Scheme interrupted this navigation by building a pumping station at West Stockwith. However a guillotine gate was installed and this may be lifted to allow passage of boats when the levels between the River Trent and the River Idle are suitable.

There are two canals in the catchment, the Chesterfield Canal and the Stainforth and Keadby Canal. Both of these waterways are managed by British Waterways.

The large Dukeries estates offer many attractions for visitors. These attractions consist of activities such as walking, cycling and birdwatching. There are visitor centres at Sherwood Forest and the Major Oak, Clumber Park, Rufford Park and Creswell Craggs.





**Photograph 5 - Major Oak, Sherwood Forest**

The Greenwood Community Forest covers 161 square miles of Nottinghamshire countryside and includes the historic Sherwood Forest and provides recreational opportunities such as walking, cycle routes and bridleways.

### **Flood Defence & Land Drainage**

The majority of land in the lower reaches of the Rivers Idle and Torne lies below high tide level in the River Trent and has suffered local land drainage problems in the past.

The Isle of Axholme area, to the north of the LEAP area, lies below sea level. Reclaiming this land from the sea began in medieval times when drainage ditches were dug to control flooding. In the 17<sup>th</sup> Century, King Charles I engaged a Dutchman, Cornelius Vermuyden to implement large-scale land drainage works in this area.

The drainage of the area now relies on a comprehensive system of pumped drainage and flood defences. To maintain drainage in the area, water is pumped from the low-lying drains to higher level carrier watercourses, and thence to the River Trent. Water is let back into the low-lying drains in dryer months to meet local agricultural abstraction needs. This process is explained more fully in Issue 2. The Agency and Internal Drainage Boards (IDBs) operate pumping stations, and protect local land from waterlogging and flooding. Maintenance of the floodbanks on the high level watercourses is essential to provide continual flood protection. Map 5 shows the location of pumping stations, and IDB areas.

The upper reaches of the River Idle and Torne are predominantly urbanised. Surface water from these urbanised areas has led to the reconstruction and modification of these watercourses under capital improvement schemes to improve flow capacity and to provide a level of protection to varying standards.



The Agency has general supervisory roles over all matters relating to land drainage. However, responsibility for the maintenance of any watercourse normally rests with the riparian landowner. On designated main rivers the Agency has permissive powers to construct and to control the actions of others. On ordinary watercourses, District and County Councils have permissive powers to carry out works and make byelaws, but their works require the approval of the Agency. The IDBs have broadly the same powers as the Agency within their areas, including the power to levy drainage rates to fund improvement schemes and permissive powers to carry out drainage works on their awarded drains.

### River Torne

Flood defence standards on the River Torne were improved in the early 1990s, but increasing run-off from development in the Doncaster area could put these standards at risk if the defences are not properly managed. Further raising of the floodbanks is not practical as the riverbanks are built on peat and are subject to settlement.

### River Idle

The main tributaries of the River Idle are the Ryton, Maun, Meden and Poulter. These take urban run-off from Worksop, Mansfield and a small part of Rotherham. The tributaries combine near Elkesley to form the Idle, which flows through a fertile valley before being discharged to the River Trent via West Stockwith pumping station.

A comprehensive flood defence scheme on the stretch of the Idle between Retford and the River Trent protects over 300 properties and 1000 hectares of agricultural land.

The upper tributaries of the Idle, and the Rivers Maun, Meden, Ryton and Poulter have wide floodplains and steep-sided valleys, and periodic flooding of adjacent farmland has occurred in the past. Works have been carried out to improve the flow capacity to take run-off from the urban areas of Mansfield and Worksop, and to rectify problems caused by mining subsidence. (See Issue 16).



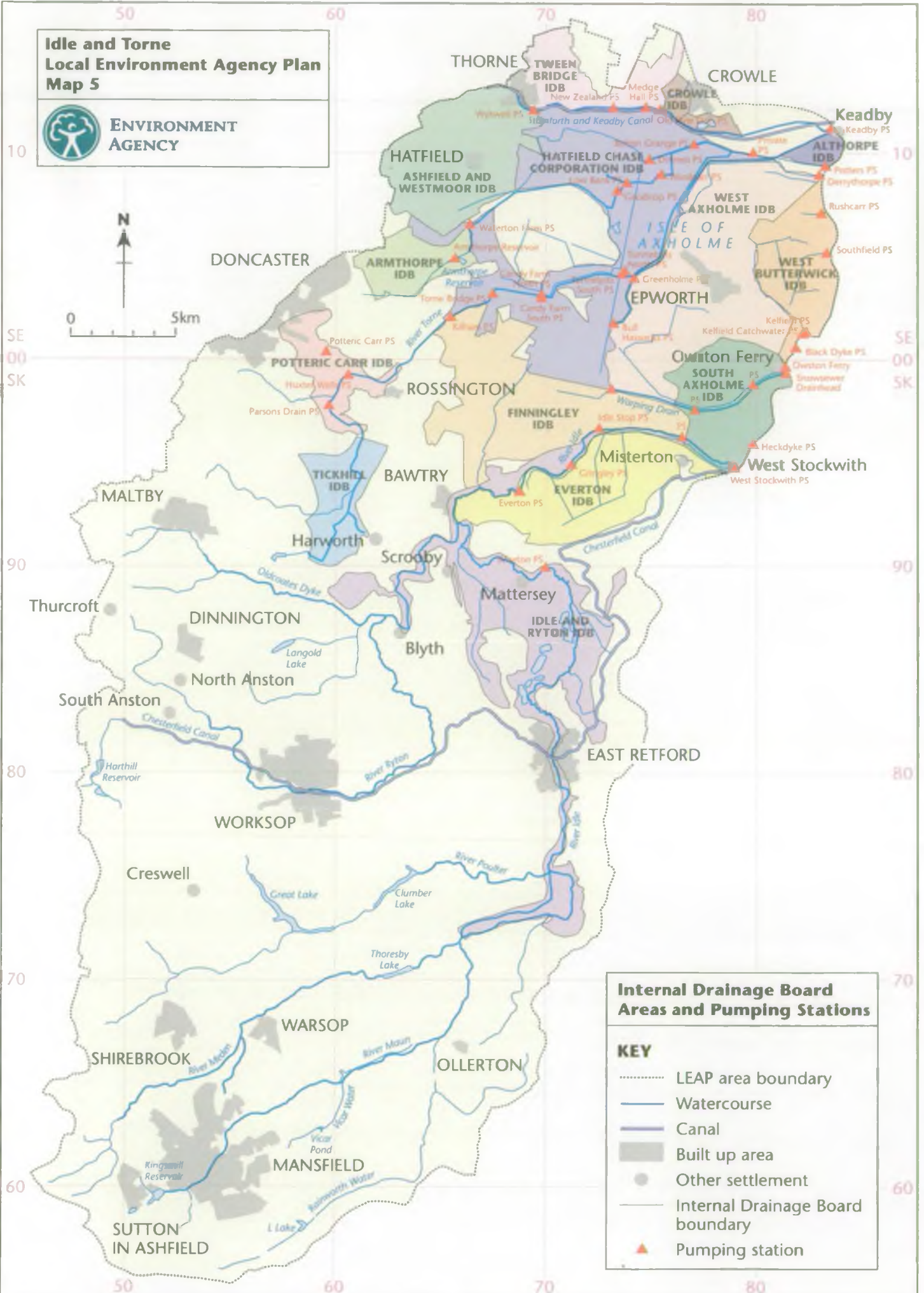
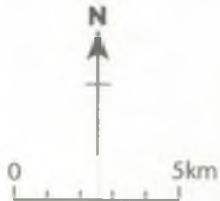
Photograph 6 - River Idle at Gamston - flooding caused by mining subsidence



**Idle and Torne  
Local Environment Agency Plan  
Map 5**



**ENVIRONMENT  
AGENCY**



**Internal Drainage Board  
Areas and Pumping Stations**

**KEY**

- LEAP area boundary
- Watercourse
- Canal
- Built up area
- Other settlement
- Internal Drainage Board boundary
- ▲ Pumping station



### Flood Warning

The Agency operates a flood warning service across England and Wales. Since September 1996 the Agency has taken the lead role in passing flood warnings to people at risk in order that they can take the necessary action to protect themselves and their properties. The latest technology is used to monitor rainfall and river levels for 24 hours a day, 365 days a year. The flood warning service is provided for certain reaches of Main River where there is a risk to people and property and where there is insufficient time for the warnings to be effective. Flood warnings are issued to the police, Local Authorities and the public through a variety of media including AA Roadwatch, Teletext, radio and television. The Agency also provides a Floodcall 'dial and listen' service which provides 24 hour recorded information on the latest flooding situation.

It should be noted that the Agency uses the best information available to predict the possibility of flooding but no warning system can cover every eventuality. It is the responsibility of those who live in flood prone areas to be aware of any risk and to know what action should be taken to protect them if flooding occurs.

Issue 22 explains the Agency's duties regarding floodplain protection.

### **Water Resources**

The majority of water abstracted in the plan area comes from the Sherwood Sandstones aquifer, mainly for public water supply purposes. Historically this aquifer has been heavily exploited. In large areas abstraction exceeding long term recharge has resulted in lowering of the water table causing depletion of flow in rivers and streams and damage to surface water features together with wetlands dependant on a high water table. To the west of the Sherwood Sandstone is the Lower Magnesian Limestone aquifer. Because limestone is much less permeable than sandstone it results in poorer yields.

Groundwater resources have also been extensively developed for use in association with coal mining activities. Over the past 15 years there has been a rapid decline and many licences have been revoked. In contrast there has been an increase in demand for irrigation water for agricultural use. In addition, food processing companies, especially in the Worksop area, also use groundwater resources along with increasing demands from the recreational industry, such as golf courses. For mineral washing purposes, sand and gravel extraction companies retain large volume groundwater abstraction licences, many of which are not used to their full capacity

There is no surface water abstraction for public water supplies in the plan area. Extensive development of the surface water resources has however taken place to meet spray irrigation demands. The only other major abstraction from rivers is the British Waterways abstraction at Worksop in the Chesterfield Canal.

The control and management of these various demands requires the Agency to monitor the state of the resources through a network of monitoring sites and information obtained is used for long term planning and for making operational decisions to limit the impact of large abstractions. Issues 2, 6, and 10 deal with water resources in the LEAP area.

## **2.4 Conservation, wildlife, archaeology and heritage**

### **Conservation**

The LEAP area contains many conservation sites of different status. These include Sites of Importance

for Nature Conservation (these are non-statutory), Sites of Special Scientific Interest, Local Nature Reserves and one National Nature Reserve. There is also one candidate Special Area of Conservation, part of Sherwood Forest, Birklands and Bilhaugh.

Thorne Moors are nationally important as they represent the largest intact area of peat in England. The moor is a candidate Special Area of Conservation. Together with Hatfield Moors, they are also a proposed Special Protection Area. Issue 1 addresses the conservation aspects of this important site.

SSSIs in the area include the Idle Washlands, Clumber Park, Welbeck and Thoresby Lakes, Rainworth Heath and parts of the Chesterfield Canal.

English Nature has developed Natural Areas, which comprise unique combinations linking historical and cultural development with wildlife and natural features. The Countryside Agency has developed Countryside Character Areas, which are integral to Natural Areas. The main Natural Areas in the LEAP are Humberhead Levels in the north and parts of the Sherwood and Southern Magnesian Limestone.

### Wildlife

The Natural Areas have identified several species relating to various habitat types. The local Biodiversity Action Plans also identify habitats and species requiring action plans and the Agency's BAP lists those species that feature in the issues.

The habitats in the area can be defined as heathland, woodland, peatlands, fen, flood meadows, hay meadows, grasslands, ditches, rivers and lakes. The species found are diverse but of particular interest are nightjars, woodlark, lapwing, redshank and bewick's swan, grass snake, great crested newt, bog myrtle and a large range of aquatic plants.

Otters are returning to the area and several artificial holts have been constructed to provide lying-up habitat. Water voles can be found along many of the rivers in the area, but the populations are fragmented. Barn owl boxes are being provided through various projects and this will assist in linking the rivers of this area with the River Trent to the east. Bats are found along the watercourses and, in particular, Daubentons' bats at Dirtness Pumping Station. Issues 17 and 18 provide further details.

### Archaeology

There are 48 Scheduled Ancient Monuments and in excess of 600 other sites of archaeological interest in the area.

The area is rich in gravel deposits that contain vital information about the history of the area. These gravel deposits are being extensively quarried, resulting in destruction of associated archaeological and environmental deposits. Gravel workings have unearthed remains in the Idle Valley. The archaeological potential of other river valleys such as the Ryton, Poulter, Maun and Meden is also recognised, visible on the surface as earthwork remains, and buried in or beneath alluvium and colluvium deposits on the valley floors or sides.

The Humberhead Levels are noted for finds from Palaeolithic period through Bronze Age, Iron Age, and Roman to the Post-Medieval period. The peat in the area has preserved many remains, and dewatering of this resource had led to degradation of peat deposits and buried organic structures. Reduction in groundwater levels is also a matter of concern to the archaeological status of the area.

The caves at Creswell Crags are of world renown, being Palaeolithic and later prehistoric sites. There are Roman remains at Styrrup-with-Oldcotes, Edlington and Tickhill.



## Heritage

The plan area also has a number of stately homes located within its boundaries, consisting of the former, once private estates of Welbeck, Clumber, Rufford, Thoresby and Worksop which now make up what is known as the 'Dukeries'.

There is an Edwardian pumping station at Boughton and many old water pumping stations on the Hatfield Chase drainage system to the north of the plan area. Dirtness pumping station owned by the Agency is a listed building.

Mills have been preserved at Clumber and Rufford and one has been restored at Ollerton. The tributaries of the Idle supported many mills, some of which are still in existence. The Rivers Meden and Maun once supported high-level flood dykes that supported water meadows. Many of the dykes and water structures can still be found in agricultural areas.

The River Idle was once an important navigation and the Pilgrim Fathers are said to have begun their journey from Scrooby near Bawtry, down the River Idle to the Trent and thence to Boston.

Coal mining has been a strong influence on the industrial heritage of the area, but many collieries are now closed and spoil tips reclaimed and landscaped. (See Issues 16 and 19 for colliery impacts, and Chapter 4 for details on the regeneration of Ollerton Colliery).



**Photograph 7 - Boughton Pumping Station, near Ollerton**



## Introduction

This chapter provides a detailed description of the issues which, the Agency considers, need to be addressed in the Idle and Torne LEAP area. An issue is a problem that needs tackling or an opportunity that should be realised. The issue locations (where appropriate) are shown on Map 6.

For each issue the text describes the problem or opportunity, which organisations are involved and what is currently being done about it. The tables set out options for action together with potential partnerships, the impacts of each proposal, along with estimated costs and timescales. The Environment Agency officer responsible for the issue has also been identified.

The proposed options for action are intended to facilitate improvements to the environment for the benefit of all users and are put forward for discussion and consideration. The Plan that leads from this report will set out an agreed set of actions with more detailed budget and timetable information for the next five years. Any outstanding actions from the Idle and Torne Catchment Management Plan have been incorporated into these issues. (Please see Appendix 2 for more details.)

The issues have been identified by:

- Using the knowledge of Agency staff.
- Informal consultation with a range of organisations and individuals and by taking into account representations received from key groups.
- Comparing the current state of the area (Environmental Overview) with national and regional targets.

The icons or pictures at the beginning of each line on the tables relate to the Agency's 'Environmental Themes'. These relate to national Agency targets set out in the publication "*An Environmental Strategy for the Millennium and Beyond*" (1997). A copy of this document is available on request from our Customer Contact department at the Trentside offices.

The themes are as follows:



Addressing CLIMATE CHANGE



Regulating MAJOR INDUSTRIES



Improving AIR QUALITY



Managing WASTE



Managing our WATER RESOURCES



Delivering INTEGRATED RIVER-BASIN MANAGEMENT



Conserving THE LAND



Managing our FRESHWATER FISHERIES



Enhancing BIODIVERSITY

*The Environment Agency wants to hear your comments on the issues and proposals in this document together with any new ideas and suggestions.  
Please use the questionnaire and freepost envelope or fax, telephone or e-mail.*

The issues are separated into three sections. There is no priority order to the sections or the issues.

