

LOWER MERSEY

LEAP ANNUAL REVIEW

SEPTEMBER 2001



ENVIRONMENT AGENCY

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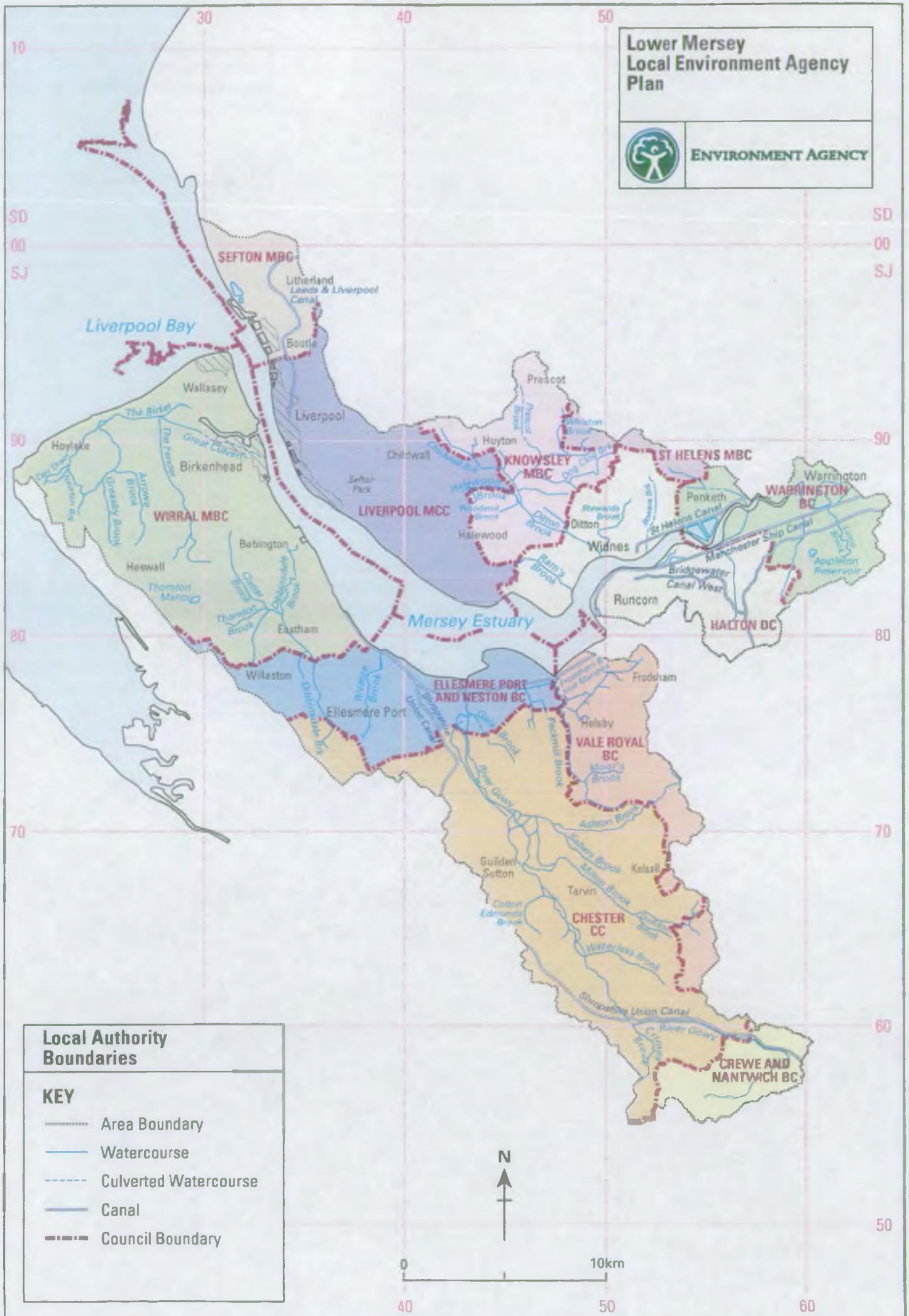


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Lower Mersey Local Environment Agency Plan



ENVIRONMENT AGENCY



Local Authority Boundaries

KEY

- Area Boundary
- Watercourse
- - - - - Culverted Watercourse
- Canal
- Council Boundary

Infrastructure

- Area Boundary
- Watercourse
- Culverted Watercourse
- Canal
- Built up Area
- Motorway
- A Road
- Rail Network



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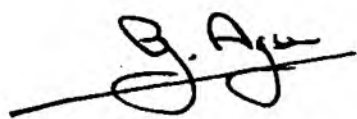


EXECUTIVE SUMMARY

The Second Annual Review of the Lower Mersey LEAP reports on the progress made from 1999 against LEAP actions. The actions published in the LEAP are supplemental to our everyday work on monitoring, surveying and regulating to protect the environment. Some of the key achievements for the Agency and its partners include:

- Cleanaway's incinerator at Ellesmere Port, destroys **waste refrigerant gases** (CFC's and HCFC's) greatly reducing their global warming and ozone depletion potentials.
- New **sulphur removal plant** at Shell's Stanlow Refinery has resulted in a reduction of the acid gas sulphur dioxide released into the atmosphere.
- The closure of Bridgewater Paper's coal-fired power station in summer 2000 and its replacement by a gas-fired combined heat and power (CHP) plant has resulted in a reduction in **particulate and sulphur dioxide emissions**. The new CHP was authorised in November 1999 and commissioned through 2000.
- In partnership with Lancashire Wildlife Trust, a **Water Vole Survey** was carried out in the Ditton catchment.
- Research and development study on the **optimum use of water for agriculture** took place.
- **National Eel and Elver Management Strategy** introduced to ensure a sustainable population of eels.
- Phase I of the **Wirral and West Cheshire Groundwater study** completed in February 2000.
- New **environmental/waste minimisation** schemes launched in 1999/2000.
- **European Union Integrated Pollution Prevention and Control (IPPC) Directive** enacted in 2000.
- New **Flood warning code system** introduced on 12 September 2000.
- **Morpeth Dock Pump Station**: This scheme protects more than 1900 residential properties, two schools, two factories, several smaller units on an industrial estate and a railway station. The total capital cost of the scheme was £3.2 million with benefits in excess of £14.5 million.

The Annual Review seeks to look forward and identify future priorities to protect and enhance the environment – it is a “living” document, and priorities will change over the course of the LEAP programme. The Agency welcomes comments regarding the content of the LEAP Annual Review from all sectors including business, industry, voluntary groups and the community.



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INTRODUCTION

This is the Second Annual Review of the Lower Mersey Action Plan. It reports on the Environment Agency and summarises progress made with actions. Previous publications relating to this catchment contain more detail; this review should be read in conjunction with these publications:

Lower Mersey Consultation Report – April, 1997

Lower Mersey Action Plan – October, 1997

Lower Mersey First Annual Review – February, 1999

These publications are available on request from the South Area office of the Environment Agency.

1.1 The Environment Agency

The Environment Agency is the leading public organisation for protecting and enhancing the environment in England and Wales.

We regulate industry and inspect industrial sites to protect the environment and people from pollution and environmental risks to health. We work to encourage ever more effective environmental stewardship by industry and all other sectors.

The Agency maintains essential flood defences, water resources and river navigation structures. We restore and improve the land and wildlife habitats. We also monitor and assess the environment. We make the data and information that we collect widely available.

Much of the gross pollution that characterised the last century has fortunately been dealt with – unpleasant smelling rivers, choking smog and unmanaged tips are now a thing of the past. But new challenges are emerging that are equally damaging, if less obvious in their manifestation: global warming, endocrine-disrupting chemicals, ultra-fine particles in the air. For all the progress so far, there is a huge challenge ahead to build on past successes and to address these new threats as we help our economy and society make the longer-term transition to sustainable development.

Our vision for the environment and a sustainable future is:

- a healthy, rich and diverse environment in England and Wales, for present and future generations.

The fundamental goals we want to help achieve:

- **a better quality of life.** People will have peace of mind from knowing that they live in a healthier environment, richer in wildlife and natural diversity – an environment that they will care for and can use, appreciate and enjoy.
- **an enhanced environment for wildlife.** Wildlife will thrive in urban and rural areas. Habitats will improve in their extent and quality to sustainable levels for the benefit of all species. Everyone will understand the importance of safeguarding biodiversity.

The environmental outcomes for which we are striving:

- **cleaner air for everyone.** We will have cleaner and healthier air. The emission of chemical pollutants into the atmosphere will decline greatly and will be below the level at which they can do significant harm.
- **improved and protected inland and coastal waters.** Our rivers, lakes and coastal waters will be far cleaner. They will sustain diverse and healthy ecosystems, water sports and recreation such as boating and fishing, and those uses needed by a thriving and healthy community.
- **restored, protected land with healthier soils.** Our land and soils in the countryside and towns will be exposed far less to pollutants. They will support a wide range of uses, including production of healthy, nutritious food and other crops, without damaging wildlife or human health. Contaminated and damaged land will be restored and protected.

The changes we will seek:

- **a 'greener' business world.** Industry and businesses will value the services that come from a rich and diverse natural environment. In the process, they will reap the benefits of sustainable business practices, improve competitiveness and value to shareholders and secure trust in the wider community.
- **wiser, sustainable use of natural resources.** Business, public agencies, other organisations and individuals will minimise the waste they produce. They will reuse and recycle materials far more intensively, and will make more efficient use of energy and materials.

The risks and problems we will help manage, prevent and overcome:

- **limiting and adapting to climate change.** Drastic cuts will have been made in the emission of 'greenhouse gases' such as carbon dioxide and society as a whole will take account of, and be prepared for, the probable changes to our climate.
- **reducing flood risk.** Flood warnings and sustainable defences will continue to prevent deaths from flooding. Property damage and distress will be minimised. The role of wetlands in reducing flood risks will be recognised and all the environmental benefits from natural floods will be maximised.

Challenges and opportunities

The Environment Agency and its partners have achieved a great deal in making the environment cleaner, safer and better protected against pollution, environmental crime, floods and the impacts of production and consumption. But there is a huge challenge ahead to respond to some of the predictions for the future. The Agency will continue to work with the Department of the Environment, Transport and the Regions, which leads on UK environmental policy, and to advise it on these challenges. In its White Paper, *A Better Quality of Life: A strategy for sustainable development for the United Kingdom*, the Government has set out four objectives:

- social progress that recognises the needs of everyone;
- effective protection of the environment;
- prudent use of natural resources; and
- the maintenance of high, stable, levels of economic growth and employment.

The Agency's contribution to this strategy, set out in our vision, is best achieved if it can help everyone to:

- understand society's effects upon the environment;
- develop new attitudes and behaviour towards the environment;
- ensure that industry reduces its impact on the environment and recognises its dependence on it;
- take care of resources and deal with their own waste; and
- recognise that the natural environment has always changed, but that emissions of "greenhouse gases" could accelerate climate change and lead to severe disruption of natural systems.

1.2 Local Environment Agency Plans

We are committed to a programme of Local Environment Agency Plans (LEAPs). These plans help us to identify and assess, prioritise and solve, local environmental issues related to our functions, taking into account the views of our local customers. LEAPs replace Catchment Management Plans, which were produced by the former National Rivers Authority.

The LEAP process involves several stages as outlined below.

The Consultation Draft – Publication of the Consultation Draft marked the start of a three-month period of formal consultation, which enabled external organisations and the public to work with us in planning the future of the local environment. At the end of the consultation period, we produced a Summary of Public Consultation Responses that gave the results of the process.

The Action Plan – The Action Plan takes into account the results of the consultation. It includes numerous actions identifying costs, timescales and partner organisations. Agreed actions are incorporated into our annual business plans.

Some issues can be resolved through our statutory and routine work programme, whilst others require action over and above our day-to-day business. Funding for the latter is not always certain. Usually, because of the short-term nature of our funding, we can only firmly commit ourselves to action in the current and next financial years. Our priorities, policies and budget may change: these changes will be reflected at each Annual Review.

Some issues require solutions beyond the scope of our existing budgets or technology – they are nevertheless valid issues and earn their place in this plan, in the hope that a solution may be found in the future.

In most cases we show the anticipated cost against an action. These are estimated costs to give the reader an idea of the relative size and resource implications of each action.

The Annual Review – We monitor implementation of the Action Plan and report on the year's progress in a published Annual Review. The Annual Review also identifies any additional issues and actions needed to maintain progress in light of any changes within the LEAP area. We invite people to contact us at any time to raise new issues or suggest new actions – this ensures the LEAP process is an active one, which evolves to meet the changing needs of the local environment. After five years, or sooner if required, we plan to carry out a major review of the progress we have made. At this stage, we intend to produce a new LEAP Consultation Draft.

Review of Progress – The following pages outline updates on the various issues, together with the relevant actions as set out in the Action Plan. A summary of progress is given for each action, together with target dates for future work, if applicable. New actions have been added where appropriate.

Future Reviews – We will review progress again in 2002 and details will be published in the Third Annual Review of the Lower Mersey LEAP.

1.3 Themes for the future – towards a better environment

The Environment Agency aims to be a champion for the environment, working for a healthy, rich and diverse environment in England and Wales. We also aim to be a champion for sustainable development and will contribute to the national strategy for sustainable development. We will protect and enhance the environment in a way that links with measures to promote social fairness and a prosperous, efficient economy. We will work with partners across society to achieve this vision.

