Weaver/Dane Local Environment Agency Plan

Consultation Report Summary
October 1997

ENVIRONMENT AGENCY

THE VISION

The vision of the Environment Agency is "A better environment in England and Wales for present and future generations."

From this, the vision for this Local Environment Agency Plan (LEAP) area is of a sustainable environment capable of supporting diverse natural species and habitats, providing opportunities for recreational usage and access, and one which is valued by local people.

The Environment Agency will work in partnership with area users to realise the full environmental potential of the Weaver/Dane area and fulfil the vision. The aim will be to create and maintain a balanced environment which will meet the Agency's overall aim of contributing to the worldwide goal of Sustainable Development, which has been defined as "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

View of Frodsham from Frodsham Hill

Cover Photograph: The Rivers Weaver and Dane in Northwich
Photographs by Ash Bennett of Nantwich

INTRODUCTION

The Environment Agency for England and Wales is one of the most powerful environmental regulators in the world.

It provides a comprehensive approach to the protection and management of the environment by combining the regulation of land, air and water. Its creation is a major and positive step, merging the expertise of the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the Waste Regulation Authorities and several smaller units from the Department of the Environment.

Recycling of waste

The Agency's overall aim of protecting and enhancing the whole environment contributes to the worldwide environmental goal of Sustainable Development.

To achieve its objectives, the Agency must work with, or seek to influence central government, local government, industry, commerce, farming, environmental organisations, riparian owners and the general public.

Successful management of the environment requires consideration of a wide range of interests and requirements which may sometimes be in conflict. The Agency will manage the environment through our main functions, which are:

- pollution prevention and control;
- waste minimisation;
- management of water resources;
- flood defence;
- improvement of salmon and freshwater fisheries;
- conservation;
- navigation (not in this area);
- use of inland and coastal waters for recreation.

The Agency believes that it can best meet its responsibilities by adopting the concept of **integrated local management**. A Local Environment Agency Plan (LEAP) is the Environment Agency's integrated local management Plan for identifying and assessing, prioritising and solving local environmental issues related to the Agency's functions,

taking into account costs and benefits, and views of the Agency's local customers. The outcome of the process is an action plan to improve the local environment, which will be undertaken through partnership.

The Agency has decided to formally present its management policies to the public through Local Environment Agency Plans (LEAPs), which will be produced for the whole of England and Wales by the end of 1999. The plans are intended to provide a link between the Agency and the users of the areas, so that the Agency can better reflect their interests whilst carrying out its duties. For this reason each plan includes a consultation phase, during which all those with an interest are invited to comment on the Agency's proposals for the future management of the area.

YOUR VIEWS

The Weaver/Dane Local Environment Agency Plan Consultation Report is our analysis of the issues facing the area. The most significant ones are listed in this summary.

We want to hear your views:

- Have we identified all the significant issues?
- Have we identified all the options for solution?
- Have you any comments on the issues and options listed?
- All written responses shall be considered to be in the public domain, unless consultees explicitly request otherwise.

If you would like to comment or obtain a copy of the report or further details, please write to :

Victoria Hames
Environment Planner
Environment Agency
"Mirwell"
Carrington Lane
Sale
M33 5NL
Tel: 0161 973 2237

THE LOCAL ENVIRONMENT AGENCY PLANNING PROCESS

The production of a LEAP is a two stage process. The first stage is the production of a Consultation Report and an open consultation period, of which this summary forms a part. The second stage is the production of the Action Plan, which follows the consultation period.

The Action Plan includes a programme of action to be undertaken by the Agency and other groups in the area over the next five years. The third stage is the implementation of the Action Plan will be monitored, and annual reports produced. A full review of the area will be made at the end of the five year plan period.

WEAVER/DANE AREA

Location Map of Weaver/Dane LEAP area

The Weaver/Dane LEAP area is defined by the rainfall catchment of the River Weaver and the River Dane and covers 1423km^2. The Weaver rises to the east of the Peckforton Hills and flows 88 kilometres from its source to its confluence with the Manchester Ship Canal and Mersey Estuary, just north of Frodsham. Its main tributaries are the River Dane, which joins the Weaver in the centre of Northwich and the River Wheelock which joins the River Dane in Middlewich.

The area is mainly of prime agricultural land but also includes the towns of Crewe, Congleton, Northwich, Sandbach, Winsford and parts of Runcorn. The main industry is the chemical industry which originated around the brine fields of Northwich and ICI at Runcorn. Recreation is also important within the area, especially riverside walks, angling and canoeing.