#### Site specific issues:

- Issue 1 Adverse effects of peat milling on the environment
- Issue 2 Balancing the needs of the environment with the needs of surface water abstractors
- Issue 3 Low flows in the LEAP area
- Issue 4 Loss of wetland status of conservation sites in the LEAP area
- Issue 5 The need to optimise the compensation flow from the public water supply shaft at Manton into the River Ryton
- Issue 6 Impact of the abstraction of water from the River Ryton for the Chesterfield Canal
- Issue 7 Lack of flow data in relation to the River Torne, west of Tickhill
- Issue 8 Lack of spawning substrate and holding pools for fish on the lower Idle

#### Plan-wide issues:

- Issue 9 The need for integrated water quality planning
- Issue 10 Lack of water resources to meet agricultural demand
- Issue 11 Dewatering activities associated with mineral extraction
- Issue 12 Lack of recreational access along watercourses

#### National issues:

- Issue 13 Atmospheric pollution from power stations
- Issue 14 Groundwater quality at risk
- Issue 15 Detrimental effects of nutrients on water quality and biodiversity
- Issue 16 The impact of collieries on the environment
- Issue 17 Biodiversity of local species
- Issue 18 Biodiversity of local habitats
- Issue 19 Contaminated land arising from active or disused colliery sites
- Issue 20 Factors affecting flytipping
- Issue 21 Landspreading of waste
- Issue 22 The extent of floodplains are not clearly defined



Photograph 8 - Abstraction of water for spray irrigation



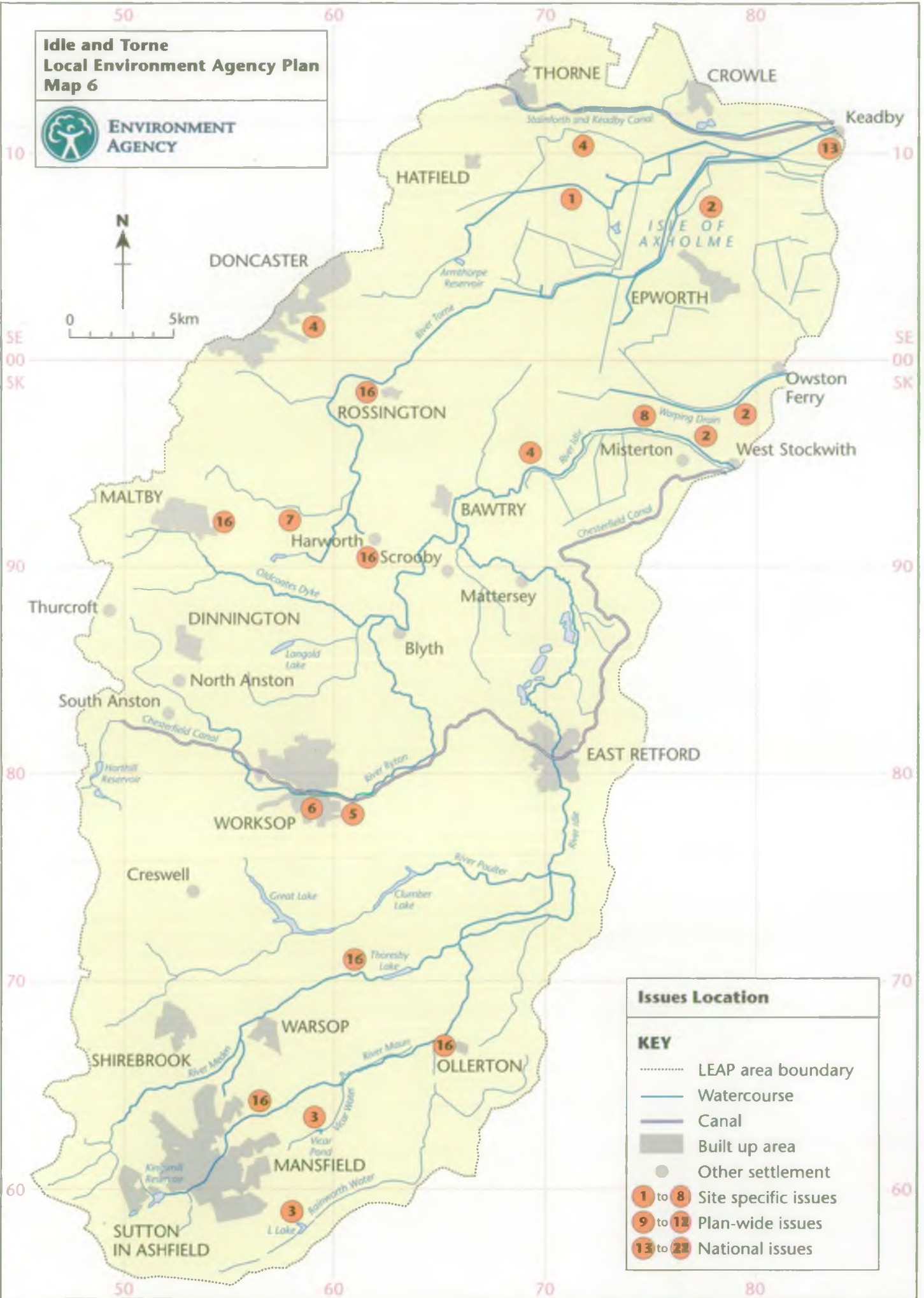
**Idle and Torne  
Local Environment Agency Plan  
Map 6**



**ENVIRONMENT  
AGENCY**



0 5km



**Issues Location**

**KEY**

- ..... LEAP area boundary
- Watercourse
- Canal
- Built up area
- Other settlement
- 1 to 8 Site specific issues
- 9 to 12 Plan-wide issues
- 13 to 23 National issues



## Abbreviations used in Chapter 3

ADAS	Agricultural Development Advisory Service	ORP	Otters and Rivers Project
AMP	Asset Management Plan	R	Recurring costs
AWS	Anglian Water Services	RL	Riparian Landowner
BAPS	Biodiversity Action Plan	RQO	River Quality Objective
BW	British Waterways	RSPB	Royal Society for the Protection of Birds
CA	Countryside Agency	SA(E)	Sensitive Area (Eutrophication)
CA	Coal Authority	SAC	Special Area for Conservation
CLA	County Landowners Association	SAPS	Species Action Plan
DETR	Department of the Environment, Transport and the Regions	SINC	Site of Importance for Nature Conservation
EH	English Heritage	SPA	Special Protection Area
EN	English Nature	SSSI	Site of Special Scientific Interest
FWAG	Farming and Wildlife Advisory Group	STP	Sewage Treatment Plant
HOT	Hawk and Owl trust	STWL	Severn-Trent Water Ltd
IDB	Internal Drainage Board	TBG	Tidy Britain Group
LA	Local Authority	TDFG	Tickhill and District Footpath Group
LPA	Local Planning Authority	THMCF	Thorne and Hatfield Moors Conservation Forum
MAFF	Ministry of Agriculture, Fisheries and Food	TREG	Torne River Environmental Group
MoU	Memorandum of Understanding	UWWTD	Urban Waste Water Treatment Directive
MPA	Mineral Planning Authority	WLMP	Water Level Management Plan
NAQS	National Air Quality Strategy	WT	Wildlife Trust
NFU	National Farmers Union	YWS	Yorkshire Water Services
NVZ	Nitrate Vulnerable Zone		

## Issue 1 – Adverse effects of peat milling on the environment

**Objective:** To assess and reduce the detrimental effects of peat milling on the environment

### Background

The moorlands of the Isle of Axholme to the north of the plan area are characterised by rich peat deposits, which form part of the Humberhead Peatlands National Nature Reserve. Lowland raised peat bogs are classed as one of the UK's threatened habitats, and the LEAP area contains the largest intact area of peat in England, Thorne Moors.

Peat milling has been carried out for centuries, previously for fuel but more recently for the commercial horticultural trade, and the DETR this year reported a 54% rise in peat sales between 1993 and 1997 mainly attributable to amateur gardeners. Peat cutting operators dewater the peat prior to milling.

### What are the problems?

#### Loss of a nationally important area

Peat milling and its associated dewatering is threatening this rare and valuable resource. Over four thousand species of plants and animals live on these peat moors, many of which are rare, and some only found in this location. The Humberhead Levels are of outstanding importance for birds and 75 species breed here.

#### Effects on water quality and fauna

Dewatering of peat on Hatfield Moors results in a characteristic surface water drainage from land within the Isle of Axholme. Increased operations over the last few years have accelerated alterations in drainage and this may have become potentially damaging to downstream water quality.

The problem manifests itself particularly in terms of the release of ammoniacal nitrogen. Humic and fulvic acids from the peat reduce the pH of water in the ground. The increased acidity then mobilises metals present in the ground. This polluted water can then drain into watercourses via land drains. The metals tend to precipitate out in the higher pH conditions of the watercourse and this precipitate can blanket the bed of the watercourse, as shown in the photograph below.

Lower summer water levels cause iron to be oxidised to its insoluble form and this is then leached out as water levels rise in winter.



**Photograph 9 - Blanketing effect on river bed from peat drainage**



Invertebrate and plant life within the watercourses is affected by the blanketing described above. They are also possibly affected by toxicity from metals such as aluminium, which can occur at very high levels.

As a result of breakdown of humic acids, the land drainage also contains ammonia. This is partly responsible for the lower overall quality of watercourses in the area than would otherwise be expected in a predominantly rural catchment. The fishery is also likely to be affected by the toxic effects of these metals and elevated levels of ammonia. The detrimental effect on the fishery is most likely to manifest itself in poor recruitment and low levels of fry survival over a number of years, rather than in sudden, acute mortalities.

#### Contribution to global warming

Peat is a fossil fuel and oxidises without burning. Cutting of peat releases carbon to the atmosphere, possibly contributing to global warming.

#### **Who is involved?**

Environment Agency, Internal Drainage Boards (IDBs), Peat cutting operators, farming groups, Wildlife Trusts (WTs), Local Planning Authorities, English Nature (EN).

#### **What is happening already?**

##### Loss of a nationally important area

The Environment Agency has a limited remit to influence peat cutting, but objections to future planning applications by peat cutting operators may be an option. As far as existing operations are concerned, raising public awareness by including this as an issue in this LEAP could influence individual consumer choices thereby reducing demand for peat-based products.

Thorne Moore is a candidate Special Area of Conservation (SAC) and Thorne and Hatfield Moors are a potential Special Protection Area (SPA) (English Nature designations). The Wildlife Trusts have published a guide to buying peat-free products

##### Effects on water quality and fauna






The Agency has taken a series of chemical and biological samples at different times of the year in an attempt to understand the drainage problem better. In addition to this, we are collecting data through our routine watercourse sampling, and an initial pilot study has been undertaken as well as a student dissertation in 1997.

The Agency considers that significant improvements in water quality may be achieved by holding the water level constant in the drains by altering pumping regimes (explained more in Issue 2). This suggestion has been incorporated into the Hatfield Chase Water Level Management Plan, with a view to setting a drain aside to pilot this study.

##### Contribution to global warming

Global warming is an issue of prime importance to the Agency and the potential affects of climate change on the environment are being studied at national level.



ISSUE 1 – Adverse effects of peat milling on the environment								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
 	1.1 Raise awareness of loss of important national resource	EA	EN/WT RSPB	+ Protection of peat bogs	R	R	Ongoing	Valerie Holt
	1.2 Investigate further cause of pollution from land drainage, instigate pilot study on designated part of catchment to examine effects of changing pumping regime. To be instigated as part of Hatfield Chase WLMP.	EA		+ Better understanding of way forward to improve water quality	R		2002	Angela Gallagher
	1.3 Assess the extent of the problem by analysing recent chemical and biological data	EA		+ Better understanding of way forward to improve water quality	R		2002	Craig Woodburn
	1.4 Develop water resources model for Isle of Axholme catchment.	EA		+ Better understanding of way forward to improve water quality	Total 50k		1999/2000	Craig Hatcher

**Cross-references:**

Issues 4, 13 and 15 also deal with protection of conservation sites.  
Issues 2 and 9 address water quality.

## Issue 2 - Balancing the needs of the environment with the needs of surface water abstractors

**Objective:** To achieve a satisfactory balance between the needs of abstractors and the environment

### Background

Under the Water Resources Act 1991, the Agency can issue licences for water abstraction. Demand for water for spray irrigation reflects the land use in some parts of the area and the Agency has a duty to balance the impact of these abstractions with land drainage, flood defence, water quality and conservation needs.

In the LEAP area there are large numbers of agricultural spray irrigation licences. This means that during dry periods, difficulties arise in meeting these demands, and to maintain sufficient water quantity, some augmentation is required.

### What are the problems?

#### Warping Drain

During the summer months, tidal Trent water is let back into the Warping Drain (See Map 6) to sustain water levels to enable the abstraction of water for spray irrigation to take place. It is thought that the ingress of tidal water may be having adverse effects on invertebrates, fish populations and riparian vegetation.

Before a Water Level Management Plan (WLMP) can be prepared for the drain, an assessment of the effects of saline water and suspended solids on invertebrate populations, water quality and fisheries is required. In addition, the Agency needs to establish the effects of higher water levels on riparian vegetation, wildlife and recreational use. This assessment is also needed before decisions can be made regarding the renewal of existing time-limited licences which authorise abstraction from the drain.



**Photograph 10 - Water let back from the tidal Trent to the Warping Drain**

#### Isle of Axholme.

The catchment of Keadby Pumping Station (see map 5) is known as the Isle of Axholme. This area lies below sea level, and at several locations, water is let back from high level watercourses to low-level drains to maintain water levels.

Sufficient water is required in the high level drains to meet abstraction needs and to maintain depth for maintenance operations such as weed cutting. In both the high and low level systems, water levels

must be kept within limits that allow fauna and flora to exist. In winter and other wet periods, the low level drains need to be pumped into the high level, and from the high level to the Trent to avoid flooding of low lying land and buildings.

There is a need to create a more robust surface water licensing policy than that which exists at the present time, so as to balance the needs of the abstractors and those of the environment in the Isle of Axholme area. The optimum operating levels will take into account all those interests being determined in the Hatfield Chase Water Level Management Plan (WLMP).

#### River Idle.

The Idle is an EC-designated fishery, and has an ancient right of navigation from West Stockwith to Bawtry. The river incorporates the Idle Washlands SSSI.

The Idle is a pumped drainage system and the adjacent landowners rely on adequate drainage in winter to prevent flooding and land drainage problems. Water is therefore pumped from Gringley Carr (an area of low-lying land) into the Idle. A pumping station at West Stockwith then pumps water from the Idle into the Trent.

During summer months, land users rely on abstraction from the Gringley Carr area and the Idle for spray irrigation of crops. Water from the Idle is let back into Gringley Carr to maintain levels there, and pumping from the Idle to the Trent is stopped, allowing water levels in the lower Idle to be maintained for abstraction. This causes ponding of the River Idle and this gives rise to eutrophic conditions, causing the EC Fishery quality objective to fail.

Drainage requirements for agriculture must be adequately balanced with conservation, water quality, land drainage and recreation.

#### **Who is involved?**

Environment Agency (EA), Internal Drainage Boards (IDB), MAFF, English Nature (EN), Local Authorities (LA), Birmingham University (BU), landowners and recreation and navigation users.

#### **What is happening already?**

##### Warping Drain

Financial funding has been allocated for a two-year study. This study commenced in 1998 and will continue into 2000. Initial results from the first year of the study tend to indicate that let-back is not having a serious adverse effect on the ecology of the watercourse.

##### Isle of Axholme

A major data collection exercise has been largely completed. This includes measurement of pumping station capacities, flows through let-backs and flows to the Trent at Keadby.












The irrigation demands are being addressed through a programme of water resources modelling, from which a better picture will be obtained of how much water is available for spray irrigation.

Water Level Management Plans (WLMP) are presently being produced for 21 sub-catchments of Hatfield Chase, an area within the Isle of Axholme. These, along with the resource modelling will be used to produce a more robust licensing policy for the area.

##### River Idle

A consultation draft of a WLMP has been produced. This will involve a proactive plan to enhance water quality and quantity in the Idle.



Issue 2 – Balancing the needs of the environment with the needs of surface water abstractors								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
Warping Drain								
	2.1 Study the effects of letting Trent water into the Warping Drain.	EA		+ Impact of saline water on invertebrates and fish clarified.	14k		2000	Karen Miller
	2.2 Undertake WLMP for Warping Drain	EA		+ Increased understanding of Warping Drain	R		2000 – 2001	Valerie Holt
	2.3 Policy on the renewal of abstraction licences.	EA		+ More robust licencing policy	R		2000 – 2001	Trevor White
Isle of Axholme								
	2.4 Improve resources model of system draining to Keadby.	EA	BU	+ More robust water resources policy.	10k	50k	1999	Craig Hatcher
	2.5 Produce WLMP for Hatfield Chase drainage system.	EA	IDB, MAFF CA EN	+ Better understanding of the needs of the ecology within the drains	46k		1999	Valerie Holt
	2.6 Draw up and implement a new licensing policy for surface water abstraction.	EA		+ More robust licensing policy		U	2000	Craig Hatcher
River Idle								
 	2.7 Produce a WLMP for River Idle (between Bawtry and west Stockwith)	EA	IDB RL LA	+ Ensure wildlife, archaeological, recreational and agricultural interests are fully considered and protected.		10k	2000	Mick Walker
 	2.8 Implement recommendations from WLMP.	EA	IDB	+ More robust policy to be developed especially in relation to the operation of pumps		20k	2000	Mick Walker
	2.9 Reconcile any differences between the WLMP and any other interests.	EA	ALL	+ More holistic management of river		R	2000	Mick Walker

**Cross-references:**

Issues 6 and 10 also address abstraction and water resources.  
Issues 1 and 9 address water quality.

### Issue 3 - Low flows in the LEAP area

**Objective:** To evaluate the factors governing a lack of water in the watercourses concerned and to introduce remedial work, by partnership where appropriate.

#### Background

Some watercourses in the LEAP area suffer from low levels, especially in dry weather. This issue looks at specific watercourses affected and suggests possible remedial measures.

#### What is the problem?

##### Vicar Water and Pond.

During most summers there is an unacceptable low level of water in Vicar Water Pond and in Vicar Water upstream of the pond. (See Map 6). This has led to complaints from members of the public, the Local and European MPs and the 'Friends of Vicar Water'. Newark and Sherwood District Council now wish to further develop the area around Vicar Water/Pool as a Countryside Park and this is being handicapped by a lack of water.

The lack of flow in the watercourse has been a long-standing problem, which has been perceived to be principally due to the abstraction of surface and groundwater and coal mining activities.

Restoration of water levels in the pool would lead to the enhancement of recreational facilities, and increased biodiversity.

##### Rainworth Water

Groundwater abstraction for public water supply has virtually eradicated baseflow Rainworth Water, which rises to the west of Rainworth and joins the River Maun downstream of Rufford Country Park. (See Map 6) During dry weather, the only flow is the discharge from Rainworth and Bilsthorpe Sewage Treatment Works. Mining subsidence in the vicinity of the watercourse also leads to the loss of water to the underlying sandstones. The Rainworth Lake (also known as L Lake) SSSI, immediately upstream of Rainworth, reportedly suffers from low water levels.

#### Who is involved?

Vicar Water: Environment Agency, Newark and Sherwood District Council (N&SDC), 'Friends of Vicar Water'.

Rainworth Water: Environment Agency, Severn Trent Water Ltd (STW), English Nature (EN), Forestry Commission, Royal Society for the Protection of Birds (RSPB), Notts Wildlife Trust (NWT), Nottinghamshire County Council (NCC), local communities via Parish Councils.

#### What is happening already?

##### Vicar Water/Pond.





An investigation borehole has been drilled by Newark and Sherwood District Council (with financial contributions from the Agency) to determine quality and quantity. The borehole water has been found to be generally poor. An Environmental Assessment has been carried out to determine if the borehole water can be added to augment flow without any adverse effects on water quality in Vicar Water and especially Vicar Pond.