Our nine themes, that encapsulate our key milestones and targets that underpin our vision for the environment, are as follows:

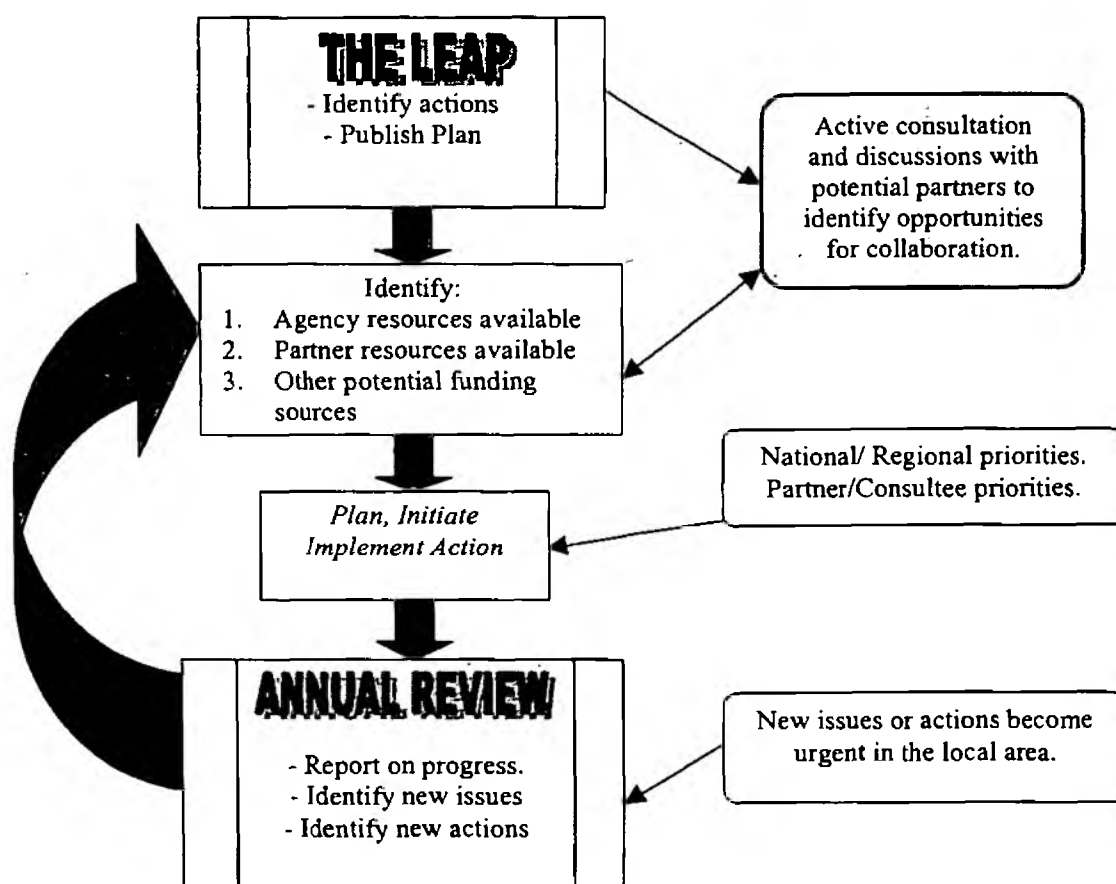
- A better quality of life
- An enhanced environment for wildlife
- Cleaner air for everyone
- Improved and protected inland and coastal waters
- Restored, protected land with healthier soils
- A 'greener' business world
- Wiser, sustainable use of natural resources
- Limiting and adapting to climate change
- Reducing flood risk

The Lower Mersey LEAP is a working document covering the five-year period 1997-2002, and publicises actions that are or could be ongoing in the local area to address local environmental issues. It seeks to encourage support for and involvement in these projects from prospective partners.

The review reports on the progress made since the First Annual Review, which was published in February, 1999 and contains the following information:

- I details of key achievements for 1999/2000,
- II update on activities against LEAP actions and 'we will' statements,
- III identified priorities/actions for 2001 onwards,
- IV highlights of a successful partnership initiative.

Process for Developing the Final Plan into Action



The highlighted tinted box represents the current focus for progressing the LEAP. We will be seeking to determine the scale of current activities in the area, and identifying opportunities to work with others to achieve the objectives and progress actions of the LEAP. Annual Reviews of the LEAP will normally take place in each subsequent year, until a full re-assessment is undertaken after 5 years.

This review provides an opportunity to highlight the work that has been undertaken and the progress that has been made against the published LEAP actions. Each of the following sections gives a brief comment on the stated commitments made in the LEAP, while the tables summarise the published LEAP actions.

The review should be seen as an invitation to get involved in collaborative environmental problem solving. Since the LEAPs are local plans, local interest and collaborative potential can help influence the priorities and encourage support for local issues.

Each section also provides a brief forward look, identifying the main areas for activity in the coming year.

The following points should be considered:

Agency Statutory Role

The LEAP does not include all of our statutory or regulatory work. Environmental protection and improvement is the aim underpinning all of our work, and the LEAP actions provide added value to this fundamental aim.

Resourcing the Actions

Actions will be progressed only when resources become available (via Agency and/or partner sources), and may also be subject to national and regional priorities. Some actions will require feasibility studies and cost-benefit appraisal of options prior to work being approved. The diagram opposite shows the key stages in developing the plan into local action on the ground.

Linking Actions to Themes

In order to ensure that actions and issues are discussed under the most appropriate theme we continually assess and monitor reports and responses. This may result in some information changing location when compared to the Action Plan (October, 1997). We will ensure this is kept to a minimum, with full references being provided.

ACTIONS FOR THE LOWER MERSEY AREA: Quick Reference Guide to Issues

NB. The issues are not numbered in any order of priority or importance

- The number previously given to issues in the Annual Review (February 1999)

Section heading	Issue No.	AR Issue No.		Page No.
	Removed	1	Ineffective use of water resources	-
An Enhanced Environment for Wildlife	1	3	The need for continued habitat improvement and retention of existing habitats to protect and increase biodiversity	14
	2	4	Invasive non-native pest species	15
	3	5	Extent of channelised and over-managed watercourses creating loss of habitat and amenity	16
Cleaner Air for Everyone	4 NEW	-	Achieving local air quality objectives through regulation of Agency regulated processes	18
Improved and Protected Inland and Coastal Waters	5 Renamed	6	Raise awareness of recreational watercourses including conservation and maintenance of sustainable fish populations	24
	6	7	Adverse impact of discharges from wastewater treatment works (WwTW)	26
	7 Renamed	8	Adverse impact of run-off from industrial estates	27
	8	9	Adverse impact of contaminated surface water discharges	28
	9	10	Adverse impact from overflows on the sewerage network	28
	10	11	Pollution and loss of habitat caused by agricultural activity	29
	11	15	Adverse impact of urban run-off and drainage from major roads and motorways	29
	12	16	Adverse impact on water quality from private sewerage and sewage systems	30
	13	18	Poor access to watercourses for maintenance works and recreational activities	30
	14	12	Deterioration in groundwater quality due to intrusion of saline waters	31
	15	14	Rising groundwater levels increasing the risk of pollution and flooding	31
	16	22	Adverse impact of industrial discharges on water quality	32
Restored, Protected Land with Healthier Soils	17	19	Adverse impact of contaminated land on the environment	36
Wiser, Sustainable Use of Natural Resources	18	2	Management of agricultural water usage	43
	19	20	Illegal waste disposal activity	43
	20	21	Lack of awareness of sustainable waste management	44
Reducing Flood Risk	21 Renamed	13	Raise awareness of increased numbers of properties at risk from flooding	50
	22	17	Culverts causing flood risk and loss of habitat	51

A Better Quality of Life

A better quality of life is about more than just management of our water quality. It concerns water flow, landscape, flood control works, recreation and wildlife. If we all work towards sustainable development, then quality of life improves for everyone.

A better quality of life reaches across the full range of the Agency's activities.

The most immediate impact the Agency makes on quality of life is through its primary functions. These have a direct effect on quality of life, for example, by protecting people against pollution and flooding, providing agreeable riverside recreation, and by ensuring wise stewardship of precious resources such as water. The cleaning up of historic pollution, and providing a clean environment within which new businesses might establish themselves encourages economic regeneration. New markets are opened up by the drive for improved pollution abatement technologies, and waste minimisation can also reduce costs and improve competitiveness.

The Agency also has an impact on quality of life through the way in which it carries out its functions. By consulting widely, by engaging with others in partnership and by forming close and responsive relationships with its partners, the Agency makes a substantial contribution to the inclusion of all parts of society in the decisions which affect them. This also contributes to good governance, supporting the Government's aims for local democracy and social inclusion.

Finally, the Agency contributes to improving quality of life by providing expertise and information. This enables decisions ranging from the national and major to the local or those of individual choice to be taken with the best advice and knowledge underpinning them. For example, the Agency provides local environmental information through its web-site. The Agency's knowledge of the environment at a local scale has enabled it to play a key role in contributing an environmental dimension to regional economic strategies and in developing the new Regional Frameworks for Sustainable Development.

An Enhanced Environment for Wildlife

Conserving and enhancing the variety of animal and plant life and the habitats in which they live is vital in improving the state of the environment.

Background:

Many people value wildlife as one of the key elements contributing to their quality of life, whether in their own backyard or the wider beyond. It follows that the variety and abundance of wildlife – plants, insects, fish, birds and mammals living on the land, in the water and around our coasts – provides a critical indicator of how successful we are in using our environment wisely.

The UK Biodiversity Action Plan (UK BAP) is the Government's blueprint for wildlife conservation, setting out what action is required to protect and enhance wildlife under greatest threat. More than 400 individual plans for species and habitats provide the baselines against which future changes can be measured, and specific targets set.

Specifically, under the UK BAP, we have lead responsibility for 39 species and 5 habitats of wetland character. These include otter, water vole, white-clawed crayfish, southern damselfly, depressed river mussel, chalk rivers and coastal saltmarsh. This is a very significant responsibility that reflects our expertise, experience and influence in riverine, coastal and wetland management.

A biodiversity audit with local action plans for the conservation of wildlife of the Cheshire region has been compiled, with partners, by the Cheshire Wildlife Trust. The programme, based on the best available scientific knowledge, will set out clearly the priority action required to conserve the most vulnerable plants and animals.

The Agency is participating in the Regional Audit by reviewing plant and animal life within the North West. This, together with involvement in local biodiversity action plans, will help to identify conservation methods for the future.

There is a need to continue to protect, improve and monitor existing habitats. This is already being done through the network of sites of nature conservation importance, such as Sites of Special Scientific Interest (SSSI), Sites of Biological Interest (SBI), Special Protection Areas (SPA) and Environmentally Sensitive Areas (ESA).

By creating new habitats and removing threats to existing habitats, species will be encouraged to achieve their target distribution and status.

Area policy towards invasive plants, especially Japanese Knotweed and Giant Hogweed, has changed since the LEAP was first produced. Under certain circumstances particular problems may be dealt with on a site by site basis but there will be no systematic control programme. It is not the Agency's responsibility to control these plants unless they are causing a particular problem, e.g. compromising flood defences, ecology or fisheries interests and it is believed that the money could be better spent elsewhere.

*Update of Actions:**Key Achievements 1999/2000:*

- Active role in the preparation of the Wirral BAP/Wirral Coastal BAP, together with other partners, e.g. Wirral Rangers, RiVa 2005, RSPB, English Nature etc.
- Provided input to North Merseyside BAP.
- Continued funding for 'Countdown', the Cheshire BAP.
- Agency representation on a number of Local BAP groups, e.g. reedbeds etc.
- Water Vole surveys carried out in Ditton catchment in partnership with Lancashire Wildlife Trust.
- Cheshire, Wirral, Warrington and Halton pilot Local Record Centre now established under the name 'Record' as a result of an ongoing partnership between the Environment Agency and many other organisations.
- Continued Agency representation on RiVa 2005 Steering Group and sub-groups, e.g. Dibbinsdale Working Group.
- Continued Agency funding for RiVa 2005.

Final Plan Commitments:

We will: In partnership with local authorities, support the development and implementation of local Biodiversity Action Plans, with particular regard to those species and habitats for which the Agency is a contact point or lead partner.

We are involved with the Regional Audit reviewing biodiversity within the North West. This, together with involvement in local biodiversity action plans, will help to identify any gaps in knowledge.

We will: Ensure every opportunity is taken to create and restore habitats.

Forward Look:

- Work in partnership with other organisations to protect key species and habitats identified from LBAPs.
- Gowry Meadows *FAS/WLMP has been brought forward and is due to be implemented in 2001. This should result not only in improved flood protection for the Shell Stanlow oil refinery but also in significant habitat improvements in an area that has a history of habitat degradation through over management.
- Identify and prioritise stretches suitable for enhancement and rehabilitation.
- Further conservation of important species and habitats (e.g. Black poplars, barn owls, bats, and natterjack toads) to protect and enhance populations.

*FAS/WLMP: Flood Alleviation Scheme/Water Level Management Plan.

AN ENHANCED ENVIRONMENT FOR WILDLIFE

AN ENHANCED ENVIRONMENT FOR WILDLIFE	Ref.	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 2: Invasive non native pest species</i>					
	2.1	Investigate the distribution of mink in the study area and assess current problems associated with their presence.	1999/2002		DEFRA (L) Wildlife Trusts Manchester Metropolitan University EA (P)	No update available.
	2.2	Assess the current status of crayfish in the area.	1999/2002		Cheshire Wildlife Trust (L) EA (P)	Action removed. No crayfish present in LEAP area. Area policy towards invasive plants, especially Japanese Knotweed and Giant Hogweed, has changed since the LEAP was first produced. Under certain circumstances particular problems may be dealt with on a site by site basis but there will be no systematic control programme. It is not the Agency's responsibility to control these plants unless they are causing a particular problem, e.g. compromising flood defences, ecology or fisheries interests and it is believed that the money could be better spent elsewhere. Actions 3, 4 and 5 should therefore be removed from the LEAP.
	2.3	Investigate the extent of Japanese Knotweed, Himalayan Balsam, Giant Hogweed, <i>Crassula</i> and <i>Azolla</i> .	1999		EA (L) General Public (P) Cheshire Wildlife Trust JCAS Ranger services Landowners	Action removed. See above.
	2.4	Develop <i>best practice</i> guidelines for field staff to prevent the spread of non-native plants, from site to site, during site visits, sampling and maintenance operations.	1999		EA (L) English Nature (P) Ranger services Wildlife Trusts	Action removed. See above.
	2.5	Carry out appropriate control programme for Giant Hogweed.	1999		EA (L)	Action removed. See above.