Many Sites of Biological Importance (SBIs) and Sites of Special Scientific Interest (SSSIs) are found in the area along with important species and habitats. The Cheshire Meres and Mosses are an internationally important group of still waters and a legacy of the last ice age. There are also thousands of ponds within the area. Together, these habitats support a variety of species and wildlife.

The River Dane is the principal tributary of the Weaver and rises on the edge of the Peak District National Park. It is one of the most natural rivers in England, swift flowing in its upper reaches and meandering along its flood plain. The course of the Dane in places is constantly changing and is known to have reverted to former self cut channels over a cycle of 70 years.

Farming is intensive on the Cheshire Plain. Although pollution problems from farms have improved in recent years, agricultural effluents continue to pose a threat to the health of the Weaver, Dane and their tributaries. Spillages from farm effluents can have a devastating effect, sometimes killing tens of thousands of fish and harming the invertebrate life on which they feed. In recent years, farming in Cheshire has become more intensive with large dairy herds. Potential problems arise from the storage of slurry and dairy waste associated with this type of farming and the production of silage. Environment Agency staff work closely with farmers in the area to identify practical solutions to environmental problems. Our aim is to prevent, rather than cure, pollution.

The main industries of the area are chemicals, now centred in the north of the Weaver valley, and vehicles, centred on the towns of Crewe and Sandbach. Employment in both these industries has declined significantly over the last three decades, but this corridor of industrial activity, together with associated brine extraction activities has left a legacy of industrial dereliction and contamination. Remedial action has reduced the risk of subsidence and cleared the worst of the dereliction, but problems of contamination remain and continue to pose potential threats to health and the pollution of ground-water.

DEVELOPMENT

The Environment Agency is taking a pro-active role in the land-use planning system. This is in terms of guiding and advising Local Planning Authorities (LPAs) and developers on matters concerning air quality, the water environment and waste management. The aim is to ensure future development is sustainable and land use change is guided and implemented within the overall aim of protecting and enhancing the whole environment.

Past development has had a major influence on shaping the area and the planning system plays an important role in protecting much of its special character. New development has to be carefully considered, to recognise both potential adverse effects, as well as the benefits, it can have on the environment. We consider LEAPs are an important part of the on-going dialogue with LPAs to foster partnerships and identify issues, where environmental problems and potentials can be most actively pursued.

FLOOD DEFENCE

The Agency has a duty to exercise a general supervision over all matters relating to Flood Defence. The principle watercourses in the area have a formal designation of Main River and the Agency has powers to regulate and carry out works on these watercourses.

There are 619km of "Main River" within this area, flowing through agricultural land, residential and industrial areas.

Although the responsibility for watercourse maintenance rests with the riparian (river bank) owner, the Agency has discretionary operational powers to carry out, where required, maintenance and improvement works on Main Rivers. Similar discretionary operational powers on ordinary watercourses (not designated Main River) belong mainly with the local authorities, the Agency having limited supervisory and default powers.

We operate a system of Flood Warning Standards of Service to ensure that timely warnings are issued, to the right people, at the right time. By defining lengths of river, or reaches, with common land use interests, those areas with a high population concentration can be treated as priority. It is our aim to provide a two-hour warning of the commencement of flooding wherever practicable. Flood warnings, within the LEAP area, are disseminated to the general public via local Radio, the Environment Agency's Floodcall line, AA Roadwatch, the Met. Office, and page 105 of Teletext. Warnings are also passed to the relevant local authorities, Police, Utilities and the Coastguard by the Environment Agency North West Regional Office at Warrington.

Shopping Trolley, Leighton Brook

The following are key flood defence activities within the catchment area:

- Regular planned inspections of Main River channels and structures are carried out in order to programme any necessary maintenance works. These safeguard the existingstandards of flood protection, particularly in the heavily urbanized areas.
- In order to reduce the risk of flooding regular clearing of debris from channels, culverts, bridges and debris screen takes place. Riparian owners are persuaded to accept their responsibilities for many dilapidated riverside structures and the tipping of rubbish in watercourses. Where appropriate, legal action is taken to clear debris.
- Information and advice is provided to give advanced warnings of likely flooding in known flood risk areas. Forecasts of high river levels are based on rainfall and river level information collected from outstations by the Regional Telemetry System.
- Information and advice is given to local authorities to prevent the development of sites, either, affecting or within, flood risk areas.