Rainworth Water.

A hydrogeological study has been completed as part of the Agency's national 10 Point Action Plan. This was to determine what effect, if any, licenced abstraction was having on the Rainworth Lake SSSI. It concluded that although the lake itself was not directly adversely affected in terms of leakage to the underlying strata but the two tributaries that feed into the lake had been reduced in volume.

A business case for Rainworth Lake SSSI was prepared by the Agency for submission to AMP3 (the water companies periodic review of assets, explained in more detail in Issue 9). Indications are that improvements will be undertaken in the next 3 years. Additional investigations will need to be carried out to assess whether levels in Rainworth Water improve adequately due to water made available in the lake, or whether additional flow needs to be implemented.

ISSUE 3 - Low flows in the LEAP area								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
Vicar Water/ Pond								
	3.1 Pumped borehole discharge to Vicar Water / Pond. Some stream bed and pool lining.	N&SDC	EA	+ Improved flows and levels	22k	U	2000/2001	Rob Harper
Rainworth Water								
	3.2 Seek the views of the local community, EN, Notts CC, regarding a flow augmentation scheme for Rainworth Lake.	EA	EN/NCC RSPB NWT	+ Improved flows and levels	15K		2000	Trevor White
	3.3 Implement solutions identified in business case at Rainworth Lake.	EA	STW EN	+ Improved flows and levels		200k (STW)	2003	Trevor White
	3.4 Monitor improvements in flow in Rainworth Water downstream of lake. Define and agree most favourable option.	EA STW	EN NCC	+ Improved flows and levels	U		U	Elfyn Parry

## Issue 4 - Loss of wetlands status of conservation sites in the LEAP area

**Objective:** To determine factors that are adversely affecting the status of wetlands

### Background

There has been deterioration in the status of some wetlands in the LEAP area, some of which are nationally important Sites of Special Scientific Interest (SSSIs) and Sites of Importance for Nature Conservation (SINCs). The deterioration has been attributed to a number of factors including licensed ground and surface water abstraction, land drainage operations, peat extraction and sand and gravel quarrying dewatering.

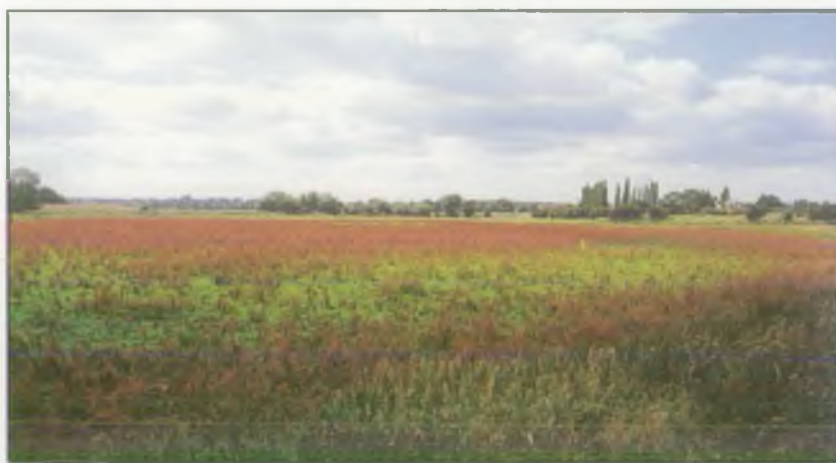
The areas of concern fall into three geographical based groups, the Idle Washlands SSSI, the Thorne and Hatfield Moors SSSI, and wetlands to the south and east of Doncaster.

### What are the problems?

#### Idle Washlands SSSI

The SSSI was originally part of a much larger area, which flooded extensively every winter. The SSSI is now under threat from drying out and this could lead to the destruction of this site. The wet grassland does not flood as often and this was originally attributed to lower flows in the River Idle. Very few birds now use this area as a winter feeding ground. Both English Nature and RSPB wish to see groundwater levels recover to within 0.2m of the surface, so as to encourage winter-feeding of birds.

There is a need to evaluate the hydraulic relationship between river flows and surface and groundwater levels and their effects on the Idle Washlands SSSI.



**Photograph 11**  
Idle Washlands SSSI  
– dry wetland



**Photograph 12**  
Idle Washlands SSSI  
– submerged wetland



### Thorne and Hatfield Moors SSSI

The peatland areas of Thorne and Hatfield Moors are nationally important. They are the only remnants of the once extensive lowland raised mire system of the Humberhead levels. They are designated as SSSIs for the nature conservation value of their diverse wetland habitats. The moors have been extensively modified and degraded and there has been widespread concern regarding their future status. These moors are proposed Special Protection Areas and Thorne Moors are a candidate Special Area for Conservation.

There is a need to determine if groundwater abstraction from the Sherwood sandstones is adversely affecting the wetland habitat in the overlying superficial deposits on Thorne and Hatfield Moors.

### Wetland areas to south and east of Doncaster

As well as the very large SSSIs at Thorne and Hatfield Moors, there are 22 other wetland sites important for their ecological, conservation, recreational and archaeological interest.

These sites are mostly Sites of Interest for Nature Conservation (SINCs), along with SSSIs at Potteric Carr, Epworth, Turbary, Haxey Grange Fen and Sandall Beat. The 22 wetland sites were the subjects of a study in 1991. All showed varying degrees of damage.

There is a need to report on the status of 22 wetland sites, to see if there has been deterioration or improvement in the intervening period, and to revise any factors thought to cause deterioration.



Photograph 13 - Potteric Carr SSSI

### **Who is involved?**

Environment Agency, English Nature (EN), Wildlife Trusts (WT), English Heritage (EH), Local Authorities (LAs), Thorne and Hatfield Moors Conservation Forum (THMCF), Royal Society for the Protection of Birds (RSPB).

### **What is happening already?**

#### Idle Washlands SSSI

A number of shallow observation boreholes have been drilled to determine the hydrology and hydrogeology of the wetlands. Continuous data loggers have now been installed in the boreholes. Levels in the boreholes are being compared with water levels in the adjacent River Idle.





Initial results from an appraisal of the water levels have indicated that maintaining a high groundwater level in the wetlands is not sustainable due to low groundwater levels in the underlying Sherwood Sandstones. Any flooding of the wetlands does not lead to a long period of retention of water as it is quickly lost to the underlying sandstones.

#### Thorne and Hatfield Moors SSSI

Observation boreholes have been drilled to monitor groundwater levels in the Superficial Deposits (including the peat deposits) and in the underlying Sherwood Sandstones. Water level information from these boreholes will be used to evaluate the degree of hydraulic continuity between groundwater levels in the Superficial Deposits and in the Sherwood Sandstones.

#### Wetland areas to south and east of Doncaster

A consultant was appointed to report on the status of the wetland previously studied in 1991. The report produced indicated no improvement in the status of the wetland since 1991 and all of the sites showed some damage. The findings of this report will be used in formulating possible revisions in policy governing the factors which either individually, or collectively are thought to be the cause of the deterioration.

ISSUE 4 – Loss of wetland status of conservation sites in the LEAP area								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
Idle Washlands SSSI								
	4.1 Further monitoring of river and groundwater levels	EA		+ Improved understanding of the relationship between the Ryton and the groundwater levels under the washlands	R		Ongoing	Robert Cunningham
	4.2 Evaluate the factors controlling the low ground-water levels under the washlands	EA	EN RSPB	+ Finding the cause will lead to remedial measures being considered.	R		Ongoing	Robert Cunningham
Thorne and Hatfield Moors SSSIs								
	4.3 Detailed geo-physical surveys to be undertaken across both Moors to determine degree of hydraulic continuity between the superficial deposits and the underlying Sherwood Sandstones.	EA	WT RSPB THMCF	+ Study will determine if public water supply groundwater abstraction is the principal cause of the decline in status.	25k		2000	Robert Cunningham
Wetland areas to the south and east of Doncaster								
	4.4 Further periodic studies to report on the status of the wetlands.	EA		+ Better understanding of any status with time.	6k		2003	Valerie Holt

Cross-reference: Issues 1, 13 and 15 also deal with conservation sites

## Issue 5 - The need to optimise the compensation flow from the public water supply shaft at Manton into the River Ryton

**Objective:** To introduce a flexible compensation flow which meets the environmental needs of the river, whilst at the same time maintaining a satisfactory level of public water supply abstraction.

### Background

In 1994, Severn-Trent Water Ltd (STW Ltd) were issued with a two year time limited licence to abstract groundwater for public water supply from the Sherwood Sandstone and Lower Magnesian Limestone aquifers via a shaft at the closed Manton Colliery. A clause in the licence required a compensation flow of 5 MI/d to be discharged into the River Ryton on a continuous basis to protect the ecology of the river downstream.

### What is the problem?

This compensation flow mirrored what was happening when the colliery was operational. However, except for those periods when there is a low flow problem in the River Ryton this discharge now represents a waste of groundwater resources. A more flexible discharge is therefore required with probably a higher discharge during the summer period and a much lower one in winter. This would conserve groundwater resources.


Consideration also needs to be given to the potential implications of Severn-Trent Water surrendering their licence especially in terms of the effect on river flows.

### Who is involved?

Environment Agency, STW Ltd.

### What is happening already?

A further time limited licence was issued in April 1999 for a period of 10 years. The company has signed an agreement under Section 158 of the Water Resources Act 1991. This is tied to the abstraction licence, and will result in a flexible discharge of compensation water into the river, whilst at the same time stopping over-pumping, thus reducing demand on groundwater resources.

ISSUE 5 - The need to optimise the compensation flow from the Public Water Supply source at Manton into the River Ryton								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	5.1 Ensure that measures are taken to comply with conditions in the licence and Section 158 Agreement.	EA	STW	+ Improvements to the River Ryton and protection of groundwater reserves	R		Ongoing	Elfyn Parry

**Cross reference:** Issues 10, 11 and 14 also deal with groundwater management.



## **Issue 6 - Impact of the abstraction of water from the River Ryton for the Chesterfield Canal**

**Objective:** To draw up an operating agreement between the Agency and British Waterways to ensure the optimum use of water abstracted from the river for canal usage.

### **Background**

British Waterways (BW) have rights to abstract water from River Ryton at Brancliff and Worksop. The water is used to top up the levels in the Chesterfield Canal. These rights are incorporated into the Enabling Acts for the construction of the canal.

The canal is an SSSI and a navigation and is being restored from Chesterfield to Norwood Tunnel (this stretch is outside of the LEAP area).

### **What is the problem?**

During periods of low flow the canal can take the majority of the flow from the River Ryton. This has an impact on the available dilution for the effluent from Manton Sewage Treatment Works, as well as on the ecology of the river downstream and also spray irrigation requirements.

There is also some demand for increased spray irrigation abstraction from the canal itself.

The canal is vulnerable to nutrients present in the River Ryton, which could lead to a proliferation of plant growth, which could threaten the SSSI on the canal.

### **Who is involved?**

Environment Agency, British Waterways, canal restoration groups.

### **What is happening already?**

An MSc thesis has been produced by a student at Birmingham University on possible operating rules for the river and canal system. These have been drawn up taking into account water quantity and water quality objectives.




Flow measuring devices have been installed to ensure that inputs to the canal are accurately measured

A Memorandum of Understanding (MoU) between the Agency and British Waterways is now in draft form and it is anticipated that both parties will sign the agreed MoU by the end of 1999. This agreement will result in a trial being undertaken over the next 2 years to establish joint rules to ensure best usage of water resources for both the river and the canal.

### **RESTORATION PROPOSALS FOR THE CHESTERFIELD CANAL**

The Chesterfield Canal Partnership is proposing to restore navigation to the whole canal, as at present the Norwood Tunnel is dry. The restoration stretch is from Chesterfield to Norwood, all of which is within our North East Region (River Rother catchment). The proposal is assessed in their South Yorkshire and North East Derbyshire LEAP.

Additional water will be needed to enable this restoration of navigation to be successful. These resources will not be available from the Ryton catchment and will therefore need to be resourced from the Rother catchment.

Issue 6 - Impact of the abstraction of water from the River Ryton for the Chesterfield Canal								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	6.1 Secure formal operating agreement between Agency and BW	EA BW		+ Agreement will go a long way towards securing the optimum use of River Ryton water for the canal.	R		1999	John Ratcliffe
	6.2 Carry out 2-year trial of MoU control rule. Modify as necessary.	EA BW		+ Allow more water to remain in Ryton in dry weather + Improved water quality + Ensure canal has enough water for navigation	R		2001	John Ratcliffe
	6.3 Investigate group licence for abstraction from the Chesterfield Canal using information obtained from above.	EA	BW	+ Optimum use of water	TBA		2002	John Ratcliffe (Trevor White)

**Cross-reference:** Issues 2 and 10 also address abstraction.



Photograph 14 - Chesterfield Canal



## Issue 7 - Lack of flow data in relation to the River Torne, west of Tickhill

**Objective:** To improve understanding of the relationship between the River Torne and the underlying aquifer.

### Background

The Sherwood Sandstones aquifer outcrops from north of Nottingham to Doncaster. The main rivers traversing the aquifer from west to east have gauging stations. These monitor flow levels where the rivers flow on to the aquifer, and also where they leave it to the east. This is not the case with the River Torne.

### What are the problems?



Flows are only measured on the Torne at Auckley, which is situated towards the eastern part of the aquifer. No flows are recorded where the Permian Marls give way to the sandstones, west of Tickhill. Due to a lack of flow data, the hydraulic relationship between river and the underlying heavily abstracted sandstone is not fully understood. Although some flow studies tend to show the Torne to be losing water to the aquifer, it is important to determine this relationship in order to assist in major water resources studies.

### Who is involved?

Environment Agency

### What is happening already?

An MSc project is being undertaken to determine the relationship between the River Torne and the sandstone aquifer in the reach between Tickhill and Auckley.

ISSUE 7 - Lack of flow data in relation to the River Torne, west of Tickhill								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
 	7.1 Construct a gauging station to measure flow in the River Torne.	EA		+ Will improve understanding of the relationship between the river and the aquifer.	U		2004	Craig Hatcher



## Issue 8 – Lack of spawning substrate and holding pools for fish on the lower Idle.

**Objective:** To reinstate in-stream features, which in turn create spawning areas and pools.

### Background

In order to spawn, fish require suitable gravel areas, weed and pools.

### What is the problem?



River engineering in the lower reaches of the River Idle has created a channel that is too straight and deep to allow shallow areas of gravel and weed needed for spawning fish. The river requires improvements in its channel features to encourage fish to spawn.

### Who is involved?

Environment Agency, riparian landowners (RL), recreation and navigation groups (RNGs).

### What is happening already?

An area upstream in the middle Idle has had experimental structures introduced and these are being monitored. Initial indications are good and indicate that further and novel structures should be introduced.

ISSUE 8 : Lack of spawning substrate and holding pools for fish on the lower Idle								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
 	8.1 To plan and build suitable structures in the area affected.	EA	RL RNG	+ Increase in diversity and population of fish species and gravel living invertebrates	40 k		2004	Keith Easton



Photograph 15 - Bream

## Issue 9 - The need for integrated water quality planning

**Objectives:** Ensure River Quality Objectives (RQOs) are obtained through investment under AMP3 and other integrated river basin improvements. Establish plans to improve inadequate foul and surface water disposal at a number of small developments.

### Background

The Agency and predecessor bodies set strategic targets called River Quality Objectives (RQOs) for rivers and canals. RQOs provide a basis for water quality management decisions and are based on the River Ecosystem classification scheme. This scheme comprises of five quality classes that reflect the chemical quality requirements of different types of river ecosystems.

River quality in the area depends greatly but not solely on the effluent discharged from water supply and sewage treatment works operated by the water companies. (Severn-Trent Water, and Yorkshire Water Services). These companies have recently undertaken a strategic planning process termed "AMP3" or Asset Management Plan, which will involve improvements to their sewerage systems and the associated sewage works so that they meet statutory obligations.

Inadequate foul and surface water disposal from a number of small private developments also affect water quality in the LEAP area. These discharges also have to meet the strict requirements of the Agency.

### What are the problems?

#### RQOs and AMP3

Many of the current RQOs were directly transferred from a historic National Water Council banding. The methods used to simulate the effects of discharges on watercourses have improved, and statements regarding the potential river quality can now be more scientifically based. For example greater consideration can be given to the combined effect of a number of discharges whereas in the past each discharge was considered separately.

Improved legislation and pollution prevention measures also mean that many watercourses are able to sustain water quality at levels that were historically unobtainable.

There are a number of watercourses in the LEAP area, which could be assigned new RQOs. As part of our aim to achieve major and continuous improvements in water quality, we need to review all RQOs for the LEAP area to ensure they are still appropriate. A review would not necessarily mean a change in the RQOs but the changing uses of a watercourse may mean that some need to be altered. The rules to be applied on reviewing RQOs have not been currently agreed by the Agency.

Thirty sewage works are classed as significant with respect to water quality of rivers in the LEAP area. A network of combined sewerage systems also drain many urban areas. Many of these water company assets require improvement under AMP3 in order to achieve and sustain the identified RQOs. The Agency has identified a substantial number of required improvements for water companies to include in their AMP3 proposals, which will lead to greater sustainability within the area. These improvements will be carried out in the 2000 - 2005 period and will ensure compliance with a greater number of RQOs. Other improvements will relate to requirements stipulated in EC Directives such as those outlined in Issue 15

Improvements to RQOs have been achieved in a few limited circumstances. Until national guidance regarding RQO reviews is forthcoming it would be inappropriate to review them.

### Inadequate foul and surface water disposal at a number of small developments

Inadequate foul and/or surface water drainage arrangements serve several developments in the plan area. In some cases the water undertaker has not adopted the drainage systems, and this has led to problems in assigning responsibility for drainage.

Inadequate drainage can render industrial estates unsuitable for certain types of development. Pollution problems have arisen on industrial estates through poor operational practice, spillages and wrong connections. This has been the case at Hellaby, Warmsworth, North Anston and West Carr Industrial Estate at Retford.