A booklet "Guidance for the control of invasive plants near watercourses" is available from the Environment Agency

AN ENHANCED ENVIRONMENT FOR WILDLIFE	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 3: Extent of channelised and over-managed watercourses creating loss of habitat and amenity</i>					
	3.1	Identify stretches suitable for enhancement and rehabilitation	1999/2002		EA (L) Local Authorities Groundwork Cheshire Wildlife Trust JCAS	
	3.2	Identify and investigate sources of funding for known projects			EA (L)	
	3.3	Implement appropriate enhancement and rehabilitation schemes			EA (L) Local Authorities Groundwork Mersey Forest Forestry Authority	
	3.4	To carry out a habitat enhancement exercise on part of the canalised stretch of the River Gowy between Bridge Trafford and Stamford.	2001-2002		EA (L) Bay Malton Angling Club	Project at the feasibility/negotiation stage.

Cleaner Air for Everyone

The implementation of the Government's air quality strategy should ensure that national objectives for a range of pollutants are met within 5 – 10 years. Pollution must be controlled in order to reduce the risk of harm to human health, the natural environment and quality of life.

Cleaner air for everyone

Background

On a local scale responsibility for air quality is split between the Agency and Local Authorities. The Agency is responsible for the regulation of major industries, whilst local authorities regulate minor industries, control domestic smoke, evaluate local air quality and produce local air quality management plans.

The Agency will work towards shared strategies with our partners at a local level to improve air quality from all sources. Provision of information in an understandable, accessible format on air quality issues, including emissions inventories, will be a priority for the Agency.

One of the Agency's objectives is to reduce the amounts of organic-based solvents that are released into the atmosphere. These can contribute to the generation of ground-level ozone.

Key Achievements 1999/2000:

- Cleanaway's incinerator at Ellesmere Port, which is authorised by the Agency under integrated pollution control (IPC), destroys waste refrigerant gases (CFC's and HCFC's) and thus greatly reduces their global warming and ozone depletion potentials.

The successful commissioning and reliable operation of a new sulphur removal plant at Shell's Stanlow refinery has resulted in a reduction of the acid gas sulphur dioxide released to atmosphere. This has benefits locally through lower sulphur dioxide levels; nationally through lower sulphur in road fuels; nationally and internationally through reduction in acid deposition.

- The closure of Bridgewater Paper's coal-fired power station (summer 2000) and its replacement by a gas-fired combined heat and power (CHP) plant (November 1999) has resulted in a significant reduction in particulate and sulphur dioxide emissions i.e..

	1999	2000
Sulphur dioxide (SO _x)	2829T	847.6T (T = tonnes)
Particulate	234T	<10T

Annual Review Commitments:

We will: Develop an overall Air Quality Strategy for releases from processes prescribed under Integrated Pollution Control in the LEAP area, to ensure long term improvements in air quality.

We will: Continue to provide local authorities with emission data from the processes the Agency regulates, in order to assist them with their air quality management role.

We will: Focus on improving the efficiency of energy use and distribution as a key means of reducing fossil-fuel emissions and reducing energy demand.

We will: Ensure those industries we regulate under national and European law meet the requirements of IPPC.

Forward Look:

- Ongoing commitments to plant improvement in regulated processes should result in a reduction of emissions of greenhouse gases and improved air quality.

CLEANER AIR FOR EVERYONE

Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
Issue 4: Achieving local air quality objectives through regulation of Agency regulated processes (NEW ISSUE)					
4.1	Provide local authorities with emission data from the processes it regulates, to assist them in their air quality management role.		Staff time	Environment Agency	Ongoing

Improved and Protected Inland and Coastal Waters

Clean waters with thriving wildlife help guarantee the health and safety of the water supplied to homes, the water used to produce food, and the waters valued for recreation. The appearance, quality and value of waters can be damaged by how land is used.

Background:

The Agency regulates the abstraction of water through a system of licensing. It plans the future use of water resources so as to balance the needs for water supplies to homes, industry and agriculture alongside those of fisheries, recreation, water quality and conservation.

The Agency also monitors the quality of discharges from sewage treatment works and trade discharges; and monitors the condition of freshwater, groundwater and tidal waters.

The Agency has responsibility for the conservation and management of all freshwater fisheries. This includes the sustainable development of fisheries and the promotion of fishing.

Fisheries

Due to the work of the Agency along with other organisations including United Utilities and angling groups, water quality has improved to such an extent that we can now consider stocking rivers that have been devoid of fish in living memory.

As part of a National Eel and Elver Management Strategy to arrive at a sustainable population of eels, investigations will take place to ensure that the species is not being over exploited to the benefit of other returning aquatic wildlife.

Liverpool Park Lakes – The Council own and maintain 13 lakes, ranging in size from 1 to 3 hectares, which represents over 30 acres of standing, open waters. Since the lakes were constructed, many factors have combined to their decline. The Council formed a Park Lakes Advisory Forum (P.L.A.F.) to co-ordinate public, private and community involvement, allowing a full range of experience, knowledge, expertise and skills to be brought to bear. P.L.A.F. approved the lake refurbishment project at Larkhill Gardens. The project was designed to reverse the decline of one of the few remaining environmental attractions in such a densely populated urban area. The Council, the Environment Agency and the Queens Community Partnership were committed towards encouraging community ownership of the project.

Endocrine disruption is a term that describes how natural hormones in wildlife are being interfered with. This interference results in changes, such as males becoming females and vice versa. Other problems include reproductive failure due to this interference. Endocrine disruption has also been linked to human health problems.

The Agency has initiated a research project that is looking at gaining baseline data on Endocrine disruption in the Freshwater Mersey Basin catchment (potentially spread across all South Area Agency LEAPs). Although the precise sampling locations have

yet to be identified, it is thought that samples will be strategically taken rather than by a blanket survey.

Estuarine research across the country has indicated that the Mersey Estuary has Endocrine disruption in fish populations. The research project team will initially look at disruption in freshwater invertebrates to assess whether the freshwater catchment has similar problems to those found in the Mersey Estuary.

Managing Groundwater Resources:

Groundwater levels are rising in some parts of the estuary zone, while in others, depressed groundwater levels have caused the contamination of aquifers through the inflow of estuarine waters. Our aim is to manage rising groundwater levels and to ameliorate any deterioration in groundwater quality caused by saline intrusion.

Prior to the licensing controls introduced by the Water Resources Act (1963), groundwater abstraction was largely unregulated. In the past abstraction has exceeded natural recharge in and around the Lower Mersey area, effectively 'mining' the groundwater. As a result, in some areas, groundwater levels have been depressed to below sea level. In places adjacent to the Mersey Estuary this has caused a reversal of the hydraulic gradient, allowing saline waters from the estuary to flow into the aquifer. Other sources of old, poor quality (saline) groundwater is also present at depth in certain parts of the aquifer. This can be intercepted and mobilised by 'over-pumping' from deep boreholes, thus causing potential deterioration in the quality of abstracted water.

The Wirral and West Cheshire Groundwater Study was set up by the Agency in 1998 in order to investigate the groundwater resources of the Sherwood sandstone aquifer which underlies the Wirral and West Cheshire region. Its aim is to assess availability of groundwater resources, their relationship with surface waters and the effects of abstraction on groundwater quality and surface flows. Phase I set out to collect and collate a vast amount of geological, hydrogeological, hydrometric and abstraction data, and to develop a conceptual understanding of the system. Phase II involves the development of a numerical model of the ground and surface water systems within the study area, based upon the data assimilated in phase I. The conclusions arising from this work are to form the basis of understanding from which to ameliorate the deterioration in groundwater quality by saline intrusions.

Groundwater levels are rising in other parts of the catchment due to the cessation of mine water pumping since the closure of local deep coal mines. The reduction or cessation of groundwater abstractions from the Permo-Triassic sandstone aquifer has been a further contributory factor to the rising levels. Where natural (pre-pumping) groundwater levels were originally at or close to ground level, full recovery poses potential problems of flooding and/or pollution. An Agency funded investigation into the risk from mine closures and rising groundwater in Merseyside and South Lancashire is currently underway. Mersey rail (Railtrack) is also investigating the problem of rising groundwater in central Liverpool and has installed dewatering boreholes to control groundwater levels around the Liverpool Loop Line area.

Water Quality:

Within a large part of the LEAP area, foul and surface water drainage is conveyed together to wastewater treatment works in combined sewers. To prevent flooding during storm conditions, relief combined sewer overflows (CSOs) are provided on the sewerage network. These are designed to only operate during heavy rainfall, i.e., when

adequate dilution should be available in the receiving watercourse. Greater flows entering the sewerage system due to development within the area, has often resulted in inadequate capacity within the sewer. As a result, CSOs can operate more frequently and may even discharge prematurely, during mild storm events. CSO discharges can, therefore, have an adverse impact on the downstream water quality by increasing the organic load and/or diminishing the aesthetic quality of the watercourse.

Discharges from sewers can also occur due to blockages at CSO's and from emergency overflows (EOs) following the breakdown at sewage pumping stations. Such discharges should be infrequent, but can have a particularly significant adverse impact on water quality because they may occur during dry weather, when dilution in the watercourse is low.

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

Problems with this system can occur when foul drainage is incorrectly plumbed into the surface water drainage system. In homes this can happen when an extension is built or when a new water-using appliance is installed. It may even occur when the house is constructed. In some cases entire sewers may be wrongly connected to surface drains or where dual manholes exist, damage to the dividing wall or blockages in the foul sewer can result in foul drainage entering the surface water system. Additionally, contaminated liquids can accidentally be poured down the wrong drains. All of these problems result in the contamination of the surface water drainage system that can have a significant impact upon the receiving water into which it discharges.

The Environment Agency compiled a regional priority list of contaminated surface waters (CSWs) which identified where cross connections were having the greatest impact on receiving watercourses in the North West region. Any subsequent CSWs that are found will be scored and submitted for inclusion in the Regional list.

In some cases, the root cause of water quality problems is not fully understood and therefore investigative work is required. These problems may be a result of pollution from diffuse sources or from unidentified point sources. For example, discharges from a number of small abandoned mines in the area or historic unlicensed tips could contribute to poor water quality. Other suspected sources of pollution could be intermittent discharges from farms or industrial estates, but their relative contribution and impact on the aquatic environment needs to be evaluated.

Update of Actions:

To promote wildlife in general and determine a level for sustainable fish stocks.

Key Achievements 1999-2000:

- Pilot Project (Lark Hill Lake) completed.
- Work on two further lakes within Calderstones Park and Stanley Park nearing completion.
- Remedial measures have been carried out on Greenbank Park Lake and Princes Park Lake.
- An AWAC (Association of Wirral Angling Clubs) partnership has been set up between the Environment Agency and the Wirral Parks Rangers staff to reinstate nine park lakes within the Wirral Borough Council.

- Wallasey Park Lake has been de-stocked, de-silted, refurbished and restocked with fish.
- Phase I of the Wirral and West Cheshire Groundwater study was completed in February 2000 with the delivery of the *Conceptual Model and Data Collection* report.
- The Modelling Phase of the investigation into rising groundwater at Cronton Colliery was completed and concluded that minewater discharges to surface are minimal.

An ongoing inspection of the culverts has identified areas with flooding problems, which will be investigated further and, where appropriate, fed into any relevant capital works schemes.

Annual Review Commitments:

- We will:*** Develop new fisheries, particularly in urban areas.
- We will:*** Explore opportunities to open up land and water for recreation.
- We will:*** Implement the Code of Practice on Conservation, Access and Recreation.
- We will:*** Ensure waterways feature as a focus of urban development.
- We will:*** Implement Phase 2 of the West Cheshire Groundwater study. This will involve the groundwater modelling of the West Cheshire aquifer using the data assimilated in Phase I. Trial groundwater modelling of the Wirral area will form the first stage of this phase and has now begun. £40k has been approved, of which £20k has already been spent.
- We will:*** Implement the developmental phase of the investigation into rising groundwater in Merseyside and South Lancashire. The Agency, together with the coal authority, is looking to monitor the situation further in order to establish priorities for action.
- We will:*** Continue the current investigation at Cronton Colliery into the possibility of the commercial exploitation of gas. This would be an ideal mechanism for control at the site, with close monitoring of the groundwater level alongside the possibility of revenue benefits.
- We will:*** Continue to issue abstraction licences according to good practice as set out in the Agency's Licensing Manual, in order to ensure the sustainability of good quality groundwater resources. Licensing officers will promote the principles of efficient water usage during the licence application and renewal process.

Forward Look:

- Phase II, involves work on Birkenhead Upper Park Lake with some de-stocking having already taken place.
- To create a purpose built 30-60 peg fishery adjoining the Leasowe Housing Estate.
- Pursue the national management strategy to arrive at a sustainable population of eels and elver.
- To jointly set up a 5 and 10 year strategy for the reinstatement/refurbishment of 13 ornamental lakes within the Liverpool City Council boundary. Partners to include

the Environment Agency (Central and South Areas fisheries staff), Liverpool City Council and their Park Rangers.

- Implement a strategy jointly with other external interested parties for the monitoring of Mersey Estuary fish stocks. To ultimately achieve a level of understanding of exploitation rates, general population levels and species makeup.
- Carry out a habitat enhancement exercise on part of the canalised stretch of the River Gowy between Bridge Trafford and Stamford.
- Achieve a greater level of understanding of the fish stocks status within the Mersey Estuary as part of a combined study looking at the total ecology of the area.