WATER QUALITY

The General Quality Assessment (GQA) grades suggest that the rivers and canals within the Weaver and Dane area are generally of good to fair chemical quality - 99.6% of the canal and 88.7% of the river stretches are classified as fair or better. Particularly good quality is found along the entire length of the River Dane and some of its tributaries, including two short stretches of Grade A quality in Shell Brook and Clough Brook. Stretches of good quality are also found within the Wincham Brook, Valley Brook and Checkley Brook systems.

Poor chemical water quality is found in only 8.4% of classified river stretches including all of the River Weaver downstream of Northwich. Of the other stretches of poor water quality a number are found immediately downstream of sewage treatment works, for example the River Croco downstream of Middlewich STW and Audley Brook downstream of Audley STW. The poor chemical water quality found in 0.4% of canals is restricted to one stretch in the Trent and Mersey Canal.

The remaining 2.9% of classified river stretches contain bad chemical quality, including Wade Brook, Witton Brook and the River Weaver around Northwich. Bad water quality is also found in Wettenhall Brook, Leighton Brook, Edleston Brook and Baddington Brook.

Aquatic invertebrates sampled routinely from all classified rivers provide a basis for the biological GQA grades. Monitoring of the water courses was undertaken during 1995 and the results indicate that the biological quality is fairly good in the upper reaches of the River Weaver and River Dane but typically poor in the watercourses associated within the heavily urbanised areas such as Crewe, Alsager, Kidsgrove within the Valley Brook area and Sandbach and Middlewich in the River Wheelock area. Bad biological water quality occurs around Northwich and extends in the River Weaver downstream to Runcorn. Quality is particularly bad within stretches of Wade Brook and Witton Brook in the Northwich area, where there is a complete absence of invertebrate life.

River Quality Objectives

The Agency has proposed strategic targets for water quality within the Weaver/Dane area known as River Quality Objectives (RQOs) which will be used to provide a basis for water quality management decisions. Ultimately, RQOs for different water uses will be set, currently only the River Ecosystem (RE) scheme has been developed. This sets standards relating to the chemical quality requirements for different aquatic ecosystems. These objectives will eventually become statutory targets, when notices are served by the Secretary of State for the Environment, giving them legal status. Short-term objectives are proposed, along with a date by which compliance will be achieved. These objectives must be achievable within a ten-year horizon of committed investment or by the actions of the Agency or others. Long-term objectives have also been proposed which reflect the achievable aspirations for the water quality. Achievement of these objectives may take more than ten years and require currently uncommitted expenditure.

Compliance with short-term River Ecosystem RQOs, is currently achieved by 94% of the classified river and canal stretches within the Weaver/Dane area. Of the remaining stretches, 2% marginally fail to comply and 2% significantly fail to comply with short-term objectives. Significant failures currently occur on stretches of Sales Brook,

Baddington Brook, Valley Brook and Wettenhall Brook. In a further 1% of stretches the attainable short-term quality target falls below the lowest RE class such that no short-term objective can be set. This is the case in stretches of the River Weaver, Wade Brook, Witton Brook, Leighton Brook and Edelston Brook where the quality is currently below RE5 standard.

Compliance with proposed long-term River Ecosystem RQOs shows that 58% of stretches currently comply, 16% marginally failing and 26% significantly failing.

Hurleston Water Treatment Works

AIR QUALITY AND IPC

The Environment Agency has the responsibility for regulating those industries with the greatest potential to pollute air, water and land. The Environment Act 1995 provides a framework within which local authorities have responsibility for the overall management of local air quality. However, local authorities also regulate the smaller industries in respect of emissions to air. The Department of Transport is responsible for regulating the emissions from road traffic.

Air quality is an indicator of environmental quality. Air pollution can damage flora, fauna, buildings and have significant effects on soil, water and climate. It can also cause serious problems for those people with asthma, bronchitis and other respiratory diseases.

In the Weaver/Dane LEAP area there are 47 processes regulated under Integrated Pollution Control (IPC) and these are operated on 18 different sites. IPC processes are grouped in the industrial belts around Runcorn and Northwich, and to a lesser extent around Crewe, Sandbach and Middlewich.

The distribution of industry has been determined to a large extent by the Cheshire salt fields. Underground salt is extracted by a system of "solution mining" and the resulting brine is used to produce pure salt. Brine is also used by local industries for the production of chlorine and sodium carbonate. Industrial activity has been carried out in the area for over 100 years and there are locations where land contamination is a significant issue.