In other cases, such as the development of restaurants and hotels around the A1 Markham Moor roundabout, inadequate foul drainage has led to the proliferation of small sewage treatment plants (STPs). The widely variable loads discharged to these private STPs here have exacerbated inconsistencies in treatment performance leading to intermittent public complaint and pollution.

### **Who is involved?**

Environment Agency (EA), Severn-Trent Water (STW), Yorkshire Water Services (YWS), Local Authorities (LAs)

### **What is happening already?**

#### ROOs and AMP3






Investment in the AMP2 process (predecessor to AMP3 covering 1995 – 2000) is now virtually complete ensuring that statutory obligations are complied with. (Freshwater Fisheries Directive, Dangerous Substances Directive and also Urban Waste Water Treatment Directive (UWWTD).

Under AMP3, investment schemes have now been agreed with DETR and improvements will be carried out until 2005. These will cover discharges that have deteriorated since AMP2 or have the capacity to cause River Ecosystem classification failure.

### Inadequate foul and surface water disposal at a number of small developments

Appropriate provision for these categories of development are sought by the Agency via the Planning process for new developments. In the specific case of Markham Moor, a first time sewerage scheme is to go ahead. Rochley, West Drayton, Milton, West Markham, Sibthorpe and Markham Moor roundabout are all to be sewered.



ISSUE 9 - The need for integrated water quality planning								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
RQOs and AMP3								
	9.1 Review the appropriateness of the RQO, given that there has been a translation from one system to another	EA DETR		+ Ensure the needs and uses of the river system are met.		R	2001	Craig Woodburn
	9.2 Obtain statutory Water Quality Objective (WQO) status	DETR		+ To achieve improvements to meet statutory WQO		U	2001	Graeme Warren
	9.3 Monitor the implementation and effects on water quality of improvements agreed under AMP3	EA		+ Annual updates on water quality improvements		U	2000 – 2005	Craig Woodburn
Inadequate foul and surface water disposal at a number of small developments								
	9.4 Establish a plan for future developments sewage and effluent disposal facilities	EA LA		+ Ensure correct disposal for future	R		2000	Keith Boardman/ Craig Woodburn
	9.5 Establish a plan for oil and chemical storage handling facilities	EA/LA		+ Ensure correct disposal for future	R		2000	Keith Boardman/ Craig Woodburn

**Cross-reference:** Issue 1 and 2 also address water quality

## Issue 10 - Lack of water resources to meet agricultural demand

**Objective:** To facilitate, where possible, additional water resources to meet increasing demand.

### Background

There is a strong demand for additional surface and groundwater resources to be made available for agricultural and horticultural usage in large areas of the LEAP area.

### What is the problem?

Both surface and groundwater resources have been progressively developed over time. Historical over-exploitation of the Sherwood Sandstones now prevents any further licences being granted for groundwater abstraction from the aquifer. This over-exploitation has led to a reduction in baseflow in the watercourses draining the aquifer. As a consequence, surface water licences are either not being issued in some areas, or if they are still issued, they contain clauses restricting abstraction during periods of low flow.

The Lower Magnesian Limestone aquifer is less developed than the Sherwood Sandstones and could be used to meet increasing demand. However, future groundwater development of the limestone may need to be limited in order to maintain baseflow and essential dilution water for effluents in the watercourses draining eastwards over the Sherwood Sandstones.


Any option to increase water resources in the LEAP area will take into consideration the Agency's need to protect the overall water environment.

### Who is involved?

Environment Agency, National Farmers Union (NFU), Country Landowners Association (CLA).

### What is happening already?

Discussions are taking place with the farming community, encouraging them to develop winter storage and/or aquifer storage and recovery facilities.

ISSUE 10 - Lack of water resources to meet agricultural demand								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	10.1 Assess the feasibility of developing additional water resources.	EA	NFU CLA	+ Protection of resources whilst meeting demand	R		2000	Elfyn Parry

**Cross-reference:** Issue 5, 11 and 14 also look at groundwater.

## **Issue 11 - Dewatering activities associated with mineral extraction**

**Objective:** To ensure that dewatering operations are compatible with protecting water resources and the aquatic environment.

### **Background**

The extraction of minerals (primarily sands and gravels, and limestone) below the water table invariably necessitates dewatering activities. The water is often pumped into an adjacent watercourse.

### **What are the problems?**

Most of the time the pumping represents a loss of groundwater resource. It is only when there is a low flow problem in the receiving watercourse that this provides benefit. Every effort should be made to discharge pumped groundwater back into the underlying aquifer. This is especially important in those areas where the aquifer is already fully or over-exploited.

For those excavated areas where the water table is close to the surface, the increasing shortage of available inert waste to restore the land to original ground level means that restoration has to be to either wetland or to low level agriculture. If it is to low level agriculture, at some sites the aggregate companies wish to pump forever in order to lower the water table to an acceptable level to make agricultural usage possible.

There is a predominance of historical Interim Development Orders (IDOs) in the LEAP area. The Environment Act 1995 introduced new requirements for an initial review and updating of these old mineral planning permissions. This came into force on 1 November 1995, to ensure that conditions attached to mineral planning permissions do not become out of date with respect to effects on the environment.

### **Who is involved?**



Environment Agency, Mineral Planning Authorities (MPAs), Aggregate Companies (ACs).

### **What is happening already?**

Meetings have and will continue to take place with the Mineral Planning Authorities. As part of the Department of Transport and the Environment (DETR) Abstraction Licence Review, proposals have been put forward which could result in the Agency having a greater control in relation to dewatering activities.

Many more meetings are now taking place with the aggregate companies prior to the submission of planning applications, so that any concerns the Agency might have can be highlighted at an early stage.



ISSUE 11 : Dewatering activities associated with mineral extraction								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	11.1 Develop and continue liaison arrangements with MPAs to take into account the need to protect the broad water environment when considering planning applications (during quarrying and restoration phases).	EA	MPA AC	+ Protection of water resources and the aquatic environment	R	U	Ongoing	Elfyn Parry
	11.2 Identify where there is a requirement for the use of Conservation Notices in respect of potential mineral extractions issued under Section 199 of the Water Resources Act 1991.	EA		+ Protection of water resources and the aquatic environment	R		Ongoing	Elfyn Parry

**Cross-reference:** Issues 1, 11, 16 and 19 also look at the environmental affects of the extraction of natural resources.



Photograph 16 - Limestone extraction

## **Issue 12 - Lack of recreational access along watercourses**

**Objective:** To promote the creation of a 'Torne Valley Way' access route.

### **Background**

The Agency has a duty to promote water-related recreational opportunities. As well as owning and managing our own sites, we also work to improve recreational facilities in partnership with other organisations, whilst balancing the needs of all water users. The Agency will also take into account the conservation value of any site prior to consideration for increased recreational access.

Within the plan area, recreational opportunities include linking the currently disjointed public rights of way to provide continuous access between the Rivers Idle and Torne. There is also a desire to provide a linear walkway along the River Idle and tributaries, to link Greenwood Community Forest in the south to Sherwood Forest and the parks of the Dukeries further north and onto the River Trent, linking to the Trent Valley Way at West Stockwith.

Other watercourses in the plan area are subject to Local Authority initiatives, such as the Maun Trail.

### **What are the problems?**

The public right of way system is not continuous along the Rivers Torne and Idle. This prevents a long distance walk along the two main rivers being established.

Opportunities may exist to create cycleways along existing footpaths, especially in urban areas.

There are a lack of footbridges and footpath routes along the River Torne, particularly in the Auckley and Rossington to Tickhill area.

The River Idle has an ancient right of navigation but there are no mooring facilities along its length and there is no Navigation Authority.

There are a lack of facilities for disabled anglers on all the rivers in the plan area.

### **Who is involved?**

Environment Agency, Torne River Environmental Group (TREG), Greenwood Community Forest, Doncaster MBC, Tickhill and District Footpath Group (TDFG), Sustrans.

### **What is happening already?**





The Agency has provided car parks and stiles for anglers and other recreational users along the River Torne.

We are working with TREG, regarding making a public right of way along Agency owned land on the River Torne at Auckley.

There is now a Parish Council Millennium Project to bring in a new public right of way and associated bridge to link two existing circular walks on the River Torne. Discussions are underway with local groups and Doncaster MBC regarding the Upper Torne Way.

Sustrans have expressed an interest in creating a shared path for cyclists and walkers through the Retford river corridor.



ISSUE 12 - Lack of recreation access along watercourses								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	12.1 Promote the creation of new footpath links on the Rivers Idle and Torne by consultation with the relevant local authorities and landowners.	EA LA RL	LG TREG Sustrans RL	+ Improved recreation facilities for public		R	2001	Valerie Holt
	12.2 Work in the Greenwood Community Forest to promote waterside footpaths and circular routes.	EA LA		+ Improved recreation facilities for public	R		Ongoing	Valerie Holt
	12.3 Provide facilities for recreational users on Agency owned sites: Bawtry; Warping Drain River Idle River Torne	EA		+ Improved recreation facilities for public		15 k	2001	Valerie Holt
	12.4 Promote recreational use and provision of facilities through discussion of interested parties.	LA EA	TDFG	+ Improved recreation facilities for public		12 k	2001	Valerie Holt



**Photograph 17 - Agency owned land: River Torne at Auckley.**  
The footpath is proposed for the right hand bank



### Issue 13 - Atmospheric pollution from power stations.

**Objectives:** To obtain maps of the emissions from the relevant power stations to determine whether there are likely to be any adverse effects upon the fauna and flora within conservation areas. To assess the extent of atmospheric pollution within the LEAP area caused by power stations.

#### Background

Air quality can detrimentally affect flora and fauna if emission levels are high enough. In order to carry out a sufficient assessment of these emissions it is necessary to first assess the likely concentration of these emissions at ground level. This can be attempted by mathematically modelling the emissions and their characteristics, along with their topographical characteristics, i.e. where the maximum ground level concentrations are likely to occur.

#### What is the problem?

Atmospheric pollution from power stations may be affecting flora and fauna within the plan area. Of special concern are the possible effects of Keadby Power Station (See Map 6) upon the sphagnum moss on Hatfield and Thorne Moor SSSI, however there is limited available knowledge of the effects of pollutants on these areas.

Action may need to be taken as a result of Local Authority enquiries, within the National Air Quality Strategy (NAQS) where certain threshold levels of pollutants have been recommended. Stage 1 of the Local Authority reports are now available, which give the Stage 2 plan of action and timetable.



The NAQS sets out levels of certain pollutants that should not be exceeded now and also future limits, which are to be applied from 2005.

#### Who is involved?

Environment Agency, Department of the Environment, Transport and the Regions (DETR), English Nature (EN), Local Authorities, Power Station Operators (PSOs).

#### What is happening already?

LA stage 1 reports are now available. These include likely pollutants that need to be considered and which may require practical action such as monitoring and perhaps further investigation.

ISSUE 13 - Atmospheric pollution from power stations								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	13.1 Obtain maps showing power station emission limits.	EA DETR	PSO LA EN	+ Increased understanding of the effects of emissions	40k	TBA	2001	Andrew Plant
	13.2 Assess the likely impact of emissions on conservation areas	EA	LA EN	+ Increased knowledge of the effects of emissions	TBA	TBA	2001	Andrew Plant

**Cross-reference:** Issues 1, 4 and 15 also address protection of conservation areas.

## Issue 14 – Groundwater quality at risk

**Objective:** To protect groundwater quality within the plan area.

### Background

The Sherwood Sandstones aquifer in the area is covered with a light sandy soil, which is suitable for arable agriculture. This has resulted in high nitrate leaching and elevated concentrations of nitrate in the groundwater that is extensively used for public water supply by both Severn-Trent Water Ltd (STW Ltd), Yorkshire Water Services (YWS) and Anglian Water Services (AWS). Concerns regarding high nitrate levels in ground and surface waters has led to the EC Nitrate Directive which is aimed at reducing nitrate pollution from agriculture.

### What are the problems?

The EC Nitrate Directive requires the designation of Nitrate Vulnerable Zones (NVZs) to all known areas of land that drain into waters where the nitrate concentrations exceed or are expected to exceed 50 mg/l.

68 NVZs have been designated, including the Sherwood Sandstone aquifer in the LEAP area (See Map 4). The new legislation requires greater control and recording of fertiliser use. Application of nitrogen fertilisers and organic manures is restricted in designated NVZs, and there are now maximum loads for manure application and closed periods when manures and fertilisers cannot be applied. These measures also stipulate that nitrogen should not be applied to any field above the level required by the crop – hence minimising excesses which could otherwise be lost to the environment.

Along with elevated nitrate levels groundwater pollution can occur because of the incorrect storage of chemicals and other potentially polluting substances. Clipstone and Harworth have locations where such problems have occurred. The remediation of groundwater pollution is difficult, costly and often impractical to operate, therefore the prevention of groundwater pollution is therefore vital.

### Who is involved?



Environment Agency, farmers and industry

### What is happening already?

The development of farm waste management plans for farms within the area will assist in meeting the measures imposed by the Directive. The benefits to the farmer are that more efficient management of fertiliser application will reduce costs as the extent of over application will reduce.

Following publication of the Groundwater Protection Policy, the Agency used computer-modelling techniques to delineate catchment zones of major water supply boreholes on the sandstone aquifer. The risk of pollution of groundwater will be assessed by field surveys so that pollution prevention measures can be requested where necessary. Example of sites concerned will include petrol stations, industrial sites and farms. Contingency procedures for dealing with emergency spillage to land, sometimes involving other emergency services, will be reviewed.

The Agency aims to work in partnership with organisations in an attempt to resolve pollution problems from such locations. New works regulations will allow the Agency to serve a Notice on sites where there is a significant pollution risk and where improvements cannot be achieved by voluntary action.

ISSUE 14 - Groundwater quality at risk.								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	14.1 Implement NVZ action programme for the Sherwood Sandstone	EA		+Protection of water quality	R		R	Jeff Dolby
	14.2 Undertake groundwater prevention surveys within SPZs	EA		+ Prevention of groundwater pollution		U	2001	Graeme Warren

**Cross-reference:** Issues 5, 10 and 11 also affect groundwater



## **Issue 15 - Detrimental effects of nutrients on water quality and biodiversity**

**Objective:** To assess the impact of nutrients from both point and diffuse sources. Ultimately to improve control over such discharges and sources leading to an improvement in biodiversity and aesthetic quality.

### **Background**

Phosphate and nitrogen when in elevated concentrations can lead to excessive plant and algal growth within watercourses and standing waters. This process is termed 'eutrophication'. Within the LEAP area the Idle, Meden and Maun catchments have been designated as areas sensitive to eutrophication..

### **What are the problems?**

Large increases in plant quantities affect daily variations in oxygen concentration present within watercourses. The variations occur naturally but are greatly exaggerated because of the increased number of plants present. Photosynthesis by the plants during the day leads to very high levels of dissolved oxygen. During darkness however the plants are unable to photosynthesise and instead use oxygen to respire. This can lead to very low levels of dissolved oxygen in the watercourse. The problem is particularly acute during summer months when plants are more numerous, water temperatures are higher and plants are more active. The dissolved oxygen fluctuations result in fish kills and reduction in the number and type of organisms able to inhabit the affected watercourse.

One source of phosphates is sewage treatment works which discharge treated effluent to watercourses. Under the EC Urban Wastewater Treatment Directive (UWWTD), discharges from sewage treatment works serving populations greater than 10,000 can be identified for phosphate removal. Phosphate is usually present in lower concentrations than nitrogen and therefore requires lower expenditure to remove. For works to be included in phosphate removal, they have to discharge to a designated sensitive area demonstrated to suffer from the aforementioned water quality problems.

Other sources of phosphate and nitrogen contributing to eutrophication are smaller discharges which collectively can significantly contribute to nutrient levels. The adverse effect of these smaller discharges needs to be proved before the Agency will impose phosphate removal on such a location.

Leaching of nutrients from farmland can also exacerbate the eutrophication problem. Control of nitrogen leaching is covered in Issue 14.

There are a number of Sites of Special Scientific Interest (SSSIs) within the LEAP area which require investigation to ensure they are not adversely affected by the quality of the water flowing through them. These SSSIs include Rainworth, Potteric Carr, Roche Abbey Woodland, Sandall Beat, Anstone Stone Wood, and Chesterfield Canal (all high susceptibility) and Maltby Low Common and Hollinghill and Monkland Grips (moderate).

### **Who is involved?**

Environment Agency, Severn-Trent Water Ltd, private dischargers and farmers.

### **What is happening already?**





The Agency carries out periodic assessment of watercourses for designation as Sensitive Areas (Eutrophic) SA(E) under the UWWTD. Chemical and biological monitoring has resulted in the designation of much of the Idle catchment as a SA(E), along with Idle, Meden and Maun. The River Torne catchment is currently being assessed for possible inclusion in the next round of designations.

Kingsmill Reservoir was designated as a SA(E) in 1993, with Sutton In Ashfield sewage treatment works the qualifying discharge. The discharge from Sutton In Ashfield STW was diverted away from

Kingsmill Reservoir in 1998 to improve eutrophication problems there. It now discharges to the River Maun. However, as the Maun was designated a SA (E) in 1997, nutrient removal may now be required.

Modelling of catchments as a whole is currently underway, this will allow decisions to be made concerning the contribution each discharge makes to the problem. The likely qualifying sewage works have been highlighted under Asset Management Plan (AMP3) improvements to be undertaken by Severn Trent Water.

Other smaller discharges which could collectively impact upon water quality need highlighting so that further investigations can be undertaken.

ISSUE 15 - Detrimental effects of nutrients on water quality and biodiversity								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	15.1 Model and monitor impacts of qualifying discharges (both chemical and biological).	EA		+ Will enable prioritisation of sites to be targeted.	20k		2000	Craig Woodburn
	15.2 Ensure suitable facilities are installed to remove phosphate and that the UWWTD is complied with.	EA		+ Reduction in extent of eutrophication, improvements in biodiversity		Tba	Ongoing	Craig Woodburn
	15.3 Assess impacts of other non-qualifying discharges.	EA		+ Look at further improvement options.	R		2001	Craig Woodburn
	15.4 Cost benefit analysis on small locations requiring phosphate removal.	EA		+ Ensure costs do not outweigh benefits	R		2001	Craig Woodburn

### Cross-references:

Issues 1, 4 and 13 also deal with protection of conservation sites.  
Issues 1, 2 and 9 address water quality problems.