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 5: Raise Awareness of Recreational Watercourses including conservation and maintenance of Sustainable Fish Populations (Renamed)</i>					
	5.1	Investigate the potential and encourage the stocking of fish as water quality improves sufficiently to support a sustainable coarse fishery.	1999-2002		EA (L) Fishery owners (P) Angling organisations	
	5.2	Continue routine monitoring of fish populations to identify problem, or improved areas and measure any stocking success.	1999-2002		EA (L) Fishery owners (P) Angling organisations	
	5.3 NEW	Implement a strategy jointly with other external interested parties for the monitoring of the Mersey Estuary fish stocks. To ultimately achieve a level of understanding for exploitation rates, general population levels and species makeup.	1999-2002		Angling clubs (L) Liverpool University John Moore University	
	5.4 NEW	Contribute to the setting up of a 5 and 10 year strategy for the reinstatement/ refurbishment of thirteen ornamental lakes within the Liverpool County Council boundary. This will be undertaken jointly with our Central Area Fisheries staff and Liverpool City Council Park Rangers. It will form part of an Environment Agency drive to contribute to Urban Fisheries Development.	2000-2010		EA (L) (Central & South Area Joint Project) Liverpool City Council Angling Organisation	Following the completion of a Pilot Project (Lark Hill Lake), work on two further lake complexes within Calderstones Park and Stanley Park are nearing completion. Remedial measures have been carried out on Greenbank Park Lake and Princes Park Lake prior to full reinstatement later on in the programme of works.
	5.5 NEW	A partnership has been set up between the Environment Agency and the Wirral Parks Warden staff to reinstate nine park lakes within the Wirral Borough Council.	2001-2006	£170k (Initial costs)	Wirral Borough Council (L) EA Association of Wirral Angling Clubs (AWAC)	Todate Wallasey Park Lake has been de-stocked, de-silted, refurbished and reinstated with a level of fish restocking having taken place. Phase II involves work to be carried out on Birkenhead Upper Park Lake with some de-stocking having already taken place.

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 5: Raise Awareness of Recreational Watercourses including conservation and maintenance of Sustainable Fish Populations (continued)</i>					
	5.6 NEW	To create a purpose built 30-60 peg fishery adjoining the Leasowe Housing Estate.	1999-2002	???	Wirral Groundwork Trust (L) EA Wirral Borough Council Local Residents Committee	Part funding has been raised for the project and an outside environmental consultant firm is to be employed to carry out a feasibility study and produce a design for the lake.
	5.7 NEW	As part of a National Eel and Elver Management Strategy to arrive at a sustainable population of eels, investigations will take place to ensure that the species is not being over exploited with a view to promotion of other returning aquatic wildlife.	1999-2002		EA (L) Commercial Eel and Elver fishermen Other Wildlife Agencies/ Groups	
	5.8 NEW	To achieve a greater level of understanding of the fish stock status within the Mersey Estuary. Part of a combined study looking at the total ecology of the area, promoting wildlife in general and determining a level for sustainable fish stocks.	1999-2002		EA (L) Local Academic Institutions Commercial Fishermen	

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	ISSUE 6: Adverse impact of discharges from Wastewater Treatment Works (WwTW)					
	6.1	Assess the impact of WwTW on rivers failing the RQO or an EU Directive.	1999-2002		EA	
	6.2	Prioritise works needing improvements in AMP3 using environmental benefit assessment.	1999-2002		EA	
	6.3	Once completed, monitor and assess the water quality following improvements at the WwTW.	1999-2002			Secondary treatment now on line at Liverpool Sandon Dock WwTW, Birkenhead WwTW, Bromborough WwTW. Wallasey WwTW now operating as a pumping station pumping flow to Birkenhead works. North Wirral WwTW has primary treatment. Widnes WwTW and Warrington WwTW have a secondary treatment.
	6.4	Investigate the foaming problem at Howley Weir	1999-2002		EA (L) United Utilities WRc*(P)	Colour and foam problems at Howley Weir have now been trace sourced upstream in the catchment.
	6.5	Investigate reductions in colour of the Manchester Ship Canal and River Mersey.	1999-2002		EA	
	6.6	Investigate the source of non-ionic detergent causing EQS failures.	1999-2002			

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IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 7: Adverse impact of Run-off from Industrial Estates (Renamed)</i>					
	7.1	Undertake industrial site and estate surveys, visit units and identify drainage problems. (a) North Cheshire Trading Estate, Wirral.	1999-2002		EA	North Cheshire Trading Estate, Prenton and Wirral pollution prevention campaign completed. All sites advised on works required. Halebank Industrial Estate, Widnes has been investigated to assess drainage.
	7.2	Promote site improvement and pollution prevention.	1999-2002		EA	
	7.3	Rectify identified problems.	1999-2002		Owners (L) Local Authorities United Utilities	

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 8: Adverse impact of Contaminated Surface Water Discharges</i>					
	8.1	Identification and prioritisation of wrong connection problems.	1999-2002		EA (L) Local Authority (P)	Continue to score and prioritise contaminated surface water discharges. Often identified by Agency pollution complaints.
	8.2	Correction of wrong connections	1999-2002		United Utilities (L) Local Authority (P) Householders Site Owners	Dependent upon United Utilities funding for rectification.

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 9: Adverse impact from overflows on the sewerage network</i>					
	9.1	Reduce the number of unsatisfactory combined sewer overflows. (a) Hoylake sewerage survey	1999-2002		United Utilities	Ongoing
	9.2	Assess and monitor work undertaken.	1999-2002		EA	

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 10: Pollution and Loss of Habitat caused by Agricultural Activity</i>					
	10.1	Identify watercourses where uncultivated buffer strips would be most beneficial.	1999-2002		EA (L) FRCA (P) FWAG, NFU, Wildlife Trusts Local Authorities	
	10.2	Identify landowners willing to create uncultivated strips along watercourses, in partnership with grant awarding organisations.	1999-2002		EA (L) FRCA (P) FWAG, NFU Wildlife Trusts Local Authorities Forestry Commission	
	10.3	Promote good farming practice.	1999-2002		EA (L) FRCA (L) NFU, FWAG Wildlife Trusts RSPB	

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 11: Adverse impact of urban run-off and drainage from major roads and motorways</i>					
	11.1	Collect information on drainage outfalls for major roads.	1999-2002	Staff time	EA	Initial work undertaken, project ongoing.
	11.2	Identify watercourses where problems from road drainage occur.	1999-2002		EA	
	11.3	Develop a database of drainage outfalls.	1999-2002	Staff time	EA	Project ongoing

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 12: Adverse impact on water quality from private sewerage and sewage systems</i>					
	12.1	Collect evidence on the impact of the discharges.	1999-2002		EA	Continue to promote sewer connections where possible. All consents are to be reviewed under Habitats Directive.
	12.2	Ensure new developments include adequate proposals for sewerage.	1999-2002		EA	
	12.3	Promote better maintenance and use of tank friendly products.	1999-2002		EA	

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 13: Poor access to watercourses for maintenance works and recreational activities</i>					
	13.1	Identify where improvements to public access are necessary and encourage the creation and extension of linear routes.	1999-2002	(A)	EA (L) Local Authorities Developers (P) Owners RiVa 2005	There is currently an on-going project on the Birket, Rivacre Brook and Dibbinsdale Brook.
	13.2	Investigate the potential for meeting the needs for signage and interpretation boards on and near to river crossings across public footpaths and help implement.	1999-2002	(B)	RiVa 2005 (L) EA (P) Groundwork Trusts Local Authorities Riparian Owners Mersey Basin Campaign	
	13.3	Increase public awareness of watercourses.	1999-2002		EA (L) RiVa 2005 (L) Schools Groundwork Trusts StreamCare River Valley Initiatives	

(A) and (B) = Costs to RiVa 2005 which is partially funded by the Agency

	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	ISSUE 14: Deterioration in Groundwater quality due to intrusion of Saline Waters					
	14.1	Investigate and monitor problem and establish priorities for action.	Phase 1 complete Phase 2 2001-2003	Phase 1 £90k Phase 2 £40k	EA	West Cheshire groundwater study (Phase 1) was completed in February 2000.
	14.2	Abstract sustainable yield only and promote good practice and reduce leakage.	1999-2002	Staff time	EA Licence holders	

	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	ISSUE 15: Rising Groundwater levels increasing the risk of Pollution and Flooding					
	15.1	Investigate problem and establish priorities for action.	1998-Future	£75k	EA (L) United Utilities Mersey Rail (P) Coal Authority	The modelling phase of the investigation into rising groundwater at Cronton Colliery was completed.
	15.2	Investigate the feasibility of re-establishing the pumping of groundwater and treating for utilisation for other purposes.	Ongoing	Cost unknown	United Utilities EA DEFRA Local Authorities	

IMPROVED AND PROTECTED INLAND AND COASTAL WATERS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 16: Adverse impact of Industrial Discharges on Water Quality</i>					
	16.1	On new developments promote discharges to sewer.	1999-2002		EA	
	16.2	On new and existing discharges negotiate discharge consents that will ensure environmental needs are being met.	1999-2002		EA	
	16.3	Investigate and control the release of substances by regulation and enforcement.	1999-2002		EA	
		(a) New treatment by BICC Helsby to treat contaminated effluent.	1999-2002		EA	
		(b) Investigate the EQS failure of 1 2 DCE to the Manchester Ship Canal.	1999-2002		EA	
		(c) Investigate EQS failure of TBT in the Mersey Estuary.	1999-2002		EA	
		(d) Investigate the EQS failure of copper in Ditton Brook.	1999-2002		EA	
	16.4	Minimise waste from industry, recycle or reuse materials.	1999-2002		EA (L) Company (P)	An £8million Power Generation Plant installed in 2000.
		(a) BICC treatment plant will reduce waste to Arpley Landfill.				
	16.5	Set up procedures for prompt response to works malfunctions or accidents.	1999-2002.		EA (L) Company (P)	
		(a) Oil Spill Emergency Clean-up.			(A) (L) EA (P) Mersey Basin Campaign other oil companies	

1 2 DCE = 1 2 Dichloroethane.

TBT = Tributyltin compounds

A = This is a partnership made up of: Mersey Docks and Harbour Company, Manchester Ship Canal, Garston ABP, Ship and port owners, Ship Canal Users, Shell UK, Cargill plc and the Institute of Chartered Ship Brokers. They have advisers from Merseyside and Cheshire Fire Brigades, HM Coastguard and the Environment Agency. The scheme will allow the three ports of Liverpool to fulfil their obligations, following the Donaldson inquiry, to provide oil contingency planning and clean up contingency.

Restored, Protected Land with Healthier Soils

Land is a finite resource and care is required to ensure that its potential is conserved and, where possible, enhanced.

Background:

There are many aspects of land management that potentially can have a major impact on the environment – including land use planning, agriculture, land contamination, the spreading of wastes and sewage sludge, mineral extraction and the deposition of air pollution. Inappropriate land use or management can be detrimental to the health of soils through, for example, a reduction in organic matter, reduced biological activity; through erosion and loss of the soil itself. Land use also impacts on water resources, through urbanisation, land drainage and afforestation. Soil management can affect the retention and infiltration of water.

The health of soil can be considered to be its ability, based on its physical, chemical and biological status, to perform the functions that it is required to perform to support current and likely future uses.

The Environment Agency has a limited range of powers relating directly to land and soil protection. It has some powers relating to the spreading of industrial wastes and sewage sludge. Under the Pollution Prevention and Control Regulations, it will also have powers to prevent direct pollution of land by industrial activities, while greater influence over land management may be delivered by more focus on regional and national planning issues

Current estimates put the number of contaminated land sites in England and Wales at somewhere between 5,000 and 20,000. Even at the lower end of this estimate, contaminated land would still cover an area greater than Manchester. Such sites can present unacceptable risks to human health, to surface and groundwater, ecosystems, buildings, crops and animals.

Most remediation of contaminated land occurs through development under planning regulations. However, a new contaminated land regime (for dealing with contaminated land not being developed) was introduced in England in April 2000, under which remediation requirements are based on a "suitable for use" approach. Where possible, those responsible for contaminating land are also held responsible for funding necessary clean-up. Arrangements for dealing with "orphan" sites – where there is no responsible party – are also provided.

Part IIA of the Environmental Protection Act 1990 provides a new regulatory regime for the identification and remediation of contaminated land. The regulations create for the first time a statutory definition of 'contaminated land' as

'any land which appears to the local authority in whose areas it is situated to be in such a condition by reason of substances in, on or under the land, that; significant harm is being caused or there is a significant possibility of such harm being caused, or pollution of controlled waters is being, or is likely to be caused.'

Local Authorities and the Environment Agency will have joint responsibilities under the new regulations. Local Authorities must publish a written strategy of how they intend to inspect their areas for the purpose of identifying contaminated land within 15 months of

the regulations coming into effect. The local authority will then arrange for certain suspect areas of land to be investigated in detail to help assess whether they fit the definition. Once an authority has determined that a piece of land is 'contaminated' they must decide what remediation is required and who is liable to carry out that work. The Environment Agency has a requirement to provide the local authority with both general and site specific information and guidance in order to assist them in their duties. The Agency will have the responsibility for ensuring investigation and remediation of certain types of 'contaminated land' known as 'special sites'. Examples of special sites include those causing serious water pollution, former acid tar lagoons, MoD land, explosives manufacture sites and oil refineries. The Agency also has a duty to publish (from time to time) a National Report on the State of Contaminated Land. This report is intended to detail the progress on implementation of the new regime and on the remediation and management of contaminated land. The first report is due to be published in 2002.