WATER RESOURCES

There is a need to control the use of water within the area, to create a balanced and sustainable resource. The Agency achieves this by licensing abstractions from and discharges to the river system and through its "Policy and Practice for the Protection of Groundwater".

The management of water resources requires information on their status. Daily rainfall is measured using a network of voluntary observers; supporting this network are a number of automatic telemetered rainguages which record at sub-daily intervals from which rainfall intensity can be determined. River levels and flows are measured at various points throughout the plan area. In addition, specific projects are supported by the installation of temporary stations and spot measurements. Groundwater levels are routinely monitored throughout the plan area.

WASTE MANAGEMENT

A licensing system for waste management sites was first introduced in 1976, with modifications coming in 1988 and again in 1994, so that licences are required for landfill sites, transfer stations, treatment plants, and processing and storage facilities, including scrap metal yards. The Agency is responsible for issuing and enforcing these licences, and for registering the various activities which are exempt from the need for a licence, and applicants must be 'fit and proper persons' to hold a licence. This depends upon technical competence, financial capability, and any convictions for relevant offences.

Although the LEAP area is predominantly rural and agricultural, the main towns of Crewe, Congleton and Northwich all have an industrial base. Historically, the area has been one of the UK's most important centres for the chemical industry because of the extensive salt fields running north-south through the centre of the area. Chemicals continue to be important, with major plants at Runcorn and Northwich, along with a number of smaller specialist chemical and pharmaceutical manufacturers. These industries are potentially polluting and there are a number of activities for which authorisation by the Agency is required, including licensed waste management facilities.

There is a general deficit of available landfill capacity in the north west which means that waste management sites within the area are used for disposal of waste from Greater Manchester and Merseyside.

The area, therefore, has high levels of industrial waste production and disposes of a large amount of domestic and commercial waste produced within the area and outside. Consequently there is great need to manage and dispose of these wastes properly.

In common with many other areas, there is a significant problem of illegal waste disposal activity, resulting in a high level of fly-tipping.

FISHERIES

The Environment Agency undertake fish population surveys on all rivers within a rolling programme.

The fishery habitat available within the Weaver area varies from that suitable for non-migratory salmonids, that is, brown trout, in the upper reaches and many of its tributaries, to that more suited to coarse fish, for example, chub, roach and bream, found lower in the area.

The majority of the Weaver's smaller tributaries only support marginal species in spite of the good habitat.

The upper reaches of the River Dane, from where it rises to just below Bosley, is renowned as a trout fishery. In previous years it was intermittently stocked with trout by the Environment Agency, however, it is now mainly stocked by private clubs.

As the River Dane travels through Congleton towards its confluence with the Weaver, it supports a good coarse fishery.

The majority of the Dane's smaller tributaries are only supporting marginal species, in spite of the good habitat.

The Valley Brooks, Wincham Brook and Peover Eye systems, should by their physical nature, maintain a good mixed fishery, including brown trout in their upper reaches. However, due to poor water quality throughout the area only a marginal fishery exists within the river system.

Your Views Count

The aims of this booklet are:

- To inform you of our vision and proposals for the Weaver/Dane area;
- To ask for your views and comments.

This is your opportunity to tell us what you think the Weaver/Dane area.

Please:

1. Answer the quick questions on the next three pages.
2. Write any extra comments on the back of this questionnaire.
3. Pull the questionnaire out of the booklet.
4. Send it to us in the **FREEPOST** envelope provided, even if you have not answered all the questions.

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1. How did you first find out about this LEAP?

- ❑ Letter from the Environment Agency
- ❑ Environment Agency Poster
- ❑ Radio
- ❑ Environment Agency Display
- ❑ TV
- ❑ Newspaper
- ❑ Other please specify _____

2. Where did you find this booklet?

_____

_____

3. In which town or area do you live?

_____

questionnaire

4. Our vision for the area is of a sustainable environment capable of supporting diverse natural species and habitats, providing opportunities for recreational usage and access, and one which is valued by local people.

Do you agree with this? **Yes / No**
If you disagree, please explain why.