Photograph 18 - Excessive plant growth on the River Idle at Bolham



## Issue 16 - The impact of collieries on the environment

**Objective:** To monitor the impact of the above with the regard to groundwater protection, surface water quality and quantity, and flood defence structures.

### Background

For many years the Nottinghamshire/ South Yorkshire Coalfield was an important coal mining area, but it has declined substantially since the 1960s. There are 6 operational collieries within the LEAP plan area and one other disused colliery, which continues to pump minewater.

### What are the problems?

#### Water quality implications

On the closure of a colliery and the halting of pumping, there is a potential risk of uncontrolled discharges of ochreous water to the river system and/or the movement of poor quality mine water into aquifers. Minewater can be saline, and high in ammonia and iron. There is also a potential for the discharge of more hazardous substances.

In 1995 the NRA identified the need to assess the risk to the water environment from mine closures and drew up an action plan. Following this plan we have commissioned a range of studies to identify and prioritise those mines which represent a potential risk to the water environment.

In some areas the cessation of pumping due to colliery closures could lead to uncontrolled emergence of minewater. The Water Resources Act 1991 did not provide effective controls over discharges from mines abandoned before the end of 1999. Regulations have since been introduced which stipulate that mine operators must give the Agency six months notice of any proposed abandonment in order that suitable remedial measures can be considered. During 1998, a ministerial direction conferred responsibility for minewater emissions from closed collieries onto the Coal Authority.

In some receiving waters, the discharge of minewater provides useful dilution. During dry weather flow, the discharge of minewater in some watercourses is a major component of total flow and the cessation of pumping can lead to a major reduction in flow. This can result in restrictions in spray irrigation abstractions being imposed in summer.

In other places, the minewater is problematic, because of high salinity or other chemical constituents, which may affect water quality and/or use, and have detrimental effects on the freshwater ecosystem. In particular, fish spawning success and fry survival are likely to suffer from such discharges. Following the cessation of minewater discharge in parts of the plan area, there has been a beneficial reduction in chloride, iron and/or ammonia in the river.

There is a possibility that following cessation of pumping, old mine workings in the western part of the plan area could flood, raising the hydrostatic head and causing upwelling of minewater into the overlying aquifers, affecting public water supplies. This possibility is thought to be quite remote but is an issue of considerable importance, which is being investigated further. The potential impact on the limestone and sandstone aquifers, which are extensively utilised for potable supply means that there are implications for water quality and water resources.

The Agency will consider in detail the water implications of the possible closure of other collieries in the LEAP area. Establishing partnerships is important to solving these problems, and we will work closely with the Coal Authority and mine operators.

#### Subsidence

As a result of many decades of mining operations in the LEAP area, the impact of subsidence can now be seen in a number of locations.



The impact of subsidence on a watercourse can be severe. The lowering of the bed and banks is not usually accompanied by a corresponding lowering of water level. The fall of the river can therefore be negated or even reversed.

If remedial works are not carried out there can be an increased risk of flooding to riverside land and property. River regrading schemes to remedy the effects can be environmentally damaging and in some cases put at risk the continued use of groundwater supplies by uncovering fissures caused by the ground movements.

As well as water quality implications, fissures can also lead to a loss of water to the underground strata, leading to environmental damage and the inability of abstractors to utilise abstraction volumes agreed on their licences.



**Photograph 19 - Effects of subsidence on River Maun at Spa Lane**

#### **Who is involved?**

Coal Authority (CA), Environment Agency, Coal Operators (CO), riparian landowners (RL).






#### **What is happening already?**

National investigations are underway. We are undertaking a programme of more detailed assessment of priority sites, the monitoring of minewater levels and surface water quality. This is to identify those sites where mitigation measures need to be implemented.

Closures could exacerbate the environmental impact in this region because of cross catchment flows. We will liaise with our North East Region where appropriate.

Private coal operators are responsible for remedial works but are regulated by the Coal Authority. One such improvement scheme has been carried out at the expense of RJB mining (UK) Ltd, on the River Maun upstream of the A614 trunk road at Ollerton.

Following consultation with the Environment Agency, and riparian landowners, the Coal Authority has completed a scheme at Gamston on the River Idle which has ensured that wetland has been retained whilst the river has been restored to its channel. Similar works have also been carried out on the River Maun at Spa Lane, downstream of Mansfield.

ISSUE 16 - Impact of collieries on the environment								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	16.1 Review the impact of each discharge of minewater on the watercourse and revise consents where necessary.	EA		+ Improvements in water quality	R		Ongoing	Jeff Dolby
	16.2 Monitor loss of resource to river and possible emergence of uncontrolled pollution within the plan area.	EA	CA CO	+ Pollution prevention planning	R		Ongoing	Jeff Dolby
	16.3 Draw up and implement action plan for protection.	EA		+ Protection of the aquatic environment	R		Ongoing	Craig Woodburn
	16.4 Identify future areas of mining activity and investigate the impact of subsidence where it affects Main Rivers and serve damage notices as necessary.	EA	CO CA RL	+ Protection of water quantity		30k	2001	Roy Ladhams
	16.5 Complete design and undertake mining subsidence remedial works on the River Idle at Gamston.	CA		+ Retention of water resources		850k		Roy Ladhams

**Cross-reference:** See also Issue 19 for colliery sites and the environment.



Photograph 20 - Clipstone Colliery pit head



## Issue 17 - Biodiversity of local species

**Objective:** To maintain and enhance biodiversity of local species within the plan area in accordance with regional and local Biodiversity Action Plans (BAP) objectives.

### Background

Following the Rio Earth Summit of 1992, the protection of biodiversity (the variety of life on earth) is a priority. National and regional Biodiversity Action Plans are being produced by the Agency for target species listed below. Several county councils are also producing biodiversity action plans including species particular to each county.

The Agency will work with partners to protect species and habitats in local BAPs. The following are key species within the LEAP area and their protection is a priority for the Agency.

### What are the problems?

Otter – The otter is globally threatened and was virtually extinct in the Midlands during the 1970's and 1980's. Survey work has revealed a presence in the lower River Idle. There is a need for further survey work to assess returning populations and plan a strategy for habitat improvement.

Water voles – The water vole has suffered a rapid decline in the UK, possibly as a result of degraded habitat, poor water quality and predation.

Freshwater White Clawed Crayfish – The native Crayfish is threatened by habitat loss, disease and competition from introduced species. It is known to be present in the catchment of the River Maun. There is a need to undertake accurate population assessment elsewhere in the plan area. There is also a need to ensure habitat is conserved and improved to aid a greater distribution. Alien signal crayfish are not known to be present in the plan area but monitoring will be maintained to determine any presence.

Daubenton's Bats – There is a nursery roost at Dirtness Pumping Station and this needs to be moved for operational purposes. Bat boxes should be installed throughout the catchment for these and other species of bats. This has been done but requires monitoring.

Barn Owls – There is a decline in the number of breeding pairs in the plan area due to the intensification of agriculture and loss of suitable breeding sites.

Invertebrates - Some scarce invertebrate species are known to be present in the plan area, including three beetles, for which species action plans (SAPs) have recently been prepared. The mire pill beetle is an example of such species. Populations should be maintained and enhanced at existing sites and further survey work is required to determine the distribution of vulnerable populations.

Invasive Plants Measures should be taken to control the spread of invasive plants because they grow densely, shading out native plants. They also devalue the natural landscape. They could create a potential flood hazard.

Native flora are at risk from introduced alien species, such as Giant Hogweed, Japanese Knotweed and Himalayan Balsam. In addition, aquatic species such as Australian Stonecrop, Water Fern and Floating Pennywort can quickly spread to watercourses causing a loss in species diversity and blocking of watercourses.

There are sites on the River Maun where Japanese Knotweed has been identified. There is also considerable growths of water fern in the Warping Drain and Australian Stonecrop in the catchment of the River Torne. These should be controlled before they spread further. Control of Japanese Knotweed can be effective but control of Water Fern and Australian Stonecrop can be difficult.



Native brown trout - Native brown trout are a species threatened from stocking of inappropriate species, pollution and loss of habitat. The upper reaches of the Rivers Meden, Poulter and Ryton still contain good stocks of native brown trout.

To protect and maintain these populations it may be necessary to prohibit the stocking of farm-bred trout into these rivers. Interaction between native and stocked fish may simply involve direct competition for food. However if stocked fish reproduce, they will contribute significantly to future generations. The limited parental origin of farmed trout may result over time in a significant reduction in genetic integrity.

Consideration needs to be given to the stocking of trout into other rivers in the plan area. This may involve the stocking of brown trout only, preferably of local origin, and of a size comparable to the resident wild fish.

The habitats required to support brown trout will also need protection, through the application of the Agency's regulatory powers. Monitoring is necessary to establish the continuing status of these stocks.



Photograph 21 - Otters

### Who is involved?

The Agency will work together with other agencies in providing biodiversity species and habitat protection plans.

Otter - Environment Agency, Otters and Rivers Project (ORP), English Nature (EN), Wildlife Trust (WT), riparian landowners (RL).

Water voles - Environment Agency, ORP and Internal Drainage Board (IDB).

Freshwater White Clawed Crayfish - Environment Agency

Daubenton's Bats - Environment Agency, English Nature (EN) & Wildlife Trust (WT)

Barn Owls - Hawk and Owl Trust (HOT), Environment Agency, Wildlife Trust (WT) & riparian landowners (RL)

Invertebrates - Environment Agency, English Nature (EN), Wildlife Trusts (WT)

Invasive Plants - Environment Agency, English Nature (EN), Wildlife Trust (EN), Ministry of Agriculture, Fisheries and Food (MAFF) & riparian landowners (RL)

Native brown trout - Environment Agency

### What is happening already?










Water voles - Survey work has been undertaken on part of the River Torne and North Level Engine Drain. Further surveys will be required to assess operational maintenance work on other watercourses in the plan area. Working together with Local Authorities on county Biodiversity Action Plans. Working on species/habitat action plans with Nottinghamshire Wildlife Trust on vole surveys.

Otter - A survey of River Idle has taken place as part of the Nottinghamshire Otter Project. Several otter holts have been constructed in the LEAP area by the Otters and Rivers Project.

Invasive plants - It is extremely difficult to control the growth of Water Fern and Australian Stonecrop. Herbicide treatment has been carried out on the North Level Engine Drain for Australian Stonecrop and this will be monitored for regrowth. In some years the problem can be minimal.

It is not intended to undertake any control of Himalayan Balsam on the Maun or Ryton. Stands of Japanese Knotweed however will be monitored for growth and treated with herbicide if necessary.

Native brown trout - There is some work going on in the Dove plan area in Upper Trent. This work may provide a blueprint for use in Lower Trent. There are no monies available currently to support this action.

ISSUE 17 – Biodiversity of local species								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
Otters								
	17.1 Work with ORP Notts/ Yorks. Continue surveys for otter presence and provide artificial holts.	ORP	EA EN WT RL	+ Assess the presence of otters	5 k		2000	Valerie Holt
	17.2 Promote agricultural environment grant scheme.	OP	EA MAFF RL	+ Increase farmers awareness of availability of grants	R		Ongoing	Valerie Holt
	17.3 Encourage shrub cover on banks by sensitive river management	EA RL	RL	+ Increased habitat for otters		R	2001	Valerie Holt
Water voles								
	17.4 Evaluate riparian management to improve vole habitats	EA RL		+ Make sites more attractive to voles		R	2001	Valerie Holt
	17.5 Survey Idle catchment to assess vole population	EA		+ Increased awareness of vole population	5k		2001	Valerie Holt
	17.6 Undertake site management plans on all outstanding Agency owned land to protect conservation interests.	EA		+ Biodiversity protection	R		2001	Valerie Holt
Freshwater white clawed crayfish								
	17.7 Collect survey information to assess population distribution in the plan area.	EA		+ Increased awareness of population	R		2003	Valerie Holt
Daubenton's Bats								
	17.8 Construct new bat nursery at Dintness P.S.	EA	EN	+ Habitat provision	1k		2001	Valerie Holt
	17.9 Install bat boxes at suitable locations	EA	EN WT	+ Habitat provision	0.5k		2001	Valerie Holt
	17.10 Provide the bat boxes on the network of pumping stations in the Hatfield Chase area	EA IDB		+ Habitat provision		4 k	2001	Valerie Holt
Barn Owls								
	17.11 Install Barn Owl boxes at suitable locations	HOT, EA	WT, RL	+ Provision of shelter	1k		R	Valerie Holt



ISSUE 17 – Biodiversity of local species								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	17.12 Work with Hawk and Owl Trust to improve habitat and buffer zones	EA		+ Improved habitat	In house		R	
<b>Invertebrates</b>								
	17.13 Investigate distribution within potential habitat. Maintain and enhance population of scarce species	EA, EN	CT	+ Positively identified distribution and habitat	U	U	2004	Pete Sibley
<b>Invasive plants</b>								
	17.14 Monitor growth of bankside invasive plants.	EA	WT EN MAFF RL	+ Increased awareness of problem	1 k		Ongoing	Valerie Holt
	17.15 Control growth of Australian Stonecrop on North Level Engine Drain.	EA	EN	+ Control growth of invasive plant	1 k		Ongoing	Valerie Holt
	17.16 Survey and monitor watercourses known to have rare or scarce species	EN EA IDB		+ Increased awareness of species present		4 k	2001	Valerie Holt
	17.17 Undertake programme of translocation of rare species	IDB EA				5 k	2001	Valerie Holt
	17.18 Investigate the creation of wetland areas, especially on the Upper Torne, to encourage reed bed development.	LA EA	EN CC MAFF	+ Improved habitat		5 k	2001	Valerie Holt
<b>Native brown trout</b>								
 	17.19 Determine genetic diversity of brown trout in river by assessing past stocking levels and extent and undertake genetic analysis of native brown trout.	EA		+ Improved knowledge of presence		5	2001	Keith Easton

**Cross-Reference:** See issue 18 for more biodiversity protection.

## Issue 18 - Biodiversity of local habitats

**Objective:** To maintain and enhance biodiversity of local habitats within the plan area in accordance with regional and local Biodiversity Action Plan objectives.

### What are the problems?

#### Rivers

During the 1970s and 1980s, capital flood defence schemes were undertaken on both the River Idle and the River Torne. The lower reaches of the River Torne are trapezoidal in character, with floodbanks set away from the river channel and very little tree cover. The River Idle, although more meandering is also trapezoidal in character. Some improvements have been made with tree planting.

The lack of physical diversity has also had a detrimental effect on the entire ecosystem of the rivers, affecting plant communities, fish population, wildlife and landscape features.

#### Wetlands

There has been a loss of wetlands nationally and this scarce resource requires protection and enhancement. There is a lack of wetlands and wet grassland in the plan area.

### Who is involved?

Environment Agency, Countryside Agency, Farming and Wildlife Action Group (FWAG), Ministry of Agriculture, Fisheries and Food (MAFF), Wildlife Trusts (WT) English Nature (EN), Gravel companies (GC)

### What is happening already?






Work has been carried out on the River Idle creating fisheries habitat by installing deflectors, riffles and fish shelters. This work may be continued downstream, but modelling of the river is required first.

Cover planting has been carried out on the lower Idle.



Photograph 22 - River Torne showing lack of physical diversity



ISSUE 18 - Biodiversity of local habitats								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	18.1 Undertake rehabilitation of River Idle and rehabilitation feasibility of River Torme.	EA	RL AC	+ Restoration of rivers to natural state	31k		2000	Valerie Holt
	18.2 Work with partners to assess ecological value. Plan and undertake enhancement works where appropriate e.g., Torme wetland.	EA	CA LA DWT	+ Improvements to ecological status	36 k		2001	Valerie Holt
	18.3 Develop strategies for both rivers to identify activities and actions to improve their conservation value.	EA		+ Improvements to conservation value	R		2000	Valerie Holt
	18.4 Promote agri-environmental schemes to encourage change in management of waterside habitat.	EA	CA	+ Habitat improvement			Ongoing	Valerie Holt
	18.5 Ensure that restoration of gravel workings includes habitats as per BAP targets.	LA EA	RL GC	+ Habitat improvement			Ongoing	Valerie Holt

**Cross-reference:** See issue 17 for more biodiversity protection.



Photograph 23 - Pollarded willows on the River Idle



## **Issue 19 – Contaminated land arising from active or disused colliery sites**

**Objectives: – Remediate contamination associated with coal carbonisation plants and other colliery operations in the LEAP area. Implement new legislation on contaminated land and note effects. Continue partnership between Environment Agency, Local Authority and developers**

### **Background**

The Agency currently has limited powers to secure the remediation of contaminated land, and is using Town and Country Planning procedures, water and waste legislation and persuasion of local landowners to clean-up contaminated sites in the area.

In April 2000, Part IIa of the Environment Act 1995 will come into force. This sets out the responsibilities and powers of the Agency and Local Authorities for regulation, inspection, remediation and registration of contaminated land. This will lead to clean-up of contaminated sites to protect human health, controlled waters and the environment.

### **What is the problem?**

Active and disused collieries within the LEAP area can lead to contamination of local land, due to the results of the coal extraction process itself, or from the associated coal carbonisation industry.

At the active Harworth Colliery, the coal carbonisation process is thought to be the cause of groundwater contamination in the Sherwood Sandstones aquifer to the east of the colliery.

Hydrocarbon and other serious pollutants from the coal carbonisation plant at the former Mansfield Colliery are possibly affecting the underlying Sherwood Sandstones, and nearby Vicar Water and Pond (See Map 6).

At the former Ollerton Colliery, contamination from hydrocarbon, phenols and ammonia have arisen from the carbonisation plant. The site is on the Sherwood Sandstones aquifer, and less than 2km away from a public water supply borehole. The River Maun runs close by.

The former Maltby, Rossington and Thoresby collieries have also been identified as at risk of contaminating local land, however this has yet to be confirmed.