Remediation of contaminated land in general costs substantial sums of money. Although polluters or landowners may be found liable and made to pay, overall progress is likely to be influenced by government policy and the availability of funding. Some contaminated sites are in public ownership as a result of abandonment. Such sites are frequently termed 'orphan' sites. Funding to investigate and remediate these types of sites is made available to the Agency through DEFRA's Supplementary Credit Approval Scheme (SCA) (formerly DETR) where they are causing, or have the potential to impact controlled waters, and to the Local Authorities where there are impacts or potential impacts to human health.

The Environment Agency has a limited range of powers relating directly to land and soil protection. It has some powers relating to the spreading of industrial wastes and sewage sludge. Under the Pollution Prevention and Control Regulations, it will also have powers to prevent direct pollution of land by industrial activities, while greater influence over land management may be delivered by more focus on regional and national planning issues.

Contaminated Land Regulations Part IIA

As stated above, a new regime to deal with the legacy of contaminated land was introduced in England in April 2000. Local Authorities are required to produce a strategy detailing how they will inspect their areas to identify contaminated land, within 15 months of the regulations coming into force (i.e. by July 2001). The Agency has provided some input into the strategies as a statutory consultee. Finalised strategies have now been produced by all the main Local Authorities in the LEAP area and most authorities will now begin to implement their inspection strategies. Most local authorities have proposed timescales for completing the inspection of high priority sites within 2 years, with inspection of the lower priority sites generally being scheduled for completion within 5 years.

The Environment Agency has four key roles with respect to contaminated land under Part IIA. It will :

1. Assist local authorities in identifying contaminated land, particularly in cases where water pollution is involved
2. Provide site specific guidance to local authorities on contaminated land
3. Act as the 'enforcing authority' for any land designated as a 'special site'

4. Publish periodic reports on the state of contaminated land.
5. Maintain public register for Special Sites.

The Agency intends to publish its first national report into the state of contaminated land in April 2002. A national database has also been developed to help maintain a record of the number of designated sites and progress on remediation.

Special Sites

Hoole Tar Lagoon:

Chester City Council has notified the Agency that under the Environmental Protection Act 1990: Part IIA Contaminated Land, they recognise Hoole Tar Lagoon as a special site on contaminated land. Further investigations will need to be carried out to determine all pollutants and possible receptors for the designation.

The most important environmental risk identified at the site is oil run off to surface water. It is now being intercepted. The interceptor is currently being maintained by Chester City Council. The site investigation, carried out on behalf of the Agency in 1999, confirmed there was no contamination of the groundwater, although it did confirm that the tipping had not been confined to the lagoon. As health and safety is a priority, the whole site has now been fenced off.

Key Achievements 1999-2000

A fully operational treatment plant to remedy PCB contamination has been opened at BICC Helsby.

The main environmental risk, oil run off to surface water, identified and intercepted at Hoole Bank acid tar lagoon.

Annual Review Commitments:

We will: Increase awareness of the importance of land and soil quality

Forward Look:

- Alvanley Tip: Undertake initial desk top study to collate existing information, identify possible pollution links and suggest remediation. Initial report completed March, 2000.

RESTORED, PROTECTED LAND WITH HEALTHIER SOILS	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 17: Adverse impact of contaminated land on the environment</i>					
	17.1	Undertake initial desk top study to collate existing information, identify possible pollution links, suggest remediation:	1999-2002		EA (P)	
		(a) PCB contaminated land at BICC Helsby			BICC (L)	Site now has a fully operational treatment plant.
		(b) Hoole Bank acid tar lagoon			EA (L) Chester Action Programme (P)	Main environmental risk, oil run off to surface water, identified and intercepted.
		(c) Stewarts Brook Phase 1 Feasibility Study	1999-2002		EA (L) Halton Borough Council (P)	Project ongoing.
		(d) Alvanley Tip	1999-2002	Staff time	EA (L)	Initial report completed March, 2000.
		Assist in the implementation of Contaminated Land Regulations Part IIA	2000 - onwards		EA (as consultee) Local Authorities	
	17.2	Identification of contaminated land	2001 onwards	£150k (estimate based on £30k per authority)	Local Authorities EA	
	17.3	Remediation of contaminated land.	2001 onwards	£3.75M (estimate based on £750k per LA over 5 years)	Local Authorities EA	
	17.4	Inspection of potential special sites Develop a database of sites.		£600k (estimate assuming 10 sites inspected over 5 years)	Local Authorities EA	
	17.5	Remediation of special sites	2001 onwards		Local Authorities EA	
	17.6	Reporting (develop a database of sites)	2001	Staff time	EA	

A GREENER BUSINESS WORLD

It is recognised that businesses are major contributors to the economic wealth of the nation and that they operate in a global competitive economy. It is in the interest of businesses to minimise adverse impacts on the environment and to adopt a sustainable approach to their operations. The Agency seeks to encourage a shift to more sustainable production through smarter regulation and the use of economic instruments.

Background:

The Environment Agency regulates a wide range of industrial activities in England and Wales, including energy, manufacturing and service industries, chemical and steel works, oil refineries, waste incinerators, the water industry, the nuclear industry and some parts of food and agriculture. Historically, regulation has been a major influence on businesses to reduce their impacts on the environment.

Under Integrated Pollution Control (IPC) we regulate industrial processes with the greatest pollution potential, ensuring that Best Available Techniques Not Entailing Excessive Cost (BATNEEC) are used to prevent or minimise pollution of the environment. We regulate the treating, keeping, movement and disposal of controlled waste, involving waste management sites and waste carriers and brokers, so as to prevent pollution of the environment or harm to public health. We monitor sewage treatment works and trade discharges; and monitor the quality of freshwater, groundwater and tidal waters. We also regulate the disposal of radioactive waste at sites, including nuclear sites. However, although a range of environmental legislation is in place, many environmental impacts of business remain largely unregulated, including transport and domestic sources.

During 2000 the legislation that implements IPC was superseded by the Pollution Prevention and Control Regulations, which implement the EU Directive on Integrated Pollution Prevention and Control (IPPC). The Directive is similar to IPC but covers a wider range of activities and industrial processes, including landfill sites and larger sewage treatment works. IPPC will be progressively applied to existing processes, with full implementation by 31 October 2007.

We are committed to developing goal-oriented, risk-based approaches to regulation. The Operator and Pollution Risk Appraisal (OPRA) system has been implemented for IPC and waste management sites and will help the Agency target its resources on those sites presenting the greatest environmental risks.

Environmental Management Systems (ES) provide a means for businesses to manage their environmental impacts in a considered and structured manner. A number of initiatives are in place to encourage business to progress to EMS. The Agency encourages the use of EMS by those we regulate and recognises that many aspects of an EMS are similar to our regulatory activities.

The North West Business Environment Partnership has been formed to promote quality environmental services to businesses across the North West, particularly Small medium sized Enterprises (SME's). The partnership includes specialists in both the environmental and business sector. Their ultimate vision is to achieve "an improved environment and economy for the North West via the engagement of business in environmentally sustainable business practice"

This vision is to be realised through investment in three key objectives, which are:

- i. The development of a co-ordinated, high quality Business Environment Association (BEA's) through a partnership of local agencies, in particular the Small Business Service.
- ii. A co-ordinated training provision for SME employees to develop skills in environmental management and to provide support to train the staff of BEA's to agreed quality standards.
- iii. The creation of "beacon" green business parks which, through experience in supporting indigenous business growth, regenerating industrial areas and attracting inward investment, can encourage others to do the same.

The programme budget is £15 million. £5 million Single Regeneration Budget (SRB) Round 6, £5 million private sector match and £5 million public/other partners. Timescale is October 2000 – March 2007.

The partners involved include Groundwork North West, Small Business Service, Government Office North West, North West Business Leadership Team, Sustainability North West, North West Chamber of Commerce, North West Council for Training and Enterprise, United Utilities and the Environment Agency. Further partners from the private sector are being sought.

For more information on the North West Business Environment Partnership please contact Todd Holden, Regional Manager on Tel: 0161 236 6348 or email: tholden-nwbep@groundwork.org.uk.

Information on releases to air, water and land from IPC processes is now available via the Agency's website www.environment-agency.gov.uk and we are looking at how such information can be extended to produce annual environmental reports.

Update of Actions:

Key Achievements 1999-2000:

- The pollution prevention and control regulations were enacted in 2000 to give effect to the European Union Integrated Pollution Prevention and Control (IPPC) Directive.
- Participation in the North West Business Environment Partnership
- Supported initiatives to raise awareness of environmental and wider sustainability issues including waste minimisation and pollution prevention

Annual Review Commitments:

We will: Target regulatory effort on those activities and operators that have the greatest environmental impact.

We will: Encourage companies to obtain certified environmental management systems.

Forward Look:

- The EU Landfill Directive applies to all landfills accepting waste on or after 16th July, 2001. Larger landfills accepting greater than 10 tonnes per day or with a capacity for 25,000 tonnes or more, except for inert wastes, also fall under the Pollution Prevention and Control Directive. One of the main requirements of the Landfill Directive is to reduce the national quantities of biodegradable municipal waste sent to landfill sites. Their objective is a reduction to 75%, 50% and 35% of the amount produced in 1995 by 2001, 2013, and 2020 respectively.

Wiser, Sustainable Use of Natural Resources

Society's demands for water, energy and minerals are increasing. Continued and lasting improvements in resource efficiency are essential if we are to achieve sustainable development.

Background:

The Environment Agency is directly responsible for regulating the overall environmental performance of a broad range of activities that consume natural resources, and for controlling wastes. Through effective regulation we seek to protect or enhance the environment as a whole and to require or encourage more efficient use or management of natural resources.

This includes controls over the energy, manufacturing and service industries, chemical and steel works, oil refineries, waste management sites, and the water and nuclear energy industries.

The Agency influences a broad range of public and private sector organisations through:

- a role as consultee in strategic planning by local and regional government to control development, transport, minerals and waste management, and water demand;
- input to central government planning through the National Waste Strategy and the development of economic instruments aimed at influencing behaviours and environmental performance;
- provision of information on the environmental performance of industries and waste production;
- providing advice on waste minimisation and resource efficiencies and encouraging uptake of formal environment management systems such as EMAS and ISO14001.

In an industrial context, waste minimisation is a process based approach, which looks at the overall performance of a company and assesses opportunities for improvement. Improved process efficiency usually results in increased output and a reduction in waste. This approach stresses that the true cost of waste is not simply waste disposal costs, but also the cost of raw materials, energy, labour and other associated costs. Reducing waste reduces environmental impact and also improves a company's profitability. Waste minimisation does not just focus on solid waste issues, but also covers water usage, discharges to sewer, emissions to air and energy usage.

There is a need to control the use of water within the LEAP area, to ensure the maintenance of a balanced and sustainable resource. The Agency achieves this by licensing abstractions from the river and groundwater systems and by promoting the efficient use of water amongst its customers. The "Policy and Practice for the Protection of Groundwater" provides guidance on the management of groundwater resources. In addition to this, from April 2001 'Catchment Abstraction Management Strategies' (CAMS) will be produced for all catchments in England and Wales. Once implemented, CAMS will become the focus for water resources management within LEAP areas and will enable the Agency to meet many of the objectives outlined in *Taking Water Responsibly*. These objectives include a consistent and structured approach to water resources management, and an opportunity for greater public involvement. As experience is gained and techniques are improved, CAMS will evolve to provide an effective strategy for achieving and maintaining sustainability within a catchment.

'Taking Water Responsibly – government decisions following consultation on changes to the water abstraction licensing system in England and Wales. DETR March 1999.

To ensure that water resources are managed effectively, comprehensive information about the resource availability is required. Daily rainfall is measured using a network of voluntary observers; supporting this network is a number of automatic telemetered raingauges. River levels and flows are measured at various points throughout the LEAP area, to provide real-time data. In addition, specific projects are supported by the installation of temporary stations and spot measurements. Groundwater levels likewise are routinely monitored throughout the LEAP area.

Agriculture is a prime user of both surface and groundwater for irrigation and other farming practices. Irrigation is the most critical of agricultural uses as it is consumptive and demand is at its highest during summer when river flow is low and the impact on the watercourse is greatest. The abstraction licensing system is in place to balance the needs of the environment with those of the abstractor to minimise any environmentally damaging effects.

Tyres in the Environment

Tyres have an essential yet often overlooked role in today's society. We rely on them for both personal and public transport. In the UK we travel some 650 billion passenger kilometres by road every year, and about 65 per cent of goods are moved by road. Tyres are used in agricultural and industrial machinery, and for transport ranging from aeroplanes to bicycles. But the number of vehicles has doubled over the past 30 years and the distances travelled have nearly trebled over a similar period. More and more tyres are being used and further increases are expected over the next 25 years. This consumption uses non-renewable resources in tyre production, causes emissions to air, land and water during their use, and required management at the end of use. The Agency has, therefore, chosen to look at tyres for several reasons:

- Tyres are very durable, but during their use fine particles are worn away. These are emitted to air or washed off in road runoff to watercourses, causing contamination. Traffic noise is caused predominantly by tyres above a certain speed, which is a cause of concern for people living near to roads.
- One of the main disposal routes for tyres may well be about to cease. A proposed European Commission Directive on landfill will ban the disposal of whole tyres to landfill by about 2003, and shredded tyres by 2006. More reuse, material recycling and energy recovery options are needed.
- Tyres, once they have reached the end of their useful lives, are a potential energy source with a similar energy content to coal. There are increasing demands for their use in cement kilns, and an overview of the environmental impacts of this option was needed.
- Stockpiled tyres, illegally dumped and other stores are a fire risk and cause aesthetic pollution. Fires in the past have caused severe air and water pollution, so we need to reduce this risk.

The Agency considered all these factors in a report – *Tyres in the Environment* (Nov. 98 ISBN 1 873 16075 5). **The Agency is to launch a National Campaign targeting waste tyre producers with the intention of stopping the problem at source.**

Update of Actions:

The *Effective Use of Water Resources* issue has been removed from this plan, (previously issue one in the Lower Mersey LEAP of February, 1999). Actions relating to this issue are inherently incorporated into the routine work of the Water Resources team. Furthermore, these actions have been superseded by the introduction of the Agency's Catchment Abstraction Management Strategies (CAMS) in April 2001. More detail on CAMS is given in the *New Duties of the Agency* section of this LEAP.