_____

_____

(Please tick the three you think are most important.)
5. The Agency's aims in this area are to:

- ❑ Achieve significant and continuous improvement in the quality of air, land and water, actively encouraging the conservation of natural resources, flora and fauna;
- ❑ Maximise the benefits of integrated pollution control and integrated river basin management;
- ❑ Provide effective defence and timely warning systems for people and property against flooding from rivers and the sea;
- ❑ Achieve significant reductions in waste through minimisation, rescue and recycling and improve standards of disposal;
- ❑ Manage water resources to achieve the proper balance between the needs of the environment and those of abstractors and other water users;
- ❑ Secure, with others, the remediation of contaminated land;
- ❑ Improve and develop salmon and freshwater fisheries;
- ❑ Conserve and enhance inland and costal waters and their use for recreation;
- ❑ Develop a better informed public through open debate, the provision of soundly based information and rigorous research;
- ❑ Set priorities and propose solutions that do not impose excessive costs on society.

6. Are there other key objectives you would like to see included?

_____

_____

7. Are there any errors or omissions in this booklet? **Yes / No**
If yes, please give details

_____

_____

8. We have identified the issues within this document. Please circle the number of the five issues which are the most important to you:

1 Adverse impact of industrial discharges on river water quality.
2 Adverse impact of agricultural activities on river water and habitat quality.
3 Adverse impact of discharges from sewage treatment works on river water quality.
4 Impact of discharges from combined sewer overflows on surface water quality.
5 Impact from contaminated surface water discharges on surface water quality.
6 Adverse impact on river water quality due to undetermined pollution sources.
7 Localised water pollution due to lack of rural sewerage.
8 The need to reduce the wastage of water.
9 Reducing the impact of agricultural water wastage.
10 Inadequate data for monitoring water level changes.
11 Adverse impact of Litter and Illegal waste disposal and into watercourses.
12 Adverse impact of contaminated and derelict land on the environment.
13 Ensuring the beneficial effects of land-spreading of waste under the waste management licensing regulations 1994.
14 Need to promote waste hierarchy.
15 Poor access to watercourses leading to difficulties for maintenance works, recreational activities.
16 Properties at risk of flooding.
17 In-river structures causing flood risk, restriction of fish migration and reduced recreational use.
18 Land use and landscape changes leading to the loss of wildlife, habitat and landscape diversity.
19 Watercourses artificially modified causing loss of habitat and amenity.
20 Invasive non-native pest species.
21 The impact of nutrient enrichment on aquatic communities.
22 Lack of sustainable fish populations.

9. Are there other issues you would like to see included in the action plan?
Yes / No

_____

_____

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

_____

_____

comments

If you have any other comments please write them here, and continue on another piece of paper if needed.

CONSERVATION

Conservation can be defined as the protection and management of natural and man-made features of special interest, so that this inheritance can be valued and made available for the benefit of future as well as present generations. It is central to the Agency's activities and a tangible measure of its aim of a continuing improvement of the environment in England and Wales.

There are numerous sites of international, national and local importance located within the Weaver/Dane area. There is one Ramsar Site, The West Midlands Meres and Mosses, designated under the Ramsar Convention to protect wetlands which are of international importance. There is also one proposed Special Areas of Conservation which includes Oakmere, Abbots Moss and Wybunbury Moss. Eighty-one Sites of Special Scientific Interest can be found in the area, one of which is also designated as a National Nature Reserve (Wybunbury Moss). The South Pennine Moors Special Protection Area (SPA), for the conservation of wild birds, lies to the northeast of the LEAP area.

There are 81 Sites of Special Scientific Interest (SSSIs) and 412 Sites of Biological Importance (SBIs) in the area, designated by the Local Authorities. These include habitats and species which are of County Value for Nature Conservation (CVNC).

Of particular importance within the Weaver area are, the Meres and Mosses which lie within the boundaries of the Midland Meres and Mosses Ramsar designation and The Meres and Mosses Natural Area. This English Nature Natural Area profile will be published in 1997. Also in draft format is The Upper Mersey Basin Natural Area describing the open landscape of the Mersey Estuary at the downstream end of the River Weaver, internationally important for migratory birds, The Potteries and Churnet Valley Natural Area which covers the landscape to the south east of this LEAP area and the upper reaches of Dane in Shaw Brook, Audley Brook and Kidsgrove Stream and the South West Peak Natural Area, covering the landscape of the Upper Dane.

RECREATION AND AMENITY

The Cheshire Plain is a valued tourist attraction. Much of the region is relatively flat and open, and this offers a sharp contrast between the gentle undulating hills on the extreme south west of the area near Peckforton, to the more rugged moorland landscape in the east towards Wildboarclough approaching the edge of the Peak District.

Recreational sites are widespread offering a varied range of activities and facilities including walking, angling, cycling and bird watching and many water sports such as canoeing and windsurfing.

