

local environment agency plan

LOWER TRENT AND EREWASH CONSULTATION DRAFT FEBRUARY 1999



ENVIRONMENT
AGENCY

Area: 2045km²

Population: 800,000 (approx)

Major settlements **Population**

Beeston	21,440
Bingham	7,590
Bottesford	3,183
Castle Donington	6,000
Cotgrave	7,520
Derby *	57,165
Eastwood	11,825
Gainsborough	20,000
Hucknall	29,535
Ilkeston	12,680
Keyworth	7,465
Long Eaton	5,580
Newark-on-Trent	24,775
Nottingham	284,000
Radcliffe-on-Trent	7,510
Ruddington	6,425
Sandiacre	8,390
Scunthorpe	62,400
Southwell	6,610
Stapleford	17,265
West Bridgford	36,185

* Part of district lies outside of boundary

Water Resources

Average annual rainfall	612mm
Total licensed abstraction	- 8 016 MI/d
	- 1 406 361 MI/a
Number of surface abstractions	407
Number of groundwater abstractions	423
Number of licensed impoundment's	27

Conservation

Sites of Special Scientific Interest	65
Scheduled Ancient Monument	144
Sites of Importance to Nature Conservation	1084
Regionally Important Geological Sites	60
Special Protection Areas	1

Fisheries

Length of designated rivers (km)

Cyprinid (coarse fish) - river	194.6
Cyprinid - canal	18.0

Flood Defence

Length of "Main" river (km)	393.3
Length of defended river (km)	240
Number of urban flood alleviation schemes	13

Monitored Water Quality

Length of river in GQA Grade (km) 1998

Quality	Grade	Length (km)
Good	A	24.1
	B	220.6
Fair	C	368.3
	D	111.1
Poor	E	108.3
Bad	F	5.1

Consented discharges:

Private sewage treatment plants	54
Major Industrial discharges	10

Waste Management

Landfill sites	33
Transfer Stations	38
Licensed scrap yards	37
Civic Amenity Sites	17
Incinerators	2
Sewage Treatment Works	77

Integrated Pollution Control (IPC)

IPC Authorised Processes	47
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Radioactive substances (RAS)

Sites with Authorisations for accumulation and disposal of radioactive waste	23
Sites with Registrations to hold radioactive materials	104

What is this report about?

This report highlights the specific environmental problems in the Lower Trent and Erewash area, which are within the Environment Agency's remit or that can be addressed through partnerships. The Agency has identified the problems and made suggestions on how they can be tackled. The plan area is shown in Map 1.

Why should I read it?

The Agency wants to hear your views on the issues facing the environment of the area and what you think should be done about them. Sharing your views with us will enable you to contribute to environmental protection and improvement and influence what the Agency and others do. We will be pleased to receive any comments that you wish to make but in particular we are very 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?
- ☐ whether you can help to tackle any of the issues.

What will the Agency do with my comments?

The Agency will consider your comments prior to the production of the Local Environment Agency Plan (LEAP), 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 are influencing our actions, and if appropriate, the actions of others. All comments will be treated as public information unless you ask us otherwise.



ENVIRONMENT AGENCY

The consultation draft will not be written as part of the LEAP process. However, any errors or omissions will be acknowledged in a statement or the public consultation response, to be published after the consultation period which ends on 31 May 1999.

If you want more copies of this document for areas that you think would be interested, we will be pleased to send them free of charge.

NATIONAL LIBRARY &
INFORMATION SERVICE

The Agency hopes that the Lower Trent and Erewash Local Authorities, developers and other plan area will be influencing the policies and actions of the day management of the

HEAD OFFICE
Rio House, Waterside Drive,
Aztec West, Almondsbury,
Bristol BS32 4UD

How can I make my views known?

We will be holding launch events during the consultation period (Feb-May 1999) that will provide an opportunity for you to discuss this plan with us. You can contact us by:









- ☐ Using the questionnaire and freepost envelope included at the back of this report;
- ☐ Writing to us and using the freepost envelope;
- ☐ Telephoning us on 0115 945 5722;
- ☐ Faxing us on 0115 981 7743;
- ☐ Or you can e-mail us at james.freeborough@environment-agency.gov.uk

Please address your comments to:

James Freeborough
LEAPs Officer
Environment Agency
Trentside
Scarrington Road
West Bridgford
Nottingham NG2 5FA

Please return your comments to us by 31 May 1999

KEY

-  LEAP Area boundary
-  Watercourse
-  Canal (working)
-  Canal (disused)
-  Built up area
-  Motorway
-  A Road
-  Railway



- Issue 20** Recreational potential of rivers in the plan area are not fully exploited
- Issue 21** Inappropriate River Quality Objectives
- Issue 22** Loss of building land due to historic contamination
- Issue 23** Derelict Land
- Issue 24** Potential damage of the archaeological resources of the River Trent corridor
- Issue 25** The disposal of potentially contaminated land at unlicensed sites
- Issue 26** Adverse impact of litter and illegal waste disposal activity on land and in watercourses
- Issue 27** Illegal disposal of controlled waste by burning
- Issue 28** Public perception of the use of Substitute Fuels
- Issue 29** Eutrophication of the River Erewash

7 What best describes your interest in this LEAP?

- ☐ 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 LEAP? 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).

10 If you would like a reply, please write your name and address below. Your address will not be given to anyone else, although 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.

James Freeborough
LEAPs Officer
Environment Agency
Trentside
Scarrington Road
West Bridgford
Nottingham NG2 5FA

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Fax: (0115) 981 7743
E-Mail: james.freeborough@environment-agency.gov.uk

Questionnaire - Your views count

The aims of the Lower Trent & Erewash LEAP Consultation Draft 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 filling in 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 question (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 Our vision for the area is: -

'Everyone working together to create a sustainable environment that improves the quality of peoples lives.'

Do you agree with this? Y/N
If you disagree, please state why.

5 The principle aim of the Environment Agency is to "contribute to sustainable development".

Having read this document do you now have a better understanding of "sustainable development"? Y/N

6 We have identified issues and proposed options in Chapter 3 of this document. Please circle and mark the five issues of most importance to you, ranking them in order.
(1=Most important, 5=Least important)

Issue 1 Greenhouse gas emissions from a landfill site in Gainsborough

Issue 2 The effects of power stations on local air quality

Issue 3 Impact of rising groundwater levels in the city of Nottingham

Issue 4 Impact of hydropower development on the environment

Issue 5 Potential environmental damage through over-abstraction in the plan area

Issue 6 Low flows in the Dover Beck

Issue 7 Biodiversity of local fauna

Issue 8 Biodiversity of local habitats

Issue 9 Impact of acidic fun-off on water quality in the Humber headlands

Issue 10 Heron chick deformities at Besthorpe heronry

Issue 11 Fish populations in the plan area not meeting their full potential

Issue 12 Potential effects of climate change on flood defences

Issue 13 Periodic high ammonia levels in the lower reaches of the River Trent

Issue 14 The effects on water quality and quantity of colliery closures

Issue 15 Poor biological quality in stretches of the River Eau

Issue 16 Water pollution due to inadequate sewerage systems and cross connections

Issue 17 Poor water quality in the Bottesford Beck

Issue 18 The effects of tidal movements in the River Trent on water quality

Issue 19 Flood defence strategy to reflect changing land use

More issues and questions overleaf

Our Draft Vision for the Lower Trent and Erewash

The Environment Agency's overall aim is for "*a better environment in England and Wales for present and future generations*". We will achieve this aim by taking a sustainable and wide-ranging approach to the way we protect and enhance the environment.

A sustainable environment is one where there is a balance between economic, social and environmental factors.

Our Vision for the Lower Trent and Erewash area is:

Everyone working together to create a sustainable environment that improves the quality of people's lives.

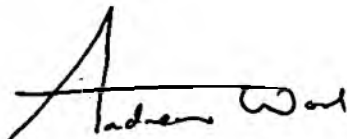
Our Key Environmental Objectives for the Area include:

- Improving and maintaining water quality, particularly where water quality targets are not currently being met such as along stretches of the River Eau and the Bottesford Beck.
- Improving recreational facilities along the river corridors. This will include the promotion of the Trent Valley Way and the provision of additional moorings for boat users.
- Assessing applications for the use of Substitute Fuels to ensure that the environment is protected and the interests of the public are addressed.
- Maintaining and where necessary improving flood protection.
- Ensuring that the adverse impacts of contaminated land including landfill sites are minimised so the environment, as a whole, is protected from pollution. For example, the installation of an active gas venting system at the Lea Road Waste Site in Gainsborough.
- Realising the opportunities to improve the conservation value of the area, particularly focussing on river corridors and flood plains.

We will only achieve this by:

- Developing partnerships and securing the involvement of industry, local authorities, environmental groups, educational establishment and others with an interest in the environment.
- Protecting and managing the natural resources of the area in a sustainable manner.
- Regulating the activities of those who have a potential impact on the environment by setting and enforcing consistent standards.

The successful management of the area requires us to respond effectively to ever increasing pressures exerted on the environment of the Lower Trent and Erewash and to target resources where they are most needed. By working together, we can make this vision become a reality.



ANDREW WOOD

Area Manager – Lower Trent, Midlands Region.

We would welcome comments on this draft vision statement - please

ENVIRONMENT AGENCY



032508

**The Lower Trent and Erewash
Local Environment Agency Plan
CONSULTATION DRAFT**

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Acknowledgements

This report has been compiled by the Agency with contributions from key organisations operating in the area.

The following Agency staff are members of the Project Group or Project Board responsible for the development of this report. Other members of staff have also contributed through the Project Group.

John Adams	Area Flood Defence & Water Resources Manager
Keith Easton	Fisheries Scientist
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Alison Hepworth	LEAPs Planner
Valerie Holt	Conservation and Recreation Officer
David Hoskins	Flood Defence Team Leader
Karen Miller	Area Fisheries, Ecology & Recreation Manager
Clive Smalley	Environmental Strategy Officer
Andrew Taylor	Planning Liaison Team Leader
Trevor White	Water Resources Officer
Craig Woodburn	Tactical Planning Officer

This is the third plan to involve the Lower Trent Area Environment Group (AEG), our local consultative panel for all aspects of Agency activity. The Agency wishes to express its thanks to the AEG, in particular the Lower Trent & Erewash Sub-Group for their comments and advice regarding the production of this report. The members of the Sub-Group and the organisations they represent are:

Richard Brown	Self
Chris Emmas-Williams	Amber Valley Borough Council
Robert Hammond	Regional Flood Defence Committee
David Hunter	Self
Nigel Lee	Friends of the Earth
Gren Messham	Severn Trent Water Ltd
David Stevenson	Inland Waterways Association
Mike Welch	AEG Chairman

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 Lower Trent and Erewash 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 - The Environment Agency's Lower Trent Area office at Trentside, Nottingham

(Photo kindly provided by Maber Associates, Nottingham)

The 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 in order to help achieve the objective of sustainable development. The Brundtland Commission defined sustainable development as *"development that meets the needs of the present without compromising the ability of future generations to meet their own needs"*. At the heart of sustainable development is the integration of human needs and the environment within which we live. Indeed the creation of the Agency itself was in part a recognition of the need to take a more integrated and longer-term view of environmental management at a national level. The Agency therefore has to reflect this in the way it works and in the decisions it makes.

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

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

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

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

Perhaps the major international issue is that of climate change. The UK is a contributor to the emission of gases (such as carbon dioxide) into the atmosphere, which are believed to contribute to long-term climate changes. The UK will also be affected in a complex way as and when the climate does change. It is therefore a signatory to the Framework Convention on Climate Change, as agreed at the Rio Summit in 1992, and 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, in order to solve global environmental problems, local action is crucial: we must all therefore think globally but act locally. The Local Agenda 21 initiative 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 government and local communities to identify and address a wide range of environmental issues including natural resource use, pollution, health, local amenity and quality of life. These programmes set out long-term solutions that take account of global implications, such as the use of resources that affect the global environment and thus local communities in other parts of the world.

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

The principle 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.

Table 1 - Environmental concerns: who is responsible?

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

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

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 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, the delivery of local services and act 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 detailed on page (vii).

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 the 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 Consultation Draft

This document, the Consultation Draft, 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 with a range of organisations and groups in June/July 1998. Those consulted and who responded are listed in Appendix 2.

Through consultation a shared vision will be developed, along with a strategy for action. This will guide Agency activities for the next five years and influence the activities of other groups. Public participation is important as it increases environmental awareness and encourages greater involvement and ownership of the local environment.

The LEAP 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 fresh consultation at the end of five years.

The Lower Trent and Erewash 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 all, 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

Catchment	Start	Consultation Starts	Issue Plan	1st Annual Review
Soar	October 1995	April 1997	June 1998	July 1999
Derbyshire Derwent	April 1997	February 1998	December 1998	January 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 (24 May 1999), 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.

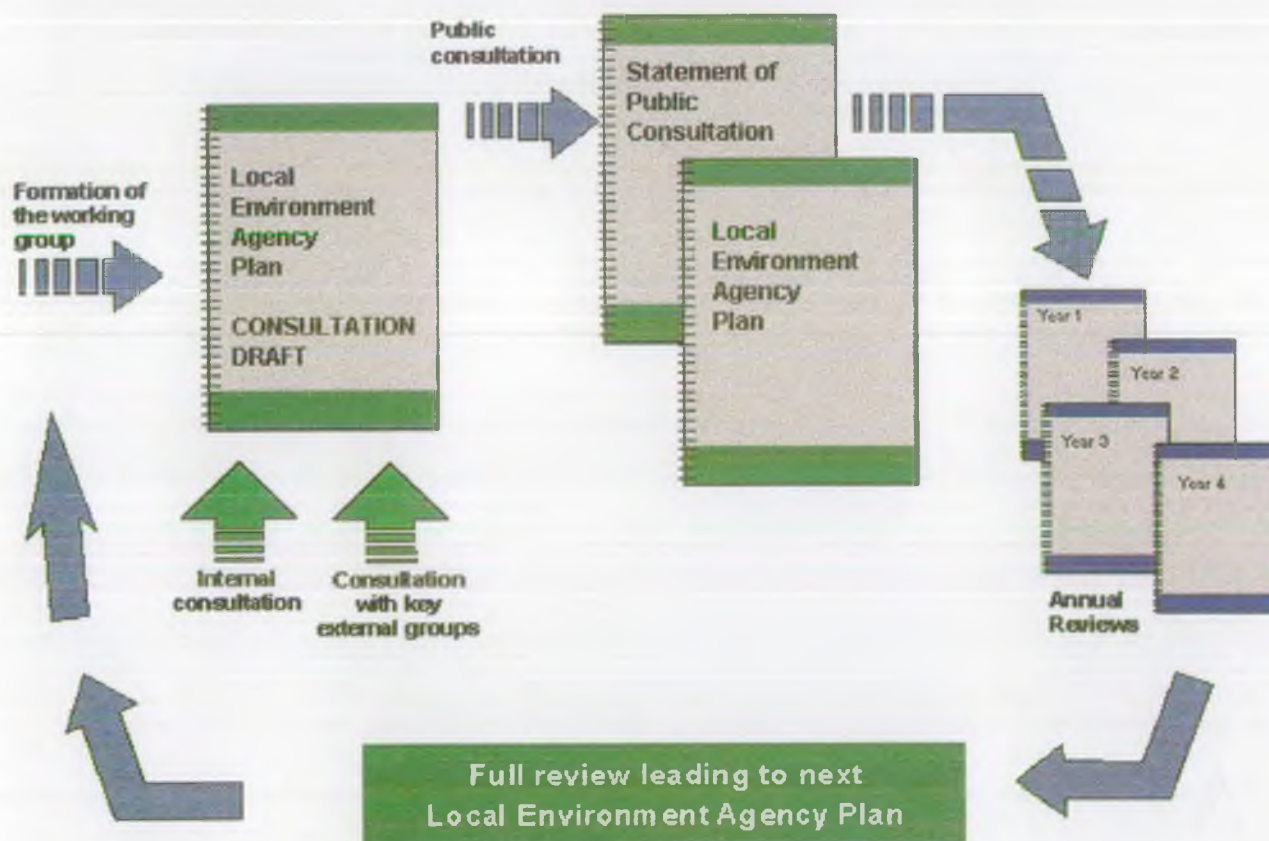


Figure 1 - The LEAP process and the main outputs in the five-year cycle

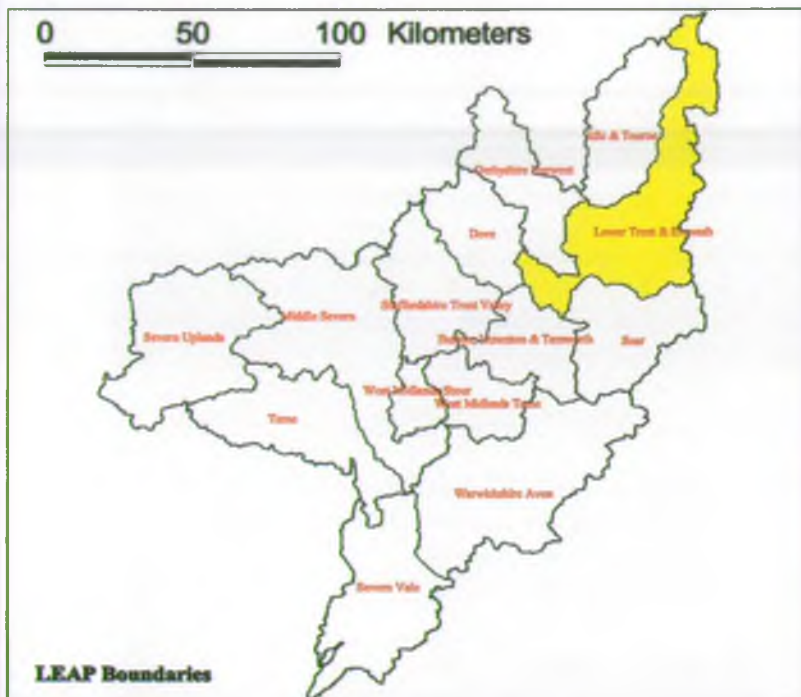
**Lower Trent & Erewash
Local Environment Agency Plan
Map 2: LEAP Location**



**ENVIRONMENT
AGENCY**

EA Copyright

Creator: NCEDS



5 0 5 10 15 20 Kilometers

LEAP Boundary

- 10k Grid
- Urban Areas
- Lower Trent & Erewash Boundary

Grid References:
SE 400000 400000
SK 400000 300000



Introduction

The 2,045 square kilometres of the Lower Trent and Erewash covers part of the county of Nottinghamshire, as well as parts of Derbyshire, Leicestershire, Lincolnshire and Yorkshire. Major settlements in the plan area include Nottingham, Newark-on-Trent, Scunthorpe as well as the southern part of Derby. The population of the plan area is approximately 800 000.

The Lower Trent and Erewash area has a wide variety of land uses, from heavy industry to intensive agriculture. There are 47 major industrial processes in the plan area including the large steelworks at Scunthorpe and a number of coal-fired power stations in the Trent Valley. Agriculture is the dominant land use (Map 3) especially east of Nottingham running north towards the Humber Estuary, with the dominant type of agriculture being cereal production.

In terms of transport links, the M1 motorway runs through the plan area to the west of Nottingham and the M180 lies to the south of Scunthorpe. There are also major A-Roads that provide links throughout the area including the A46 to Newark, the A52 to Grantham, along with the A1 which cuts through the plan area to the north of Newark. Nottingham is the central rail link with main line connections to London, Birmingham and the North. The River Trent is a major navigation from Shardlow to the Humber and is used extensively by boaters and commercial barges.

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 but now only employs around 3,000 people in Nottinghamshire. Major changes have affected many manufacturing industries with large declines in employment in textiles and engineering. However, these declines have in part been counterbalanced by increases in service employment assisted by the development of Nottingham as a regional business capital. New technology has also impacted on employment in the area with significant changes in banking and financial services (*The Condition of Nottinghamshire 1998, Nottinghamshire County Council*). Companies such as Boots and Knoll Pharmaceuticals are major employers in Nottingham and the plan area contains two Universities, Nottingham and Nottingham Trent.