Key Achievements 1999/2000:

- Preliminary consultation on the sustainable management of Water Resources carried out within the South Area. Results of the consultation will feed into the National Consultation process.
- The Agency's Research and Development study on the optimum use of water for agriculture was completed. The Agency published its conclusions and recommendations in a technical report entitled '*Optimum Use of Water for Industry and Agriculture: Best Practice Manual*'. The report provides an authoritative source of water use figures and will ensure that licensed volumes are appropriate for particular agricultural purposes. This guidance has been incorporated into the work of licensing staff in their auditing of licence applications.
- Following Operation Flycatcher, the team now carry out CCTV surveillance as and when required.
- A number of new environmental/waste minimisation schemes with Agency involvement launched in 1999/2000.
- The South Area took the lead in co-ordinating and providing information for a Regional Waste Minimisation and Recycling Guide, which was published in March 2000.

Annual Review Commitments:

- We will:** Continue to promote sustainable agricultural water usage within the LEAP area. Licensing officers will promote the principles of the efficient use of water during the licence application and renewal process. This will ensure the sustainability of water resources for future use.
- We will:** Improve quality of information on wastes generated and resource use.
- We will:** Encourage appropriate recovery of waste.
- We will:** Encourage the re-use and recycling of secondary minerals.
- We will:** Develop a better understanding of tyre disposal and best practice.

Forward Look:

- The CAMS process for the Lower Mersey is to commence in 2006.
- There is to be a national tyre campaign to be launched in Spring, 2001 to target small operators dealing with used tyres. They will be contacted if they are not members of an association or group.

- Set up and encourage local initiatives to discourage flytipping, and offer support to existing initiatives.
- The Green Business Parks programme will link businesses and public sector agencies in identifying and tackling particular issues, especially integrated waste management and waste minimisation, as well as pollution prevention and ecological improvement.

Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
WISER, SUSTAINABLE USE OF NATURAL RESOURCES					
<i>ISSUE 18: Management of Agricultural Water Usage</i>					
18.1	Promote the efficient use of water resources in agriculture.	Ongoing	Staff time	EA Farming Community DEFRA, NFU	The Agency ran a series of seminars in 1997, 1998 and 1999 promoting the efficient use of water to farmers. Licensing officers promote the principles of the efficient use of water during the licence application and renewal process.
18.2	Encourage winter storage.				Action removed. Now part of Action 5.1

Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
WISER, SUSTAINABLE USE OF NATURAL RESOURCES					
<i>ISSUE 19: Illegal Waste Disposal Activity</i>					
19.1	Participate in initiatives to improve awareness and information on best waste management practice and facilities, and discourage illegal activity.	1999-2002		EA (L) Local Authorities Owners (P) Residents Waste Management companies Police Community Groups Voluntary Groups Water Watch StreamCare Tidy Britain Group NW Env. Partnership	
19.2	Promote the control of unauthorised access to problem sites and watercourses	1999-2002	Staff time	EA (L) Owners Local Authorities (P)	

WISER, SUSTAINABLE USE OF NATURAL RESOURCES	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	ISSUE 20: Lack of Awareness of Sustainable Waste Management					
	20.1	Promote the environmental and economic benefits of sustainable waste management to industry, commerce, householders and others.	1999-2002		EA Central Government Local Government Business Links (P) NW Env. Partnership Groundwork Community and Voluntary Sectors Others	
	20.2	Promote, encourage and participate in waste minimisation and other initiatives and projects involving a range of waste producers and facilitators.	1999-2002		NW Env. Partnership , EA, Local Government Business Links Groundwork	

Limiting and Adapting to Climate Change

Climate change occurs naturally; but increasing concentrations of greenhouse gases in the atmosphere from the burning of fossil fuels has increased the rate of change.

Limiting and Adapting to Climate Change

Background

As part of its overall aim of contributing to sustainable development, the Agency is addressing climate change as part of its work.

Climate change is expected to have a major effect both on the natural world and on human society. Temperature increases and changes in weather patterns have led to predictions that the pattern of the world's weather may change. There are likely to be more intense heatwaves, floods, droughts and storms, combined with rising sea levels. These changes would have a significant impact on water resources, agriculture, wildlife and human health. If we do not act to limit emissions of greenhouse gases, the world's temperature could rise between 1.4°C and 5.8°C by the end of this century.

The Agency will explore, in partnership with others, the most effective mixture of economic measures, negotiated agreements and direct regulation to ensure that significant cuts are made in 'greenhouse gas' emissions from industry and other sectors.

Update of Actions:

An £8million Power Generation Plant was installed at the Arpley Landfill site last year. The plant is operated by CPL Energy on behalf of Waste Recycling Group who are the landfill operators. The gas is extracted from the landfill site via a network consisting of pipelines and in excess of 200 gas wells and delivered to the power station. Up to 16 Megawatts of power generated by 18 Jenbacher engines is exported to the National Grid through a single transformer, enough electricity to supply the needs of 16,000 households.

A Powerful Proposition

Sustainability Northwest's report summarises the Northwest of England's regional renewable energy study that has:

- determined the region's potential for developing renewable energy resources;
- identified opportunities and constraints;
- developed targets for deployment to 2010; and
- proposed priorities for action and potential initiatives.

The different technologies considered include both on and offshore wind, biomass, solar, small-scale-hydro, landfill gas and energy from waste. The targets proposed will see the region's renewable energy capacity increase from less than 1.3% of total electricity generation capacity today, to around 8.5% by 2010.

The state of play

At present the Northwest has a renewable energy capacity of just 91Megawatts (MW). This is supplied by 17 onshore wind projects, five small-scale hydro power units, ten sewage gas projects, 30 landfill gas power projects and between five and ten small, roof-top photovoltaic (PV) installations (an additional 10.5MW of currently unused capacity exists within a municipal waste incineration facility located near to Bolton). This 91MW of production contrasts dramatically with the region's 7,200MW of traditional, coal, gas and nuclear energy capacity.

The challenge ahead

There are already more than 50 organisations active in the field of renewable energy within the region and a number of renewable energy projects established under the Non-Fossil Fuel Obligation (NFFO) are yet to be completed. These are scheduled to deliver a further 200MW of capacity in the next few years.

The Renewables Obligation will create an entirely new market for electricity generated from renewables and is set to act as the main driver for the UK to achieve its 10% target by 2010.

Sustainability Northwest is a registered charity and company limited by guarantee. For more information please contact: Sustainability Northwest, Giants Basin, Castlefield, Manchester M3 4NB. Tel: 0161 834 8834 fax 0161 819 1102 e-mail snw@snw.org.uk web www.snw.org.uk/renewables

Reducing Flood Risk

Flood risk cannot be eliminated but it can be reduced. The Agency's flood defence strategy aims to minimise risk to life and property, while exploiting the benefits of natural flooding for biodiversity, in an integrated way that will accommodate the inevitable impacts of climate change.

Current estimates are that nearly two million properties are at risk from floods, affecting about ten per cent of the population. The projected growth in household numbers from 21 million in 1997 to 24 million by 2021 represents a 12 per cent increase in housing stock and will place flood risk areas under even greater development pressure.

Background:

The Environment Agency has a duty to undertake a general supervision of all matters related to flood defence. It has permissive powers to operate, improve and maintain flood defences to mitigate flooding from rivers and the sea. We are responsible for the dissemination of flood warnings to the public, and continually monitor weather conditions, rainfall, and tidal and river levels to forecast where flooding may occur. We have set up a National Flood Warning Centre to lead the development of our seamless and integrated service of flood forecasting, warning and response. We maintain a highly skilled emergency workforce to enable us to provide an effective response to emergencies.

The Agency has its own limited powers to regulate development that may increase flood risk. We are a statutory consultee in the land use planning process to ensure that if new development is permitted, it is safe from flooding and does not increase flood risk elsewhere. Our main input to development planning is through the provision of flood plain surveys and consistent advice on development and flood risk. To assist in the Planning process the Agency has developed a policy document *Policy and Practice for the Protection of Floodplains* and provided a copy, together with flood risk maps, to Planning Authorities. Indicative Floodplain Maps are now also available via the *What's in Your Backyard* section of the Agency's website (with 1:50,000 scale mapping).

Due to urban developments having extended into the floodplains, there are large numbers of properties that are at risk from flooding or are protected by flood defences. The majority of existing flood defence works were constructed by and for the benefit of the riparian owners. Riparian owners are responsible for maintaining these works so that they do not increase the risk of flooding to others. Where actual flooding has occurred, the Environment Agency will investigate the cause of the flooding and consider exercising its permissive powers to reduce the flooding risk.

The Agency's strategic approach to flood defence will in future place a greater emphasis on its general supervisory and enforcement roles. This need was highlighted by both the Agriculture Select Committee (1998) and the Independent Review of the Easter Floods. In November, 1999 MAFF (now DEFRA, Department for the Environment, Food and Rural Affairs) published a series of high level targets for flood and coastal defence. NAW (National Assembly for Wales) has introduced similar targets for Wales. These targets provide the means by which the Agency's delivery of flood defence aims and objectives can be measured. The Agency's elaboration of its flood defence supervisory duty addresses the actions required to fulfil the high level

targets. The Agency aims to achieve supervision by consent, in partnership with the other operating authorities and the Association of Drainage Authorities (ADA).

The Agency will continue to play the lead role in providing strategic advice on flood issues. This is one of the major conclusions of the former DETR's new Planning Policy Guidance Note 25: *Development of Flood Risk*, published in July 2001. The draft guidance is the result of a review of the existing guidance by DETR (now DEFRA) in close consultation with the Agency. It emphasises the importance of flood risk as a national planning consideration.

The Agency recognises that irrespective of attempts to reduce the risk of flooding through either our policies¹ or actions, flooding can still occur.

¹ Policy Document: Policy and Practice for the Protection of Floodplains (April 1997)

If flooding is likely, flood warnings are issued to the media and in some places direct to people at home or work. Arrangements for warning residents within a Flood Warning Area have been agreed in consultation with local authorities and emergency services.

Poor access to stretches of watercourse can impede regular maintenance and emergency works activities. The Agency works with developers, landowners and other involved parties to gain access to and along watercourses for maintenance or public access. The construction of a suitable access to and along, currently inaccessible watercourses is required to reduce maintenance costs and to improve the Agency's response to flooding. This can be achieved through the construction of access ramps and tracks, and the control of development and works.

It is Agency policy to oppose any culverting because of the adverse flood defence, ecological and other effects. The Agency will, therefore, only approve an application to culvert a watercourse if there is no reasonably practical alternative or if the detrimental effects would be so minor that they would not justify a more costly alternative. In all cases where it is appropriate to do so, adequate mitigation must be provided for any damage caused. Wherever practical, the Agency will seek to have culverted watercourses restored to open channel.

Key Achievements 1999-2000:

- New flood warning codes system introduced on 12 September 2000 and took eighteen months to develop. The new warning codes, icons and definitions have been developed in close consultation with the Agency practitioners, local authorities, the media, emergency services and the general public. The new system is based on four stages – Flood Watch, Flood Warning, Severe Flood Warning and All Clear, these are more wide reaching and more customer focused, designed to be easily understood.
- As part of the implementation, the addresses of all homes in known flood risk areas have been identified and were used to develop an 'at risk' database of properties. Information on the new codes was sent to those properties within a designated Flood Warning Area (where a flood warning service was already provided).
- Continuation of the Middle and Lower Mersey Section 105 flood risk mapping project due to be completed by summer 2001. This involves the analysis of computer model simulations, leading to more accurate flood risk maps. The result will produce a range of flood flow rates, including 25, 50, 75 and 100 year returns, along with their relative flood water levels.

- An ongoing inspection of culverts has identified areas with flooding problems, which will be investigated further and, where appropriate, fed into any relevant capital works schemes.
- Flood Defence staff have been acting as liaison with the various local authorities within the LEAP area to achieve High Level Targets issued by the Ministry of Agriculture, Fisheries and Food (now DEFRA). There are fourteen Targets in total, which cover a wide range of issues related to identifying risks and managing flood defences together with various environmental initiatives.
- The main focus of the effort in 2000/2001 has been to encourage each Local Authority to prepare a Policy Statement, which is a publicly available document setting out its preliminary findings regarding flood risks and the procedures for dealing with them. The Policy Statement identifies ordinary watercourses, which are deemed to be 'critical' because of their potential to cause significant flooding (Local Authorities have powers to carry out flood defence works on ordinary watercourse, and the Environment Agency has similar powers on main rivers). Another target requires Local Authorities to provide information for inclusion in a national flood and coastal defence database to be maintained by the Agency. There have also been consultations regarding monitoring losses or gains of biodiversity habitats as a result of flood defence works.
- The River Birket and its tributaries, the Fender and Arrowe Brook, drain a total area of 62km² on the Wirral Peninsula, approximately 48% of which is heavily urbanised. The lower section of the River Birket flows in culvert (The Great Culvert). At the culvert outfall, the Agency's Morpeth Dock Pumping Station operates to reduce backing-up and flooding during severe weather conditions.

In 1995 construction began on a scheme to reduce the risk of fluvial flooding from a probability of 1 in 9 years to a standard 1 in 100 years. The works included the raising of existing flood embankments, the construction of new flood walls and embankments, landscaping works in mitigation for the impact of the work and, finally, the automation of the operating system at Morpeth Dock Pump Station including major electrical refurbishment. The majority of the Capital Works were completed by summer 1998.

The scheme protects more than 1900 residential properties, two schools, two factories and several smaller units on an industrial estate and a railway station. The total capital cost of the scheme was £3.2 million with benefits in excess of £14.5 million.