### **Who is involved?**

Environment Agency, Local Authorities, RJB Mining, Coal Authority

### **What is happening already?**






The Agency is working in partnership with Local Authorities and RJB Mining to ensure that contamination is remediated so that risks to human health, controlled waters and the environment are minimised, and the land is restored for redevelopment.

Harworth Colliery is under investigation by RJB Mining, who will submit their findings to the Agency.

A project is underway to assess contamination from the former Mansfield Colliery.

The Agency is working with Nottinghamshire County Council regarding contamination the former Ollerton colliery, which is now being redeveloped as a renewable energy complex (See Chapter 4 for details).

RJB mining is assessing Maltby, Rossington and Thoresby Collieries and the results will be submitted to the Agency.

ISSUE 19 : Contaminated land arising from active or disused colliery sites								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	19.1 Assess the findings of RJB study into contamination at Harworth Colliery. Implement remediation measures.	EA	LA RJB	+ Improved awareness of extent of any contamination + Remediation of contamination	TBA			Rob Harper
	19.2 Work with NCC to bring about remediation of contamination at Ollerton Colliery	NCC EA	RJB	+ Improved awareness of extent of any contamination + Remediation of contamination				Rob Harper
	19.3 Assess the extent of contamination at the former Mansfield Colliery and agree remediation measures	LA EA	RJB	+ Improved awareness of extent of any contamination + Remediation of contamination	40k			Rob Harper
	19.4 Ascertain degree of contamination at Maltby, Rossington and Thoresby Collieries	LA EA	RJB	+ Improved awareness of extent of any contamination + Remediation of contamination	TBA			Rob Harper
	19.1 Work with LAs and others to establish a mechanism for undertaking the remediation of contaminated land sites	EA	RED LPA EP	+ Remediation of contaminated land	R		2001	Rob Harper

**Cross-reference:** See also Issue 16 for impact of collieries on the environment.



**Photograph 24**  
Contamination at Dinnington Colliery



## **Issue 20 – Factors affecting flytipping**

**Objective:** To assess the reasons why flytipping appears to be on the increase and how to prevent it.

### **Background**

Flytipping or illegal disposal of waste appears to be on the increase, nationally. The reasons for this are unknown, but are possibly affected by the recent introduction of a tax against landfill operations. The cost of this tax has been passed on to commercial users of tips, who are charged to deposit waste. Increased costs of waste disposal at landfill sites have possibly led to an increase in the illegal deposition of waste in lay-bys and watercourses.

### **What is the problem?**

There is a recognised problem of fly tipping in the area, with 'hot spots' being created where rubbish is tipped regularly. Fly tipping is spoiling the environment, polluting watercourses, and can be harmful to livestock and wildlife. Landowners are responsible for clearing these illegal deposits.

The Agency will discuss flytipping with Local Authorities (LAs) and other interested bodies, and collate data on number of incidents per year, location of incidents, types of waste, tonnage and origin.

There is a need to formally identify problem sites in collaboration with LAs. It has been suggested that signs be erected at these sites, stating penalties for offenders and the location of the nearest landfill site. A pilot scheme in Leicestershire will shortly be in place where the Local Authority will erect signs at areas that regularly attract flytipping. Although this is outside the LEAP area, any success of this plan could mean that similar signs be erected in problem sites in the LEAP area.

Litter campaigns should be encouraged in urban areas, using interested organisations from local community.



### **Who is involved?**

Environment Agency, Local Authorities, Riparian Landowners (RL), Inland Waterways Association (IWA), Tidy Britain Group (TBG).

### **What is happening already?**

The Environment Agency and the Local Government Association have agreed a Memorandum of Understanding (MoU) which lays down the protocol in respect of the response to flytipping incidents in England and Wales. When culprits are traced, they are prosecuted, however, it is difficult to trace offenders, as tipping is often random and occurs at remote locations.



ISSUE 20 : Factors affecting flytipping								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	20.1 Support local initiatives in clearing littered areas, as well as LA and Tidy Britain Group initiatives. In addition, promote education of recreational users to highlight problems of litter.	EA/ GBS	LA/ TBG RL	+ Removal of litter	R		Ongoing	Chris Deakin
	20.2 Raise awareness by posting notices in problem areas, identifying fines where nearest civic amenity site is telephone number to ring for disposal by council list cost of disposal from this spot that could increase community charge tax	EA	LA TBG	+ Education of public to raise awareness of problems caused by fly tipping	TBA		2002	Chris Deakin

**Cross-reference:** See Issue 21 for more waste management issues.



Photograph 25 - Flytipping at Bawtry



## Issue 21 – Landspreading of waste

**Objective:** to ensure that the practice of spreading industrial waste onto land is carried out in a way and in locations that will provide agricultural benefit but not adversely affect the environment.

### Background

Industrial wastes are spread onto agricultural land as fertilisers. The practice is regulated by the Agency under the Waste Management Licensing Regulations, which allow the activity to be exempt under certain conditions. Landspreading is subject to immediate prior notification to the Agency, and there is a requirement that the waste should be of agricultural benefit.

Numerous landspreading operations take place in the LEAP area, particularly in the Blaxton and Auckley areas where food processing and abattoir wastes are spread onto agricultural land.

### What is the problem?

If good practice is not followed, certain constituents of the waste, normally beneficial to the land, can adversely affect fauna and flora. Pollutants such as heavy metals can enter the food chain through cattle grazing and crops. Also, if the waste is not spread appropriately, ponding of the effluent can lead to waterlogging of the land, polluting run-off to watercourses and leaching to groundwater.

Inconsistencies in the interpretation of the regulations by waste producers and landspreaders has highlighted a need for a review of the exemption criteria. There is a need to restrict the types of waste that are permitted to be spread, and a need for tighter controls of notification procedures, analysis of waste streams and loading rates. This will allow the Agency to enforce these regulations to protect the environment.



Photograph 26 - Results of inappropriate landspreading of waste

**Who is involved?**


Environment Agency, Department of Environment, Transport and the Regions (DETR), Agricultural Development and Advisory Service (ADAS), riparian landowners, waste producers, landspreading companies

**What is happening already?**

A report assessing the impact of landspreading in the LEAP area has been prepared for the Agency this year. The findings of the report confirmed problems outlined above.

In other Regions of the Agency, similar work has supported our findings, and Nationally, the Agency has made suggestions to the DETR which may lead to more stringent controls over landspreading coming into force in 2000.

A feasibility study is being produced for one of the food processing companies in the area.

ISSUE 21 : Landspreading of waste								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	21.1 Investigate appropriateness of regulations for landspreading of waste in the LEAP area.	EA		+ Protection of the environment through tighter controls	U		Ongoing	Chris Deakin

**Cross-reference:** See also Issue 20 for waste management issues.



**Photograph 27 - Landspreading of waste in the LEAP area**



## Issue 22 – The extent of floodplains are not clearly defined

**Objective:** Provide accurate definition of floodplain extent and prevent development encroaching into the floodplain.

### Background

Any development in floodplains will be at risk from flooding and may increase the risk of flooding elsewhere by reducing the storage capacity of the floodplain and/or impeding the flow of floodwater. Land raising in the flood plain may have a similar effect.

The Agency does not have any direct powers to prevent development in floodplains, but in our role as statutory consultee of Local Planning Authorities (LPAs), we are usually successful in objecting to any proposed development in floodplains.

Guidance for LPAs on protection of floodplains is contained in the Department of the Environment Circular 30/92 'Development and Flood Risk'.

### What is the problem?

The Agency looks to the LPA to resist development in floodplains. Redevelopment of existing sites should only be considered where the LPA, in consultation with the Agency, is satisfied that the developer will provide appropriate mitigation and/or protection measures.

The Agency, as a consultee of the LPAs, seeks to prevent development encroaching into the floodplain to avoid any increase in flood risk to people and property. In order to do this effectively it is necessary to have an accurate definition of the extent of the floodplain. However, the extent of the floodplains are not currently mapped for the main rivers within the plan area.



### Who is involved?

Environment Agency, LPAs

### What is happening already?

Following the Easter floods in 1998, it was agreed with MAFF that comprehensive flood risk maps would be provided to LPAs. Maps giving the most up to date information have been provided to all LPAs during the summer of 1999.

The existing Floodplain Mapping Programme is currently running behind schedule, and investigations from the Easter Floods have delayed the programme further.

ISSUE 22 – The extent of floodplains are not clearly defined								
Theme	Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
		Lead	Others		EA	Others		
	22.1 Define the extent of floodplain in the LEAP area.	EA		+ Accurate mapping will allow LPAs to prevent development in flood risk areas.	300 k		2001	Roy Ladhams
	22.2 Provide improved floodplain maps to the LPAs.	EA		+ Accurate mapping will allow LPAs to prevent development in flood risk areas.	300 k		2001	Roy Ladhams



**Photograph 28 - Flooding of the River Idle in the 1970's**  
– development in floodplains would be at risk of flooding, reduce the storage capacity of the floodplain  
and would impede the flow of flood water



**Idle and Torne  
Local Environment Agency Plan  
Map 7**



**ENVIRONMENT  
AGENCY**



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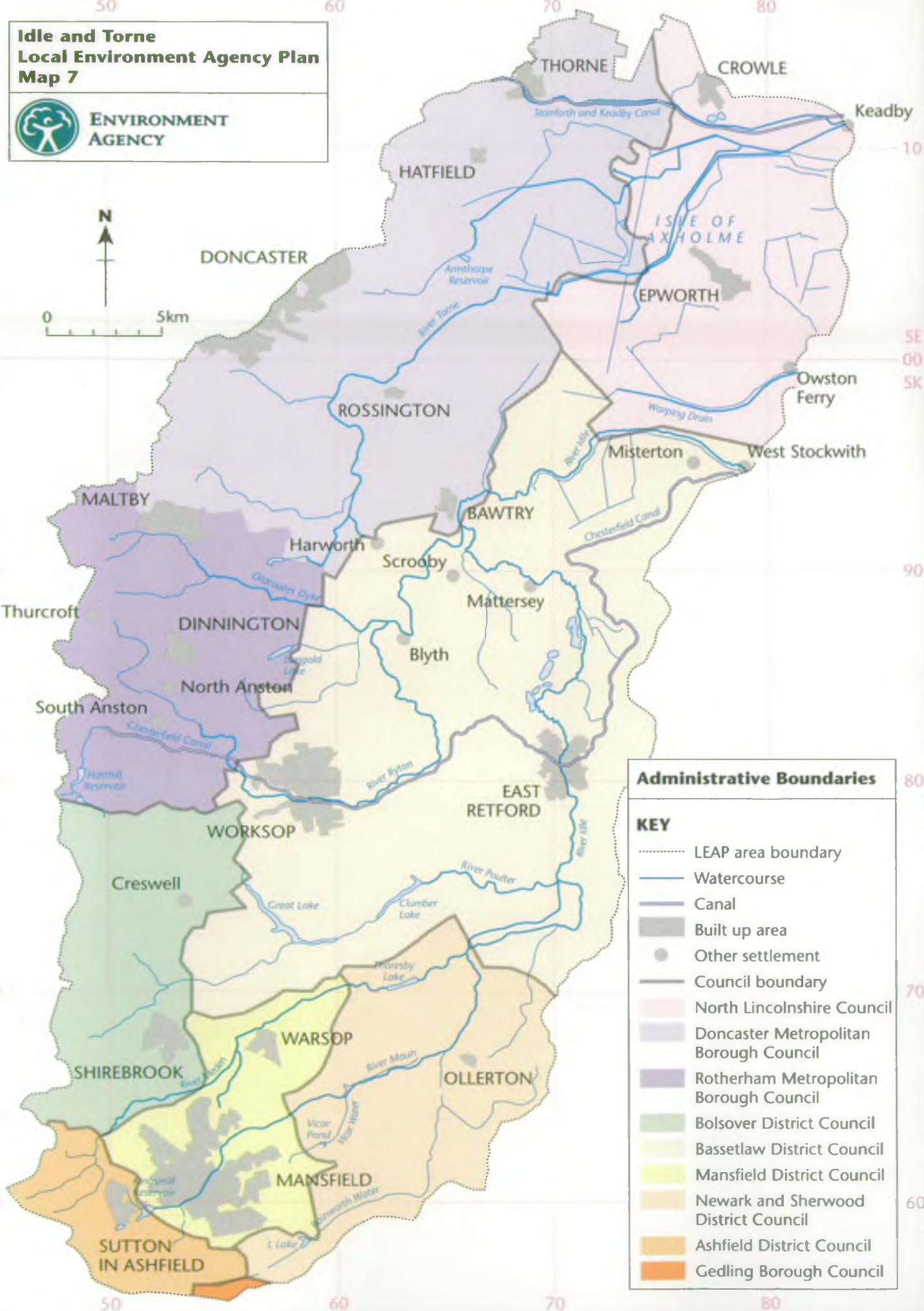
80

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**Administrative Boundaries**

**KEY**

- ..... LEAP area boundary
- Watercourse
- Canal
- Built up area
- Other settlement
- Council boundary
- North Lincolnshire Council
- Doncaster Metropolitan Borough Council
- Rotherham Metropolitan Borough Council
- Bolsover District Council
- Bassetlaw District Council
- Mansfield District Council
- Newark and Sherwood District Council
- Ashfield District Council
- Gedling Borough Council



## Introduction

Our natural environment is a complex system and must be managed in many different ways by the broad community both in the short and long term. Where we do have a good understanding of a particular element of the environment the implications of change often remain difficult to predict and understand. The linkages between our society, economy and environment vary over time and the effect of what may at first be a local issue, can have wider regional and even global effects. Work is under way in the UK and across the world to define sustainable development indicators, which can be used to assess environmental change.

It is this kind of understanding that resulted in the Earth Summit in Rio in 1992 and the adoption of sustainable development principles with a commitment to manage the environment in an integrated way through partnership.

## East Midlands Regional Assembly

The East Midlands Regional Assembly was launched in December 1998, and recognised by Parliament in May 1999. Its membership is made up of two thirds Local Authority Councillors and one third partners from a range of sectors including the Environment Agency, business, voluntary sectors, trade unions, environmental groups, health, housing and social representatives.

The Assembly works as a partnership to develop a vision for the future of the region. They are working closely with the East Midlands Development Agency (EMDA), who have produced a Draft Integrated Regional Strategy, *Prosperity Through People* which aims to improve the social, environmental and economic quality of life for all people in the East Midlands. Copies of this document can be obtained from EMDA at Apex Court, City Link, Nottingham NG2 4LA.

The boundaries of the East Midlands Regional Assembly cover the southern half of the Idle and Torne LEAP area.

## 4.1 Sustainable Development

### Signposts to Sustainability

The Agency is committed through its principal aim to the principles of sustainable development. The most commonly used working definition was provided in the Brundtland Report "Our Common Future" (1987):

***"development that meets the needs of the present without compromising the ability of future generations to meet their own needs".***

Rather than predicting ever increasing environmental decay and hardship in a world of ever decreasing resources, the report saw the *"possibility of a new era of economic growth, based on policies that sustain and expand the natural environmental resource base"*.

Sustainable development does not necessarily mean less economic development. One of the challenges is to promote ways of encouraging economic activity that does not harm the environment, and of discouraging or controlling environmentally damaging activity.

Sustainable development requires a full consideration of environmental, social and economic issues during the decision making process. Where the full effects of a particular proposal or policy are not known, then the *"precautionary principle"* should be adopted whereby no action is undertaken until such a time as the potential impacts can be more clearly defined. The UK Government is firmly

behind the principles of sustainable development and has published "Sustainable Development - The UK Strategy" (1994).

The total of human wealth cannot be measured only by man-made capital but must allow for natural environmental capital and other contributions to our quality of life. Natural capital consists of renewable and non-renewable resources. The challenge of sustainable development is to find ways of enhancing total wealth while using common natural resources prudently, so that renewable resources can be conserved and non-renewable resources used at a rate which considers the needs of future generations. In this it is particularly important to consider whether there is a risk of irreversible environmental change and, if so, how significant this may be.

Making judgements about the weight to be put on these factors when considering development will vary. However, we should make a proper allowance for the interests of future generations and for the pressures that society places on the global environment.

Much of environmental pollution and resource depletion occurs because the people responsible do not bear the cost. It is important that policy is guided by the "polluter pays" principle, which requires that when production processes threaten or cause damage to the environment, the costs of environmental measures be borne by the producer and not society at large. This also provides an incentive to reduce pollution. In the case of historical pollution, where a responsible party cannot be identified, the cost inevitably has to be met by the public.

For sustainable development to be achieved, all stakeholders should contribute to decision making and implementation. It is important that dilemmas and problems are resolved in ways that take account of the views of those concerned, for without widespread support, little will be achieved.

#### **Government Guidance to the Agency on Sustainable Development**

In November 1996, guidance was given to the Agency by the government on its contribution to sustainable development. The following summarises the guidance given:

- Because the environment is shared, collective action is necessary;
- Decisions should be based on the best possible scientific information and analysis of risks;
- Ecological impacts must be considered, particularly where resources are non-renewable or effects may be irreversible;
- Cost implications should be brought home directly to the people responsible - the "polluter pays" principle;
- A holistic approach should be taken to environmental objectives, the Agency should make use of integrated catchment planning (LEAPs for example) or other geographical planning tools;
- A long term perspective should be taken;
- Biodiversity should be conserved and enhanced and natural heritage protected;
- A contribution should be made to protecting the global atmosphere;
- The scope for reconciling the needs of the environment and those of development with regard to regulated organisation should be investigated;
- Close and responsive relationships with the public, local authorities, and other representatives of local communities should be developed; and
- High quality information and advice should be used by the Agency and provided to others.

LEAPs play an important part in the Agency's contribution and will help it to meet many of the objectives set by Ministers. The Agency's Environmental Strategy has taken on board the above guidance and our nine themes reflect the principles of sustainable development.

## 4.2 Protection through Partnerships

Partnership essentially means a number of different interests willingly coming together, formally or informally, to achieve a common purpose in the spirit of trust and commitment. In this plan it is partnerships that will enable the vision and the key objectives to be realised. Such partnerships provide accountability, as well as a means of attracting inward investment, to improve the environment, from such bodies as the European Union (EU) and the National Lottery. This helps to reduce duplication between agencies and allows the pooling of scarce resources.