2.1 Land

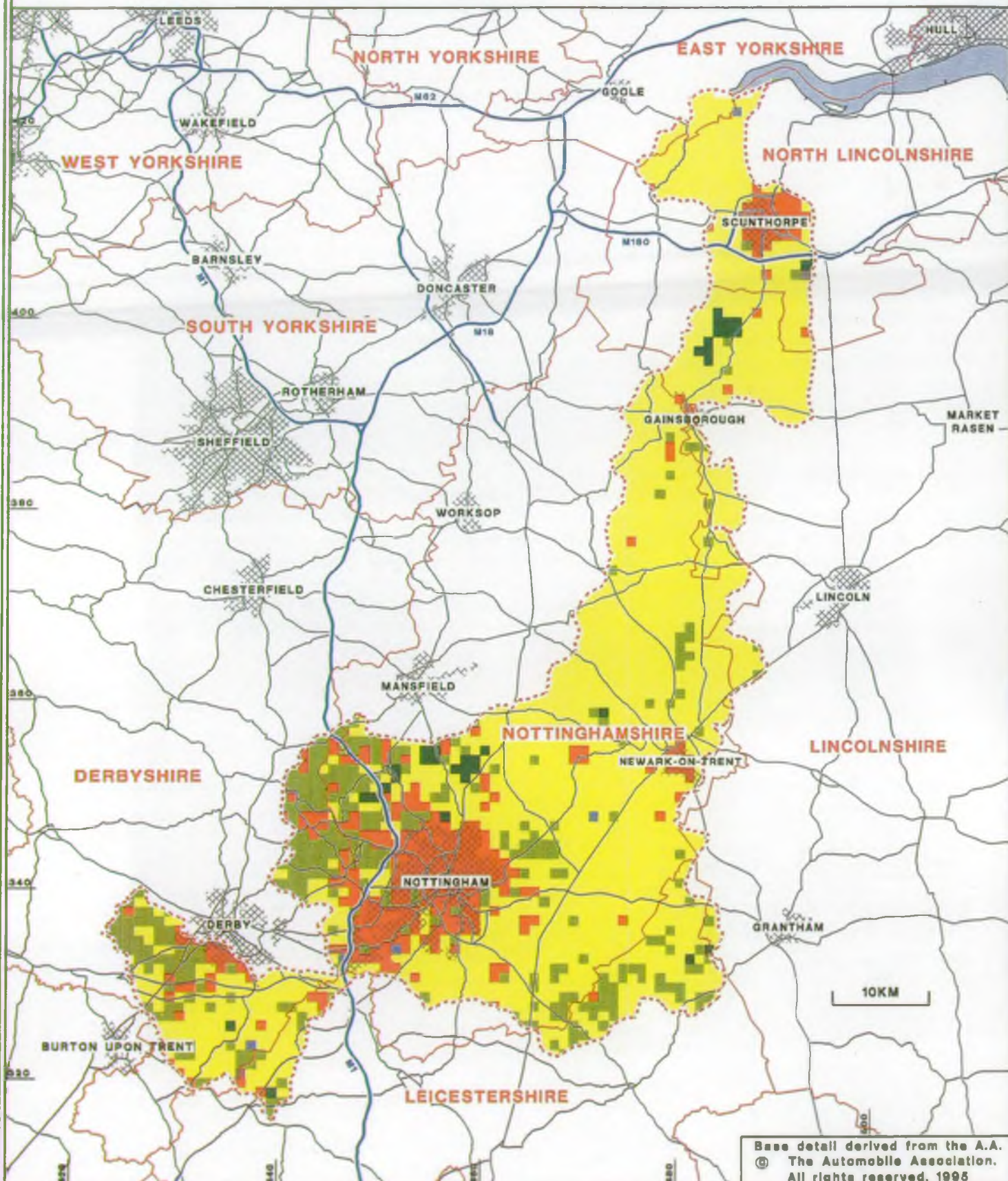
Local Administration

Local administration is shared between four County Councils, fifteen District and Borough Councils and four Unitary Authorities. These are listed in Table 3 below and shown on Map 6.

Table 3 - Local administration in the plan area

County Councils	Unitary Authorities	District/Borough Councils
Nottinghamshire	Derby City	Amber Valley BC
Derbyshire	Nottingham City	Ashfield DC
Leicestershire	North Lincolnshire	Bassetlaw DC
Lincolnshire	East Riding of Yorkshire	Bolsover DC
		Broxtowe BC
		Erewash BC
		Gedling BC
		Melton BC
		Newark & Sherwood DC
		North Kesteven DC
		North West Leicestershire DC
		Rushcliffe BC
		South Derbyshire DC
		South Kesteven DC
		West Lindsey DC

DOMINANT LAND COVER BY 1 KILOMETRE SQUARE LOWER TRENT AND EREWASH LEAP



LAND COVER

	Arable		Urban\Bare Ground
	Grassland		Woodland
	Moorland\Heath		Open Water

(Data Source: ITE Land Cover)

Base detail derived from the A.A.
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Resource Planning Team,
Farming and Rural
Conservation Agency - Leeds.
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FRCA

Landscape

The River Trent catchment is a landscape that has been shaped over many hundreds of years by the cumulative effects of human occupation and industry. The narrow undulating upper stretches of the river in Derbyshire feature small scale arable and pasture fields and woodlands with some small-scale settlement. Through the city of Nottingham the river takes on the harder urban character of adjacent housing, industry and transport networks, softening where it meets parks and open spaces. As the river widens and flows towards Newark the land begins to flatten out and is interspersed with mineral extraction operations, warehousing and large-scale industries such as British Sugar. Occasionally as at Gunthorpe, the river is temporarily constrained through a steep sided wooded valley.

Gradually as the Trent winds its way north, the landscape becomes very flat and the views expansive as the typical enclosure features of trees and hedges are lost to large scale arable operations although a few commercial woodland blocks are present. Ditches and dykes form invisible boundaries and reduce free access across the land. Major road and rail bridges cross the river but at infrequent intervals and these together with the cooling towers of the power stations provide the main vertical elements in the landscape. As the river widens and reaches the Humber it passes through the open landscape formed from the areas of wastes, moors and heaths where land merges seamlessly with the sky on the distant horizon.

The River Erewash flows through a mixture of open rural and dense urban areas, comprising of towns such as Long Eaton and Ilkeston. The canal and railway network combine with the river corridor to create a greenway within urban surroundings. Near Ilkeston this is a wide area within the floodplain and the landscape is flat with few trees or hedgerows. At Stapleford and Langley Mill the river corridor is confined through industrial areas and housing. There are some natural looking sections, which support a varied ecology.

The Countryside Commission has adopted the Countryside Character initiative, which has identified 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. There are several character areas in the plan area including Trent Valley and Rises, Trent Valley Washlands and Sherwood. 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.

Geology

The geology of the area is shown in Map 4. Carboniferous Coal Measures, a series of discontinuous water-bearing sandstone horizons subdivided by impermeable shales, mudstones and coal seams along with the Permian Marls and the Lower Magnesian Limestone outcrop to the northwest of Nottingham. The Permo-Triassic Sherwood Sandstone outcrops under the western part of Nottingham and also to the north of the city, while the younger strata of the Triassic Mercia Mudstone and Lower Jurassic Shales and Limestones outcrop to the east of Nottingham and north towards Scunthorpe. The City of Derby and the area to the south of the city are underlain by the Triassic Mercia Mudstone. The strata dip towards the east at a shallow angle (less than 20 degrees).

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, and the River Trent in particular, are a more dominant feature.

Hydrogeology

Both the Lower Magnesian Limestone and the Sherwood Sandstone sequences are classified as major aquifers. The Sherwood Sandstone aquifer is capable of supporting large abstractions for both private and public water supplies due to its high permeability. In and around the City of Nottingham, groundwater levels within the sandstone are rising as a result of decreased abstraction by both industry and Severn Trent Water. However, immediately to the north, groundwater levels are still dropping due to over-abstraction.

The Lower Magnesian Limestone, however, is a much poorer aquifer and only occasionally supports large abstractions. This is because groundwater is held within fissures and voids thereby reducing its accessibility by

**Lower Trent and Erewash
Local Environment Agency Plan
Map 4**



**ENVIRONMENT
AGENCY**

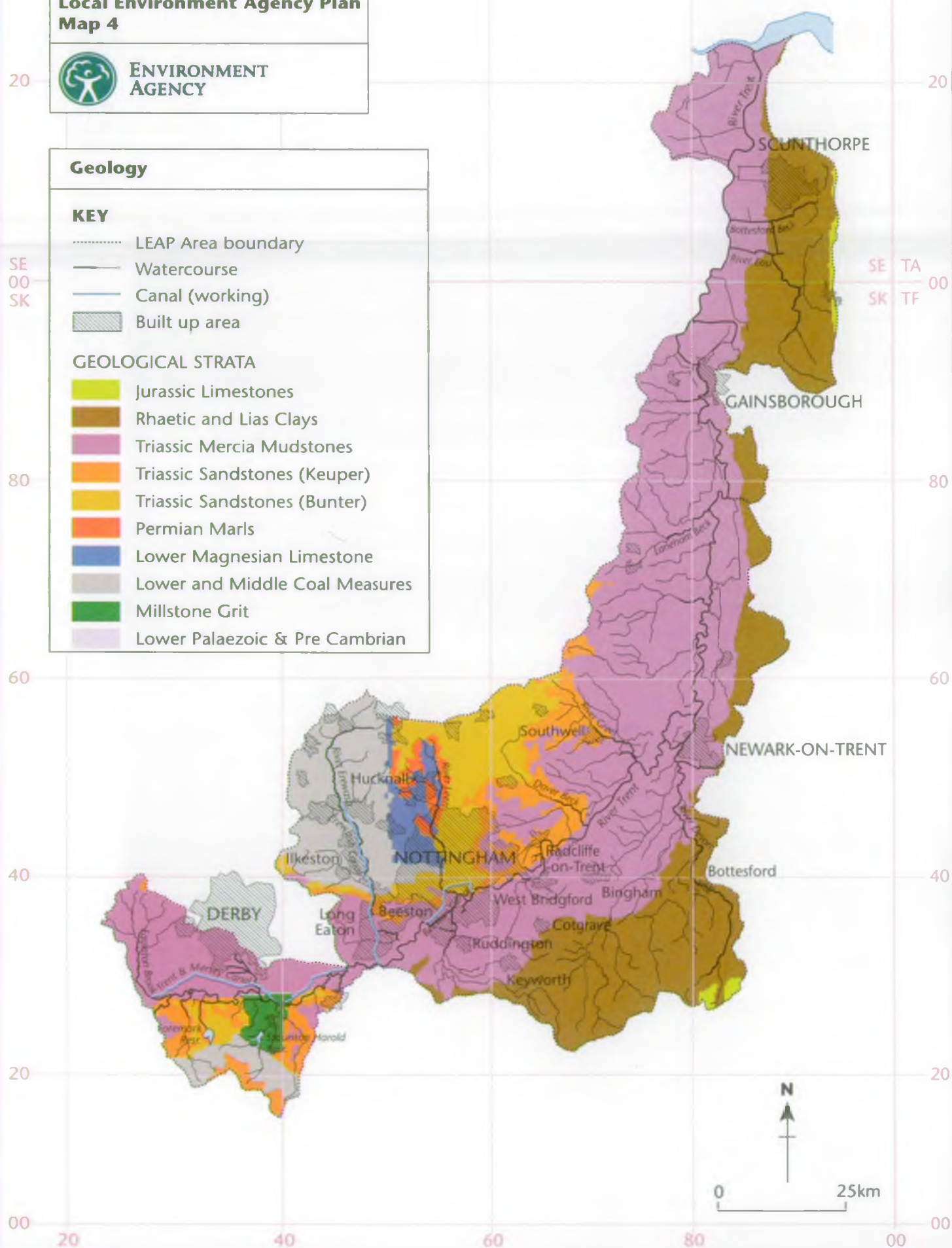
Geology

KEY

- LEAP Area boundary
- Watercourse
- Canal (working)
- ▨ Built up area

GEOLOGICAL STRATA

- Jurassic Limestones
- Rhaetic and Lias Clays
- Triassic Mercia Mudstones
- Triassic Sandstones (Keuper)
- Triassic Sandstones (Bunter)
- Permian Marls
- Lower Magnesian Limestone
- Lower and Middle Coal Measures
- Millstone Grit
- Lower Palaeozoic & Pre Cambrian



abstraction. Although abstractions directly from the limestone are limited, the aquifer can supply substantial baseflow for local watercourses.

The Coal Measures are classified as a minor aquifer, occasionally providing locally important groundwater sources for agriculture and industry. The Mercia Mudstone is classified as a non-aquifer, although small groundwater yields are obtainable where sandier layers called skerry bands are encountered within the marl sequence. Sand and gravel drift deposits form localised minor aquifers, and can support many small abstractions for agricultural and industrial purposes.

Natural Radiation

We are all exposed to 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 Bq m^{-3} . This is very low and well below the "Action Level" dose of 200 Bq m^{-3} recommended in the National Radiological Protection Board's Control Strategy in 1990.

Waste Disposal/Treatment

In Nottinghamshire (the dominant county in the plan area) an Agency study determined that just less than 3 million tonnes of waste was landfilled in the county during 1995/96. The majority of wastes landfilled were either pulverised fuel ash and furnace bottom ash (41%), construction/demolition waste (31%) or household wastes (13%). Approximately 97% of the landfilled waste in Nottinghamshire originated from within the county.

Just over 3.5 million tonnes of waste was landfilled in Derbyshire, Leicestershire and Lincolnshire in 1995/96. Obviously this figure will be reduced significantly for the plan area as only small parts of these counties are within its borders. The majority of wastes landfilled were either construction/demolition waste, household waste or other industrial/commercial wastes.

Waste in the plan area can also be incinerated at the only major incinerator for household waste in the East Midlands sited at Eastcroft, Nottingham (Photograph 2). It is estimated that the Eastcroft Incinerator has saved over 2.1 million cubic metres of landfill voidspace since it became operational in 1973, and it will save a further 2 million cubic metres over the following 20 years at current input rates (150,000 tonnes/year). Heat from the incinerator is recovered for electricity generation at the nearby London Road Heat Station and to support a district-heating scheme in Nottingham City centre.

Clinical waste is disposed either outside the plan area or 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. This incinerator began full operation in November 1998 and treats clinical waste from a large proportion of the East Midlands.

2.2 Air

Air Quality

The Agency contributes to the control of air quality mainly through regulation of emissions to air from major (Part A) industrial processes. Air quality may be significantly influenced by other sources not controlled by the Agency, such as traffic, smaller industries and domestic sources. The main responsibility for delivery of the Government's National Air Quality Strategy (published in March 1997) 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_{10} 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.

In the plan area the Nottinghamshire local authorities, via the Nottinghamshire Pollution Working Group, have commissioned consultants to produce a countrywide emissions inventory and an assessment of air quality against the objectives laid down in the Regulations. Data collection has been carried out but the final report was not available before this Consultation Draft went to print. However, early indications suggest that they may be problems with high levels of Nitrogen dioxide; PM₁₀ and Sulphur dioxide, along with increased Ozone levels in the Nottinghamshire area.

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



Photograph 2 – Eastcroft Municipal Waste Incinerator, Nottingham

(Photo kindly provided by Yorkshire Environmental Solutions Ltd)

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 source of the River Trent is at Biddulph Moor in North Staffordshire and the river runs for approximately 170 miles before entering the Humber Estuary. The quality is therefore significantly influenced by discharges upstream of the plan area. The Trent is classified as fairly good quality and is considered of sufficient quality to be utilised for drinking water supply. There are two abstractions for this purpose, one at Shardlow by Severn Trent Water and the another by Anglian Water Services at Torksey. Recent improvements are also reflected in the reintroduction of salmon into the Trent catchment in early October 1998, which will ultimately lead to a greater requirement for compliance with water quality targets in order to maintain a sustainable population. Due to the availability of coal the River Trent had a proliferation of coal fired power stations which utilised the river water in cooling processes. The utilisation of the river for this purpose resulted in generally higher than normal river water temperatures. The higher water temperatures lead to the fish within the river remaining active throughout the year even during cold winter periods. The result was that the river was renowned as an excellent winter fishery with anglers travelling great distances to fish on the River Trent. In recent years there has been a move away from coal fired power stations resulting in the closure of a number of them.

A major tributary of the River Trent within the plan area is the River Erewash. Historically the quality of the river has been poor because of poor quality sewage effluent and premature storm overflow operation discharging into it. Under dry weather conditions 75% of the river is treated sewage effluent and therefore poor quality effluent will have a great impact upon the river. Recent investment by Severn Trent Water Ltd (STW) will result in the improved quality of the treated effluent and ensure the river complies with its required quality objectives in the future. Large areas of the Erewash catchment have been utilised for coal extraction via both opencast and deep mining techniques. Many of the deep mines have now closed leading to the potential for minewater rebound and deterioration in water quality. The River Erewash has also been affected by the impact of coloured discharges from Sewage Treatment Works, which receive trade effluent from the textile dyeing industry. Negotiations with STW and industry coupled with the imposition of colour conditions in the discharge consents for affected discharges have led to a reduction in this problem. Water quality is an important issue on the River Erewash because of the potential impact upon Attenborough Gravel Pits (SSSI) situated at its lower extremity.

The River Erewash has been designated a sensitive area under the Urban Wastewater Treatment Directive, to comply with this at least two sewage treatment works will require phosphate removal. The phosphate is a nutrient contributing to excessive plant growth within the river.

Further down the River Trent catchment is the significant input from Stoke Bardolph Sewage Treatment Works which treats sewage for the Nottingham area and is STW's second largest sewage treatment works. The tightening of the Consent in the 1990s with imposition of an ammonia limit has ensured the river's EC freshwater fisheries designation of the River Trent is not threatened by the discharge.

Many other tributaries cover rural areas for example the River Devon catchment, a good quality tributary. There is also the River Eau and Bottesford Beck, which are greatly influenced by the discharges into it. The River Leen is also a good quality tributary although most of its route is through Nottingham City and therefore suffers from pollution incidents related to its urban nature.

All these facts demonstrate the significant quality improvements that have taken place in the River Trent and its tributaries within recent years and outline some of the large number of uses, which are now made of the river.

Groundwater Quality

Away from urban or industrialised areas, groundwater in the Sherwood Sandstone aquifer is of generally good quality, being the typical calcium bicarbonate type, although dissolved nitrate levels are high in the outcrop area to the north of Nottingham. The groundwater becomes more mineralised beneath the confining Mercia Mudstone to the east. The sandstones are highly transmissive with respect to contaminants and are consequently highly vulnerable to pollution at the surface. As a result, in and around the City of Nottingham, the urban development and leaking sewers are reflected in poorer quality groundwater.

The Lower Magnesian Limestone yields groundwater of the moderately hard, calcium bicarbonate type. Although this can change to very hard calcium sulphate type under confined conditions due to leaching of evaporites from associated marls. Chloride and nitrate levels are locally elevated on the outcrop area due to mining and agricultural activities. The dolomitic nature of the limestone is reflected in the relatively high magnesium content of the groundwater. Mineralisation tends to increase down dip (to the east). Transmission of contaminants via fissure systems in the limestone strata can be extremely rapid and the aquifer is, consequently, also highly vulnerable to pollution at the surface.

The groundwater derived from Coal Measures is typically very hard, has elevated chloride, sulphate and mineralisation levels and may be contaminated in urban/industrial areas. The limited amount of water within the Mercia Mudstone exhibits elevated sulphate levels due to dissolution of the naturally existing gypsum within the mudstone sequences.

Sand and gravel drift deposits yield groundwater of similar composition to nearby major river systems. Away from rivers, the influence of more mineralised water will be greater.

Fisheries

Stillwater coarse fisheries are widespread in the plan area and there is good coarse fishing on the canal network and gravel pits. These waters are a major fisheries resource and provide a variety of angling opportunities for coarse fishermen at all levels of interest and expertise. There are a number of gravel pits in the Trent Valley grouped around Willington, Swarkestone, Nottingham, Hoveringham and Girton.

The River Trent is a good fishery throughout its length, supporting a diverse population of coarse fish with an increase in cleaner water fish such as perch and dace. A Salmon Trust has reintroduced salmon into the River Trent because the water quality has improved. The smaller individual tributaries of the Trent offer limited fishing potential but are very important as spawning and nursery areas.

The River Erewash is a fast recovering river with a high biomass in the lower reaches. As the river declines in quality upstream the fish population declines but is recovering strongly.

Angling is a major recreational activity in the plan area with most fishermen concentrating on coarse fish. It is a large contributor to the local social and financial economy.

Recreation

The small tributaries of the River Trent are occasionally used for angling but the Rivers Erewash, Leen and Eau have footpaths along them which have been created by Local Authorities, riparian owners and volunteer groups, sometimes with the help of the Agency.

Gravel pits have provided large open waters, which are used for sailing, boardsailing, water skiing and angling.

The River Trent is used extensively by boaters, mainly cruisers and narrow boats, but it is a commercial waterway and is used by barges. Rowing and canoeing are centred around Nottingham and Newark and there are several sea scouts and sea cadet clubs on the river. Colwick Country Park and the National Watersports Centre at Holme Pierrepont provide facilities for many types of boating activity. The canoe slalom course at Holme Pierrepont is an international facility and there is a stillwater trout fishery at Colwick.

The River Trent is a navigation from Shardlow to the Humber, with canal bypasses at Sawley, Cranfleet and Beeston. British Waterways manage the navigation from Shardlow to Gainsborough and Associated British Ports downstream of Gainsborough. The Fossdyke Canal near Torksey allows boats to travel to Lincoln and Boston. The Keadby Stainforth Canal links with the River Don and allows passage to the River Ouse and the South Yorkshire Navigation. There are several large marinas along the river and bypass canals but only limited overnight or residential moorings. The Grantham canal is currently disused but provides recreational facilities for walkers along its towpaths and plans are being made to restore the canal for navigation use.

The Trent Valley Way runs along the river and gives a continuous walk from Attenborough to West Stockwith, but walkers can generally continue along the floodbanks to the Humber. The River is fished down to Gainsborough but gravel pits and still waters are becoming more popular than the river, which is not fished as regularly as previously due to changing conditions.

Flood Defence & Land Drainage

Flooding History

The valley of the River Trent has always suffered periodical inundation, the earliest recorded flood was in 1346 when, according to reports, *"from midsummer to Christmas the rains fell almost without intermission"*. More than 400 years later the flood of February 1795 is reported to have been *"the largest flood for centuries"*. In more recent times major floods have occurred in October 1852, October 1875, January 1901, December 1910, May 1932, February 1946, March 1947, March 1955, December 1960, December 1965, December 1977, February 1995 and April/October 1998.

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.

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. The Dover Beck is one such watercourse that has been adversely affected by groundwater abstraction. The Dover Beck rises to the north of Oxtun and flows to the River Trent at Caythorpe and has been identified as one of the top 20 sites in the country requiring investigation into the possibility of alleviation of low flows.

Abstraction of water from surface sources for public water supply is limited to the River Trent at Shardlow and from Staunton Harold and Foremark reservoirs. There is a significant abstraction from the River Trent at Torksey, for regulation of the Rivers Ancholme and Witham in Lincolnshire (Anglian Region of the Agency). The Trent Valley has a number of power stations using large volumes of water for electricity generation. Water abstracted for use in industrial processes is mainly concentrated in Nottingham and mineral washing (sand/gravel, coal mining etc.) comprise the other major licence holders in the area.