As part of water quality improvements (to the Upper Wirral) United Utilities have recently constructed two new pumping stations along the Great Culvert which pump river and treated sewer flows to the Mersey Estuary.

Annual Review Commitments:

We will: Work with local authorities to minimise the environmental impact of planned development, through active consultation on development control issues.

The Agency continues to advise Local Authorities over the impact of development on flood plains.

We will: Provide mapped floodplain data to local authorities to assist in identifying problem areas for the purpose of planning future development. The Agency has provided maps of flood risk areas on CD-ROM to all Local Authorities and will continue to update this data on an annual basis.

Forward Look:

- The Goway Flood Alleviation Scheme is a capital scheme that has been instigated to improve flood protection to the Stanlow refinery area. The scheme is scheduled to be completed by late 2002, and a contribution to the cost of the scheme has been made by Shell UK. The scheme will incorporate significant amounts of conservation and improvement works in the Goway Meadows area.
- Investigation into the feasibility of developing a Mersey Estuary Plan, which would be developed from Shoreline Management Plans. The Estuary Plan would focus on the state of flood defences up the estuary and any risk posed to these from erosion. This work will be carried out in association with partner organisations.
- Flood Risk Mapping project for Cheshire is to be prepared and individual lengths identified for inclusion in the survey. Results from the survey are expected in 2002. The result will produce a range of flood flow rates, including 25, 50, 75 and 100 year returns, along with their relative flood water levels, and will lead to more accurate flood risk mapping.

	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
REDUCING FLOOD RISK	ISSUE 21: Raise awareness of increased numbers of properties at risk from flooding (Renamed)					
	21.1	Identify areas at risk (Section 105).	1998-2001	£161k (a) U(b)		
	(a)	Carry out Flood Risk Mapping (Section 105) investigation for Lower Mersey catchment.	1998-2001	£249k	EA	To be completed by Summer 2001.
	(b)	Carry out Flood Risk Mapping (S105) investigation for Cheshire catchments.	2001-2002	To be calculated	EA	Currently being prepared, specific reaches to include in survey have been identified and commission given to consultants.

(a) The present timetable for the survey of the Middle and Lower Mersey S105 project.

(b) The present timetable for the survey of the Cheshire S105 project.

REDUCING FLOOD RISK	Ref	Action	Timescale	Costs	Responsibility (Lead/Partners)	Progress
	<i>ISSUE 22: Culverts causing flood risk and loss of habitat</i>					
	22.1	Identify and gather information on all culverts suitable to be opened up, including those with structural problems, when the opportunity arises.	1999-2002	Unknown	EA (L) Local Authorities (P) Mersey Basin Campaign Landowners Groundwork River Valley Initiatives Developers	Ongoing
	22.2	Install and improve debris screens and telemetry as appropriate on culvert entries.	1999-2002	Unknown	EA	Ongoing
	22.3	Reduce flows into culverts by attenuating flows, storing flood waters or providing alternative routes for flood flows.	1999-2002	Unknown	EA (L) Local Authorities United Utilities Developers (P) Owners	

Duties, Powers and Interests of the Environment Agency

The Environment Agency has a wide range of interests in the areas of water management, waste management and pollution prevention and control. Whilst many of these interests are supported by statutory duties and powers, much of the Agency's work is advisory, with the relevant powers resting with other bodies such as local planning authorities. The following table summarises the Agency's duties, powers and interests and their relationship to land-use planning.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Water Resources The Agency has a duty to conserve, redistribute, augment and secure the proper use of water resources.	<ul style="list-style-type: none"> • Grant or vary water abstraction and impoundment licences on application with appropriate conditions imposed to safeguard the needs of the environment whilst allowing reasonable and justified use of available and sustainable water resources – with the aim of achieving an equitable balance between competing demands. • Revoke or vary existing licences to reinstate flows or levels to surface waters or groundwater that have become depleted as a result of abstraction. Compensation may be payable if such powers are used. • Secure the proper use of water resources through its role in water resources planning, and the assessment of reasonable need for abstractions and the promotion of more efficient use of water resources. • Monitor and enforce abstraction and impoundment licences. • Issue conservation notices to direct appropriate practices with regard to water resources issues associated with exempt dewatering activities. 	<ul style="list-style-type: none"> • The more efficient use of water by water companies, developers, industry, agriculture and the public and the introduction of water-efficiency measures and suitable design and layout of the infrastructure. 	<ul style="list-style-type: none"> • The Agency uses its position as a statutory consultee to the planning authorities to secure conditions and agreements that protect the water environment and that encourage water conservation measures. • The Agency also seeks to influence planning decisions for new development by ensuring that planning authorities allow for any lead time required for resource development. • The Agency is committed to water-demand management and will work closely with water companies and developers, local authorities and relevant organisations to promote the efficient use of water. • The Agency acknowledges that new resources may be needed in the future and supports a twin-track approach of planning for water resource development alongside the promotion of demand-management measures.
Flood Defence The Agency has a duty to exercise general supervision over all matters relating to flood defence throughout each catchment.	<ul style="list-style-type: none"> • Control, through Land Drainage consents, of development within 8 m of main river (Water Resources Act 1991, Section 109) or construction of a structure that would affect the flow of an ordinary watercourse (Land Drainage Act, 1991 Section 23). • Produce flood risk maps for all main rivers under S105 of Water Resources Act 1991. • Undertake works to main rivers using permissive powers. • Issue flood warnings relating to main river to the public, local authorities and the police. • Consent mineral working within 16 m of main rivers. 	<ul style="list-style-type: none"> • Granting of planning permission throughout a catchment but especially floodplains where development can significantly increase flood risk. This permission is granted by local planning authorities. • Installation of surface water source control measures e.g. flood attenuation structures. • Supervising the maintenance of ordinary watercourses which is a local authority remit, but may impact on main rivers. • Installation of buffer zones which reduce flood risk and have significant environmental benefits. • Urban and rural land use and measures that can reduce flood risk or the need for watercourse maintenance. 	<ul style="list-style-type: none"> • As a statutory consultee on planning applications within main river floodplains the Agency offers advice based on knowledge of flood risk. It also advises on the environmental impacts of proposed floodplain development. • The Agency will encourage best practice, including source control measures and common standards, among local authorities and riparian owners to protect and enhance the environment. • The Agency works with the civil authorities to prepare flood warning dissemination plans and supports their endeavours to protect communities at risk.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Water Quality The Agency has a duty to monitor, protect, manage and, where possible, enhance the quality of all controlled waters including rivers, groundwaters, lakes, canals, estuaries and coastal waters through the prevention and control of pollution.	<ul style="list-style-type: none"> • Issue discharge consents to control pollution loads in controlled waters. • Regulate discharges to controlled waters in respect of water quality through the issue and enforcement of discharge consents. • Issue 'works notices' and enforcement notices where action is required to reduce the risk of pollution. • Prosecute polluters and recover the costs associated with incidents. • Serve prohibition notices (with or without conditions) on highway authorities to require treatment and pollution measures for highway runoff. 	<ul style="list-style-type: none"> • The greater use of source control measures to reduce pollution by surface water runoff. • Prevention and education campaigns to reduce pollution incidents. • The provision of highway runoff control measures, which is a highway authority remit. 	<ul style="list-style-type: none"> • The Agency will liaise with local authorities, developers, the Highways Agency, industry and agriculture to promote pollution prevention and the adoption of source control measures. As a statutory consultee on planning applications, the Agency will advise local planning authorities on the water quality impact of proposed developments.
Air Quality The Agency has a duty to implement Part 1 of the Environmental Protection Act 1990.	<ul style="list-style-type: none"> • Regulate the largest technically complex and potentially most polluting prescribed industrial processes such as refineries, chemical works and power stations including enforcement of, and guidance on, BATNEEC and BPEO. • Have regard to the government's National Air Quality Strategy when setting standards for the releases to air from industrial processes. 	<ul style="list-style-type: none"> • The vast number of smaller industrial processes which are controlled by local authorities. • Control over vehicular emissions and transport planning. 	<ul style="list-style-type: none"> • The Agency provides data on IPC processes and advice on planning applications to local authorities. The Agency is willing to offer its technical experience to local authorities on the control of air pollution. The Agency wishes to liaise with local authorities in the production of their Air Quality Management Plans. The Agency will advise and contribute to the government's National Air Quality Strategy.
Radioactive Substances The Agency has a duty under the Radioactive Substances Act 1993 to regulate the use of radioactive materials and the disposal of radioactive waste.	<ul style="list-style-type: none"> • To issue certificates to users of radioactive materials and disposers of radioactive waste, with an overall objective of protecting members of the public. 	<ul style="list-style-type: none"> • The health effects of radiation. 	<ul style="list-style-type: none"> • The Agency will work with users of the radioactive materials to ensure that radioactive wastes are not unnecessarily created, and that they are safely and appropriately disposed of. The Agency will work with MAFF to ensure that the disposal of radioactive waste creates no unacceptable effects on the food chain. • The Agency will work with the Nuclear Installations Inspectorate to ensure adequate protection of workers and the public at nuclear sites. The Agency will work with the HSE on worker protection issues at non-nuclear sites.
Waste Management The Agency has a duty to regulate the management of waste, including the treatment, storage, transport and disposal of controlled waste, to prevent pollution of the environment, harm to public health or detriment to local amenities.	<ul style="list-style-type: none"> • Vary waste management licence conditions. • Suspend and revoke licences. • Investigate and prosecute illegal waste management operations. 	<ul style="list-style-type: none"> • The siting and granting of planning permission for waste management facilities. This is conducted by the waste industry and local planning authorities. The Agency, as a statutory consultee on planning applications, can advise on such matters. 	<ul style="list-style-type: none"> • The Agency will work with waste producers, the waste management industry and local authorities to reduce the amount of waste produced, increase re-use and recycling and improve standards of disposal.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Contaminated Land The Agency has a duty to develop an integrated approach to the prevention and control of land contamination, ensuring that remediation is proportionate to risks and cost-effective in terms of the economy and environment.	<ul style="list-style-type: none"> Regulate the remediation of contaminated land designated as special sites. Prevent future land contamination by means of its IPC, Water Quality and other statutory powers. Report on the state of contaminated land. 	<ul style="list-style-type: none"> Securing with others, including local authorities, landowners and developers, the safe remediation of contaminated land. 	<ul style="list-style-type: none"> The Agency supports land remediation and will promote this with developers and local authorities and other stakeholders.
Conservation The Agency will further conservation, wherever possible, when carrying out water management functions; have regard to conservation when carrying out pollution control functions; and promote the conservation of flora and fauna which are dependent on an aquatic environment.	<ul style="list-style-type: none"> The Agency has no direct conservation powers but uses its powers with regard to water management and pollution control to exploit opportunities for furthering and promoting conservation. 	<ul style="list-style-type: none"> The conservation impacts of new development. These are controlled by local planning authorities. Protection of specific sites or species, which is a function of English Nature. The Agency does, however, provide advice to local authorities and developers to protect the integrity of such sites or species. Implementation of the UK Biodiversity Plan for which we have taken responsibility as lead organisation for 34 species and 5 habitats of wetland character. 	<ul style="list-style-type: none"> The Agency supports action to sustain or improve natural and man-made assets so that they are made available for the benefit of present and future generations. Many development schemes have significant implications for conservation. The Agency will work with developers, local authorities, conservation bodies and landowners to conserve and enhance biodiversity.
Landscape The Agency will further landscape conservation and enhancement when carrying out water management functions; have regard to the landscape when carrying out pollution control functions; and promote the conservation and enhancement of the natural beauty of rivers and associated land.	<ul style="list-style-type: none"> The Agency must further the conservation and enhancement of natural beauty when exercising its water management powers and have regard to the landscape in exercising its pollution control powers. 	<ul style="list-style-type: none"> The landscape impact of new development, particularly within river corridors. This is controlled by local planning authorities. 	<ul style="list-style-type: none"> The Agency produces River Landscape Assessments and Design Guidelines which it uses when working with local authorities and developers to conserve and enhance diverse river landscapes.
Archaeology The Agency has a duty to consider the impact of all of its regulatory, operational and advising activities upon archaeology and heritage, and implement mitigation and enhancement measures where appropriate.	<ul style="list-style-type: none"> The Agency must promote its archaeological objectives through the exercise of its water management and pollution control powers and duties. 	<ul style="list-style-type: none"> Direct protection or management of sites of archaeological or heritage interest. This is carried out by local planning authorities, County Archaeologists and English Heritage. 	<ul style="list-style-type: none"> The Agency will liaise with those organisations that have direct control over archaeological and heritage issues to assist in the conservation and enhancement of these interests.
Fisheries The Agency has a duty to maintain, improve and develop salmon, trout, freshwater and eel fisheries.	<ul style="list-style-type: none"> Regulate fisheries by a system of licensing. Make and enforce fisheries byelaws to prevent illegal fishing. Promote the free passage of fish and consent fish passes. Monitor fisheries and enforce measures to prevent fish entrapment in abstractions. Promote its fisheries duty by means of land drainage consents, water abstraction applications and discharge applications. 	<ul style="list-style-type: none"> The determination of planning applications which could affect fisheries. 	<ul style="list-style-type: none"> Many development schemes have significant implications for fisheries. The Agency will work with anglers, riparian owners, developers and local authorities to protect fisheries.

Agency Duty	The Agency has powers to:	The Agency has an interest (but no powers) in :	Partnership
Recreation The Agency has a duty to promote rivers and water space for recreational use.	<ul style="list-style-type: none"> • The Agency contributes towards its recreation duty through the exercise of its statutory powers and duties in water management. 	<ul style="list-style-type: none"> • Promotion of water sports. The Sports Council and other sport bodies carry this out. 	<ul style="list-style-type: none"> • The Agency will work with the Countryside Commission, the Sports Council, British Waterways and other recreational and amenity organisations to optimise recreational use of the water environment.