ISSUES

ISSUE 1

ADVERSE IMPACT OF INDUSTRIAL DISCHARGES ON RIVER WATER QUALITY

Much of the industry found within the Weaver and Dane area has developed as a result of the large natural salt deposits located within the area. Methods used include direct mining, solution mining and pumping from wild brine springs. Saline discharges from these works can have a detrimental impact upon the river water quality.

The extracted salt is used in a number of chemical processes within the area. The trade effluent discharges from these can have a significant detrimental impact upon the river water quality.

ISSUE 2

ADVERSE IMPACT OF AGRICULTURAL ACTIVITIES ON RIVER WATER AND HABITAT QUALITY

Detrimental effects upon the water quality in agricultural areas can occur from both point source and diffuse pollution inputs. Animal wastes are particularly organically rich and levy a high biochemical oxygen demand (BOD) on surface waters. Point source pollution, from silage clamps, slurry tanks, yard and parlour drains, can occur because of inadequate storage, structural defects or poor management practices. Diffuse pollution occurs as a consequence of applying fertilizers and slurries to farmland. Nutrients can subsequently enter watercourses by being washed off the land during rainfall or by slowly leaching through the ground.

The impact that farm drainage has upon the water quality is reflected in the detrimental effect it has upon the aquatic biota. The water quality can become unsuitable to sustain populations of coarse fish. Similarly the invertebrate community becomes restricted to species tolerant of high organic loadings.

ISSUE 3

ADVERSE IMPACT OF DISCHARGES FROM SEWAGE TREATMENT WORKS ON RIVER WATER QUALITY

The scale of sewage treatment provisions within the Weaver area is extremely varied. At the upper end of the scale are a few large North West Water Ltd sewage treatment works (STWs) which serve the major towns. Besides these, North West Water Ltd. has approximately another sixty small STWs serving the smaller towns and villages. The rural nature of the remainder of the area means that large areas are unsewered, and hence at the bottom end of the scale there are a great number of private sewage treatment works, typically either small package plants or simple septic tanks serving hotels, public houses, and residential properties.

ISSUE 4

IMPACT OF DISCHARGES FROM COMBINED SEWER OVERFLOWS ON SURFACE WATER QUALITY

In part of the area, mainly the urbanised areas, foul and surface water drainage is conveyed to sewage treatment works together in combined sewers. To prevent flooding during storm conditions, relief combined sewer overflows (CSOs) are provided on the sewerage network. These are designed to operate only during heavy rainfall, ie, when adequate dilution should be available in the receiving watercourses.

The increase in residential and commercial development over recent years has resulted in greater flows in the sewerage system. In areas with old combined sewers there is often inadequate capacity to deal with this additional flow. Consequently CSOs operate more frequently and during less severe storms.

ISSUE 5

IMPACT OF CONTAMINATED SURFACE WATER DISCHARGES ON SURFACE WATER QUALITY

Most developments built in the last 30 years are drained by two separate systems. One conveys uncontaminated surface water runoff and discharges into a local watercourse, whilst the other takes foul water to a sewage treatment works.

Problems with this system can occur when foul drainage is incorrectly plumbed into the surface water drainage system. Where dual manholes occur, damage to the dividing wall or blockages in the foul sewer, can result in foul drainage entering the adjacent pipes. Additionally contaminated liquids can occasionally be poured down the wrong drains. All of these situations result in the contamination of the surface water drainage system which can have a significant impact upon the receiving watercourse into which it is discharged.

ISSUE 6

ADVERSE IMPACT ON RIVER WATER QUALITY DUE TO UNDETERMINED POLLUTION SOURCES

In some cases the root cause of the water quality failing to comply with an EC Directive or achieve a River Quality Objective is not fully understood. Investigative work may, therefore, need to be undertaken in order to gain a better understanding of the reasons behind them.

ISSUE 7

LOCALISED WATER POLLUTION DUE TO LACK OF RURAL SEWERAGE

The lack of sewerage systems and associated sewage treatment works within rural areas has resulted in a multitude of private septic tank and small treatment plant discharges. The Agency is generally against the proliferation of such systems because a single, large sewage treatment plant typically performs more efficiently than multiple, small plants because of the better flow and load balance. Agency monitoring is also much simpler.