There is considerable interest in the development of hydropower schemes on the Trent as part of the government's

policy under the Non-Fossil Fuel Obligation (NFFO). A number of sites have been identified and work has actually commenced on the construction of a site at Beeston Weir, near Nottingham.

The control and management of these 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.

2.4 Wildlife and Heritage

Wildlife

English Nature has developed Natural Areas, which comprise unique combinations linking historical and cultural development with wildlife and natural features. The Countryside Commission has developed Countryside Character Areas, which integrate with natural areas. This plan encompasses two main natural areas - Trent Valley and Rises and the Humberhead Levels, and parts of Sherwood, Southern Magnesian Limestone, Nottinghamshire Coalfields and the North Lincolnshire Edge with Coversands.

Trent Valley and Rises - is a flat fertile area which is mainly farmed but does include wet meadows, neutral grassland, wet woodlands, gravel pits and reservoirs, as well as numerous rivers and streams. The River Leen is a stronghold for the native white-clawed crayfish and signs of otters have been found in the tidal Trent. Water voles are found in most watercourses, but not in the numbers they once were. Attenborough Gravel Pits is an SSSI noted for its breeding and overwintering bird population.

The Humberhead Levels - is an area of low lying land that is maintained for agriculture by pumping. The land in the floodplain of the River Trent is protected by earth floodbanks. The area between the floodbanks and the river supports heavy stands of willow, which are coppiced on a seven-year rotation. They and associated stands of phragmites provide habitat for many animal species. The salt marshes at the bottom end of the river support many species of wildfowl and Blacktoft Sands is an RSPB Reserve on the banks of the Trent and Ouse.

Sherwood is an acidic sandstone area which supports heathland and woodland. Farm birds such as lapwing and skylark and the barn owl are found but have declined in numbers. The nightjar and woodlark are nationally rare birds found on the fragmented heathland.

Heritage

The Trent Valley is rich in gravel deposits that contain vital information about the regions' history. These gravel deposits are being extensively quarried, resulting in destruction of associated archaeological and environmental deposits. A Trent Valley Survey is currently being undertaken to consider the impact upon the landscape from human utilisation during the Holocene period (the last 10,000 years).

There are several castles in the plan area; Nottingham, Newark, Torksey and Belvoir to name a few. Civil War battlefields and earthworks are found in the vicinity of Newark.

There are many old mills on the Rivers Erewash, Leen and Greet and the Dover Beck that used to utilise the flows on these small watercourses.

Introduction

This chapter provides a detailed description of the issues which, the Agency considers, need to be addressed in the Lower Trent and Erewash catchment. An issue is a problem that needs tackling or an opportunity that should be realised. The issue locations (where appropriate) are shown on Map 5.

For each issue the text describes the problem or opportunity, which organisations are involved and what is currently being done about it. The tables included set out options for action together with potential partnerships, the impacts of each proposal, along with estimated costs and timescales. The Agency officer responsible for the issue has also been identified. The boxes at the end of each issue highlight how the proposed actions are linked 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 issues are grouped into the following nine sections according to the Agency's Environmental Strategy:

- Addressing CLIMATE CHANGE
- Improving AIR QUALITY
- Managing our WATER RESOURCES
- Enhancing BIODIVERSITY
- Managing our FRESHWATER FISHERIES
- Delivering INTEGRATED RIVER-BASIN MANAGEMENT
- Conserving THE LAND
- Managing WASTE
- Regulating MAJOR INDUSTRIES

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.

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 catchment (Environmental Overview) with national and regional targets.

The Environmental Overview is available on request from the LEAPs Team at the Agency's Trentside offices.

River Erewash Catchment Management Plan

In 1995 the National Rivers Authority published the River Erewash Catchment Management Plan (CMP). It set out the NRA's vision for the future of the river catchment and highlighted problems that needed to be addressed and actions needed to resolve them. This LEAP now supersedes that document and any of the outstanding issues have been incorporated into the LEAP. Appendix 1 shows the progress of the outstanding Erewash CMP issues. Where possible references to the CMP have been made and any actions carried over into the LEAP are highlighted in the appropriate tables.

*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.*

**Lower Trent and Erewash
Local Environment Agency Plan
Map 5**



ENVIRONMENT
AGENCY

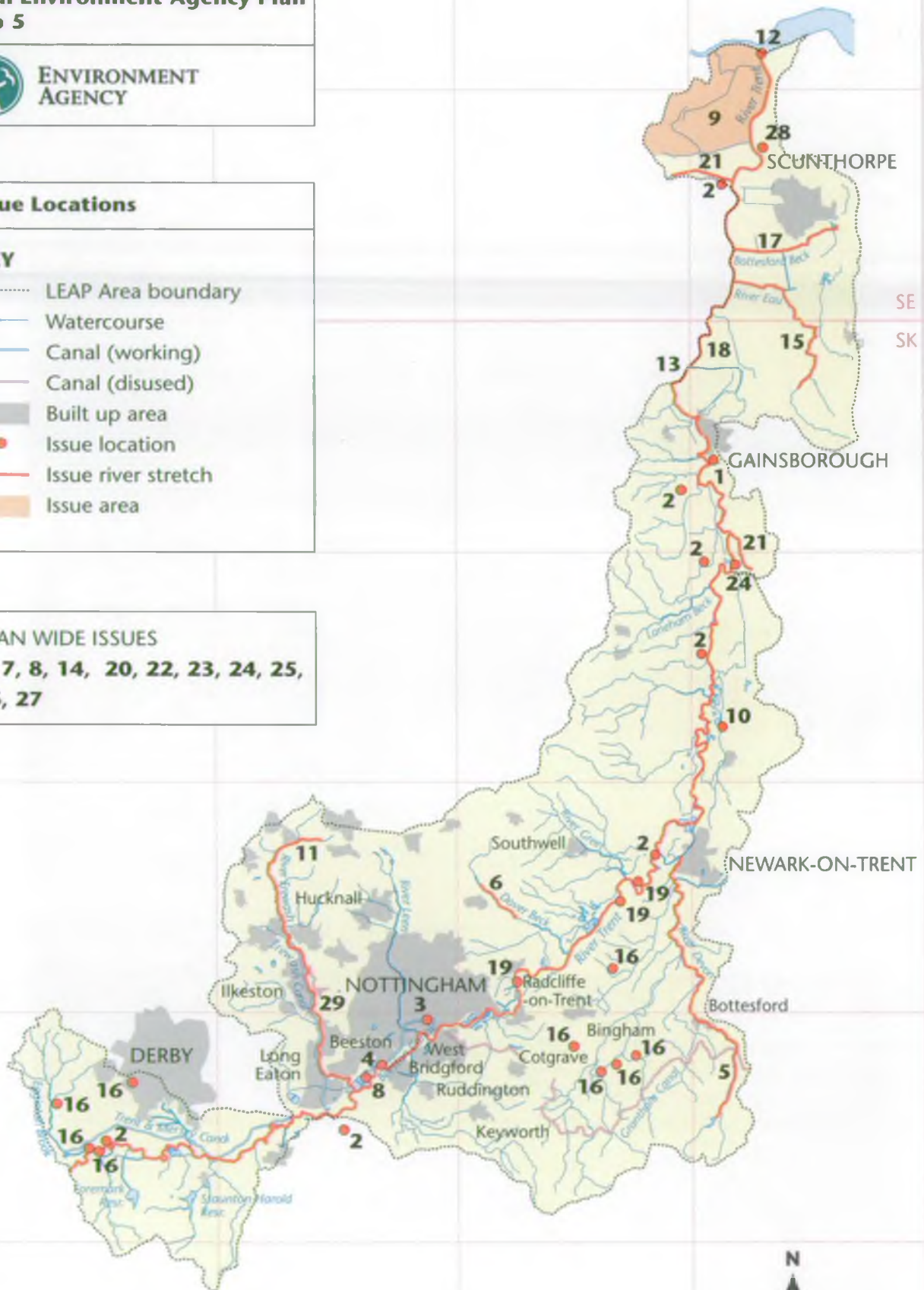
Issue Locations

KEY

- LEAP Area boundary
- Watercourse
- Canal (working)
- Canal (disused)
- Built up area
- Issue location
- Issue river stretch
- Issue area

PLAN WIDE ISSUES

**5, 7, 8, 14, 20, 22, 23, 24, 25,
26, 27**



The issues are separated into nine sections according to the principal and immediate concerns set out in the Agency's Environmental Strategy. There is no priority order to the sections or the issues within each section.

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Abbreviations used in the issue text and tables

AC	Angling Clubs
ALF	Alleviation of Low Flows
AMP	Asset Management Plan
AWS	Anglian Water Services Ltd
BAL	Butterley Aggregates Ltd
BAP	Biodiversity Action Plan
BS	British Steel
BTO	British Trust for Ornithology
BW	British Waterways
CA	Coal Authority
CA	Conservation Agencies
CC	County Council
CMP	Catchment Management Plan
CoCo	Countryside Commission
DETR	Department of the Environment, Transport and the Regions
EA	Environment Agency
EN	English Nature
FA	Forestry Authority
FWAG	Farming & Wildlife Advisory Group
GC	Generating Company
GCF	Greenwood Community Forest
GQA	General Quality Assessment
HA	Highways Agency
HEMS	Humber Estuary Management Strategy
IC	Industry & Commerce
IPC	Integrated Pollution Control
IPPC	Integrated Pollution Prevention & Control
LA	Local Authority
MAFF	Ministry of Agriculture, Fisheries and Food
NETCEN	National Environmental Technology Centre
NFU	National Farmers Union
NU	Nottingham University
OFWAT	Office of Water Services
R	Recurring – no additional cost to the Agency
RO	Riparian Owner
RQO	River Quality Objective
RSPB	Royal Society for the Protection of Birds
SINC	Site of Importance for Nature Conservation
SP	Scheme Promoter
STA	Salmon & Trout Association
STW	Severn Trent Water Ltd
T&PT	Trent & Peak Archaeological Trust
TBG	Tidy Britain Group
U	Cost unknown at this stage
VIC	Veterinary Investigation Centre
WDC	Waste Disposal Companies
WT	Wildlife Trust



3.1 Addressing Climate Change

Climate change is perhaps one of the most important international issues. Addressing it in the UK will require action by us all. The Department of the Environment, Transport and the Regions (DETR) will need to be involved through Local Authorities (in terms of road traffic control), along with businesses and every member of society. As part of its overall aim of contributing to sustainable development, we are addressing climate change as part of our work. Much of the Agency's existing work and proposals contained in the plan area will help to achieve some of the objectives set out in the Environmental Strategy. For example, we are working to reduce vehicle use and increase the fuel efficiency of our vehicles to reduce the release of the gases that contribute to climate change. We encourage the use of alternative forms of transport and car share where possible, along with increased awareness will help to ease the pressure on our environment.

Not all contributions to climate change are controlled by the Agency, therefore we can have only direct influence on a certain amount of the problems involved. We can, however, ensure that other organisations are aware of the problems and encourage the reduction in greenhouse gases from all sources.



Photograph 3 – River Trent at Willington, Derbyshire

Issue 1 *Greenhouse gas emissions from a landfill site in Gainsborough*

Objective - To encourage the site operator to install an active gas venting system incorporating energy recovery which will reduce odour and emissions to the atmosphere

What is the problem?

Methane, the major constituent of landfill gas, is recognised as a "greenhouse" gas. The landfill site at Gainsborough accepts household and commercial waste leading to the production of landfill gas. This is currently vented by a passive system, which satisfies the requirements of the current Waste Management Licence issued by the former Waste Regulation Authority of Lincolnshire County Council. However, this site is the last in the area that does not have an active gas venting system installed. Current guidance by the DETR states that passive venting systems should only be used where the rate of gas generation is low, for example biologically old sites and inert waste sites. In the case of the Lea Road site monthly monitoring by the site operator is showing high levels of gas consistently detected at one of the perimeter boreholes.



Photograph 4 – Lea Road Landfill at Gainsborough

Who is involved?

Lincwaste Ltd, Environment Agency (EA)

What is happening already?

Odour complaints have been received from residents living in the Lea Road area and Agency check monitoring has also detected landfill gas odour in that area under certain weather conditions. Lincwaste, the licence holder, have considered the possibility of installing an active extraction system. We are currently considering a draft for a revised site-working plan, which will require in certain circumstances the passive system to be converted and become an active system.

The policy stated in our Environmental Strategy is to help to ensure that the government's greenhouse gas emission reduction targets are met. This will partly be achieved through stated objectives to encourage increased use of gas management systems at landfill sites accepting biodegradable waste, and to promote energy recovery. The feasibility of such recovery at Lea Road would need to be evaluated when the active flare system was operational and would depend on the gas being generated at a consistently high enough quality and volume.

ISSUE 1: Greenhouse gas emissions from a landfill site in Gainsborough

Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
1.1 Install an active flare extraction system	Linc-waste	EA	+ Reduce greenhouse gas emissions and odour	U	£50k	Unknown	David Briggs
1.2 Carry out a feasibility study to assess energy recovery potential	Linc-waste	EA	+ Energy recovery	U	U	Unknown	David Briggs

The above proposals will work towards achieving the following Agency objectives on Addressing Climate change:

- ➡ Help to ensure that the government's greenhouse gas emission reduction targets are met;
- ➡ Develop methods to improve our estimates of the emission of methane into the atmosphere from landfill sites.



3.2 Improving Air Quality

The major sources of air pollutants are transport and industry. Air pollution from transport is the responsibility of Local Authorities and not the Agency. We are reducing emissions from our own vehicles by reducing mileage and encouraging the use of public transport. We are also encouraging the public to consider the impact their travel has on the environment.

The Agency is working with the government to ensure that the National Air Quality Strategy improves air quality and that emissions from major industries are reduced. Local Authority and government monitoring stations provide air quality data. This data allows the Local Authorities to assess problems and target areas for improvement. Local Authorities have a statutory responsibility to carry out periodic reviews of air quality in their areas. These reviews will form the basis for Local Air Quality Management Plans and the Agency is a statutory consultee.

NETCEN (the organisation responsible for the government monitoring stations) has an agreement with Agency to notify us of any recordings over certain levels. We then have a protocol for dealing with these peaks in order to assess their source and the actions to be taken.



Photograph 5 – Traffic on Collin Street in Nottingham

Issue 2 The effects of power stations on local air quality

Objective - To ensure that air quality standards are not breached in the Lower Trent area as a result of emissions from existing and proposed power stations and that these major emission sources contribute to delivery of the National Air Quality Strategy by 2005.

What is the problem?

Power stations are sources of sulphur dioxide (SO₂) (coal-fired stations only) and nitrogen oxides (NO_x), as well as other pollutants. They have the potential to affect local air quality to a significant degree. The Lower Trent and Erewash plan area contains four large coal-fired power stations at Willington, West Burton, Cottam and High Marnham. There is also one just outside the plan area at Ratcliffe-on-Soar. There is a combined cycle gas turbine power station at Keadby near Scunthorpe. Two further gas turbine power stations are under construction or proposed at the Cottam Development Centre (expected to start operation in late 1998) and Staythorpe (expected to commence 2001).

The future of both coal-fired and gas turbine power stations in the plan area is greatly affected by national policy developments. These include the government's concerns about the coal industry and reliance on gas, and competing environmental pressures. This underlies the individual changes to the industry sector and presents a challenge to the Agency to ensure that there is a net environmental benefit for the plan area.

Who is involved?

Environment Agency (EA), Generating companies (GC), Local Authorities (LA), Department of the Environment, Transport and the Regions (DETR)

What is happening already?

Emissions from the coal-fired power stations are currently controlled mainly through annual tonnage release limits for SO₂ and NO_x. This enables the generating companies to operate their power stations as a portfolio in response to the demands of the electricity grid system. These controls provide some protection for local air quality, but are mainly concerned with meeting the UK's commitments to national emissions reductions, in order to reduce acid rain impacts.

As short term air quality standards become progressively tighter, such as those now established in the National Air Quality Strategy, there is a need to examine short term and localised impacts of power station emissions more closely. Also we need to develop different approaches to the regulation of these processes specifically aimed at reducing the frequency and magnitude of air pollution incidents. For example, there is the potential for coal-fired power stations in the Trent Valley to cause breaches of the latest short term SO₂ standard. High levels of SO₂ in the Doncaster area in June 1997 are considered to have been caused mainly by compliant SO₂ emissions from the Trent Valley power stations, although other aspects of that episode could not be explained by power station emissions. The levels of SO₂ were high because the emissions failed to disperse effectively due to unusual weather conditions. To address this type of event, it is proposed to develop an operating protocol. This will identify periods when the proposed emissions scenario combined with the forecast weather conditions could lead to short term air quality problems. It may then be possible for the generating companies to take action to avoid the event occurring or reduce the severity of the event.

In the case of existing and proposed gas turbine power stations, local air quality impacts mainly concern NO_x emissions and resulting levels of nitrogen dioxide (NO₂). This is a complex pollutant, which is affected by levels of ozone and hydrocarbons in the atmosphere, and where emissions from other sources, especially traffic, have a significant effect on local air quality. Detailed assessment of worst case emissions from the new power stations is required in order to be satisfied that the latest air quality standard for NO₂ can be met. This exercise is particularly pertinent for the Cottam Development Centre where new generation gas turbines will be tested at high operating temperatures (which increases NO_x emissions) and the testing programme will include more frequent stops and starts than a conventional power station.

ISSUE 2 : The effects of power stations on local air quality							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
2.1 Continue the development of an operating protocol for management of short term SO ₂ emissions from coal fired power stations	EA	GC	+ Cost effective targeting of emissions reductions to those times when air quality most at risk	£100k	U	1999	Tanya Montgomery
2.2 Ensure new gas turbine power stations at Cottam and Staythorpe do not pose risk to local air quality	EA	GC/ LA	+ Air quality and delivery of NAQS	£10k	U	1999/2001	Tanya Montgomery
2.3 Pursue net environmental benefit in changes affected by government's developing energy policy	EA	GC DETR	+ Net improvement in air quality	£10k	U	1999	Tanya Montgomery

The above proposals will work towards achieving the following Agency objectives on Improving Air Quality:

- ➔ Help the government deliver its Air Quality Strategy;
- ➔ Ensure emissions from the major industrial processes to the atmosphere are reduced.



3.3 Managing our Water Resources

Water shortages can lead to dry taps for consumers and cause river levels to fall, killing wildlife. The Agency's responsibilities include ensuring that water companies, industry and the public use water more efficiently. We urge water companies to reduce leakage, manage the water demands of their customers more effectively and we advocate targets to government and the Office of Water Services (OFWAT) to reduce losses. This will help limit the damage to the environment during a drought. We also set ourselves targets on water use to help reduce the impact on the environment.



Photograph 6 – Spray irrigation

Issue 3 *Impact of rising groundwater levels in parts of the city of Nottingham*

Objective - To identify the extent, risks and potential uses of rising groundwater levels beneath Nottingham

What is the problem?

Infrastructure and water quality in Nottingham is affected by rising groundwater. The problem is caused by groundwater levels beneath parts of the city centre rising back towards their natural, pre-abstracted levels. Despite levels rising in recent years at a much lower rate than previously experienced, mainly due to a lack of high rainfall over the past few years and reduction in leakages from public water supply pipes, the problem still needs to be addressed. Part of the plan area is located on the Sherwood Sandstone aquifer, which in the past has been heavily abstracted. The reduction in actual abstraction from boreholes drilled into the aquifer over the past 25 years, along with leakage from water mains and sewers, led to rising groundwater levels. The potential problem of long-term changes in quality of the groundwater also needs to be assessed especially in the context of the water rising into contaminated land and remobilising pollutants already present in the ground. This could result in the deterioration of water quality of the groundwater and surface water systems.

Who is involved?

Environment Agency (EA), Local Authority (LA), Severn Trent Water Ltd (STW)



Photograph 7 – Nottingham City centre

What is happening already?

Clearly a rise in groundwater levels could have a significant effect on property and buildings in the city of Nottingham. Already there is water present in some city centre basements. The Agency has no responsibility in respect of the effect of rising water on property but does have the responsibility for monitoring the effects on the water environment. We are therefore monitoring changes in groundwater levels in a number of boreholes located in the city. Changes in groundwater quality are also recorded. Redevelopment on land previously used by industry or for other contaminative purposes in Nottingham requires assessment of the groundwater quality prior to development. If the water is found to be contaminated then it needs to be pumped and treated depending on the intended use of the site.

The Local Authority will be involved if the rising groundwater problem, which is confined to a very small part of the city centre, becomes more widespread. The Agency intends to carry out a feasibility study to define the extent of the problem and future risk. We will work in partnership to identify solutions, if required.

ISSUE 3 : Impact of rising groundwater levels in parts of the city of Nottingham							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
3.1 Undertake a feasibility study to identify the extent of the problem	EA	LA	+ Identify if problems exist and their extent	£15k	U	1999/2000	Trevor White
3.2 Appoint consultant to identify solutions	EA	-	+ Appropriate solutions identified	£60k	-	Dependant on results of feasibility study	Trevor White
3.3 STW to continue leakage reduction programme	STW	EA	+ Reduction in the rate of groundwater rise	-	-	1999/2004	Trevor White
3.4 Do nothing	-	-	- mobilisation of contaminants in the ground	-	-	-	-

The above proposals (except 3.4) will work towards achieving the following Agency objectives on managing our water resources:

- ➔ Demand a more efficient use of water by the water companies and by industry in general;
- ➔ Demand reductions in leakage by the water companies before considering any cases for investment in new reservoirs;
- ➔ Vigorously apply our Groundwater Protection Policy to ensure that the quality and use of our groundwater is improved;
- ➔ Research into more efficient methods for the management of water, and into the potential risks for the aquatic environment arising from its mismanagement.