The Agency is well placed to influence many activities affecting the environment through its own legislative powers, but these are limited in extent and do not necessarily confirm ownership or acceptance of the issues involved. The 1990 Government White Paper, *"This Common Inheritance"* recognised the need for co-operation and joint working when discussing overlapping responsibilities of Local Authorities and other environmental enforcement agencies. Subsequent international agreements and government guidance have further established this principle. Education is also important in changing attitudes and work practices to promote sustainable development.

The Idle and Torne LEAP raises a number of issues that will require a joint approach, if they are to be solved. Partnerships will be developed in the short term to address many of the issues through the LEAP. Environmental management often requires a long term approach which can only be effective through the policies and practices of other interested groups.

### Local Agenda 21

Agenda 21 was one of four main agreements signed at the Earth conference at Rio by representatives of 150 countries including the UK government. It is intended to be a *"Comprehensive programme of action throughout the world to achieve a sustainable pattern of development for the next century"*. Agenda 21 is an environmental action plan for the next century, which recognises the central role of Local Authorities and the value of partnerships and the local community in achieving sustainable development.

One of the most exciting aspects of Agenda 21 is that it recognises that action by national governments alone is not enough and that all groups - civic, community, business and industrial have to be involved to bring about change. It promotes the idea of thinking globally and acting locally. Anybody interested in Local Agenda 21 should contact their Local Authority, relevant contacts and the current stage of LA21 in each Local Authority is given in Table 4 below.

It is the aim of the Agency to integrate LEAP and Local Agenda 21 programmes where appropriate, and it is hoped that this consultation document will assist in developing a working relationship with others.

**Table 4 - Local Agenda 21 in the Idle and Torne LEAP area**

Local Authority	Contact	Progress on LA21
Nottinghamshire County Council	Phil Keynes: 0115 977 4623	Published document 'Responding to Rio' February 1997.
Ashfield District Council	Bill Buckley: 01623 450000	Environmental health co-ordinator is in post. Strategy in place linking sustainability with health issues. Strategy framework has deadlines to develop action plans.
Bassetlaw District Council	Chris Shaw/Gillian Blenkinsop: 01909 534482	Published LA21 strategy: <i>A Vision of the Future: a plan to improve our District today and for future generations.</i>
Gedling Borough Council	Robert Crowder: 0115 901 3901	-



Local Authority	Contact	Progress on LA21
Mansfield District Council	Louise Pellett: 01623 463470	-
Newark & Sherwood District Council	Rob Bennington: 01623 863445	Published LA21 Action Plan in 1996.
Derbyshire County Council	Maggie Bishop: 01629 580000	The Challenge - A Derbyshire LA21 Strategy of work which has taken place since 1993.
Bolsover District Council	Martin Wheatcroft: 01246 242292	Currently writing the Draft Strategy document.
Doncaster Metropolitan Borough Council	Claire Battie: 01302 734025	Combined LA21 Action Plan with the Bolton Community Strategy to produce a Community Action strategy. Working with several groups including the Earth centre.
Rotherham Metropolitan Borough Council	Julie Rankin: 01709 382121	Currently publishing a leaflet to raise awareness about the need for LA21. Forming a partnership to build a LA21 plan for the borough.
North Lincolnshire Council	Mr Wragg: 01472 324263	Produced Draft Sustainable Development Strategy.

### Waste Minimisation Clubs/Business Environment Clubs

Waste Minimisation/Business Clubs generally offer information, advice and support on systematic approaches to waste minimisation. They disseminate relevant information relating to all aspects of environmental best practice. The club may be a first point of contact for industry and companies will be signposted to appropriate organisations and groups for specific advice.

The objectives of waste minimisation clubs vary according to the partners involved, but are generally:

- To promote waste minimisation and sustainable waste management in industry and commerce.
- To build links between industries, the Agency, business groups and other interested parties.
- To share and expand existing and new waste minimisation initiatives, ideas and projects.
- To attract, encourage and interest companies that have not previously been involved in waste minimisation rather than concentrating on "preaching to the converted" companies.

The East Midlands Business and Environment Club (EMBEC) aims to assist business to balance economic development with environmental good practice. It hopes to achieve this by bringing together a diverse network of organisations whose common interests are not only to prosper but also desire to leave successive generations with a future at least as good as the present. EMBEC was formed in 1994 by Rushcliffe Borough Council, Newark and Sherwood District Council, Mining Technology Consultants and Associates and 3M Health Care Ltd. Other local businesses sponsor the club and are committed to its ideas on sustainable economic development. EMBEC offer advice and share experiences of professionals in every field of environmental activity from waste minimisation to transport, from packaging to energy.

### Conservation and Recreation Collaborative Projects

By their very nature, conservation initiatives tend to involve several interested parties such as landowners, local and national conservation groups, and Local Authorities or other statutory bodies. The UK Biodiversity Strategy has already caused new working groups to be set up, and this a trend that is likely to continue.

The Agency has been involved with several joint ventures in the Idle and Torne area recently, and these include:

#### Water Vole Survey of Nottinghamshire

The Agency is currently working with East Midlands Environmental Consultants (EMEC - the consultancy wing of the Nottinghamshire Wildlife Trust), Nottinghamshire Wildlife Trust, English Nature and Local Authorities to organise a survey of watercourses in Nottinghamshire for the presence of water vole. The data generated will be used to identify and protect existing populations and enhance areas where populations are low or absent.

#### Derbyshire Sites Register

The Agency has contributed to the Derbyshire Wildlife Trust's project to update its survey records for locally important conservation sites. The information will be used by the Trust and the Agency to protect designated sites from development and other threats.

#### Trent Floodplain Initiative

The Agency is one of many partners involved in a project looking at protecting, enhancing and restoring key habitats within the River Trent floodplain. The project aims to improve both habitat and species diversity along the river corridor, which has historically been impacted by flood defence work, land management and development.

#### **Urban Regeneration Initiatives**

Central and local government, bodies such as the Agency and the private and voluntary sectors must combine their programmes, responsibilities, skills and resources to respond to local circumstances in order to achieve those urban regeneration objectives.

Examples of urban regeneration initiatives operating in the Idle and Torne area include:

#### Greenwood Community Forest

The Greenwood Community Forest is a partnership organisation established in 1994 to create a multi-purpose forest with a rich mixture of woods, farmland, open space and settlement in Nottinghamshire. Ashfield, Broxtowe, Gedling, Mansfield, Newark & Sherwood and Nottingham Councils, as well as the main funding agencies such as Nottinghamshire County Council, Forestry Authority and the Countryside Commission support it.

#### Sherwood Energy Village

A community-driven regeneration scheme, based at the former Ollerton Colliery. This proposal involves the creation of an extensive development of energy-efficient housing, industrial units, conference and sports facilities, all powered by a sustainable alternative energy plant. The former colliery site was purchased by the local community concerned about the downturn in the local economy following pit closures in the area. The Energy Village partnership is hoping to provide housing, jobs, and transport and recreation facilities for the local community.

#### Boughton Pumping Station

The regeneration of this Edwardian water-pumping station by the local community has created over 200 jobs. The pumping station has been transformed into workshop and office space, a conference centre, restaurant and renewable energy exhibition.

### **The Fire Services**

The Agency works closely with the Fire in providing a first line pollution prevention service.

The Fire Services are normally first on the scene at road traffic accidents and other major industrial accidents including chemical spillages. This gives them a unique opportunity to deal with any potentially polluting spillage's before they reach a watercourse. The Fire Services have agreed to undertake this role where practicable and the Agency has provided training and pollution prevention equipment such as oil absorbent materials and sealants.

The Fire Services immediately notify the Agency of any potentially polluting spillages or significant fires so that Agency Environment Protection staff can be on site to give advice when required and to deal with any necessary follow up actions.

### **4.3 Education**

Education is a key objective for the Agency and plays a major role in its strategy for environmental protection and improvement. It is essential to the delivery of a cleaner more sustainable environment in the long term. In many cases a lack of information and awareness is one of the factors which leads to environmental damage or neglect whether it be by accident or deliberate. There is a need for a greater level of educational involvement by the Agency and a need to raise awareness of environmental issues. The Agency has published an education strategy "Green Shoots" which considers environmental education into the next century.

Our educational goals are to:

- Build positive partnerships through consultation, joint ventures and sponsorship;
- Help educate young people through teaching aids and other initiatives;
- Improve understanding of environmental issues, through links with education, work placements and an awards scheme;
- Work with industry and produce marketing campaigns to promote prevention of pollution rather than its remediation;
- Foster public awareness of environmental issues to encourage responsibility for the environment and its challenges; and
- Build on established, and create new, international relationships to further global sustainable development.

The Agency has produced a wide range of educational material and leaflets, and some of these are listed in Appendix 3.



### Educational initiatives

The Agency undertakes a wide variety of pollution prevention, waste minimisation and education initiatives with local communities, business, local authorities and others. Specific initiatives include:

#### Water pollution prevention

- Over 100 pollution prevention site inspections a year in the catchment to business and agriculture.
- Distribution of leaflets to local authorities, schools, libraries etc.

#### Local authority liaison

- Planning roadshows to improve relationships between LPAs and the Agency.
- Promotion of sustainable surface water drainage techniques.

#### Waste Management

- The draft Producer Responsibilities (Packaging Waste) Regulations place an obligation on certain businesses to recover and recycle specific amounts of packaging waste. Area offices are capable of responding to queries from local businesses and provide advice and information.
- We are promoting waste minimisation through Waste Minimisation Clubs, our own activities and by partnership with local groups. In addition there will be promotion of best practice in waste management and special waste regulations.

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#### Water demand management

- Education and information programs (eg. road-shows, high street displays, schools guides, gardening tips, help lines)
- Promotion of water efficient appliances (eg. low flush or dual flush WCs, water efficient washing machines and dishwashers, trigger-gun sprinklers, water butts)
- Promotion of low cost retrofit water saving devices (eg. Hippo bags, low flow shower heads, sprinkler exchange schemes)
- Promotion of water re-cycling and reuse (eg. grey water recycling systems, recirculation systems, water butts)

These, and other areas of activity (water audits, waste minimisation schemes and leakage reduction programmes) are co-ordinated by the Agency's Demand Management Centre at Worthing in conjunction with regional co-ordinators.

### Schools education

The Agency is committed to improving its educational work with schools. The Agency is one of a number of organisations working with schools and there are opportunities for joint approaches. Information to schools will dovetail into the national curriculum.

Attention is being focused at key stages 2 and 3 and there is a commitment to provide information for 'A' level and university students. The Agency is developing its own national education strategy and work in the LEAP area will accord with that framework.

#### **4.4 Land Use Planning**

Land use is the single most important influence on the environment. Human activity can have both positive and negative impacts on the environment. Redevelopment and renewal can do a lot to repair the damage of the past, while controls on new development can protect sensitive habitats and biodiversity and can prevent increased emissions of pollution to air, land and water.

##### **Planning Liaison**

The control of land use change is primarily the responsibility of LPAs through the implementation of the Town and Country Planning Acts. Local development plans provide a framework for land use change and are key considerations in the determination of planning applications. Government planning guidance supports co-operation between LPAs and the Agency in relation to land use and the environment.

The Agency is a statutory consultee in respect of development plans and certain categories of planning applications. This allows the Agency's views to be considered by the LPA prior to a decision being made on a planning application or policies in a development plan being approved. Planning liaison is the link between the Agency's functions and Local Authority planners. Guidance on the types of planning applications we would wish to see is contained in the Agency's document "*Liaison with Local Planning Authorities*", which is available from our Trentside offices.

##### **Development Control Guidance**

The following is draft guidance to LPAs from the Agency on a number of areas of mutual interest. Town and Country Planning can support sustainable development and work towards meeting the country's commitments to biodiversity and global warming. Some of these policy approaches should be at the regional level, while others should be considered in a more local context.

##### **Transport and Infrastructure**

Road traffic accounts for some 25% of the UK's contribution to global warming. Vehicle use also contributes towards acid rain through the production of sulphur dioxide and oxides of nitrogen.

Regional policies should be in place to minimise the need for travel by locating as far as possible, homes, places of work and other facilities in reasonable proximity to each other. Such broad policies offer the basis for more detailed land-use policies. For example, a preference for new employment sites and retail developments to be sited close to good public transport networks and away from locations that cannot readily be served. Such an approach should also influence the Structure Plans and Part I Unitary Development Plans with respect to the distribution of new housing.

Commitments outlined in the Local Agenda 21 action programmes of Local Authorities encourage:

- Extending the provision for cyclists and for the safe movements of pedestrians;
- Promotion of public transport as an attractive substitute for car use;
- The reduction of energy consumption and pollution by unnecessary journeys to work, shops and leisure facilities.

### Energy

Although the Agency is responsible for the regulation of emissions to the environment from power stations it has little direct influence on the consumption of energy within the area, although we are in a position to help influence planning policy and its impact on energy use. Energy conservation is important to combat global warming and the long term sustainable use of non-renewable resources.

Planning Policy Guidance Note 12 (PPG12) states that structure plans should include policies for energy generation, including renewable energy. Structure plans and UDP Part 1s should include policies and proposals for providing renewable energy in their area. Plans need to address the potential conflict within development areas for such installations and the protection of landscape and wildlife. They should propose the criteria to be applied to planning applications for renewable energy installations in National Parks and Areas of Outstanding Natural Beauty (AONB).

In addition to providing for renewable energy installations, development plans can affect energy conservation through development patterns. PPG 12 offers guidance to Local Authorities in this respect. The Council for the Protection of Rural England (CPRE) has produced a document, "Energy conscious planning", highlighting the integration of energy issues in land-use planning.

Within Local Plans, energy related policies may be expected to provide a more specific framework for development control decisions which would apply not only to green field developments, but also to redevelopment and infilling within existing settlements.

Given this context, it is appropriate for Local Planning Authorities to pursue policies which:

- Discourage low density development.
- Promote some degree of concentration of principal employment activities and community facilities.
- Ensure that new development is well related to established or convenient public transport routes.
- Encourage energy-sensitive siting, orientation and layout of new development, particularly in order to allow future energy saving technologies to be accommodated.

In addition to planning, the building regulations section of Local Authorities are also influential, for example in terms of energy efficient buildings.

### Natural Habitats and Biodiversity

Whilst many species native to the UK are relatively common, between about 10 and 20 % of native species are considered threatened (HMSO, March 1996). A monitoring programme is being established under the Biodiversity Action Plan (BAP) to measure changes in both the extent of habitats and their quality, in terms of the populations of characteristic flora and fauna found in them.

The production of these Plans stem from the Earth Summit in Rio 1992 and in its similarity to LEAPs it seeks to focus the efforts of partner organisations. The focus will be to enhance the biodiversity resource, taking account of local, national and international priorities.

Ecological issues have traditionally been reflected as restraint policies in development plans. As a result of the growing strength of wildlife groups and the more widespread use of Environmental Assessments, a wider range of ecological matters can now be addressed in plans. Policies should be in place to promote ecological diversity.

As advised in PPG 12, although the principal use of a site may be for housing or other development,



schemes should be designed to retain natural features on site and where none exist, to create new habitats or features to encourage wildlife. Local Plans offer the opportunity to incorporate policies to replace wildlife resources lost through development using Section 106 Agreements.

Policies should be offered along the lines of:

*"All new development should preserve and enhance existing elements of nature conservation importance. New and existing development should offer the opportunity to create new areas of semi-natural habitat by the use of appropriate design and species in landscaping schemes and to incorporate features to attract wildlife".*

Land reclaimed through derelict land reclamation offers the potential to create new areas of value.

As indicated, reclaimed open space offers greater potential for both increased habitat diversity, through large scale tree planting, wetland habitat promotion and the promotion of wildlife corridors.

### Waste Management

The management of waste impacts on land use. The location of landfill sites and the operation of waste transfer stations affects the proposed use of land and the amenity of surrounding areas.

Planning permission should not be granted for the deposit of biodegradable waste within 250m of any development unless measures can be taken to monitor and control landfill gas. In any event permission should not be given for the deposit of biodegradable waste within 50m of development. Without correct management, the migration of landfill gas can give rise to the risk of explosion in buildings, underground services or voids. It also presents a risk of asphyxiation.

Where a proposed development might be at risk from migrating landfill gas, the Agency can advise on the work required to protect property. Any residential development within 50m of a known gassing landfill should be refused unless the developer can clearly show how it will be protected.

Methane generated in a landfill site must be controlled in order to minimise its impact on the environment. Collecting it and using it as a fuel has two benefits, by avoiding pollution and generating energy. There should be a presumption against the passive venting of landfill gas unless it can be shown that methane oxidation is reducing methane emissions to a low level. Planning applications to utilise landfill gas for the generation of energy should generally be encouraged.

Waste transfer stations can have an adverse impact on the amenity of nearby properties through dust, noise and smell and can cause considerable pollution to rivers and streams from run-off. Planning permission for waste transfer stations accepting over 100 tonnes of biodegradable waste a day should only be permitted if the sites are operated under cover except where waste is deposited into closed containers for prompt disposal elsewhere.

### **Flood defence and the control of surface water run-off**

#### Importance of floodplain

River channels have a limited capacity and when this is exceeded, flooding of the adjoining land known as the floodplain occurs.

The need to protect floodplains has not always been recognised and they have sometimes been subjected to inappropriate development. Rivers and their floodplains are finite resources, which need to be managed in accordance with the principles of sustainable development.

If flood risks to land and property are not to be increased and the ecological value of rivers and floodplains is to be safeguarded, then rivers and their floodplain need to be protected from activities, such as development, which may adversely affect them.

#### The impact of urban development and the control of surface water run-off

The urban development of a catchment can have the following major effects on the hydrological regime:-

- Increased volumes of storm water run-off.
- Higher peak flow rates and flood water levels.
- Lower base flows in rivers and streams.
- Inundation of available storage in (and conveyance capacity of) river corridors.
- Reduction in soil moisture recharge leading to a reduction of groundwater resources.
- Increase in pollutant loads carried into sewers or surface waters.