	Significant localised pollution can occur in areas where a number of discharges are concentrated, or when plants are poorly maintained. Improvement can be achieved by promoting the provision of public sewers or first time rural sewage treatment with North West Water Ltd, local authorities, developers, etc.
ISSUE 8 THE NEED TO REDUCE WASTAGE OF WATER	Water is supplied into the public water supply system to meet demand, generated by the use of water of North West Water Ltd. customers, and losses through leakage from the distribution network. This results in an exploitation of water resources above the amounts actually necessary.
ISSUE 9 REDUCING THE IMPACT OF AGRICULTURAL WATER USAGE	Agriculture is a prime user of both surface and ground-water for irrigation and other farming practices. Irrigation is the most critical of agricultural uses as it is consumptive and demand is at its highest in summer when river flows are low and the impact on the watercourse is greatest. The licensing system balances the needs of the environment with those of the abstractor to minimise any environmentally damaging effects.
ISSUE 10 INADEQUATE DATA FOR MONITORING WATER LEVEL CHANGES	Many habitats are adversely affected by changes in water level, the effect being particularly significant in the shallow lakes and meres of the Weaver area. The meres and wetland sites in the area have no baseline data to monitor the effects of abstraction, drought and mining on water levels. Meres are often designated for their marginal flora, and a small change in water level may have a significant impact on the area of marginal vegetation that is permanently wetted. Additionally, falls in water level enable increased light penetration within the water body, increasing the likelihood of algal growth. These factors combine to result in a change of the ecology of the site.

Assessing the impact of external influences on water levels in these habitats is currently qualitative as there is very little empirical data for analysis.

Baseline data would be used when formulating Water Level Management Plans and for addition to the Still Waters Database held by the Environment Agency. The Agency would then be able to assess detrimental impact of future changes in water level.

ISSUE 11

ADVERSE IMPACT OF LITTER AND ILLEGAL WASTE DISPOSAL ACTIVITY ON LAND AND INTO WATERCOURSES

In common with many other areas, there is a significant problem of illegal waste disposal activity, including "fly-tipping". This occurs particularly in the urban areas, but can also be a problem in the more rural localities. Wastes are deposited on all kinds of open sites, including waste ground and derelict premises, car parks, verges, alleyways into watercourses and even on the public highway.

ISSUE 12

ADVERSE IMPACT OF CONTAMINATED AND DERELICT LAND ON THE ENVIRONMENT

The salt and chemical works of this part of Cheshire also gave rise to a range of other heavy industries, many of which no longer survive and some of which leave a legacy of contaminated land. The salt industry itself has resulted in localised brine contamination of land and watercourses, and has also caused subsidence at the surface, creating depressions which in turn have filled with water and produced 'flashes,' notably in the Moston, Winsford and Northwich areas. It has also resulted in large quantities of lime wastes, the lime slurry being pumped into huge beds where it is allowed to dry out leaving a surface feature which barely supports life. Such beds are found in the Northwich, Winsford, Middlewich, Lostock and Sandbach areas.

ISSUE 13 ENSURING THE BENEFICIAL EFFECTS OF LAND-SPREADING OF WASTE UNDER THE WASTE MANAGEMENT LICENSING REGULATIONS 1994	Commonly spread wastes under this exemption are paper pulp, dredging, textile waste, septic tank sludge and blood and gut contents from abattoirs (NB. only from those which slaughter cattle under the threshold age for BSE control purposes). The area produces a particularly large volume of paper pulp waste from industry in Vale Royal, and given the proximity of agricultural land, spreading is an attractive option. There have been concerns over the dosing of land with such wastes. In addition to the potential for runoff into drainage channels and so on, there is the matter of whether real benefit accrues when such wastes are spread. It now falls within the remit of the Agency to determine whether it does.
ISSUE 14 NEED TO PROMOTE WASTE HIERARCHY	The Agency has roles in educating, providing information and statistics, but also in forming 'on-the-ground' partnerships with appropriate interest groups so as to promote the waste hierarchy and ultimately deliver the UK's commitment to that part of the Earth Summit agreement.
ISSUE 15 POOR ACCESS TO WATERCOURSES LEADING TO DIFFICULTIES FOR MAINTENANCE WORKS, RECREATIONAL ACTIVITIES	There is poor access to watercourses at many locations in the area for regular flood defence maintenance and emergency works and for recreational activities. Access to watercourses in urban areas is often complicated by walls, fences and residential or industrial property being too close to the watercourse.
ISSUE 16 CULVERTS CAUSING FLOOD RISK AND LOSS OF HABITAT	Many watercourses have been enclosed in culverts, which lie beneath roads, tip sites, fields and buildings. Within the area there are at least 54 culverts totalling approximately 7.6km in length. Many of these, in particular long culverts through urban areas, are prone to blockages, which leads to flooding.