Issue 4 *Impact of hydropower development on the environment*

Objective - To minimise the effects of future hydropower generation schemes on the river environment and its uses

What is the problem?

The Agency encourages the use of non fossilised fuel, such as water and wind, for the generation of electricity. There is now growing interest for hydropower on the River Trent and the first site for such development is at Beeston, just downstream of the Attenborough Gravel Pits SSSI. It is envisaged that further sites will be developed in the next ten years. Such schemes could impact on fish movements, river morphology, marginal vegetation and instigate wide fluctuations in flow which in turn adversely affect abstraction licences (including those for public water supply) and water levels for navigation downstream. Sudden low flows can cause a lack of dilution for sewage effluent and contaminated surface water discharges. This can result in low oxygen levels and a subsequent threat to flora and fauna.

Who is involved?

Environment Agency (EA), Scheme Promoters (SP)

What is happening already?

Hydropower developments involve the Agency by way of our responsibilities for the management and protection of the water environment. Therefore, there is a requirement to ensure that new proposals are compatible with our aims and responsibilities. However, all costs in terms of assessing the impact on the environment will be met by the scheme promoters who have to provide us with an Environmental Appraisal of their proposal.

Hydropower schemes, in most cases, require abstraction licences, land drainage consents and sometimes impounding licences. Licence holders would additionally be required to enter into legal agreements with the Agency under Section 158 of the Water Resources Act 1991. These agreements set out management and operational rules designed to protect all interests associated with the river. We would enforce and review the conditions on these agreements on an ongoing basis. For the site at Beeston the abstraction licence was granted in July 1998 and site development has now commenced.

ISSUE 4 : Impact of hydropower development on the environment						
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		EA Officer
	Lead	Others		EA	Others	
4.1 Undertake Environmental Assessment for each proposed site	SP	EA	+ Safeguard the aquatic environment	U	-	Trevor White

The above proposals will work towards achieving the following Agency objectives on Managing our Water Resources:

- ➔ Research into more efficient methods for the management of water, and into the potential risks for the aquatic environment arising from its mismanagement.

Issue 5 Potential environmental damage through over-abstraction in the plan area

Objective - to improve the understanding of water levels and flows in order to protect water resources

What is the problem?

There is a continuing and increasing demand on the abstraction of water in the plan area. The demand for surface water from the River Trent and its tributaries is rising. Most of the tributaries have been subject to low flow restrictions on abstractions for many years. Any new licences issued for abstraction from the River Trent upstream of Staythorpe near Newark are subject to prescribed flow conditions.

In some parts of the plan area there is a lack of information on flows. For example, the River Devon in the Vale of Belvoir does not have a permanent measuring station cap along its length of approximately 20 kilometres. With increasing demands for spray irrigation water and the likely restoration of the Grantham Canal it is vital that additional flow data is obtained so the water resources can be managed effectively.

Abstraction of groundwater from sand and gravel deposits occurs extensively throughout the plan area, in particular along the Trent Valley north of Newark. This is related primarily to dewatering activities associated with the excavation of the deposits. Abstraction for spray irrigation also occurs but on a much lower scale. No information is available as to what effect such abstraction is having on changes in groundwater levels. During years of lower than average rainfall it is difficult to assess whether low levels are due to a lack of recharge and/or the additional effect of abstraction. In other words it is unclear what is natural or unnatural, so the information from new boreholes would help to answer this question.

Who is involved?

Environment Agency (EA), British Waterways (BW), Severn Trent Water Ltd (STW), MAFF, Conservation Agencies (CA)



Photograph 8 – River Devon

What is happening already?

The Agency is working with abstractors to make more efficient use of the water they abstract and to develop winter storage reservoirs on their land to provide water during the dry summer months. We encourage farmers to collect winter rainfall by giving advice and by setting winter abstraction licence charges at just 10% of summer ones. We are also liaising with British Waterways in reviewing the existing licensing policy for abstraction from the River Trent and over the restoration of Grantham Canal.

ISSUE 5: Potential environmental damage through over-abstraction in the plan area							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
5.1 Review existing licensing policy for abstraction from the River Trent	EA	STW/BW MAFF CAs	+ Balance the demands of abstraction with the protection of the aquatic environment	£100k	U	1999/2001	Trevor White
5.2 Construct flow measuring station on the River Devon	EA	-	+ Provision of data to achieve a better understanding of water resources in the catchment	£100k	-	1999/2000	Trevor White
5.3 Set up a network of observation boreholes	EA	-	+ Database on groundwater levels	£15k	-	1999	Trevor White
5.4 Refuse new abstraction licence applications	EA	-	+ Reduction in pressure on water resources	R	-	1999/2004	Trevor White
5.5 Do nothing	-	-	- The situation becomes worse	-	-	-	-

The above proposals (except 5.5) will work towards achieving the following Agency objectives on managing our water resources:

- ➡ Research into more efficient methods for the management of water, and into the potential risks for the aquatic environment arising from its mismanagement.
- ➡ Vigorously apply our Groundwater Protection Policy to ensure that the quality and use of our groundwater is improved.

Issue 6 Low flows in the Dover Beck

Objective - Fully restore the Dover Beck watercourse from its source to the confluence with the River Trent

What is the problem?

The Dover Beck is a tributary of the River Trent and is approximately 14km in length and has a catchment area of 74km². It was designated an alleviation of low flows (ALF) river by the NRA in 1989. The lack of flow is primarily due to a high rate of groundwater abstraction and, to a lesser extent, subsidence caused by coal mining activities. The Oxton Bogs SINC is fed by water from the Dover Beck and therefore any low flow problems would have a significant impact on the quality of this wildlife habitat. It still has some dry sections despite Phase I of the alleviation of low flows being completed in 1997.

Who is involved?

Environment Agency (EA), Severn Trent Water Ltd (STW), local environment groups, local landowners

What is happening already?

Phase I of the ALF Scheme has restored flow from the northern end of Oakmere Golf Club at Oxton through Salterford Dam and to the wetlands at Oxton Bogs. The water is pumped from a borehole drilled into the Sherwood Sandstone aquifer and allowed to flow down the upper reaches of the Beck. However immediately downstream of Oxton Bogs it soaks back down into the aquifer.

There is now a need to examine the feasibility of extending the works from this point down to the confluence of the Dover Beck with the Grimesmoor Dyke and the Woodborough Beck at Epperstone. This will also encompass the investigation of low/nil flows in the Oxton Dumble, a tributary of the Dover Beck, which flows into the beck approximately 1km downstream of Oxton Bogs.

ISSUE 6: Low flows in the Dover Beck							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
6.1 Undertake a feasibility study to identify the extent of the problem	EA	STW	+ Extent of the problem identified	£10k	U	1999	Trevor White
6.2 Overall Scheme (Phase II)	EA	STW	+ Improved wildlife habitat in Dover Beck catchment	£250k	U	2000/2001	Trevor White

The above proposals will work towards achieving the following Agency objectives on Managing our Water Resources:

- ➔ Implement the current programme of alleviating low-flow rivers as quickly as possible;
- ➔ Research into more efficient methods for the management of water, and into the potential risks for the aquatic environment arising from its mismanagement.



3.4 Enhancing Biodiversity

Growing awareness of the importance of the natural environment to our wellbeing has recently prompted radical changes of attitude to the environment. In nature conservation there has been a shift from protecting individual sites and species towards maintaining biodiversity. Biodiversity means 'the variety of life' encompassing all the forms of life which constitute the living world. The signing of the Biodiversity Convention by the UK government at the Earth Summit in 1992 has given a high profile to biodiversity protection. The term biodiversity includes humans and their relationship with the environment and many species are at risk as a direct result of human activity.

Maintaining biodiversity is essential in respect of many species and habitats. However, limited resources mean that priorities have to be set and most Biodiversity Action Plans (BAPs) focus initially on those species and habitats most at risk.



Photograph 9 – Grantham Canal

Issue 7 Biodiversity of local fauna

Objective - To maintain and enhance biodiversity within the plan area in accordance with national, regional and local Biodiversity Action Plan objectives

What is the problem?***Otter (*Lutra lutra*)***

The otter is a globally threatened species and became almost extinct in the Midlands in the 1950s. There is evidence of otters in the tidal Trent but little information is available about its distribution in the remainder of the catchment. There is a need to assess the distribution of the otter within the plan area and whether they are re-establishing themselves in the Trent Valley. Also there is a need to assess the suitability of riverine habitat for otters and to carry out enhancement work where habitat quality has been identified as poor.

Water vole (*Arvicola terrestris*)

The water vole has suffered a rapid decline in the UK. This may be because of predation, poor water quality or loss of habitat. There has been recent survey work in the plan area to assess water voles. Present riparian management needs to be re-evaluated in the light of the findings and the findings of additional surveys in the future.

Freshwater white clawed crayfish (*Austropotamobius pallipes*)

The native crayfish is threatened by habitat loss and disease carried by the introduced American Signal crayfish (*Pacifastacus leniusculus*). The River Leen is a stronghold for native crayfish and Signal crayfish have been found in the River Greet. This is causing a decline in the native population of crayfish due to competition and possible disease. There is a need to assess the status of the introduced populations with a view to controlling and eradicating them.

Salmon (*Salmo salar*)

There has been a global decline in salmon stocks although the salmon was once widespread in the River Trent. However, poor water quality caused by pollution and the installation of navigation weirs meant the Salmon Run in the river declined. Provision of salmon passes and improved water quality provides a suitable habitat for the return of salmon but a programme of re-introduction will be required to assist re-colonisation. The first batch of salmon were introduced to the Trent catchment in early October 1998 and further introductions are planned.

Spined loach (*Cobitis taenia*)

The spined loach is recorded in Annex II of the Habitats Directive and on the UK Biodiversity Action Plan Long List of threatened species. Its distribution is restricted to the East Midlands, specifically the River Great Ouse (in the Anglian Region) and the River Trent. English Nature recently produced a report examining the status of this species in the UK. This report will provide a framework for protecting and enhancing populations of spined loach and safeguarding their habitat in the future.

Burbot (*Lota lota*)

Although almost certainly extinct in the UK, recent improvements in water quality and a greater awareness of the ecological impacts of river management have created an opportunity to consider the reintroduction of this species. Any reintroduction programme will have to include a feasibility study to ensure that the habitat requirements of the species have been met.

Who is involved?

Environment Agency (EA), English Nature (EN), Ministry of Agriculture, Fisheries & Food (MAFF), Wildlife Trusts (WT), Local Authorities (LA), Riparian Owners (RO), Salmon & Trout Association (STA), Nottingham University (NU), Farming & Wildlife Advisory Group (FWAG).

What is happening already?

An Environment Agency BAP for the Midlands Region has been produced giving key species for which we have a special interest or responsibility. There are also County BAPs for Nottinghamshire, Derbyshire, Leicestershire and Lincolnshire. With regard to other species not listed above, the Agency is working in partnership with other organisations to help in enhancing the local species biodiversity. For example, the

provision of barn owl nest boxes at appropriate sites along the Trent Valley is being addressed by the Agency in partnership with the Hawk and Owl Trust and local wildlife trusts.

The Agency has an extensive programme of monitoring biological life in rivers and canals which includes information on target species, eg. crayfish. We recognise the need to support activities already being undertaken and to work with others wherever possible, on collaborative studies and projects. We are on the steering group of the Trent Otter Project operating through the wildlife trusts. This project will enable actions on the ground through a project officer in each county trust area. We are also chairing a Water Vole project for Nottinghamshire, which will survey all watercourses in the county during 1999. The input to our own activities and developments by others, on which we are consulted, are considered in the context of biodiversity.



Photograph 10 – Otter (*Lutra lutra*)

ISSUE 7 : Biodiversity of local fauna

Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
Otters 7.1.1 Carry out survey of rivers for presence of otters	EA	EN/MAFF WT/RO LA	+ Presence identified	£10k	U	1999/2004	Valerie Holt
7.1.2 Build artificial holts and provide sprainting sites	EA	EN/MAFF WT/RO LA	+ Improved otter habitat	£1k	U	1999/2004	Valerie Holt
7.1.3 Promote buffer zones and cover planting along rivers	EA	EN/MAFF WT/RO LA/FWAG	+ Improved otter habitat	U	U	1999/2004	Valerie Holt
7.1.4 Support and contribute to Trent Otter Project	EA	EN/MAFF WT/RO LA	+ Increased otter population	£15k/yr	U	1999/2004	Valerie Holt
Water voles 7.2.1 Define populations along rivers by supporting NWT initiative	EA	EN/MAFF WT/RO LA	+ Numbers defined	£1.5k	U	1999/2004	Valerie Holt
7.2.2 Promote appropriate riparian habitat management	EA	EN/MAFF WT/RO LA/FWAG	+ Improved habitat	U	U	1999/2004	Valerie Holt
Crayfish 7.3.1 Define population along rivers	EA	EN/MAFF WT/RO LA	+ Numbers defined	U	U	1999/2004	Valerie Holt
7.3.2 Protect known sites where present by ensuring appropriate river management	EA	EN/MAFF WT/RO LA/FWAG	+ Habitats protected	U	U	1999/2004	Valerie Holt
7.3.3 Investigate spread of Signal Crayfish	EA	EN/MAFF WT/RO LA	+ Identified extent of the problem	£5k	U	1999/2004	Valerie Holt
Salmon 7.4 Set up a Salmon Trust	EA	EN/MAFF WT/RO LA/STA	+ Return of salmon to river	U	U	1999/2004	Keith Easton
Spined loach 7.5 Determine distribution in the plan area with the view to establishing SACs	EN	EA	+ Identified distribution	U	U	1999/2000	Valerie Holt
Burbot 7.6 Investigate the feasibility of reintroducing burbot	EA	NU	+ Increased biodiversity	£5k	U	1999	Valerie Holt

The above proposals will work towards achieving the following Agency objectives on Enhancing Biodiversity:

- ➔ Play a full and active part in delivering the UK's Biodiversity Action Plan, acting either singly or in collaboration with others;
- ➔ Allocate specific resources to conservation projects aimed at increasing biodiversity;
- ➔ Carry out research into the management of species in the aquatic environment in order to meet fully all BAP targets.



Photograph 11 – Water Vole (*Arvicola terrestris*)

Issue 8 Biodiversity of local habitats

Objective - To maintain and enhance biodiversity within the plan area in accordance with national, regional and local Biodiversity Action Plan objectives

What is the problem?**Attenborough Gravel Pits SSSI (Issue 12 in the River Erewash CMP)**

The River Erewash was diverted into the Coneries Pond of the Attenborough Gravel Pits system in 1966 to facilitate the transport of gravel. This pond forms part of the SSSI. Since the River Erewash was breached for gravel extraction purposes, changes in the fauna have been observed. There has also been evidence of changes to macrophytes present.

Wetland

The River Trent corridor has many open water areas created from gravel workings but marshy areas and wet grassland and woodland have declined through draining of land and isolation of the natural floodplain from the river.

River banks

Many rivers have suffered from intensive management in the past. For example, the River Erewash has been straightened at several locations, as a result of coal mining and flood defence operations, leading to the loss of original features. The River Leen and Fairham Brook have had their natural structure altered. Overgrazing has led to the destruction of some natural banks along rivers and is causing erosion. Wash from boats on the Trent Navigation can lead to accelerated erosion of the natural banks but other reasons such as cattle grazing and "armchair" digging by anglers can also cause problems.

Woodland

There is a lack of tree cover along the River Trent and many other small watercourse floodplains in the plan area. Major river floodplains would have supported large floodplain forests in the past. A proportion of woodland in the floodplain would enhance the biodiversity of the corridor. Trees would also act as a receptor for organic flood litter and would assist in the removal of nutrients by acting as a buffer zone. Woodland could prevent soil erosion along riverbanks and the creation of wet woodland would benefit a declining resource. To ensure that flooding of property or adverse effects on other recreational users does not occur, care would need to be exercised when selecting areas for planting.

Who is involved?

Environment Agency (EA), Local Authorities (LA), Wildlife Trusts (WT), English Nature (EN), Countryside Commission (CoCo), Coal Authority (CA), Royal Society for the Protection of Birds (RSPB), Forestry Authority (FA), Greenwood Community Forest (GCF), British Waterways (BW), Riparian Owners (RO), Butterley Aggregates Ltd (BAL), Farming & Wildlife Advisory Group (FWAG)

What is happening already?

The Agency is actively involved with the Trent Floodplain Strategy Working Party and a leaflet has been produced. This strategy will apply to all the habitats listed above. Other partnership organisations in the plan area are involved in schemes to improve the local environment and create better wildlife habitats, such as the Greenwood Community Forest's aim to create a multi-purpose forest with rich mixture of woods, farmland and open space within Nottinghamshire.

NB: The actions in the following table include some options, which were originally identified in the River Erewash Catchment Management Plan and have therefore been carried forward into this LEAP. *They are written in italics and marked with an asterisk*.*

ISSUE 8 : Biodiversity of local habitats							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
Wetland							
8.1.1 Determine strategy for the rivers for after use of mineral workings	LA/EA	WT/EN CoCo	+ Strategy determined	U	U	1999/2004	Valerie Holt
8.1.2 Investigate loss of hydraulic continuity of the floodplain and river	EA	-	+ Increased understanding	U	-	1999/2004	Valerie Holt
8.1.3 Support the Trent Floodplain Strategy	EA	RSPB EN/WT LA/FA CoCo	+ Increased understanding of land use on the floodplain	£5k	£25k	1999/2004	Valerie Holt
8.1.4 Restore old and create new wetland habitats*	EA	LA/WT RSPB	+ Improved habitats	£5k	U	1999/2004	Valerie Holt
8.1.5 Promote the use of agri-environment schemes to re-wet flood meadows	EA MAFF	FWAG	+ Improved habitats	U	U	1999/2004	Valerie Holt
8.1.6 Investigate 'managed retreat'	EA	-	+ Improved habitats	U	-	1999/2004	Valerie Holt
Attenborough SSSI							
8.2.1 Undertake Water Level Management Plan*	EA	-	+ Improved habitats	U	-	1999/2004	Valerie Holt
8.2.2 Continue to investigate the impact of River Erewash on Gravel Pits*	WT	EA/EN STW/CA	+ Determination and elimination of pollution	£1.25k	U	1999	Valerie Holt
8.2.3 Investigate the diversion of the River Erewash from the gravel pits and other means of ameliorating river effects*	EA	MPA WT	+ Improved water quality	U	U	1999	Valerie Holt
8.2.4 Set up forum to discuss management of gravel pits*	EA BAL	ALL	+ Overall view of the problems	U	U	1999/2000	Valerie Holt
River banks							
8.3.1 Undertake river management strategies	EA	EN MAFF RSPB WT/RO LA/BW FWAG	+ Protect existing habitats including the Water Vole	U	U	1999/2004	Valerie Holt
8.3.2 Undertake river restoration projects	EA	EN MAFF RSPB WT/RO LA/BW FWAG	+ Improved riverine habitats	£10k	U	1999/2004	Valerie Holt
8.3.3 Promote the use of agri-environment schemes to provide buffer zones	EA	EN MAFF RSPB WT/RO LA/BW FWAG	+ Improvement of river corridors and buffer zones	U	U	1999/2004	Valerie Holt
Woodland							
8.4.1 Investigate riparian tree planting and fencing opportunities & implement where appropriate*	EA	RO/GCF	+ Improved habitats	£40k	U	1999/2004	Valerie Holt

The above proposals will work towards achieving the following Agency objectives on Enhancing Biodiversity:

- ➔ Play a full and active part in delivering the UK's Biodiversity Action Plan, acting either singly or in collaboration with others;
- ➔ Allocate specific resources to conservation projects aimed at increasing biodiversity;
- ➔ Improve the management of wetland for conservation purposes;
- ➔ Implement specific projects to restore habitats in rivers and lakes, increase the area of reed beds and other water plants, and improve riverbanks.



Photograph 12 – Attenborough Gravel Pits SSSI

Issue 9 *Impact of acidic run-off on water quality in the Humber headlands*

Objective - Ensure there is no deterioration in the quality of the aquatic environment and deliver significant improvements in river water quality by tackling diffuse pollution.

What is the problem?

Acidic run-off from peatland of the Humber headlands to the north of the plan area can result in ochreous problems and high ammonia levels. This then impacts on invertebrates and fish stocks because of poor water quality of otherwise clean watercourses. The problem is particularly bad during winter months.

The source of this pollution is the oxidation of iron rich soils. The resultant acidic drainage is then capable of further dissolution of metals within the soil. The combination of low pH and high metal concentration in water running into the nearby watercourses is toxic to most aquatic organisms. Associated ammonia rich drainage also causes poor water quality many miles downstream of the source, often beyond the influence of acidity and metal rich waters. Particular examples of watercourses affected by the problem are the Adlingfleet and Paupers Drains.

The oxidation problem can be made worse by the land drainage practices in the area (ie. pumping into ditches and dykes), and also by heavy abstraction or unusual weather conditions.

Who is involved?

Environment Agency (EA), local landowners

What is happening already?

Currently there is no concerted effort but the aim is to draw attention to the problem and devise an agreed programme of work.

ISSUE 9: Impact of acidic run-off on water quality in the Humber headlands							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
9.1 Investigate methods to reduce the polluting load	EA		+ Improved water quality for benefit of flora & fauna	U	U	1999/2004	Phil Hukin
9.2 Do nothing	-		- Deterioration in water quality and reduction in biodiversity	-	-	-	-

Some of the above proposals will work towards achieving the following Agency objectives on Enhancing Biodiversity:

- ➔ Ensure that there is no deterioration in the quality of the aquatic environment in particular, and deliver significant improvements in river and still water quality by tackling diffuse pollution of them.