Urban run-off should be considered as a resource. The management of urban run-off to mitigate its adverse impact on the water environment is the concept of "source control" which aims to identify local and more sustainable solutions for surface water management, without giving rise to detriment in groundwater quality.

#### Key Points:

- Wherever appropriate, surface water should be disposed of as near to the point of incidence as possible. Site owners and occupiers will have to assume a greater responsibility for surface water management.
- Clean and contaminated surface water should be kept separate.
- The use of "softer" engineering structures such as swales, detention ponds, infiltration basins and porous surfaces should be encouraged as alternatives to conventional drainage where appropriate and practical. Ideally these techniques should be considered in preference to conventional drainage systems providing there are no adverse impacts on groundwater resources.
- When planning a development, surface water management should be considered as a fundamental part of the design and operation of the project. The retention of water on site for low grade usage such as landscape management and vehicle washing can also reduce the demand on the potable supply system giving further environmental benefits.
- The active promotion of surface water run-off disposal to infiltration basins may have an additional benefit as a means of artificial recharge to aquifers. The potential quality problems for groundwater where very polluted run-off could be involved may limit this option to surface waters draining non-industrial locations, but in any case full assessments will be needed.
- Infiltration drainage should be considered for developments proposed in areas where the existing combined sewer capacity is a limiting factor.
- Source control should apply to roads as well as buildings.

### *Adoption*

If a source control system is to be incorporated into a road drainage system, for example by means of a soakaway system or reed bed, then such a system can become the responsibility of the highway authority. If the system is to be incorporated into an area of public open space, through a Section 106 agreement or a unilateral understanding with the developer, then the Local Authority can adopt it. It is currently the policy of the Statutory Sewerage Undertakers in England and Wales not to adopt infiltration systems. We are working with Local Authorities and sewerage undertakers to change attitudes to make adoption more acceptable.

## **4.5 Development and infrastructure**

New building works, changes in land use, development of communications and the construction of new roads, sewers and other services can have a major impact on an area and uses of the environment. The Agency has a responsibility to protect the environment and to achieve this aim it must work closely with Local Planning Authorities (LPAs).

The Agency is a statutory consultee under planning legislation and advises Local Authorities on development proposals that can have an impact of matters relevant to the Agency.

The Agency operates at all levels of the planning system. At the national level there is direct liaison with the DETR (Department of the Environment, Transport and the Regions) and Local Authority associations, seeking to influence Planning Policy Guidance Notes (PPG), Circulars and new legislation. At the regional level there is liaison with government offices and regional steering groups with the aim of influencing regional planning guidance. At the local level we are consulted on structure and local plans, mineral local plans and waste plans to ensure our interests are protected and that development proposals have positive (sustainable) impacts on the environment.

The Agency also seeks to pursue its aims and policies regarding development through the planning consultation process for individual proposals. Although the final decision on the planning matters rests with the LPA, government guidelines advise on the need to consider the Agency's concerns when determining proposals.

The Regional Planning Guidance for the East Midlands and the one for Yorkshire and Humberside recognise the need to achieve sustainable development and aim to influence the policies of structure and local plans to achieve a coherent development strategy for the region.

The existing statutory local plans and those currently in preparation are shown in Table 5.

**Table 5 – The status of Development Plans within the plan area**

Local Planning Authority	Development Plan Title	Status and Consultation Date
Nottinghamshire County Council	Nottinghamshire Structure Plan	Adopted Nov '96
	Nottinghamshire Minerals Local Plan	Adopted Nov '97
Ashfield District Council	Ashfield Local Plan Review	Deposit Draft April '99
Bassetlaw District Council	Bassetlaw Local Plan	Deposit draft '95 Inspectors Report May '99



Local Planning Authority	Development Plan Title	Status and Consultation Date
Bolsover District Council	Bolsover Local Plan	Deposit Draft '97 Response to inspectors report
Derbyshire County Council	Derby & Derbyshire structure Plan	Deposit Draft April '98
Nottinghamshire County Council	Nottinghamshire Structure Plan (Review)	Adopted Nov '96
	Nottinghamshire Minerals Local Plan	Adopted Nov '97
Ashfield District Council	Ashfield Local Plan Review	Deposit Draft April '99
Bassetlaw District Council	Bassetlaw Local Plan	Deposit Draft April '95 Inspectors Report May '99
Gedling Borough Council	Gedling Borough Local Plan (First Review)	Consultation Draft June '98
Mansfield District Council	Mansfield Local Plan	Adopted Nov '98
Newark and Sherwood District Council	Newark and Sherwood Local Plan	Adopted Feb '99
Derbyshire County Council	Derby & Derbyshire Joint Structure Plan	Deposit Draft April '98
	Derbyshire Minerals Local Plan	Deposit Draft Feb '96 Inspectors Report Dec '97
Bolsover District Council	Bolsover Local Plan	Deposit Draft Dec '97 Response to Inspectors Report & proposed modifications July '99
North Lincolnshire Council	Current District wide Local Plans of former Humberside Districts will be forwarded to adoption	
Doncaster Metropolitan Borough Council	Doncaster Unitary Development Plan	Adopted July '98
Rotherham Metropolitan Borough Council	Rotherham Unitary Development Plan	Adopted June '99

**Notes** The stages in the preparation of local plans prior to their adoption is as follows: Consultees and members of the public may initially comment on a consultation draft of the local plan. A deposit draft is then available for a statutory six-week period, after which all representations are considered. A public inquiry is then held at which objections to the plan are considered at which objectors can be represented in person and evidence cross-examined. An inspector considers all objections raised and produces a report on recommended changes to the plan. The planning authority may then accept the recommendations and adopt the plan or propose modifications, in which case there is a further period of public consultation. This process may be repeated with further modifications and a second public inquiry in exceptional circumstances. Once it is satisfied that all objections have been accommodated, as far as possible, the planning authority will give notice of its intention to adopt the plan.



**Abstraction** The removal of water from any source, either permanently or temporarily.

**Abstraction Licence** Licence issued by the Environment Agency under s.38 of the Water Resources Act 1991 to permit removal of water from a source of supply.

**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.

**Aquatic** Pertaining to the water environment.

**Aquifer** A water bearing-stratum situated below ground level. The water contained in aquifers is known as groundwater.

**Asset Management Plan (AMP)** Water Companies' Strategic Business Plans - initiated by OFWAT as part of the periodic review of water company charges. Sets out investment priorities for water resources, sewerage improvement and sewage treatment. We are now in the third review (AMP3) which will cover the period 2000 to 2005.

**BAP** Biodiversity Action Plan.

**Base flow** The flow of a river derived from groundwater sources.

**Biodiversity** Diversity of animal and plant life.

**Borehole** Well sunk into a water bearing rock.

**Catchment** The total area from which a single river system collects surface run-off.

**Coarse fish** Freshwater fish other than salmon and trout.

**Cyprinid fish** Coarse fish belonging to the carp family, eg. Roach, Dace and Bream.

**EC Directive** A type of legislation issued by the European Commission of the European Union which is binding on Member States in terms of the results to be achieved but which leaves to Member States the choice of methods.

**Effluent** Liquid waste from industry, agriculture or sewage treatment plants.

**Eutrophication** Excess growth of aquatic vegetation due to increased nutrients being introduced to the watercourse.

**Fauna/Flora** Animal life/ Plant life.

**Floodplain** This includes all land adjacent to a watercourse over which water flows or would flow but for flood defences in times of flood.

**Groundwater** Water which saturates a porous soil or rock substratum (or aquifer). Water held in storage below ground level.

**Groundwater units** Administrative sub-divisions of aquifers, defined on geological and hydrological criteria, which form the basis for groundwater resource management and licensing policy decisions.



**Heavy Metals** A loose term covering potentially toxic metals used in industrial processes, common ones include chromium, copper, lead, zinc and cadmium.

**Herbicide** Any agent, either organic or inorganic, used to kill vegetation.

**Integrated Pollution Control (IPC)** An approach to pollution control in the UK which takes account of potential effects upon all environmental media. Applies to processes authorised under Part A of the Environmental Protection Act 1990.

**Integrated Pollution Prevention and Control (IPPC)** Aims to prevent or reduce emissions to air, water and land including measures concerning waste. Protection of the environment as a whole.

**Invertebrate fauna** Animals which lack a vertebral column - used for biological classification.

**Landfill** Site used for waste disposal into/onto land.

**Leachate** Liquor formed by the act of leaching.

**LNR** Local Nature Reserve.

**LPA** Local Planning Authority.

**MAFF** Ministry of Agriculture, Fisheries and Food.

**Main River** The watercourse shown on the statutory 'main river maps' held by the Environment Agency and MAFF. The Agency has permissive powers to carry out works of maintenance and improvement on these rivers.

**Nitrate Vulnerable Zone (NVZ)** An area where nitrate concentrations in water exceed, or are at risk of exceeding the limit of 50 mg/l laid down in the 1991 EC Nitrate Directive.

**Nitrogen dioxide (NO<sub>2</sub>), Nitric Oxide (NO), Oxides of Nitrogen (NO<sub>x</sub>)**

NO<sub>2</sub> and NO are both oxides of nitrogen (NO<sub>x</sub>) produced by traffic and industry. NO<sub>2</sub> can have an adverse effect on human health, increasing the symptoms associated with respiratory illness. NO<sub>2</sub> is a target pollutant in the UK National Air Quality Strategy.

**NNR** National Nature Reserve.

**Ordinary watercourse** A watercourse that does not form part of a Main River.

**Particulates** Small particles of matter released from a number of sources which can affect the respiratory and cardiovascular systems. A target pollutant in the UK National Air Quality Strategy. PM<sub>10</sub>-particles below 10µm.

**Renewable Energy** Energy produced from resources which are unlimited or rapidly replenished eg. wind, water, sunlight, wave power or waste.

**Riparian Landowner** Owner of land adjacent to the river.

**River Corridor** The continuous area of river, river banks and immediately adjacent land alongside a river and its tributaries.

**River Ecosystem (RE)** Classification used to measure water quality, see RQO definition below.

**River Quality Objectives (RQO)** Water quality targets to secure specific formal minimum quality standards for specific stretches of water by given dates. A component of these was introduced by "The Surface Waters (River Ecosystem Classification) Regulations 1994".

**SAC** Special Area for Conservation.

**SA(E)** Sensitive Area (Eutrophication).

**SAM** Scheduled Ancient Monument.

**Sewage** Liquid waste from cities, towns and villages which is normally collected and conveyed in sewers for treatment and/or discharge to the environment.

**Sewerage** Means of conveying foul or surface water.

**Sherwood Sandstone** A thick sequence of poorly cemented red-brown sandstones with interbedded marls and conglomerates deposited during the Triassic era, constituting one of the main aquifers in the British Isles.

**Site of Special Scientific Interest (SSSI)** A site given a statutory designation by English Nature or the Countryside Council for Wales because it is particularly important, on account of its nature conservation value.

**Sulphur Dioxide (SO<sub>2</sub>)** A gas which dissolves in water to give an acidic solution. It is an irritant when inhaled and may cause breathing difficulties. Emissions of SO<sub>2</sub> can lead to acid rain, affecting ecosystems and water quality. A target pollutant in the UK National Air Quality Strategy.

**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.

**Transfer Station** Waste disposal facility where waste is collected prior to transport to final disposal point.

**UWWTD** Urban Waste Water Treatment Directive.

**Water Table** Top surface of the saturated zone within the aquifer.

**Winter storage reservoir** Reservoirs built by farmers to store water during the winter months when it is "plentiful" for re-use during the summer.

**CMP ACTIONS TRANSFERRED TO THE LEAP**

<b>CMP No</b>	<b>Details</b>	<b>LEAP Issue</b>
1	Impact of abstraction from River Ryton for Chesterfield Canal	6
2	Lack of water resources to meet demand	10
3	Reduced groundwater levels in Sherwood Sandstones	Complete/day job
4	Hydraulic relationship between rivers and PWS boreholes	Subject of national project
5	Dewatering activities/mineral extraction	11
6	Water releases from highland to lowland drains	2
7	Loss of flow in River Idle between Mattersey and West Stockwith	Completed
8	Low flows in Rainworth Water	3
9	Elevated nitrates in groundwater	14
10	Impact of contaminated land on the environment	16
11	Impact of landspreading of industrial effluent to land	21
12	Need for appropriate RQOs	9
13	The need to prioritise sewerage improvements	9
14	The need for optimisation of compensation flow into River Ryton	5
15	Eutrophication in the catchment	15
16	Impact of discharge of minewater from coal mining	16
17	Impact of colliery closures	16
18	Inadequate foul/surface water disposal at small developments	9
19	Impact of land drainage/peat cutting on water quality	1
20	Groundwater quality at risk	14
21	Effects of mining subsidence on the water environment	16
22	There is currently no flood warning scheme	Completed
23	The extent of floodplains are not clearly defined	22
24	Reinstate features and processes of Rivers Idle & Torne	18
25	Potential conflict between interests in the pumped rivers	2
26	Control of alien/invasive species	17
27	Biodiversity Action Plans are required	17
28	Litter and rubbish problems in and near rivers	20
29	Lack of recreational facilities and public access	12
30	Protect and maintain genetic integrity of brown trout	17
31	Inappropriate EC designation to some fishery reaches	13
32	Perceived predation/need for control of piscivorous birds	National issue – not in LEAP
33	Impact of letting tidal Trent water into Warping Drain	2
34	Need to protect the archaeological resource of the area	Removed – day job
35	Limitation of flow capacity of River Torne etc	Removed – project was omitted from DMBC plans



Listed below is a selection of leaflets available from the Lower Trent area office of the Environment Agency. It is intended as a guide to the type of information available rather than as a complete list, as new leaflets are being produced. - It does not include policy documents or technical reports.

A better environment for England and Wales  
Agricultural Pesticides and Water  
Anglers and the Agency  
Blue-green Algae  
A Brief summary of the Agency's 1998-99 Corporate Plan  
Charging for Information  
Conservation Work in the Midlands Region  
Customer Charter  
Our complaint and commendation Procedure  
Defying the Disaster  
Don't Ignore it, Report it  
Enjoy your Garden  
Environment Digest  
Environmental Policy for the Agency's Own Activities  
An Environmental Strategy for the Millennium and Beyond  
Farm Waste Management Plans  
Farm Pollution and How to avoid it  
Fees & Charges – Waste Management Licensing  
Flood Defence Fact Sheet  
Flood Warning Information  
Get Sorted  
Green Shoots – Our vision for environmental education  
Guidance for the control of Invasive Plants  
A guide to information available to the Public  
A guide to Home Composting  
Have Fun, Have Care  
Home pollution and how to avoid it  
Hormone Disruption in Wildlife  
Identifying Freshwater Invertebrate Life  
A Guide for Potential Abstractors  
Integrated Pollution Control and You – Fact Sheet  
Is Muck Bass?  
Leicestershire waste Minimisation Initiative  
Looking after our Rivers  
Making the Right Connection – Avoiding Water Pollution  
Midlands Region – Lower Trent Area Fact Sheet and Map  
Mobile Sheep Dipping  
Money for Nothing – your Waste Tips for Free  
A New Waste Management Licensing System – What it means, How it affects you  
Oil Care – Follow the Oil Care Code  
Our Midlands Environment  
Partnership in Environment Protection  
Recreation Sites  
Riverbank erosion  
River Life – from Source to Sea  
Rod fishing Byelaws  
Safeguard the Environment – A Guide for Developers  
Severn Bore & Trent Aegir – Timetable  
Silage Pollution and how to avoid it  
Spray Irrigation  
Waste – Duty of Care  
Waste Regulation and You – Fact Sheet  
Water Alert  
Water Quality – Fact Sheet  
Water resources – fact Sheet  
What a Waste  
What did you throw out this week?

Please contact Sam Levey, Customer Contact Team Leader at the Lower Trent area office for further information and to obtain these and other leaflets (subject to stock availability).



**BUSINESS REPLY SERVICE**

**Licence No. BM 1270**



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LEAP PLANNER  
ENVIRONMENT AGENCY  
LOWER TRENT AREA  
TRENTSIDE OFFICES  
SCARRINGTON ROAD  
WEST BRIDGFORD  
NOTTINGHAM  
NG2 5FA

**TREESAVER**  
RECYCLED

## 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.

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD  
Tel: 01454 624 400 Fax: 01454 624 409

Internet World Wide Web [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

MI-11/99-1K-C-BEUK

### ENVIRONMENT AGENCY REGIONAL OFFICES

#### ANGLIAN

Kingfisher House  
Goldhay Way  
Orton Goldhay  
Peterborough PE2 5ZR  
Tel: 01733 371 811  
Fax: 01733 231 840

#### MIDLANDS

Sapphire East  
550 Streetsbrook Road  
Solihull B91 1QT  
Tel: 0121 711 2324  
Fax: 0121 711 5824

#### NORTH EAST

Rivers House  
21 Park Square South  
Leeds LS1 2QG  
Tel: 0113 244 0191  
Fax: 0113 246 1889

#### NORTH WEST

Richard Fairclough House  
Knutsford Road  
Warrington WA4 1HG  
Tel: 01925 653 999  
Fax: 01925 415 961

#### SOUTHERN

Guildbourne House  
Chatsworth Road  
Worthing  
West Sussex BN11 1LD  
Tel: 01903 832 000  
Fax: 01903 821 832

#### SOUTH WEST

Manley House  
Kestrel Way  
Exeter EX2 7LQ  
Tel: 01392 444 000  
Fax: 01392 444 238

#### THAMES

Kings Meadow House  
Kings Meadow Road  
Reading RG1 8DQ  
Tel: 0118 953 5000  
Fax: 0118 950 0388

#### WALES

Rivers House/Plas-yr-Afon  
St Mellons Business Park  
St Mellons  
Cardiff CF3 0LT  
Tel: 01222 770 088  
Fax: 01222 798 555



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.

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

#### ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

**0845 9333111**

#### ENVIRONMENT AGENCY EMERGENCY HOTLINE

**0800 80 70 60**



**ENVIRONMENT  
AGENCY**