ISSUE 17 PROPERTIES AT RISK OF FLOODING	A number of existing urbanised regions within the LEAP area have been highlighted as being vulnerable to potential flooding from rivers and watercourses failing to reach the target level of flood protection. In parallel with the existing threat of flooding, there also exists the increasing pressure to continue the development of the area.
ISSUE 18 IN-RIVER STRUCTURES CAUSING FLOOD RISK, RESTRICTION OF FISH MIGRATION AND REDUCED RECREATIONAL USE	Most of the structures found in the Weaver/Dane area are designed to hold water upstream. These are generally considered to degrade the environment. Structures, such as weirs and sluices, can cause major obstructions to the migration of fish and recreational users such as canoeists.
ISSUE 19 LAND USE AND LANDSCAPE CHANGES LEADING TO THE LOSS OF WILDLIFE, HABITAT AND LANDSCAPE DIVERSITY	A diversity of natural features, such as meanders, riffles, pools, emergent vegetation and bank side cover within wide river corridors, ponds and wetland habitats, woodlands, trees, hedgerow and hay meadows are required to sustain viable populations of a wide range of wildlife species and maintain the landscape character of the Weaver/ Dane area. There has been a serious loss of these habitats and a consequent reduction in species diversity and landscape character in the study area.
ISSUE 20 WATERCOURSES ARTIFICIALLY MODIFIED CAUSING LOSS OF HABITAT AND AMENITY	Many watercourses in this area have been artificially straightened, deepened and shortened. Land next to urban watercourses has often been developed in the past, right to the bank top. Banks have been reinforced or re-profiled to prevent natural erosion, silt deposition and meandering. Rural watercourses

have been modified to create more land for agriculture and to drain land more effectively.

The Environment Agency works to retain those stretches of watercourse and river corridor which have a natural variety of features. We also seek to retain open water courses and integrate buffer zones in new development sites to retain existing features of interest and promote opportunities for enhancement.

ISSUE 21

INVASIVE NON-NATIVE PEST SPECIES

Mink escaped or were released from fur farms in the 1920s. Many have successfully bred in the wild and the population is thriving. By the late 1980s mink were recorded all over the country.

Many foreign plants were introduced to Britain in the 19th century, mainly for ornamental purposes. A few grow very strongly in the wild and have come to dominate riverbanks. Japanese knotweed and Himalayan balsam are widespread in this LEAP area, particularly where land has been disturbed. Giant hogweed has also been reported at several localities within this area.

ISSUE 22

THE IMPACT OF NUTRIENT ENRICHMENT ON AQUATIC COMMUNITIES

There are many lakes and ponds in the Weaver/Dane area which are thought to be suffering from enrichment problems. This causes eutrophication which in turn is leading to high productivity. It is generally believed that eutrophication is a normal feature of lakes as they gradually silt up, but the addition of nutrients of human origin speed up this process causing serious problems for the plants and animals in the water bodies.

Algal blooms are a common feature of eutrophic lakes and may reach nuisance proportions.

ISSUE 23

LACK OF SUSTAINABLE FISH POPULATIONS

The area contains river stretches which maintain high quality sustainable fisheries. Good examples of these are found in the lower Weaver, downstream of Bottoms Flash, in the River Dane and stretches of the Peover Eye. There are, however, some river stretches where fish populations are restricted due either to poor water quality or to habitats being denuded by siltation.

Dairy Farming

Brunner Mond, Northwich

NORTH WEST REGION ADDRESSES

REGIONAL OFFICE
Environment Agency
PO Box 12
Richard Fairclough House
Knutsford Road
Warrington WA4 1HG
Tel: 01925 653 999
Fax: 01925 415 961

NORTH AREA
Environment Agency
Chertsey Hill
London Road
Carlisle CA1 2QX
Tel: 01228 25151
Fax: 01228 49734

CENTRAL AREA
Environment Agency
Lutra House
Dodd Way
Walton Summit
Bamber Bridge
Preston PR5 8BX
Tel: 01772 339 882
Fax: 01772 627 730

SOUTH AREA
Environment Agency
"Mirwell"
Carrington Lane
Sale M33 5NL
Tel: 0161 973 2237
Fax: 0161 973 4601

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

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0645 333 111

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EMERGENCY HOTLINE
0800 80 70 60

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CARRINGTON LANE
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CHESHIRE
M33 4BT