Issue 10 Heron chick deformities at the Besthorpe heronry

Objective - to find the causes of heron chick deformities

What is the problem?

A number of heron chicks at Besthorpe colony have been found to be deformed. Research found that the chicks were suffering from symptoms similar to rickets. In addition high levels of selenium were found in the livers of the chicks and also in a great-crested grebe in Newark. There appears to be no recorded link between selenium and rickets and more research is required in order to confirm the role of selenium in causing the deformities.

Who is involved?

Environment Agency (EA), Nottinghamshire Wildlife Trust (NWT), British Trust for Ornithology (BTO), Veterinary Investigation Centre (VIC), North Nottinghamshire Bird Ringers (NNBR).

What is happening already?

The deformed chicks were first found during the breeding season of 1996 and 1997. Initially it was suspected that pesticides might have been the cause and post-mortem examinations of deformed chicks were subsequently carried out by the Veterinary Investigation Centre (VIC) at Sutton Bonington. These investigations established that pesticides were not the cause of the problem and as a result MAFF terminated all investigations.

If the cause of the deformities is found to be linked to a pollutant further research will be required to establish its source. It will be necessary to establish which nests have deformed chicks, whether the problem is linked to the prey species being fed to the chicks and where the prey has originated from.

ISSUE 10 : Heron chick deformities at the Besthorpe heronry							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
10.1 Support NWT heronry observation study and the interpretation of data	NWT	EA/BTO	+ Determine cause of mortalities	£5k	U	1999/2000	Valerie Holt
10.2 Carry out post-mortem examinations on deformed chicks and write report	EA	VIC	+ Greater understanding and better knowledge	£1k	U	1999/2000	Valerie Holt
10.3 Convene regular liaison meetings to update on progress and agree future initiatives	EA	NWT BTO VIC NNBR	+ Networking and partnerships	-	-	1999/2004	Valerie Holt
10.4 Investigate sources of selenium	EA	-	+ Identify problems	U	-	1999/2000	Valerie Holt

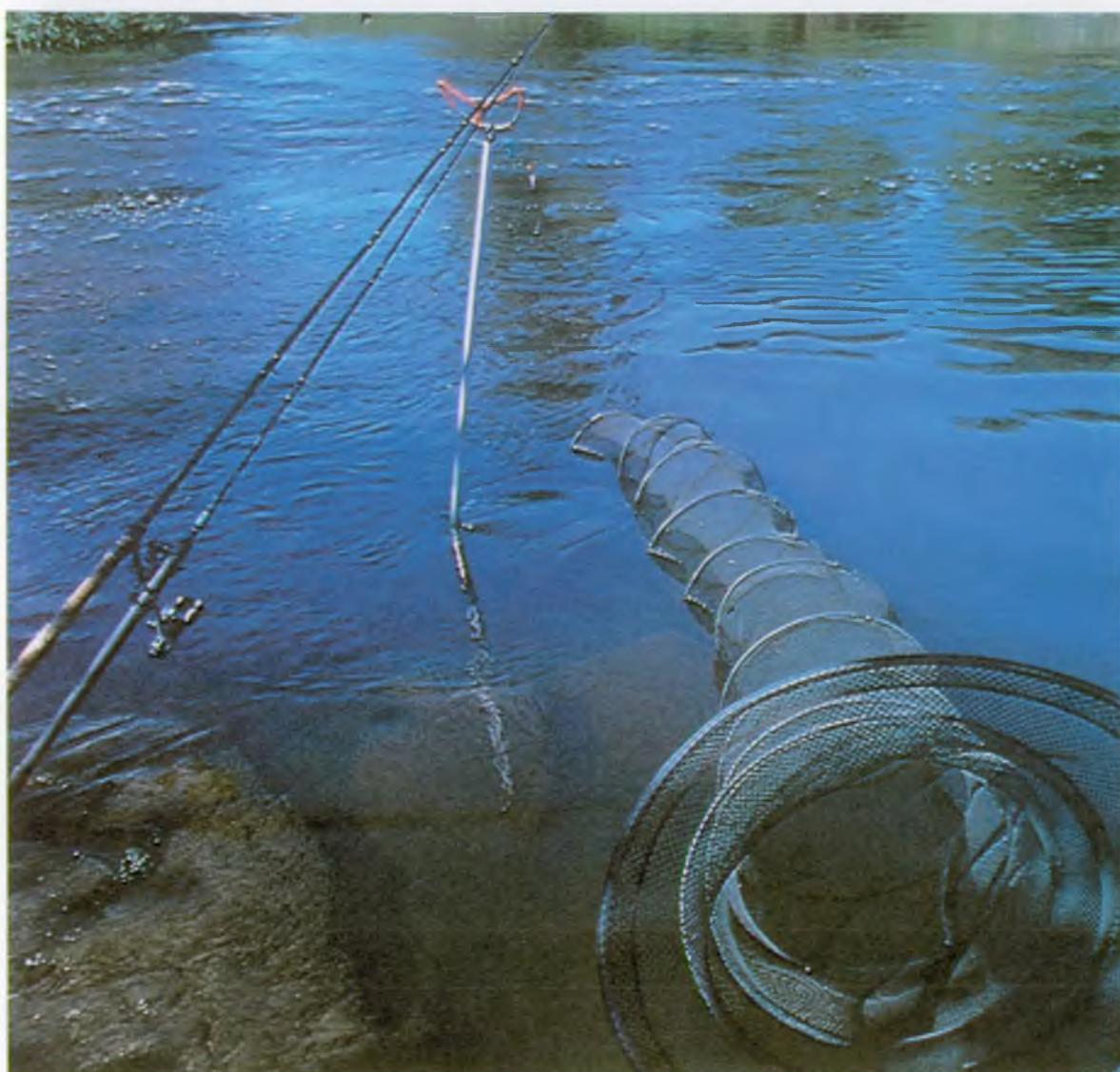
The above proposals will work towards achieving the following Agency objectives on enhancing biodiversity:

- ➡ Implement a series of regional projects, in partnership with local conservation groups, to deliver biodiversity targets at specific sites.



3.5 Managing our Freshwater Fisheries

Long-term strategies for the maintenance and improvement of salmon, trout and coarse fisheries are being developed, as well as securing a robust funding base and reducing poaching and rod license evasion. Our vision for fisheries is that all appropriate waters in England and Wales will be capable of supporting thriving fish populations and everyone will have the opportunity to experience a wide range of good quality fishing.



Photograph 13 – River Trent at King's Mills, Castle Donington

Issue 11 Fish populations in the plan area not meeting their potential

Objective - to improve and enhance the fish population and increase the understanding of fish stocks in the plan area

What is the problem?

Low fish populations have been found following a survey carried out in 1997 on the upper reaches of the River Erewash. The structure of the river upstream of Jacksdale is very degraded and this has resulted in the low fish stocks and in fishery classification terms the upper River Erewash is poor.

The River Trent water quality has improved but this has reduced the amount of suspended solids and organic matter affecting the availability of food for small fish. In the past the river had a high concentration of suspended material because of the natural washing of organic matter and sediment into the channel during floods. This organic matter was either eaten by small fish or by invertebrates, which were subsequently eaten by fish. Following intensive management of the river and the creation of flood defences this source of organic material was lost and despite the water being of good quality there is a lack of suitable food for river fauna. A way of producing an equivalent food supply is to create bays and margins of shallow warm water, which produces algae and plankton for fish food. It is also possible to connect gravel pits near to the river into the watercourse and encourage off-river-spawning areas. A consequent benefit will be that the areas will be used by small and juvenile fish as refuges in times of flood. This could help prevent 'wash out' of fish to tidal areas in winter.

Large rivers contain large numbers of fish. To manage fisheries in such rivers in order to improve and enhance them it is essential to understand fish movement. The movement of fish during feeding, growth, spawning and especially shoaling and seasonal behaviour is difficult to monitor in the River Trent because of its size. Therefore, without this understanding the management of the large fisheries is not effective or efficient.



Photograph 14 – Angling on the River Trent

Who is involved?

Environment Agency (EA), Local Angling Clubs (LAC), Riparian Owners (RO)

What is happening already?

New techniques are available to tag fish with sound transmitting tags to locate fish accurately. Using this technique on the River Trent will produce information allowing a potential programme of tagging and echosounding. This will provide real time location of fish throughout the year.

ISSUE 11: Fish populations in the plan area not meeting their potential							
Proposals	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
<u>River Erewash</u> 11.1 Remove barriers to upstream reaches and stock tagged fish	EA	-	+ A more secure fish population	£5k	-	1999/2000	Keith Easton
<u>Large Rivers</u> 11.2 Establish a monitoring programme	EA	LAC	+ Provide all year information on location of fish	£10k	U	1999	Keith Easton
<u>Habitat</u> 11.3 Map the river to assess habitat suitability	EA	-	+ To enable accurate identifications of suitable areas	U	-	1999	Keith Easton
11.4 Identify areas for possible enhancement	EA	LAC	+ To create joint partnership agreements	U	U	1999/2000	Keith Easton
11.5 Create a programme to build suitable areas, refuges etc over a period of years	EA	LAC RO	+ To create a larger amount of food organisms	£80k	U	1999/2002	Keith Easton

The above proposals will work towards achieving the following Agency objectives on managing our freshwater fisheries:

- ➡ Restore spawning grounds for freshwater fish;
- ➡ Research into the factors which affect the viability of our unique freshwater fisheries populations.



3.6 Delivering Integrated River-basin Management

Integrated river basin management is a way of looking at the river and its surrounding land as a whole. It not only looks at the quality and quantity of water in the river but also at its physical environment, including landscape, recreational use, flood control works and the wildlife of the river and the catchment.



Photograph 15 – Bottesford Beck and steelworks at Scunthorpe

(Photo kindly provided by British Steel Sections Plates & Commercial Steels, Scunthorpe)

Issue 12 Potential effects of climate change on flood defences

Objective - to ensure that Flood Defences are secure against changing estuarial conditions where appropriate

What is the problem?

Sea level is rising relative to the land due to the combined effects of adjustments in the height of the landmass since the retreat of glaciers and the influence of global warming. In estuarial reaches such as the Humber Estuary, increasing occurrences of saline intrusion of land are being attributed to rises in sea level. The potential of the land to sustain existing levels of cropping and income is therefore affected. With the reduction in the value of the land, the benefit of providing flood protection declines and existing levels of maintenance cannot be sustained under present guidelines and policy. This then leads to pressure for the adoption of a practice which is currently known as 'managed retreat' whereby previously defended areas are allowed to become part of the natural floodplain.

Apparent climatic changes also appear to be leading to a reduction in mean annual rainfall, which is increasing the instances of low base flows in some parts of the River Trent. The lower base flows lead to erosion protection being required at a different level to that currently provided. This is especially the case in estuarial reaches where the majority of erosion is caused by a combination of tidal movements and boat wash. There has also been an increased prevalence of localised high intensity rainfall storms. These storms lead to rapid run-off, potential erosion of land and surface water flooding in urban areas, which can be exacerbated by inappropriate development and badly managed storm water drainage systems.

Who is involved?

Environment Agency (EA), Ministry of Agriculture (MAFF), Local Authorities (LA), English Nature (EN) National Farmers Union (NFU), Riparian Owners (RO).

What is happening already?

The response to predicted rates of sea-level rise is addressed as a key issue in the Humber Estuary Management Strategy (HEMS), to which the Agency contributed. Proposals considered are to help maintain the natural processes in and provide sustainable management of the estuary. It is suggested that the long-term objective is to work with and facilitate the natural processes by the use of managed realignment and other soft engineering techniques rather than to resist the changes.

ISSUE 12 : Potential effects of climate change on flood defences							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
12.1 Manage the policy for development in flood plains	EA MAFF	SU/LA EN/NFU RO	+ Appropriate management of flood plains	U	U	1999/2004 (to allow interaction with HEMS)	David Hoskins
12.2 Consult with SUs to investigate drainage systems	EA	SU/LA	+ Reduction in storm water flooding	U	U	1999/2004	David Hoskins
12.3 Consult with conservation bodies and agricultural groups	EA	NFU/RO MAFF	+ Appropriate standards of defence	U	U	1999/2004	David Hoskins

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➔ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➔ Provide effective flood defence;
- ➔ Secure the most appropriate legislation, management systems, and financial arrangements to ensure the sustainability of our navigational waters;
- ➔ Work with local authorities to maximise the conservation and recreational use and value of our river basins.

Issue 13 Periodic high ammonia levels in the lower reaches of the River Trent

Objective - to maintain and improve water quality in the River Trent

What is the problem?

Peaks of ammonia in the River Trent have led to a failure to meet the requirements of the EC Freshwater Fisheries directive along with detrimental effects on water quality in general. The river is classified as RE3, which means the water is of fair quality and suitable for high-class coarse fish populations. However, a network of combined sewerage systems provided with storm overflows serves the catchment. Despite operating legitimately during wet weather, these can result in the discharge of dilute sewage into the river systems with a consequent increase in the ammonia concentration. Although these concentrations are within acceptable limits, levels are exacerbated by the discharges of ammonia during winter months following degradation of urea from the Birmingham area. On elevated sections of motorways and bridges urea is used to replace salt as a de-iceant is because the salt is corrosive and attacks the metal fabric.

Who is involved?

Environment Agency (EA), Highways Agency (HA), Local Authorities (LA)

What is happening already?

The impact of the West Midlands conurbation on downstream water quality has been raised in the *West Midlands-Tame LEAP (Issue 11)*. Options proposed include monitoring downstream water quality, reviewing discharge consents and investigating diffuse inputs. These actions will be reviewed on an annual basis as part of the *West Midlands-Tame LEAP* process with the aim that water quality in the Tame catchment does not compromise the requirements of the Lower Trent.

ISSUE 13: Periodic high ammonia levels in the lower reaches of the River Trent							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		Lead	Others		
13.1 Review the maintenance and operation of existing treatment measures	EA	HA	+ Development of best practice and adoption of Sustainable Urban Drainage	U	U	1999/2004	Alf Astill
13.2 Investigate new methods of de-icing roads with reduced impact on water quality	HA	LA/EA	+ Sustained water quality	U	U	1999/2004	Alf Astill

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➡ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➡ Ensure that all waters are of sustainable quality for their different uses;
- ➡ Deliver a continual improvement in overall water quality;
- ➡ Improve river habitat quality, as measured by river habitat surveys.

Issue 14 The effects on water quality and quantity of colliery closures

Objective - to anticipate the effects of future colliery closures on the environment

What is the problem?

Coal mining has been a major industry in the Midlands and parts of the plan area, but has declined substantially since the 1960s and only a few mines remain open. As coal reserves become exhausted through changes in the demand for coal, further mine closures are likely. On closure of a mine and the halting of pumping, there is a potential risk of uncontrolled discharges of ochorous water to surface water or the movement of poor quality mine water into overlying aquifers, including those used for water supply. There is also a potential for the discharge of more hazardous substances, which will need to be monitored. Even though problems may not be imminent the need to acquire reliable data on changes in groundwater movement is urgent. The potential impact on the Triassic Sandstone aquifer, which is extensively utilised for potable supply in Nottinghamshire, means that there are implications for both water quality and water resources. Therefore, a partnership approach needs to be adopted in solving these problems, potentially involving the Agency, water companies and the Coal Authority. The issue is also not only a problem for this plan area but is nation-wide and a nationally co-ordinated approach needs to be taken.

Who is involved?

Coal Authority (CA), Environment Agency (EA)

What is happening already?

Currently mine-water is raised at the site of the former Woodside Colliery near Shipley, where it is treated prior to discharge into the headwaters of the Nutbrook. Other mine-water migrates towards Bentinck Colliery from the south (ie. former Babbington, Moorgreen and Pye Hill collieries) where it is pumped underground, raised at Annesley Colliery and treated on the site of the former Newstead Colliery. The treated effluent is then discharged via a pump assisted gravity flow pipeline into the River Trent at the Meadows, Nottingham some 15 km to the south. Mine-water from the north-west is intercepted by the 'A' Winning and Morton pumping stations before arrival at Bentinck Colliery near Pinxton. This effluent is treated and discharged outside the plan area into the Alfreton and Westwood brooks respectively which enter the Rivers Amber and Derwent systems.

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 mines which represent a potential risk.

ISSUE 14: The effects on water quality and quantity of colliery closures							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
14.1 Investigate emergence of uncontrolled pollution within the plan area	CA/EA	-	+ Early implementation of remedial measures	U	-	1999/2004	Alf Astill
14.2 Notify EA of known subsidence problems in order to assess impact on water quality	CA	EA	+ Early implementation of remedial measures	U	U	1999/2004	Alf Astill
14.3 Investigate pollution potential of future colliery closures	CA/EA	-	+ Protect controlled waters	U	-	1999/2004	Alf Astill

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management and Managing our Freshwater Fisheries:

- ➡ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➡ Ensure that all waters are of sustainable quality for their different uses;
- ➡ Tackle mine-water pollution at the head of streams to improve spawning grounds.



Photograph 16 – River Eau at Scotter

Issue 15 Poor biological quality in stretches of the River Eau

Objective - to restore wildlife to the River Eau

What is the problem?

Recent biological and fisheries surveys of stretches of the River Eau (Photograph 16) have demonstrated relatively poor biological quality when compared with chemical water quality. The water that feeds the River Eau rises from the groundwater in the Lincolnshire Limestone and therefore should be of good quality. The problem may be caused by run-off of pesticide and/or herbicide into the River Eau catchment. However, the source of these inputs appears to be scattered rather than from one specific location.

Who is involved?

Environment Agency (EA), landowners (LO), Industry and Commerce (IC).

What is happening already?

The River Eau provides habitat for otters along some of its reaches. It is therefore important to improve the quality of other parts of the river to increase the habitat potential of the area.

ISSUE 15: Poor biological quality in stretches of the River Eau							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
15.1 Investigate to identify sources and minimise contamination	EA	LO/IC	+ Improvement to biology/fishery	U	U	1999/2000	Phil Hukin

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➔ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➔ Ensure that all waters are of sustainable quality for their different uses;
- ➔ Deliver a continual improvement in overall water quality;
- ➔ Improve river habitat quality, as measured by river habitat surveys;
- ➔ Increase the number of rivers and still waters capable of supporting viable fisheries.

Issue 16 Water pollution due to inadequate sewerage systems and cross connections

Objective - to reduce pollution potential and increase awareness of the problems

What is the problem?

Residential

There are a large number of rural areas within the catchment which are served by inadequate sewerage and sewage treatment facilities. For example, Langar, Scriverton, Tythby, Barnstone and Granby are under the STW AMP2 expenditure programme to improve facilities. In some cases small villages consisting of only a few properties are connected into rudimentary sewerage systems which ultimately discharge into the nearest watercourse. The treatment offered by these systems is often inadequate or non-existent. The discharge can therefore have a detrimental effect on water quality, leading to a failure of the Rivers Ecosystem classification objective.

Cross connections in the River Trent catchment are not strictly due to inadequate sewerage systems but does result in the pollution of small watercourses in the plan area. Most of the problems identified concern washing machines, dishwashers or hand basins being connected into the surface water system rather than the foul sewerage system. This results in soapy water being discharged directly into watercourses. For example, problem areas have been Repton, Willington, Etwall, Littleover and the city of Derby, which was a separate issue in the *Derbyshire Derwent LEAP (Issue 3)*. Problems tend to be localised but on occasion difficult to resolve due to lack of drainage information about old systems. The impact of these problems is confined to small local watercourses and has no significant impact on the River Trent. However, due to the rural locality of some of them, complaints are often numerous.

Industrial

Inadequate sewerage systems also exist for substantial industrial developments, which discharge sewage effluent into the River Trent. As development continues many wharves along the lower tidal part of the river increasingly require adequate treatment facilities. Many of the properties within the sites are privately owned and there are no public foul sewerage systems. It is therefore legally and technically difficult to ensure there is an adequate system for transport of effluent from the sites. One of the key issues within the Humber Estuary Management Strategy (HEMS) is the need to ensure the sustainable economic development of the estuary's ports, wharves and industrial base. Clearly the problem of unsatisfactory sewerage facilities needs to be resolved in order that this aim can be achieved.

Who is involved?

Environment Agency (EA), Severn Trent Water Ltd (STW), Local Authorities (LA), property owners.

What is happening already?

Many of the rural villages were included in the STW AMP2 expenditure programme and have been provided with modern sewerage and sewage treatment facilities. There are still a number of the smaller villages that require addressing as public complaints regarding smell and water quality persist. These areas have been included in the AMP3 expenditure programme.

ISSUE 16: Water pollution due to inadequate sewerage systems and cross connections							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
<u>Residential</u> 16.1.1 Create a pollution prevention initiative to inform householders of problem	EA	House owners	+ Highlight problem, remove easily remediated concerns	U	U	1999/2004	Steve Wenham & Phil Hukin
16.1.2 Determine responsibility for drainage	EA	STW/LA House owners	+ Reduce pollution	U	U		
<u>Industrial</u> 16.2.1 Review existing industrial sites determine appropriate treatment	EA	Property owners	+ Quantify problem, identify areas for further work	U	U	1999/2000	Phil Hukin
16.2.2 Ascertain if STW Ltd would adopt any existing sites	EA	STW	+ Maintenance of system, reduced pollution potential	U	U	1999/2004	
<u>Sewer Dykes</u> 16.3 Ensure improvement to rudimentary systems	STW EA	-	+ Improved water quality	U	-	2000/2005	Alf Astill

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➔ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➔ Ensure that all waters are of sustainable quality for their different uses;
- ➔ Deliver a continual improvement in overall water quality;
- ➔ Improve river habitat quality, as measured by river habitat surveys.

Issue 17 Poor water quality in the Bottesford Beck**Objective - Further improve the water quality in the Bottesford Beck*****What is the problem?***

The whole of the watercourse has an RE5 objective because of the industrial nature surrounding the headwaters of the beck and the impact of subsequent discharges downstream. The main pollutant is ammonia from both the sewage works and discharges from the British steel works at Scunthorpe (see Photograph 15). Improvements are currently underway by STW at Yaddethorpe sewage treatment works and British Steel have also spent substantial quantities on reducing levels ammonia discharged to the beck. Both of these improvements will enhance the quality and amenity value of the brook. Despite these improvements the watercourse is described as bad or poor with regard to water quality. Further ammonia concentration reductions are necessary in order to ensure the improvements are sustainable and improve the watercourse from its quality descriptor of bad/poor.

Who is involved?

Environment Agency (EA), British Steel (BS), Severn Trent Water Ltd (STW)

What is happening already?

There have been very significant improvements to water quality in the Bottesford Beck catchment over the past 25 years. It now supports fish populations and the riverside walks provide a very popular local amenity. However, the water quality is very much in the balance. Improvement would properly establish the beck as a healthy river with all of the associated benefits, whilst deterioration may seriously affect amenity and general river health.

ISSUE 17: Poor water quality in the Bottesford Beck							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
17.1 Improve quality of discharges	EA	STW BS	+ Improved water quality and associated aesthetic/biological consequences	U	U	1999/2004	Craig Woodburn
17.2 Ensure dilution flows are maintained where appropriate	EA	BS	+ Improved water quality and associated aesthetic/biological consequences	U	U	1999/2004	Craig Woodburn
17.3 Do nothing	-	-	- Poor water quality of Bottesford Beck	-	-	-	-

The above proposals (except 17.3) will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➡ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➡ Ensure that all waters are of sustainable quality for their different uses;
- ➡ Deliver a continual improvement in overall water quality;
- ➡ Improve river habitat quality, as measured by river habitat surveys.

Issue 18 The effects of tidal movements in the River Trent on water quality

Objective - to improve the understanding of tidal movements in the River Trent and to improve discharges

What is the problem?

The tidal part of the River Trent, from Cromwell weir to the Humber Estuary, represents a dynamic situation and under varying conditions there may be water quality problems as a result of historic discharges to the river. The cause seems to be due to re-suspension of contaminants from the river and estuary sediments but it may also be linked to the concentration of contaminants from existing discharges. There is a need for the Agency to develop a model that will satisfactorily resolve such questions and provide knowledge of current discharge movements. This will allow greater understanding and the ability to review future discharge proposals more effectively.

Who is involved?

Environment Agency (EA), Dischargers (D).

What is happening already?

Modelling has been undertaken on the Humber Estuary but the impact of the discharges into the Trent under differing tidal situations is not fully understood. In order to protect the conservation designation of the Estuary downstream a greater appreciation of the effect is required. Liaison with other regions of the Agency who have greater expertise in modelling of estuarine situations may provide invaluable information.

ISSUE 18: The effects of tidal movements in the River Trent on water quality							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
18.1 Detailed study of discharge distribution as part of any future discharge application	EA	D	+ Greater understanding of riverine impact and improved water quality	U	U	1999/2004	Craig Woodburn
18.2 Develop lower River Trent quality model	EA	-	+ Determine holistic effects of discharges	U	-	1999/2004	Craig Woodburn

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➡ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➡ Ensure that all waters are of sustainable quality for their different uses;
- ➡ Deliver a continual improvement in overall water quality;
- ➡ Improve river habitat quality, as measured by river habitat surveys.

Issue 19 Flood defence strategy to reflect changing land use

Objective - to ensure that an appropriate level of defence is provided

What is the problem?

Along the River Trent there are flood defences which provide a level of defence (often 1:10 year) to land which is now used only for occasional grazing; for example, at Hazleford, Stoke Bardolph and Rolleston. When the defences were originally constructed this land was often used for lower grade arable crops or continuous stock rearing. As agricultural priorities have changed so has the land use, and defences are still being maintained against criteria which are no longer valid. There is a need to review where land use has changed significantly, taking into account National Standards of Service and the benefits of providing the defence.

Who is involved?

Environment Agency (EA), MAFF, English Nature (EN), National Farmers Union (NFU), Riparian Owners (RO).

What is happening already?

Agency operatives are still maintaining the defences when worn sections need repairing in order to keep their 1:10 year status.

ISSUE 19: Flood defence strategy to reflect changing land use							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
19.1 Carry out cost/benefit analysis on justification	EA	-	+ Problem identified	U	-	1999/2000	David Hoskins
19.2 Review land use patterns and carry out enhanced modelling	EA	-	+ Areas of benefit/risk identified	U	-	1999/2000	David Hoskins
19.3 Reduce or cease maintenance of defences	EA MAFF	EN/NFU RO	+ Reduction in costs and better use of resources	U	U	1999/2002	David Hoskins

The above proposals will work towards achieving the following Agency objectives on delivering integrated river basin management:

- ➡ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➡ Provide effective flood defence.

Issue 20 *Recreational potential of rivers in the plan area are not fully exploited*

Objective - to promote the provision of additional recreational facilities on the Rivers Trent, Leen and Erewash as well as other rivers in the plan area

What is the problem?

Recreational facilities on rivers in the plan area are fragmented and require integration in order that users can enjoy maximum benefits. The River Trent is a major navigation in the region and is used extensively by boaters, sailors, canoeists, rowers, anglers and walkers. There is a need for additional moorings on the river for overnight and residential boaters, access to riverside footpaths, bridleways and general recreational facilities.

Who is involved?

British Waterways (BW), County Councils (CC), Environment Agency (EA), Local Authorities (LA), National Federation of Anglers (NFA), Greenwood Community Forest (GCF), British Canoe Union (BCU), Sustrans (S), Riparian Owners (RO).



Photograph 17 – Recreation on the River Trent

What is happening already?

The majority of moorings are found at locks and public houses and have been provided by British Waterways, although some moorings have been made available on Agency land at Hazleford. The Trent Valley Way footpath is used in Nottinghamshire but has not been formalised in other counties. The River Leen has a footpath along much of its length in Nottingham and the Corridors to the Countryside (CtoC) Project is producing a strategy which will look at extending this up to Greenwood Community Forest. The Agency will investigate any impacts caused by increased recreational use on the existing conservation value. We will work with others in a strategic way to promote recreation on rivers and to promote improved facilities for all users.

ISSUE 20: Recreational potential of rivers in the plan area are not fully exploited							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Other		EA	Others		
20.1 Support BW in provision of moorings	BW	CC/EA LA/RO	+ Improved facilities	U	U	1999/2000	Valerie Holt
20.2 Promote long distance riverside walks and cycle-ways in the Erewash catchment*	BW/CC LA	EA/RO S	+ Reduction in car use	U	U	1999/2000	Valerie Holt
20.3 Promote the extension of the Trent Valley way	BW/CC	EA/LA RO	+ Creation of a whole Trent footpath route	U	U	1999/2000	Valerie Holt
20.4 Continue support of CtoC project	BW/CC	EA/LA RO	+ Extension of footpath to Greenwood Community Forest	£5k/yr	U	1999/2000	Valerie Holt

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin Management:

- ➡ Manage river basins in an integrated way, via Local Environment Agency Plans;
- ➡ Work with Local Authorities to maximise the conservation and recreational use and value of our river-basins.

*Outstanding action from the River Erewash CMP.

Issue 21 Inappropriate River Quality Objectives

Objective - To review and apply RQOs which reflect the uses and demands of watercourses

What is the problem?

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 a chemical classification scheme: *The River Ecosystem classification scheme*. This comprises of five quality classes that reflect the chemical quality requirements of different types of river ecosystems. Many of the current RQOs were directly transferred from a historic National Water Council banding. As the methods involved with simulating the effects of discharges have improved so statements regarding the quality that can be obtained within rivers is more scientifically based. Considerable improvements in water quality because of greater legislation and the impact of pollution prevention also mean that many watercourses are able to sustain water quality, which was historically unobtainable.

There are a few watercourses, which have an RE5 objective, such as the Marton Drain, Torksey. When reassessing RQOs the Agency must first consider the costs and benefits associated with any alterations. In certain circumstances this grading may be appropriate, however where possible the attainment of RE4 should be set as a target. A few watercourses, which should have an RQO appear not to have, these can have one set under this review. Examples of these locations are Folly Drain and Warping Drain Keadby.

Who is involved?

Environment Agency (EA), Severn Trent Water Ltd (STW), Local Authorities (LA)

What is happening already?

There are a number of watercourses in the plan area, which because of continued quality improvements, and improved pollution control measures 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 plan 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.

Numerous improvements have been carried out under the AMP2 process, which mean that long term objectives that have been set can now be complied with. Other priorities have been raised in the AMP3 submission, which should ensure continued improvements along many of our watercourses are achieved.

ISSUE 21: Inappropriate River Quality Objectives							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		Lead	Others		
21.1 Continued review of all RQOs	EA	-	+ Appropriate RQOs	U	-	1999/2004	Craig Woodburn
21.2 Investigate locations where biological quality does not correspond with chemical results	EA	-	+ Locate previously unknown diffuse pollution impacts	U	-	1999/2004	Craig Woodburn

The above proposals will work towards achieving the following Agency objectives on Delivering Integrated River-basin management:

- ➡ Manage river-basins in an integrated way, via Local Environment Agency Plans;
- ➡ Deliver a continual improvement in overall water quality.



3.7 Conserving the Land

The Agency is consulted on development proposals through the planning consultation system, and will do its best to prevent new development in unsuitable places by influencing the Town and Country Planning system. This will include discouraging development in flood plains and ensuring the availability of water resources, waste and sewerage infrastructure are considered when new developments are planned. We will also encourage development on "brown field" sites in preference to "green field" land. Local Authorities, in partnership with the Agency, will identify and report on the extent of contaminated land in their areas, and the Agency will regulate contaminated land defined as "special sites".



Photograph 18 – Smotherfly Opencast Coal Site

Issue 22 Loss of building land due to historic contamination

Objective - to support the remediation and restoration of contaminated land for re-use

What is the problem?

There are sites where former activities have left residual contamination. Contaminated land presents particular problems with respect to human health, air quality, and surface and groundwater quality. Disturbance or redevelopment on these sites can lead to potential deterioration in water quality.

Who is involved?

Local Authorities (LA), Environment Agency (EA)

What is happening already?

During the planning stage of any redevelopment the Agency works closely with Local Planning Authorities (LPAs) and developers to ensure the water environment is enhanced. This can be carried out by negotiation with the LPA and developers to ensure pollutants are removed from site, neutralised or effectively contained. By working together the Agency and Local Authorities should ensure consistent guidelines and legal controls are followed with regard to risk assessment and environmental impact.

The contaminated land provisions under Part IIA of the Environmental Protection Act 1990 (as amended by the Environment Act 1995), which will introduce wide-ranging powers to Local Authorities and to the Agency, are to be implemented in 1999. Local Authorities will have responsibility for identifying contaminated land and regulating its remediation. In certain circumstances, contaminated sites become 'Special Sites' and the Agency is then the regulator. The Agency and Local Authorities are working closely together already in preparation for the introduction of the new provisions. The economic use and environmental gain of reclaiming areas of contaminated land or 'brown field' sites needs to be promoted widely in order to reduce the pressure on 'green field' sites.

ISSUE 22: Loss of building land due to historic contamination							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
22.1 Encourage appropriate remediation of contaminated sites	LA	EA	+ Remove pollution risk	U	U	1999/2004 (Ongoing)	Rob Harper
22.2 Co-ordinate approach on contaminated land problems	LA	EA	+ Ensure remediation options are fully considered	U	U	1999/2004 (Ongoing)	Rob Harper

The above proposals will work towards achieving the following Agency objectives on Conserving the Land:

- ➡ Influence the Town and Country Planning Systems to prevent developments in the wrong places;
- ➡ Discourage development in flood plains;
- ➡ Work with local authorities to identify, and report on the extent of contaminated land;
- ➡ Regulate identified "special" contaminated land sites effectively;
- ➡ Research into the specific risks and remediation needs of contaminated land.

Issue 23 Derelict Land

Objective - to create land that has a beneficial use and reduce potential for polluting activity

What is the problem?

Derelict land presents opportunities for activities that can lead to temporary pollution. It is not necessarily contaminated or known to contain pollutants as a result of previous activity. Activities carried out on derelict land include fly tipping, cable burning, aluminium smelting, flame cutting of transformers, as well as the tipping of household in the area. More permanent pollution of the land or nearby watercourses can also occur. There are regulatory procedures that can be used to uphold the 'polluter pays' principle in such cases. However, catching the culprits and obtaining enough evidence to prosecute is often difficult.

Who is involved?

Environment Agency (EA), Local Authorities (LA), English Partnership (EP), British Coal (BC), National Forest (NF), Greenwood Community Forest (GCF), Landowners

What is happening already?

Regulatory procedures are only one way of tackling the problem, and the Agency policy is to move towards prevention measures and to avoid the likelihood of pollution occurring. Restoration of the sites to provide land that could be put to a beneficial use represents a way forward. This may present many opportunities for the Agency to form partnerships with other bodies to accelerate restoration and make a significant difference to the local environment. Funding is generally available from many sources, including the EC, but this may not be an appropriate input for the Agency. Whilst some predecessor organisations of the Agency contributed to derelict land restoration prior to the Agency's existence, there is now the opportunity for the Agency to act in a more co-ordinated manner through an integrated approach not previously possible.

ISSUE 23 : Derelict Land							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
23.1 Undertake feasibility study to investigate the potential for partnerships to accelerate derelict land restoration	EA	LA/EP BC/NF GCF	+ Land put to beneficial use, less likely to attract polluting activities	U	£3k	2000	Chris Deakin
23.2 Encourage development on derelict land sites	ALL	-	+ Green belt land protected	U	-	1999/2004	Chris Deakin

The above proposals will work towards achieving the following Agency objectives on Conserving the Land:

- ➔ Influence the Town and Country Planning Systems to prevent developments in the wrong places;
- ➔ Work with local authorities to identify, and report on the extent of contaminated land;
- ➔ Research into the specific risks and remediation needs of contaminated land.

Issue 24 Potential damage to the archaeological resource of the River Trent corridor

Objective - To promote and support the production of an archaeological strategy for the River Trent corridor

What is the problem?

The River Trent corridor contains a nationally important archaeological resource, consisting of archaeological sites and remains, historic landscapes, and deposits within which there are well preserved organic remains, which are important reservoirs of information about the environment of the past. This resource is threatened by many activities such as gravel extraction, drying out of peat, dewatering, deep ploughing and development in general.

Whilst many of the archaeological remains are visible only in differential crop growth (cropmarks) seen from the air, others are visible and recognisable at ground level. There are a number of Scheduled Ancient Monuments but statutory provisions alone are not adequate for the protection of this diverse and complex resource. Consequently this will have to be achieved through non-statutory plans, policies and procedures. The Agency will play its part in the development and carrying out of these. Some sites, such as mills on the Rivers Leen and Erewash and on the Dover Beck, could benefit from interpretation. Torksey Castle is an ancient monument on the Trent floodplain and partial restoration could be achieved if the foundations were protected from flooding.

Please note that these are resources the Agency is aware of and we realise there will be many others.



Photograph 19 – Torksey Castle

Who is involved?

English Heritage (EH), County Councils (CC), Environment Agency (EA), Voluntary Groups (VG), Trent & Peak Archaeological Trust (T&PT)

What is happening already?

Research into the history of the River Trent and of human settlement and land use in its valley, and to identify the circumstances in which archaeological remains and palaeo-environmental evidence survive, has been in progress for a number of years. We have supported, along with other partners, the early stages of a study being undertaken by the Trent and Peak Archaeological Trust. This together with the other research will provide the foundation for policies and strategies for the conservation of the archaeological resource.

ISSUE 24: Potential damage to the archaeological resource of the River Trent corridor							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
24.1 Support the development of an archaeological strategy for the River Trent corridor	EH/CC	EA T&PT	+ Protection of resources	U	£115k	1999/2002	Valerie Holt
24.2 Assess the drying out of archaeological resource by lowered water levels	EH/CC	EA T&PT	+ Problem identified	U	£20k	1999/2002	Valerie Holt
24.3 Liaise with County Councils regarding surveys of historic sites*	CC/EA	VG	+ Sites identified	£10k	U	1999/2000	Valerie Holt
24.3 Undertake a model run to assess the effects of any flood defence to Torksey Castle	EA	-	+ Problem identified	£5k	-	1999/2004	Valerie Holt

The above proposals will work towards achieving the following Agency objectives on conservation of nature and our heritage:

- ➔ Have regard to protecting and preserving buildings, sites and objects of archaeological, architectural, engineering or historic interest.

* Outstanding action from the River Erewash CMP.



3.8 Managing Waste

Every household, business and industry produces waste and there are a variety of facilities, which perform the necessary function of processing, recycling and disposing of it. Prior to 1974 there were few controls over the deposition of waste and much industrial waste was deposited on land adjacent to the producer. Today, the Local Planning Authorities under the Town and Country Planning Act 1990 decide the location of waste management facilities through the land use planning system. The Agency's principle role in directly protecting the environment from waste is through the regulation of such sites via the waste management licensing and exemption system introduced in the Environmental Protection Act 1990. With the exception of certain exempt facilities, which must be registered with the Agency, sites keeping, treating, disposing or depositing controlled wastes must be licensed. Controlled waste is household, industrial and commercial waste. Waste not classed as controlled waste and therefore not subject to the licensing regime includes waste from mining, quarrying and agricultural, as well as radioactive wastes and decommissioned explosives.



Photograph 20 – Flytipping

Issue 25 The disposal of potentially contaminated soil at unlicensed sites

Objective - To investigate and establish the level of compliance of activities exempt from waste management licensing, with particular regard to the acceptance of contaminated soil

What is the problem?

Soil removed from contaminated sites may be being disposed of at unlicensed facilities. These facilities, known as "registered exempt sites", do not have the regulatory controls applied to licensed facilities and present legislation leaves the potential for abuse. The degree of contamination of land as a result of previous activity or incidents dictates the disposal route. Soil is either sent to a licensed waste site where the degree of technical precaution is enough to prevent pollution and harm to human health, or to a registered exempt site. Because of pressure on developers to find the least expensive disposal option there is often inadequate consideration given to the nature and degree of soil contamination.

Whilst it is important to encourage the reclamation and redevelopment of land it is equally important to ensure that the contaminated soil is disposed of in a manner which significantly reduces the risk of environmental pollution and harm to human health.

Who is involved?

Environment Agency (EA), Local Authorities (LA)

What is happening already?

Relatively uncontaminated soil may be disposed of at an inert landfill site or at a site registered exempt under the waste management licensing system. Contaminated soils will need to be disposed of at suitably licensed and engineered sites. The Agency has produced 'Interim Guidance on the Disposal of Contaminated Soil' to assist in deciding the most appropriate disposal route. We are concerned at the present inadequate controls to prevent the tipping of unsuitable materials and by the potential for pollution to occur from such sites where tipping may have occurred. There is therefore a need to establish if tipping to date complies with the legislation at registered exempt facilities.

ISSUE 25: The disposal of potentially contaminated soil at unlicensed sites							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
25.1 Undertake a survey of exempt facilities	EA	LA	+ Prevent pollution and harm to human health	• £35k	-	1999	Chris Deakin

The above proposals will work towards achieving the following Agency objectives on Managing Waste:

- ➔ Encourage and inspire industry to develop new and improved techniques for the management of special and other industrial wastes.

Issue 26 Adverse impact of litter and illegal waste disposal activity on land and in watercourses

Objective - to ensure that an effective mechanism is developed to deal with illegal waste disposal and litter in the plan area

What is the problem?

There is a problem of illegal waste disposal activity within the plan area. The problem of "flytipping" occurs at some locations, on both private and public land (Photograph 20). Quantities of waste disposed in this way can vary from a single bag of domestic refuse, to skip loads of industrial or construction waste. Wastes are deposited on all kinds of sites, including waste ground and derelict premises, car parks, verges, farmland, alleyways, into watercourses and even on the public highway. As well as the obvious detriment to amenity wherever it occurs, flytipping often brings the risk of environmental pollution, physical injury or damage to health. Where waste is deposited into a river there will be an increase in the likelihood of blockage, which can lead to flooding of roads and property, particularly where there are culverts or bridges.

One of the main problems of flytipping in the plan area involves the illegal disposal of tyres. Because of a shortage of suitable disposal facilities there have been incidents of tyre tipping in some parts of Nottinghamshire, including Broxtowe, Eastwood and Newark. Often the problem is caused simply by a lack of knowledge and awareness amongst small garages and if they are offered the opportunity for unwanted tyres to be taken away they generally accept. These tyres are frequently then tipped illegally on derelict land, verges or farmland.

Litter along the banks of watercourses and in river channels can impair the public's perception of rivers and their surrounds. It can also be harmful to wildlife and livestock. The problem is visible after river associated activities such as fishing matches and special events as well as normal recreational activities. The problem also occurs after flooding events when the river deposits litter that was carried in the channel onto banks and fields in the floodplain. Many requests are received from the public asking for the removal of this litter and debris.

Who is involved?

Environment Agency (EA), Local Authorities (LA), Waste Disposal Companies (WDC)
Riparian Owners (RO), Tidy Britain Group (TBG)

What is happening already?

Where flytipping occurs and the offender cannot be found the responsibility of clearing the waste rests with the landowner. The Agency works with Local Authorities to deal with problems where possible and a national Memorandum of Understanding exists, which identifies the respective roles of each. Local Authorities will deal with occurrences that are of a smaller scale or do not pose an immediate threat of environmental pollution. The Agency will deal with tipped waste on its own land, and tipping into Main River watercourses where it is likely to cause a blockage or pollution.

In terms of litter along watercourse banks, again the land or riparian owner has the responsibility to clear any deposited materials. On its own land the Agency clears litter as the riparian owner and recent local initiatives have led to "litter-picks" along stretches of the River Trent in Nottingham. The Local Authorities are the designated litter authorities under the Environmental Protection Act 1990. There is a need to bring together the various organisations involved in tackling litter throughout the plan area. This will help to focus efforts where best needed and avoid duplication or waste of resources.

ISSUE 26: Adverse impact of litter and illegal waste disposal activity on land and in watercourses							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		Lead	Others		
26.1 Identify problem locations and appropriate remedial action	EA	LA/TBG RO	+ Increase detection and prosecutions. Reduction in flytipping activity	U	U	1999	Chris Deakin
26.2 Prepare a local flytipping strategy	EA	LA	+ Improved public awareness & enforcement	U	U	2000	Chris Deakin
26.3 Encourage and advertise better provision of household waste sites and collection services available for problem wastes	LA/WDC	EA	+ Increased awareness	U	U	1999/2004	Chris Deakin
26.4 Undertake survey of garages to establish disposal routes for tyres and raise awareness	EA	-	+ Increased awareness	U	-	2000/2001	Chris Deakin
26.5 Consider installation of debris screens in appropriate watercourses	LA/RO	-	+ Litter prevented from spreading; - Increased risk of blockage, likelihood of flooding and increased maintenance cost	U	-	1999/2004	David Hoskins
26.6 Work with LA to promote existing legislation & increase awareness of responsibilities	LA/EA	RO	+ Increased awareness	U	U	1999/2004	David Hoskins

The above proposals will work towards achieving the following Agency objectives on Managing Waste:

➔ Obtain information on flytipping and devise means of combating it.

Issue 27 *Illegal disposal of controlled waste by burning*

Objective - to reduce the quantity of waste disposed of by burning and to eradicate the process of unauthorised cable burning

What is the problem?

Many small waste producers, and some waste contractors, deliberately burn their waste to avoid disposal charges. This is a serious matter, which leads to air pollution and nuisance. The Agency and Local Authorities receive public complaints, which can consume considerable resources needed elsewhere. In order to combat this practice there is a need for the Agency and Environmental Health Officers to work in close liaison. Sometimes there appears to be no real intent to break the law but simply a lack of knowledge of the restrictions on burning. The practice has usually been well established and offenders are frequently surprised when confronted.

It must be stated here that the burning of household and garden waste is not regulated by the Agency and we have no statutory control of this practice.

The burning of electrical cable for the recovery of valuable non-ferrous metal is another very serious matter. When burning, the cover material gives off a considerable amount of dense black smoke and fumes causing air pollution and nuisance over a widespread area. The activity is mostly carried out at night by itinerants who quickly move on when their source of supply is exhausted.

Who is involved?

Environment Agency (EA), Local Authorities (LA), Police, Fire Brigade (FB)

What is happening already?

The Agency has had some success in stopping burning practices but a lot of resources are required. The establishment of partnerships between the Agency, Police, Local Authorities and the public through reporting the locations of stored cable on derelict land provide essential links to combat the issue.

ISSUE 27 : Illegal disposal of controlled waste by burning							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		Lead	Others		
27.1 Agree a joint strategy with LAs	EA	LA	+ Reduce air pollution and nuisance. Potential for increased prosecutions	U	U	1999	Chris Deakin
27.2 Agree joint procedures with LAs and Police for combating cable burning	EA	LA Police FB	+ Reduce air pollution and nuisance. Potential for increased prosecutions	U	U	1999	Chris Deakin

The above proposals will work towards achieving the following Agency objectives on Managing Waste:

➔ Provide a high quality of waste regulation service.



3.9 Regulating Major Industries

Pollution from industrial sources has the potential to harm all living things. One of the Agency's key responsibilities is to prevent the release of pollutants into air, water or land through integrated pollution control (IPC). Where releases do occur, we try to ensure they are minimised and made harmless.

A similar approach to IPC will be introduced throughout the European Union under the EC Directive on integrated pollution prevention and control (IPPC) which will become UK law by October 1999. IPPC regulates more sectors of industry and takes into account more environmental concerns than IPC, including energy conservation and the clean up of sites when activities stop.



Photograph 21 – Basic oxygen steel making at British Steel, Scunthorpe

(Photo kindly provided by British Steel Sections Plates & Commercial Steels, Scunthorpe)

Issue 28 Public perception of the use of Substitute Fuels

Objective - To handle applications to use Substitute Fuels in such a way that the public are reassured and the environment is protected

What is the problem?

A number of processes authorised under IPC have indicated the possible use of 'Substitute Fuels' to reduce costs and increase process efficiency. These potential applications will need to be addressed via the Substitute Fuels Protocol to ensure the objective is met. Substitute Fuels may constitute any material that the operator may propose which has calorific value sufficient to take the place of existing fuels in an authorised process. The nature of these Substitute Fuels may render applications for their use contentious. Therefore, they may require a more diverse consultation and commissioning/testing regime than other changes to the authorised process might warrant.

Who is involved?

Environment Agency (EA), Industry (I)

What is happening already?

The protocols have been used elsewhere in the country and a protocol of this type is currently being used at Fibrogen Ltd in Flixborough. An application has been made by Fibrogen to incinerate meat and bone meal in the generation of power.

ISSUE 28 : Public perception of the use of Substitute Fuels							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
28.1 Assess applications according to the Substitute Fuel Protocol	EA/I	-	+ Improved air quality	£30 - 50k	-	1999/2000	John Collins

The above proposals will work towards achieving the following Agency objectives on Regulating Major Industries:

- ➔ Continue the efficient and effective delivery of Integrated Pollution Control.

Issue 29 Eutrophication in the River Erewash

Objective - to determine point source impacts and ensure UWWTD Eutrophication compliance

What is the problem?

Phosphate and nitrogen when in elevated concentrations (above 100ug/l orthophosphate levels) can lead to excessive plant and plankton growth within watercourses. Phosphate is usually present in lower concentrations and so is easier to remove than nitrogen. The main input of phosphate comes from point source discharges, which are the sewage treatment works in the catchment.

The effect of these large increases in plants is daily variations in oxygen concentration within the watercourse. The variations occur as a result of photosynthesis in the day when the plants produce oxygen in excess with the result of high concentrations in the watercourse. Conversely during night-time the plants do not photosynthesise but continue to respire which results in the utilisation of the oxygen and hence there may be a considerable dip in oxygen concentrations. This problem has an impact on the type and range of creatures able to survive within the watercourse.

Who is involved?

Environment Agency (EA), Severn Trent Water Ltd (STW), Department of the Environment, Transport and the Regions (DETR)

What is happening already?

Chemical monitoring for phosphate along with intensive biological monitoring on the River Erewash has taken place, this information has resulted in the river being designated as a sensitive area for eutrophication under the Urban Waste Water Treatment Directive (91/271/EEC). This directive stipulates that phosphate removal should be installed at qualifying sewage works (serving a population greater than 10,000) if the discharge is proved to have a detrimental impact. In order to prioritise the improvements required, modelling of the eight sewage treatment works discharges on the Erewash is required.

ISSUE 29: Eutrophication in the River Erewash							
Options for action	Responsibility		Impacts (+ or -)	Estimated Cost		Timescale	EA Officer
	Lead	Others		EA	Others		
29.1 Review and model existing data	EA	-	+ Identify contribution of qualifying discharges	U	-	1998/1999	Craig Woodburn
29.2 Prioritise removal of nutrients to prevent Eutrophication*	STW	EA DETR	+ Reduced Eutrophication and enhanced habitat	U	U	within 7 years of designation	Craig Woodburn

The above proposals will work towards achieving the following Agency objectives on Regulating Major Industries:

- ➔ Implement the requirements of the EC Urban Waste Water Treatment Directive.

*Outstanding action from the River Erewash CMP.

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.

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 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 Lower Trent and Erewash 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 (due December 1999). 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 needed 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

**Lower Trent and Erewash
Local Environment Agency Plan
Map 6**



**ENVIRONMENT
AGENCY**

Administrative Areas

KEY

- LEAP Area boundary
- Watercourse
- Canal (working)
- Canal (disused)
- Built up area
- County Council boundaries
- Unitary Authority boundaries
- District and Borough Council boundaries

- 1 - BROXTOWE BC
- 2 - AMBER VALLEY BC
- 3 - EREWASH BC
- 4 - NORTH WEST
LEICESTERSHIRE DC
- 5 - SOUTH KESTIVEN DC
- 6 - BOLSOVER DC



change. It promotes the idea of thinking globally and acting locally, and all the Local Authorities in the Lower Trent and Erewash area have, or are undertaking a consultative process with local people to produce a Local Agenda 21 for their community. 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 between others and us.

Table 4 - Local Agenda 21 in the Lower Trent and Erewash LEAP area

Local Authority	Contact	Progress on LA21
Amber Valley Borough Council	Martin Rich: 01773 841596	Draft Environmental Strategy published and Environmental Forum set up. Agreement to mutual participation in Action Plans with County Council and Amber Valley Environmental Charter published.
Ashfield District Council	-	-
Bassetlaw District Council	-	-
Bolsover District Council	Charles Hammersley: 01246 242294	Currently writing the Draft Strategy document. Pilot project in Shirebrook involving other organisations with the aim to extend it into adjoining areas.
Broxtowe Borough Council	-	-
Derby City Council	Andy Hills: 01332 255569	Derby 2020 vision conference 18/11/98 – to find out issues and solutions. Results of conference to be published (Ways Forward).
Derbyshire County Council	Maggie Bishop: 01629 580000	The Challenge – A Derbyshire LA21 Strategy culmination of work which has taken place in the council since 1993. Identifies priority concerns which have arisen as a result of the various consultations carried out since 1993. These concerns have been translated into eight key challenges for Derbyshire.
Erewash Borough Council	Vicky Bullivant: 0115 944 0450	-
Gedling Borough Council	-	-
Leicestershire County Council	Mike Thomson: 0116 265 7090 Naomi Diamond: 0116 265 7242	Leicestershire's LA21 "Ways Forward for Better Leicestershire" was published in May 1998. Implementation is co-ordinated by the Forum for a Better Leicestershire.
Lincolnshire County Council	Jon Watson: 01522 553069	Signed sustainable development declaration in 1994 with all Lincolnshire District Councils. In 1995 published State of the Environment report and launched Lincs Environmental Forum in 1996. Published Action Plan in 1997.
Melton Borough Council	Ashley Baxter: 01664 67771	-
Newark & Sherwood District Council	Robert Bennington: 01623 863445	Published LA21 Action Plan in 1996. Established 5 Specialist Working Groups to develop a partnership approach to sustainability issues. Established LA21 Taskforce, supported sustainability at parish level and established a cross-departmental working group to help develop environmental management system for the council.
North Kesteven District Council	-	-
North Lincolnshire Council	-	-
North West Leicestershire District Council	Karl Letten: 01530 833333	Initially concentrating on its own environmental impacts. Some public consultation has taken place and wider consultation will take place in due course.

Local Authority	Contact	Progress on LA21
Nottingham City Council	Mike Peverill: 0115 915 5555	Established Nottingham Green Partnership in 1993 and Action Plan due for publication in 1999.
Nottinghamshire County Council	Phil Keynes: 0115 977 4623	Published document 'Responding to Rio' February 1997. Since then have continued to progress in all six areas of LA21 activity recommended by the DETR. Preparing to launch a County-wide LA21 Forum in early 1999.
Rushcliffe Borough Council	Keith Wood: 0115 981 9911	LA21 Strategy produced in 1996. Public consultation in 1997/98. Annual forum of interested parties since 1993. Special interest groups and sectoral groups formed.
South Derbyshire District Council	Sally Knight: 01283 228028	-
South Kesteven District Council	Phillip Doughty: 01476 406318	Currently have an Environmental Statement and currently developing it into an Action Plan
West Lindsey District Council	Roger Vine: 01427 615411	Currently reviewing arrangements in order to take LA21 forward.

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.

In the East Midlands the Leicestershire Waste Minimisation Association (LWMA) works with local businesses to encourage reducing waste at source. Supporting partners of the LWMA include the Agency, Leicestershire County Council, Leicestershire Training and Enterprise Council Ltd, and the Government Office for the East Midlands. During 1994-1996 ten local companies participated in the waste minimisation initiative and achieved £1.3 million cost savings, 10% reduction in water use and effluent, 50% reduction in air emissions and solid waste to landfill and reduced resource consumption.

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 only likely to continue.

The Agency has been involved with several joint ventures in the Lower Trent and Erewash area recently, and these include:

Water Vole Survey of Nottinghamshire

The Agency is currently working with 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.

Toton Washlands

The Agency has worked in collaboration with Erewash Borough Council, the Countryside Commission and Sustrans to improve recreational access adjacent to the River Erewash at Toton in Nottingham. The project is also looking at the River Trent in Nottingham and the lower reaches of the Fairham Brook. The site has further been enhanced in ecological terms by reconnecting the river with two of its meanders and by restoring two borrow pit ponds in the floodplain.

Corridors to the Countryside

The Agency currently part-funds a project officer post dedicated to developing and enhancing conservation interest and recreational access along the River Leen in Nottingham. The river benefits from an extensive series of linked rights of way, which provide a route from the city to the rural areas to the north.

Disabled Anglers' Platforms

The Agency contributed with both advice and money, to the construction of a series of disabled anglers' platforms on the River Trent at Barrow on Trent. Members of the PAD angling club benefited.

Erewash Meadows

The Agency has worked closely with the Derbyshire Wildlife Trust to enhance the Trust's Nature Reserve. The work, funded and completed by the Agency, included the creation of scrapes, the installation of water control structures and the construction of raised embankments to direct flood flows.

Beckingham Marshes Estate

The Agency owns this 1400-acre agricultural estate in north Nottinghamshire. As well as piloting a national scheme relating to the implementation of environmental best practice, the Agency is partnering the Royal Institute of Chartered Surveyors in a project with the objective of establishing a valuation methodology for environmental benefits which may help contribute to sustainable development. The Estate will be a case study for this project.

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.

The government believes it is important to mobilise a partnership-based approach to local regeneration. The Government office for the East Midlands co-ordinates the spending programme (arising from various funding streams) for the Region. There are a number of initiatives to which the budget is directed. These include the Gainsborough Park Springs and Riverside Regeneration Project, the Newstead Regeneration Partnership, the Eastwood Phoenix Project, Nottingham – Secure the Meadows and Newark Northgate Riverside Regeneration. Much of the plan area is eligible for support under the European Union structural fund programmes, which can include aid for investment in environmental schemes with demonstrated economic benefits.

Examples of other high profile urban regeneration initiatives operating in the Lower Trent and Erewash area include:

The Erewash Valley Initiative

This was created in 1995 as a forum for the better understanding of issues of common concern to the communities of the Erewash Valley. Amber Valley, Ashfield, Broxtowe and Erewash Councils now form the partnership that represents the Initiative serving the area. Since its creation the Initiative has been involved in promoting and co-ordinating action to bring about environmental, social and economic improvement.

English Partnerships

This is a government sponsored agency, which works in partnership throughout the English regions to transform areas of need into quality places for people to live and work. Through partnerships with the public, private and voluntary sectors English Partnerships promote and deliver regeneration projects, producing economic development, job creation and environmental improvements throughout the East Midlands. They are involved in tackling areas of high unemployment, urban centres of economic decline, and areas suffering from high concentrations of vacant, derelict and contaminated land.

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.

The Fire Services

The Agency works closely with the Fire Services (comprising of the Fire and Rescue Services for Nottinghamshire, Derbyshire, Leicestershire and Lincolnshire in this LEAP area) 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, 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

- in excess of 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. The Upper Trent Area office has a nominated "Customer Advisor" who has detailed knowledge of the developing framework and regulations. 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.

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 planning application being decided 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"*.

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 Is 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.

There are four BAPs in the plan area, the Nottinghamshire, Derbyshire, Leicestershire and Rutland, and the Lincolnshire BAP. 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.

There are four structure plans within the Lower Trent and Erewash plan area, which are prepared by the County

Councils of Derbyshire, Leicestershire, Lincolnshire and Nottinghamshire. These plans provide a broad strategic framework for planning and development control. The Derby and Derbyshire Joint Structure Plan has been prepared jointly by Derby City Council and Derbyshire County Council.

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

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

Local Planning Authority	Development Plan Title	Status and Consultation Date
DERBYSHIRE COUNTY COUNCIL	Derby & Derbyshire Joint Structure Plan	Deposit Draft April 1998
Amber Valley Borough Council	Amber Valley Local Plan	Adopted August 1994 – Under Review
Bolsover District Council	Bolsover Local Plan	Deposit Draft December 1997
Derby City Council	Derby & Derbyshire Joint Structure Plan	Deposit Draft April 1998
Erewash Borough Council	Erewash Borough Local Plan	Adopted September 1994 – Under Review
South Derbyshire District Council	South Derbyshire Local Plan	Adopted March 1998
Derby City Council	Derby & Derbyshire Joint Structure Plan	Deposit Draft April 1998
Erewash Borough Council	Erewash Borough Local Plan	Adopted September 1994 - Under Review
South Derbyshire District Council	South Derbyshire Local Plan	Adopted March 1998
LEICESTERSHIRE COUNTY COUNCIL	Leicestershire, Leicester and Rutland Structure Plan	Consultation Draft September 1998
Melton Borough Council	Melton Local Plan	Deposit Draft August 1995
North West Leicestershire District Council	North West Leicestershire Local Plan	Deposit Draft February 1995
LINCOLNSHIRE COUNTY COUNCIL	Lincolnshire Structure Plan	Deposit Draft January 1998
North Kesteven District Council	North Kesteven Local Plan	Adopted February 1996
North Lincolnshire Council	North Lincolnshire Local Plan	Pre Deposit Consultation September 1998
South Kesteven District Council	South Kesteven Local Plan	Adopted April 1995
West Lindsey District Council	West Lindsey Local Plan	Adopted April 1998

Local Planning Authority	Development Plan Title	Status and Consultation Date
NOTTINGHAMSHIRE COUNTY COUNCIL	Nottinghamshire Structure Plan	Adopted November 1996
Ashfield District Council	Ashfield Local Plan	Adopted December 1995 - Under Review Deposit Draft due Jan 1999
Bassetlaw District Council	Bassetlaw Local Plan	Deposit Draft April 1995
Broxtowe Borough Council	Broxtowe Local Plan Review	Consultation Draft April 1998
Gedling Borough Council	Gedling Borough Local Plan Review	Consultation Draft June 1998
Newark & Sherwood District Council	Newark & Sherwood Local Plan	Deposit Draft February 1995
Nottingham City Council	Nottingham City Local Plan	Adopted October 1997
Rushcliffe Borough Council	Rushcliffe Local Plan	Adopted June 1996
Notes:- The stages in the preparation of local plans prior to their adoption is as follows: consultees and member 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.		

The following issues were originally highlighted in the River Erewash Catchment Management Plan (CMP). They have been updated to indicate progress and any changes that have occurred since the CMP Consultation Report was published in January 1995. We have only included the outstanding issues here and stated what progress has been made or if the issue has been carried forward into the Lower Trent and Erewash LEAP. Although this LEAP now encompasses the Erewash catchment area we will continue to report on the progress of CMP issues even if they are no longer LEAP issues in their own right.

The issue numbers are prefixed with the letter "E" to avoid confusion with the Consultation Draft issues.

Issue E1 River Quality Objectives

For a description of the problem please see the NRA document *River Erewash Catchment Management Plan: Consultation Report* (Page 15). The actions proposed were:

- a) Set and achieve appropriate agreed water quality objectives to meet the needs and uses of the river system.
- b) Obtain statutory status from DETR.

With respect to action (a) the required quality objectives are now being achieved along the entire length of the river. On completion of the proposed sewerage schemes and Sewage Treatment Plants (STPs), resulting in better quality effluent (see Issue E2 below for details), the required quality objectives will be sustainable. Action (b) is still awaiting progress from DETR.

Issue E2 Sewerage and Sewage Treatment Strategy

For descriptions of the problem please see the NRA document *River Erewash Catchment Management Plan: Consultation Report* (Page 15). The action proposed was:

- a) Improve effluent quality to meet proposed water quality objectives.

Progress of this action to date is that the Kirkby Sewage Treatment Plant (STP) is complete and operational, along with the improvements to Pye Bridge STP. Civil works are now at an advanced stage of construction at Pinxton, Milnhay, Newthorpe, Hallam Fields and Toton. Sewerage schemes have been completed at Kirkby and Long Eaton.

Issue E3 EC Urban Waste Water Treatment Directive (UWWTD)

Please see Issue 29 - Eutrophication in the River Erewash (Page 74)

Issue E5 Action to eliminate highly coloured discharges from sewage treatment plants

For descriptions of the problem please see the NRA document *River Erewash Catchment Management Plan: Consultation Report* (Page 17). The action proposed was:

- a) Reduce coloration of the river and canal system

Progress on this action to date is 75% of the flow at Pinxton is now being treated with Chlorine Dioxide. Due to the way that trade effluent arrives and is treated on site, the decision on the necessity to treat a higher proportion of the flow will be delayed until the new treatment works is complete. Work utilising polyelectrolytes continues at Pye Bridge and Milnhay. Detailed analysis of colour data for the river shows a year on year improvement.

Issue E6 Coal Mining - Impact of Colliery closures

Please see Issue 14 - The effects on water quality and quantity of colliery closures (Page 51)

Issue E7 Opencast Coal Sites - effects on the environment

For descriptions of the problem please see the NRA document *River Erewash Catchment Management Plan:*

Consultation Report (Page 18). The actions proposed included:

- a) Opencast Coal Sites to be operated in a manner which will reduce the threat of pollution
- b) Channel flow and floodplain must not be obstructed by site operations
- c) Upon reinstatement, the floodplain and river channel to be restored to satisfactory line and level

Action (a) is currently being achieved. Extensive settlement facilities are in place at existing sites and are made a requirement for any proposed new site. Quality conditions in respect of discharges are imposed in consents. The reinstatement of the River Erewash has commenced, with the cutting of 350m of channel (Action (b)). Work recommenced in Spring 1998 with in-stream and flood bank planting. Coal operations also finished in Spring 1998, when the final filling of the void commenced. Total restoration completion date is June 1999. Action (c) has progressed with details of reinstatement of floodplain and channel to a satisfactory line and level being agreed and consented prior to the letting of the contract for the Smotherfly site. Appropriate measures will be requested for any other future locations.

Issue E9 Effluent and toxic substances - effects on flora and fauna

For descriptions of the problem please see the NRA document *River Erewash Catchment Management Plan: Consultation Report* (Page 19). The actions proposed were:

- a) Routine biological monitoring at appropriate sites
- b) Elimination of toxic effluent

Regular biological monitoring of sites on the River Erewash continues to show encouraging signs of improvement.

Issue E12 Effects of the River Erewash on Attenborough Gravel Pits

Please see Issue 8 - Biodiversity of local habitats (Page 39)

Issue E13 Restoration and improvement of damaged habitats

Please see Issue 8 - Biodiversity of local habitats (Page 39)

Issue E14 Eradication of invasive plant species

For descriptions of the problem please see the NRA document *River Erewash Catchment Management Plan: Consultation Report* (Page 21). The actions proposed were:

- a) Survey river corridor
- b) Undertake cutting and/or spraying regime

The surveys were completed in 1996 and a programme of spraying has been developed. The Flood Defence Operations team has been made aware of the special problems relating to Japanese Knotweed.

Issue E15 Industrial Heritage and archaeological aspects

Please see Issue 24 - Potential damage of the archaeological resources of the River Trent corridor (Page 65)

Issue E16 Optimisation of recreational use of the river in the catchment

Please see Issue 20 - Recreational potential on rivers in the plan area are not fully exploited (Page 59)

Issue E17 Litter and rubbish problems in and near rivers, particularly in urban areas

Please see Issue 26 - Adverse impact of litter and legal waste disposal activity on land and in watercourses (Page 69)

Issue E18 The possible provision of tree cover in the river corridor and catchment to enhance conservation

Please see Issue 8 - Biodiversity of local habitats (Page 39)

Issue E19 Restoration of fisheries in the river and associated canal

Please see Issue 11 - Fish populations in the plan area not meeting their full potential (Page 45)

APPENDIX 2 Organisations consulted prior to the publication of this report

In June/July 1998 all unitary, county and district councils in the Lower Trent and Erewash Plan area were contacted together with other organisations with a known interest in the local environment. Some organisations, those with a number of departments or offices were contacted separately. This pre-consultation exercise was designed to focus on groups/organisations that could provide information about the area and who may be involved in some of the environmental problems the area faces. 32 organisations responded. Overall the comments were supportive of the process and we are grateful for the additional information provided. Some additional options for action and partnerships did arise from the consultation and where appropriate have been incorporated into this Consultation Draft.

List of Organisations contacted:

Aldercar School	Kier Mining Ltd
Amber Valley Borough Council*	Knitting Industries Federation Ltd
Anglian Water Services*	Kodak
ARC (Northern)	Landmark Northwest Leicestershire
Ashfield District Council	Laporte International Property Division
Association of Local Councils	Leicestershire County Council*
Bassetlaw District Council	Leicestershire Record Office
BEAM Services Ltd	Leigh Environmental Ltd
British Aggregates Construction Materials Industries	Lincolnshire & S.Humberside Trust for Nature Conservation
British Hydrological Society	Lincolnshire County Council
British Steel*	Lincolnshire Green Business Network
British Sugar Plc	Lincolnshire Wildlife Trust
British Trust For Ornithology*	MAFF
British Waterways*	Mainline Freight
Broxtowe Borough Council*	Melton Borough Council
Bullmores	Micro Image Technology Ltd
Butterley Aggregates	Ministry of Defence - Defence Estate Organisation
Charles W Hall (Hosiery) Ltd	National Association of Clay Industries
Civil Aviation Authority	National Farmers Union
Clean Rivers Trust*	National Power Plc*
Coal Contractors Ltd	Natural History Museum
Coal Investments Plc	Newark & Sherwood District Council
Confederation of British Industry (CBI) East Midlands	North Kesteven District Council
Confederation of British Industry (CBI) Yorks & Humberside	North Lincolnshire Council*
Council for the Protection of Rural England	Nottingham City Council*
Country Landowners Association*	Nottingham Development Enterprise*
Countryside Commission*	Nottinghamshire Association of Local Councils
Courtaulds Textiles	Nottinghamshire County Council
Crown Estates Commissioners	Nottinghamshire Wildlife Trust
Defence Works Services	OFWAT*
Department of the Environment, Transport & Regions (DETR)	Powergen Plc*
Derby City Council	Railtrack
Derbyshire Biological Records Centre	Ready Mixed Concrete (UK) Ltd
Derbyshire Constabulary	RJB Mining (UK) Ltd
Derbyshire County Council*	RMC (UK) Ltd
Derbyshire Wildlife Trust	Road Haulage Association
Diversey Ltd	Royal Ordnance
Dyggor Gaylord Ltd	Royal Society for the Protection of Birds (RSPB)
East Midlands Regional Planning Forum	Rural Development Commission
East Midlands Regional Rowing Council*	Rushcliffe Borough Council
Eastern Generation*	Severn Trent Water Limited*
English Heritage	Shanks & McEwan (Southern Waste Services) Ltd
English Nature*	Soil Association
English Partnerships	Soil Survey and Land Research Centre*
ENTEC UK Ltd	Somercotes (Fabric Dyers) Ltd
Erewash Borough Council*	South Kesteven District Council
ETSU	Stanton Plc
Farming & Rural Conservation Agency (FRCA)*	Sustrans
Farming and Wildlife Advisory Group*	Tarmac Quarry Products Limited
Federation of Small Businesses	Tarmac Roadstone Ltd
Gedling Borough Council	The Coal Authority
Global Environmental	The Hawk and Owl Trust*
Government Office for the East Midlands	The Institution of Civil Engineers*
Government Office for Yorkshire and Humberside	The Miller Group Ltd
Greenways Landfill	Theta Fashion Dyers
Greenwood Community Forest*	Tidy Britain Group*
Groundwork	Tilcon Ltd
Hanson Brick Ltd	Water Services Association of England & Wales
Hepworth Building Products Ltd	West Lindsey District Council
Housebuilders Federation	Yorks & Humberside Pollution Advisory Council
Humberside Association of Parish and Town Councils	Yorks & Humberside Regional Sports Council
I.T.E. Monkwood	Yorkshire Local Councils Associations
Inland Waterways Association*	Yorkshire Water Services Limited*
Institute of Hydrology*	Yorkshire Wildlife Trust
Institute of Terrestrial Ecology	
Institute of Waste Management	

* = Response received

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 Agency - General "Bird and Tree" leaflets
Environment Digest
Environmental Issues in the Midlands - 1995/96
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 a 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 Brass?
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 Sue Quinlan, Customer Contact Team Leader at the Lower Trent Area office for further information and to obtain these and other leaflets (subject to stock availability).

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

An Action Plan for Conservation. EA Bristol. 1998
An Action Plan for Fisheries. EA Bristol. 1998
An Action Plan for Flood Defence. EA Bristol. 1998
An Action Plan for Land Quality. EA Bristol. 1998
An Action Plan for Navigation. EA Bristol. 1998
An Action Plan for Process Industries Regulation. EA Bristol. 1998
An Action Plan for Radioactive Substances Regulation. EA Bristol. 1998
An Action Plan for Recreation. EA Bristol. 1998
An Action Plan for Waste Management and Regulation. EA Bristol. 1998
An Action Plan for Water Quality. EA Bristol. 1998
An Action Plan for Water Resources. EA Bristol. 1998
An Environmental Strategy for the Millenium and Beyond. EA Bristol. 1997
Colliery Closures in the Midlands. NRA. 1995
Environment Agency Corporate Plan 1998-99. EA Bristol. 1998
Humber Estuary: Action Plan. EA Lincoln. 1998
Low Flows and Water Resources: Facts on the top 40 low flow rivers in England & Wales. NRA. 1993
Lower Trent and Erewash: Environmental Overview. EA Nottingham. 1999
Midlands Environmental Reference Book 1995/96. EA Bristol. 1996
Policy and Practice for the Protection of Floodplains. EA Bristol. 1997
Policy and Practice for the Protection of Groundwater. EA Bristol. 1998
River Erewash Catchment Management Plan. NRA. 1995
Saving Water: On the Right Track. EA Bristol. 1998
Saving Water: Taking Action. EA Bristol. 1998
Strategic Waste Management Survey: Landfill within the East Midlands Planning Region. EA Bristol. 1998
The Agency's Contribution to Sustainable Development. EA Bristol. 1997
The Environment of England and Wales: A Snapshot. EA Bristol. 1996
Viewpoints on the Environment. EA Bristol. 1997
Waste Minimisation and Waste Management. EA Bristol. 1997

Abstraction	The removal of water from any source, either permanently or temporarily.
Abstraction Licence	An authorisation granted by the Agency to allow the removal of water from a source of supply. Statutory section 38 Water Resources Act 1991.
Agenda 21	A comprehensive programme of world-wide 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.
ADAS	Agricultural Development and Advisory Service
Algae	Microscopic (sometimes larger) plants, which may be floating or attached. Algae occur in still and flowing water.
Algal blooms	Rapid growth of phytoplankton in marine and freshwater, which may colour the water and may accumulate on the surface as a green scum. Decomposing dead cells consume large quantities of oxygen in the water, which may result in the waters becoming anaerobic. Some blooms (such as certain species of blue-green algae) may produce poisons.
Ameliorate	Cause something to become better.
Ammonia	A chemical compound found in water often as a result of pollution by sewage and farm effluents. It is widely used to determine water quality. Ammonia can be toxic to fish.
AMP3	Asset Management Plan 3 is the water company's means of prioritising expenditure on improvements.
AOD	Above Ordnance Datum. Land levels are measured relative to the average sea level at Newlyn in Cornwall. This average level is referred to as "Ordnance Datum". Contours on Ordnance Survey maps of the UK show heights in metres above Ordnance Datum.
AONB	Area of Outstanding Natural Beauty.
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	Water Companies Strategic Business Plans - initiated (eg AMP2) by OFWAT as part of the periodic review of water company charges.
Attenuation	Dilute or slow the spread of contamination or the speed of flow.
Base Flow	The flow of a river derived from groundwater sources.
Benzene	Air pollutant from fossil fuels released by vehicular traffic and by industry, carcinogenic. A target pollutant in the UK National Air Quality Strategy.
BOD	Biochemical Oxygen Demand. A measure of the amount of oxygen consumed in water (over 5 days), usually by organic pollution. Oxygen is vital for life so the measurement of the BOD tests whether pollution could affect aquatic animals.
Biodiversity	Diversity of animal and plant life.
Biomass	Total quantity or weight of organisms in a given area or volume.

Borehole	A well sunk into a water bearing rock from which water will be pumped.
Buffer Zone	Strip of land 10-100m wide, alongside rivers which is removed from agricultural use, managed to provide appropriate habitat types and to reduce levels of nitrates and pesticides in water.
1,3 Butadiene	A gas derived mainly from the combustion of petrol and other materials. A carcinogen and a target pollutant in the UK National Air Quality Strategy.
Cadmium	A very toxic heavy metal with a wide variety of uses.
Carbon dioxide (CO₂)	Gas present in the atmosphere and formed during respiration, the decomposition and combustion of organic compounds (eg fossil fuels, wood etc). A greenhouse gas.
Carbon monoxide (CO)	A gas formed by the incomplete combustion of carbon fuels. At very high exposures prolonged exposure to CO can be life threatening. A target pollutant in the UK National Air Quality Strategy.
Catchment	The total area from which a single river collects surface run-off.
CFCs	Chlorofluorocarbons. Volatile but inert (without active chemical or other properties) compounds of carbon and (mainly) chlorine and fluorine. Important greenhouse gases and ozone layer depleters.
Coarse Fish	Freshwater fish other than salmon and trout.
Confluence	The point at which two rivers meet.
Controlled Waters	All rivers, canals, lakes, groundwaters, estuaries and coastal waters to 3 nautical miles from the shore, including bed and channel which may for the time being be dry.
CSO	Combined Sewer Overflow.
Culvert	Channel carrying water across or under a road, canal etc.
Cyprinid Fish	Coarse fish belonging to the carp family, like roach, dace and bream.
Dangerous Substances	Substances defined by the European Commission as in need of special control because of their toxicity, bio-accumulation and persistence. The substances are classified as List I or List II according to the Dangerous Substances Directive.
Derogate (Derogation)	To depreciate or diminish - used in abstraction licensing where a proposed new licence would reduce resources to an existing authorised abstraction.
Discharge Consent	A licence granted by the Agency to discharge effluent of specified quality and volume. Statutory; Schedule 10 Water Resources Act 1991.
DETR	Department of the Environment, Transport and the Regions
Dry Weather Flow	For sewage works, this is calculated by adding estimates of the domestic sewage discharge (which is the population multiplied by the per capita consumption) plus any industrial discharges plus infiltration into the sewer. For rivers, this is calculated as the average of flows during the driest seven consecutive days in each year for the period of record.
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.
Ecosystem	A functioning, interacting system composed of one or more living organisms and their effective environment, in a biological, chemical and physical sense.
Effluent	Liquid waste from industrial, agricultural or sewage plants.
EH	English Heritage
EN	English Nature
EQS	Environmental Quality Standard. That concentration of a substance which must not be exceeded if a specific use of the aquatic environment is to be maintained.
Eutrophication	The biological effects of an increase in plant nutrients - nitrates and phosphates - on aquatic ecosystems. The result is excess growth of aquatic vegetation due to increased plant nutrients being introduced to the watercourse.
Fauna	Animal life
Floodplain	Land adjacent to a watercourse that is subject to flooding.
Flora	Plant life.
Fluvial	Land pertaining to the river itself.
Gauging Station	A site where the flow of a river is measured.
Greenbelt	A designation used by planning authorities on land adjacent to towns or cities, defined for the purpose of restricting the outward expansion of the urban area and to protect the countryside.
GQA	General Quality Assessment. A national water quality assessment scheme.
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.
Habitat	The locality or environment in which a plant or animal species lives.
HMIP	Her Majesty's Inspectorate of Pollution (now part of the Environment Agency)
Hydrology	The study of water on or below the earth's surface.
Hydrometry	The measurement of water.
Hydrogeology	Branch of geology concerned with water within the earth's crust.
IPC	Integrated Pollution Control. An approach to pollution control in the UK which recognises the need to look at the environment as a whole, so that solutions to particular pollution problems take account of potential effects upon all environmental media. Relates to industrial and commercial processes with a significant pollution potential. Controlled by the Agency defined under the Environmental Protection Act 1990 (Part A).
Landfill	Site used for waste disposal into/onto land.

Leachate	Liquid formed when water reacts with, or leaches from, waste material.
LPA	Local Planning Authority.
MAFF	Ministry of Agriculture, Fisheries and Food.
Main River	The watercourse shown on the statutory 'Main River maps' held by Environment Agency and MAFF. The Agency has permissive powers to carry out works of maintenance and improvement on these rivers.
Nitrogen dioxide (NO₂) Nitric oxide (NO) Oxides of nitrogen (NO_x)	NO ₂ and NO are both oxides of nitrogen (NO _x) produced by traffic and industry. NO ₂ can have an adverse effect on human health, increasing the symptoms associated with respiratory illness. NO ₂ is a target pollutant in the UK National Air Quality Strategy.
Nutrient	A chemical essential for life.
NRA	National Rivers Authority (now part of the Environment Agency).
OFWAT	Office of Water Industry's Regulator of Water Service Companies.
Ordinary watercourse	A watercourse that does not form part of a Main River.
Ozone	Caused by a chemical reaction in sunlight, at lower levels in the atmosphere by oxides of nitrogen and volatile organic compounds reacting to form ozone. The reactions can take days and maximum concentrations occur downwind of urban areas. Affects the respiratory system. A target pollutant in the UK National Air Quality Strategy.
Particulates and PM₁₀	Small particles of matter released from a number of sources. The Clean Air Acts led to a tenfold decrease in black smoke but new research has shown very small particles can affect the respiratory and cardiovascular systems. PM ₁₀ - particulates below 10µm. PM ₁₀ - a target pollutant in the UK National Air Quality Strategy.
Permeability	The ease with which liquids (or gases) can pass through rocks or a layer of soil.
Pesticides	Substances used to kill pests, weeds, insects, fungi, rodents etc which can have significant harmful environmental effects.
Potable Water	Water of a quality suitable for drinking.
Prescribed Flow	A flow set to protect lawful downstream users and the aquatic environment.
Raw Water	Water in its natural state; before treatment.
Raw Water Transfer	The transfer of water from one resource to another in order to meet or anticipate demand. It is usually part of a scheme such as a reservoir or pipeline.
RE	River Ecosystem. Classification used to measure water quality.
Reach	A length of river.
Renewable Energy	Energy produced from resources which are unlimited or can be rapidly replenished eg. wind, water, sunlight, wave power or waste.
Riparian	Of, or on, land adjacent to the river.

River Corridor	A stretch of river, its banks, and a varying amount of adjacent land that is affected by the presence of the river.
RQO	River Quality Objective.
Salmonid Fish	Game fish of the Salmon family, for example, trout and salmon.
SAC	Special Area of Conservation. This designation will protect important species and habitats, as defined under the EC Directive on Conservation of Habitats and Species.
SAM	Scheduled Ancient Monument. The key sites nationally for archaeology, designated by the Secretary of State for national Heritage, through English Heritage. Statutory; designated under the Ancient Monuments and Archaeological Areas Act 1979.
Septic Tank	A tank used for the treatment of sewage from properties without mains drainage. The sewage is settled and some bacterial treatment occurs. Discharge of effluent is usually to a soakaway system.
Sewage	Liquid waste from homes, businesses etc which is normally collected and conveyed in sewers for treatment and/or discharge to the environment.
Sewerage	Means of conveying foul or surface water.
SINC	Site of Importance for Nature Conservation. These are non statutory nature conservation sites of county or regional importance. Designated by County Wildlife Trusts and in some cases EN and Local Authorities.
Siltation	At low velocities water will deposit the material being carried in suspension. The slower the velocity the finer the material deposited. A deposit of clays and silt is very difficult to remove naturally as it required turbulent and high velocities.
Soakaway	System for allowing water or effluent to soak into ground, commonly used in conjunction with septic tanks.
Soft Engineering (Rivers)	River bank works using earth, grass, tree planting, reeds and other natural (soft) materials.
SoS	Standards of Service.
Sough	Drainage tunnels constructed to drain water from lead mines and suppress the natural water table.
SPA	Special Protection Areas. Areas of importance for birds.
Spray Irrigation	The watering of crops by spraying. Can have a high impact on water resources.
SSSI	Site of Special Scientific Interest. The best examples of the national heritage of wildlife habitats, geological features and landforms, designated by English nature and the Countryside Council for Wales. Statutory; notified under the Wildlife and Countryside Act 1981.
SSWS	Southern Surface Water Sewer.
STP	Sewage Treatment Plant.
STW	Severn Trent Water Ltd.

Sulphur dioxide (SO₂)	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 ₂ can lead to acid rain, affecting ecosystems and water quality. A target pollutant in the UK National Air Quality Strategy.	
Surface Water	Water which flows or is stored on the ground surface.	
Sustainable development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.	
SWO	Storm Water Overflow	
Telemetry	River levels, rainfall, temperatures and wind run are recorded on data loggers connected to the telephone network. Information from the recording sites can be automatically accessed from a central point.	
Trade Effluent	Any effluent, except domestic sewage produced in the course of trade or industry, including agriculture, horticulture and research. Surface water run-off which is significantly contaminated by site activities constitutes trade effluent.	
Transfer Station	Waste disposal facility where waste is collected prior to transport to final disposal point.	
Underground Strata	A term used to signify geology under the surface soil layer. If groundwater exists, or if water is being discharged to the ground, the geology underneath the soil layer is known in the various Acts of Parliament as underground strata.	
UWWTD	Urban Wastewater Treatment Directive.	
Water Table	The natural level of underground water.	
Wetland	An area of low lying land where the water table is at or near the surface for most of the time, leading to characteristic habitats.	
UNITS	ppb µg/m ³	parts per billion micro (10 ⁻⁶) grammes per cubic metre
Length	10mm 100cm 1,000m	1cm (equivalent to 0.394 inches) 1m (equivalent to 39.37 inches) 1km (equivalent to 0.621 miles)
Area	10,000m ²	1ha (equivalent to 2.47 acres)
Flow	1,000l/s 1,000m ³ /d Ml/d 1Ml/d	1m ³ /s (equivalent to 35.31 cusecs) 11.6 l/s (equivalent to 0.41 cusecs) Megalitres per day 11.6l/s

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NOTTINGHAM
NG2 5FA

MANAGEMENT AND CONTACTS:

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

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

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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.

ENVIRONMENT AGENCY GENERAL ENQUIRY LINE

0645 333 111

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

ENVIRONMENT AGENCY EMERGENCY HOTLINE

0800 80 70 60



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