PARTNERSHIPS

Partnerships in the form of pooled resources and expertise can bring about greater environmental benefit than could be achieved by one organisation working alone. Many organisations and individuals have responsibilities for the environment and, perhaps more importantly, *can* play a vital role in improving it.

The level of interest in local communities, conservation/recreation groups, local authorities and industry in tackling environmental issues has greatly increased and, therefore, the opportunities for greater achievement are plentiful. The hard work usually involves bringing these like-minded people together in the right place, at the right time. The projects detailed below are examples of what can be achieved when individuals from organisations work together in partnership to maximise the benefits for the environment.

Hoole Acid Tar Lagoon:

The site was originally a brick works where clay was extracted. During the 1950's and 1960's the extraction left a massive hollow that was subsequently backfilled with approximately 60,000 tonnes of acid tar waste. A lagoon of oil type waste, most of which is semi-solid has formed. During heavy rain the contaminated water from the lagoon overflows to a field ditch, causing pollution over a distance of about 500 yards, before the ditch naturally cleans itself up.

- The initial project was a direct partnership between the Environment Agency and Chester Action Programme with longer term multiple partnerships during the subsequent stages of remediation.

A detailed site investigation and environmental risk assessment was undertaken. It provided information on the depth and construction of the lagoon, the chemical and physical characteristics of the wastes within it, chemical analysis of the ground and groundwater around the lagoon and the likely risks posed by the site to various environmental targets.

A method of treating the contaminated surface water run off was developed. Burmah Castrol undertook a feasibility study to determine suitable and compatible capping materials.

The proposed remedial option of treating the contaminated run off and establishing a floating polystyrene/top soil cap over the site would be carried out after completion of the site investigation/risk assessment. Findings would then be used to further direct objectives two and three.

Endocrine Disruption in the Mersey Catchment:

- A research programme addressing endocrine disruption in freshwater invertebrates. The invertebrate studies are especially appropriate in view of their over-riding importance in ecosystem structure.
- The project was funded by the Environment Agency in partnership with the University of Plymouth, and Dr. Roger Sweeting of the Freshwater Biological Association.

Ellesmere Port Regeneration Project 'Greening the Heart of the Port'.

Ellesmere Port is part of the Shropshire Union Canal permitting open access from the Boat Museum at Ellesmere Port through to Chester and on to the wider network of canals.

The project linked the improved towpath in the Chester area creating a green corridor between the two areas of Chester and Ellesmere Port.

- Improved access onto the canal with the creation of a new ramp widening opportunity for wheelchair users and family groups onto the canal.
- Upgraded towpath surface allowing wheelchair access
- Canalside improvement with replanting, placement of benches and fencing
- Community involvement in public art project to improve the canal side
- Facilities for visiting boats
- Signage along the canalside and promotional and interpretative material for the area.

The development works have encouraged boaters past North Gate Locks to visit Chester Zoo and visitor attractions in Ellesmere Port.

Committed Income Projects Partners:

British Waterways
Ellesmere Port and Neston Borough Council
Cheshire County Council
Shropshire Union Canal Society
Countryside Commission
Single Regeneration Budget
Environment Agency
Cabot Carbon Ltd
Ecocert
European Regional Development Fund

The Shropshire Union Canal is part of both Ellesmere Port and Neston Borough Council and Chester City Council Local plans. The canal improvements are part of a much larger phased scheme to create green corridors and sustainable transport links. The public is able to walk or cycle the length of the canal between Chester and Ellesmere Port with opportunities to link into the wider cycle network at strategic points.

UPDATE OF ASSET MANAGEMENT PLANS (AMP)**UNITED UTILITIES ASSET MANAGEMENT PLAN 3 SCHEMES****AMP3 Wastewater Treatment Works**

Wastewater Treatment Works	Receiving Water Name	Completion Date
Bebbington	Trib of Prenton Brook	31 March 2005
Capenhurst	Rivacre Brook	31 March 2005
Ellesmere Port	Thornton Brook	#
Helsby	Hornsmill Brook	31 March 2004
Huyton	Netherley Brook/Mill Brook	31 March 2005
Liverpool South (Woolton)	Halewood Brook	31 March 2005
Mickle Trafford	(Stanney) Mill Brook	31 March 2005
North Wirral Outfall	Liverpool Bay	31 March 2005*
Tarvin	Milton Brook	31 March 2005
Thornton Hough	Thornton Brook	31 March 2005
Utkinton	Trib of Milton Brook	31 March 2003
Waverton	Guy Lane Brook	31 March 2003

* Primary Treatment completed by 30 Sept 2001 with upgrade to secondary treatment to be completed by 31 March 2005.

Scheme to be re-evaluated and subject to further ministerial decision

Combined Sewer Overflow (CSO) Improvement Schemes for Investment during 2000-2005 (AMP3)

A number of zones have been identified to require schemes to address water quality problems. United Utilities has undertaken surveys across the Region to ensure that all deficiencies associated with intermittent discharges (water quality and aesthetics) are identified in the current planning period.

Schemes designed to reduce the impact of CSOs on water quality generally entail a high cost and require detailed sewer and river modelling. They may involve re-sewerage and the provision of new overflow structures and storage. Schemes to reduce aesthetic impact are generally lower cost involving installation of screens at the overflow and additional storage or pumping facilities.

Intermittent Discharges Approved for Investment in 2000-2005 (AMP3)

OVERFLOW NUMBER	DISCHARGE NAME/LOCATION	RECEIVING WATER NAME	COMPLETION DATE
CHE0004	Elton Green	To Highway Drain (A5117)	31/03/2003
CHE0026	Oscroft Pumping Station	Culvert	31/03/2003
ELL0008	Rear Of Valley Drive	Rivacre Brook	31/03/2005
ELL0009	Hooton Rd, Hooton	Dibbinsdale Brk	31/03/2005
ELL0010	Rivacre/Netherpool Rd	Rivacre Brook	31/03/2005
HAL0004	Hale Rd/Everite Rd	Ditton Brook	31/03/2005
HAL0005	Alexander Dr, Widnes	Stewards Brook	31/03/2005
HAL0008	Hardwick Rd, Astmoor, Runcorn	Manchester Ship Canal	31/03/2005
HAL0037	Ash Lane Surface Water Outfall	Ditton Brook	31/03/2005
HAL0040	Hale Rd/Harrison St	Ditton Brook	31/03/2003
HAL0056	Downs Road, Runcorn	Bridgewater Canal	31/03/2003
HAL0093	Hale Village Pumping Station	Trib of River Mersey	31/03/2004
KNW0002	Molyneux Dr/Brookside Rd, Prescot	Prescot Brook	31/03/2005
KNW0021	Brookside Rd, Whiston	Prescot Brook	31/03/2005
KNW0024	King George V Memorial Playing F	Prescot Brook	31/03/2005
SEF0089	Coronation Rd Stormwater Pumping Station	Mersey	31/03/2002
SEF0097	Moor Lane, Crosby	Mersey Estuary	31/03/2002
SEF0098	Morland Ave, Crosby	Mersey Estuary	31/03/2002
SEF0099	The Bypass/Liverpool Rd Jnc, Crosby	Mersey Estuary	31/03/2002
SEF0100	Liverpool Road, Crosby	Mersey Estuary	31/03/2002
SEF0101	Coronation Rd, Crosby	Mersey Estuary	31/03/2002
SEF0102	College Rd/Eshe Rd Junction	Mersey Estuary	31/03/2002
WIR0004	Upton Road, Moreton	Fender	31/03/2005
WIR0017	Black Horse Hill Junior School, Saugha	Newton Brook	31/03/2005
WIR0059	Sandy Ln/Wallasey Vill	To Watercourse	31/03/2005
WIR0060	Leasowe Rd/Buxton Ln	To Surface Water Sewer.	31/03/2005
WIR0061	Wallacre Rd/Beaufort Drv	To Water Course	31/03/2005
WIR0070	Bidston By-Pass, Station Approach	River Fender	31/03/2005
WIR0071	Upton Storm Tanks	River Fender	31/03/2005
WIR0072	Noctorum Avenue	In Sewer	31/03/2005
WIR0074	Wastdale Drive, Moreton	Arrowe Brook	31/03/2005
WIR0075	Garrick Avenue, Moreton	Arrowe Brook	31/03/2005
WIR0077	Hoylake Rd	Arrowe Brook	31/03/2005
WIR0079	Acton Lane Moreton	Arrowe Brook	31/03/2005
WIR0080	Kingfisher Way, Upton	Arrowe Brook	31/03/2005
WIR0081	Wood Lane, Greasby	Arrowe Brook	31/03/2005
WIR0082	Brookside Dr, Upton	Arrowe Brook	31/03/2005
WIR0083	Wood Lane/Glentree Cl, Greasby	Arrowe Brook	31/03/2005
WIR0084	Wood Lane, Greasby	Arrowe Brook	31/03/2005

WIR0086	Arrowe Rd/Arrowebrk Ln	Arrowe Brook	31/03/2005
WIR0087	Frankby Clo, Frankby	Greasby Brook	31/03/2005
WIR0088	Whitebeam Walk	Greasby Brook	31/03/2005
WIR0091	Harrington Ave, Hoylake	Carr Drain	31/03/2005
WIR0092	Greenbank Road Pumping Station	Storm Water Lagoon	31/03/2005
WIR0106	Stanton Road Pumping Station	To Ditch	31/03/2005
WIR0111	Eastham Rake, Eastham	Dibbinsdale Brook	31/03/2005
WIR0117	Station Rd, Wallasey	River Birket	31/03/2005
WIR0121	Wheatfield Close, Moreton	River Fender	31/03/2005
WIR0124	Hoylake Rd/Chapelhill Rd, Moreton	River Fender	31/03/2005
WIR0126	Briscoe Drive, Moreton	River Fender	31/03/2005
WIR0127	Acton Lane, More	Arrowe Brook	31/03/2005
WIR0129	Moreton Spur Pumping Station	River Fender	31/03/2005
WIR0130	New Brighton Pumping Station	River Mersey	31/03/2003
WIR0135	Stanley Ave/Green Lane, Wallasey	Ditch	31/03/2005
WIR0136	Fulton Ave	Newton Brook	31/03/2005

The information above is that approved by DETR in June 2000

Reassessment of Mersey Estuary National Water Council Grades for GQA 2000

The following table details the recent reassessment of the Mersey Estuary water quality classification. This is the first time that the water quality in the estuary has been classified since 1995. The results show some water quality improvement, which can be attributed in part to the wastewater improvement schemes carried out between 1995 and 2000 (Asset Management Plan 2 schemes). The following schemes will have had a significant impact on Mersey Estuary water quality:

Warrington WwTW Completed 1 July 1998
 Widnes WwTW Completed 10 October 1997
 Davyhulme WwTW Completed 31 March 1999

The re-classification also gives us a more recent baseline against which to measure AMP3 water quality improvements.

RNAME	SNAME	LENGTH	UP NGR	DOWN NGR	NWC 1985	NWC 1990	NWC 1995	NWC 2000
MERSEY ESTUARY	LIMIT TO CROSBY	12.6	SJ30009740	SD21000330	B	B	B	B
MERSEY ESTUARY	CROSBY TO EASTHAM	15.4	SJ36308190	SJ30009740	C	C	B	B
MERSEY ESTUARY	EASTHAM TO WEAVER SLUICES	14.5	SJ48608060	SJ36308190	C	C	C	C
MERSEY ESTUARY	WEAVER SLUICES TO RUNCORN	2.5	SJ52008390	SJ48608060	D	D	C	C
MERSEY ESTUARY	RUNCORN TO FWL	15.5	SJ61608770	SJ52008390	D	D	D	C

Class A = Good Quality
 Class B = Fair Quality
 Class C = Poor Quality
 Class D = Bad Quality

*GQA: General Quality Assessment: a scheme for assessing and reporting environmental water quality. The chemical grades for rivers introduced in 1994 use BOD, ammonia and dissolved oxygen. Other grades for estuarine and coastal waters are being developed.

NEW DUTIES OF THE AGENCY

Planning Policy Guidance Note (PPG) 25

Planning Policy Guidance Notes set out government policy for the determination of planning applications and gives advice on how local planning authorities should set out their own land use planning policies. The Government has recently published guidance on flooding, known as PPG 25.

This guidance explains how flood risk should be considered at all stages of the planning and development process in order to reduce future damage to property and loss of life. It sets out the importance the Government attaches to the management and reduction of flood risk in the land-use planning process, to acting on a precautionary basis and to taking account of climate change. It summarises the responsibilities of various parties in the development process.

The planning system should ensure that new development is safe and not exposed unnecessarily to flooding by considering flood risk on a catchment-wide basis and, where necessary, across administrative boundaries. It should seek where possible to reduce and certainly not to increase flood risk. It should help ensure that flood plains are used for their natural purposes, continue to function effectively and are protected from inappropriate development. The points of the guidance being:

- **the susceptibility of land to flooding is a material planning consideration;**
- **the Environment Agency has the lead role in providing advice on flood issues, at a strategic level and in relation to planning applications;**
- **policies in development plans should outline the consideration which will be given to flood issues, recognising the uncertainties that are inherent in the prediction of flooding and that flood risk is expected to increase as a result of climate change;**
- **planning decisions should apply the precautionary principle to the issue of flood risk, using a risk-based search sequence to avoid such risk where possible and managing it elsewhere;**
- **planning decisions should recognise the importance of functional flood plains, where water flows or is held at times of flood, and avoid inappropriate development on undeveloped and undefended flood plains**
- **developers should fund flood defences and warning measures required because of the development; and**
- **planning policies and decisions should recognise that the consideration of flood risk and its management needs to be applied on a whole-catchment basis and not be restricted to flood plains.**

Catchment Abstraction Management Strategies (CAMS)

In April 2000, the Agency launched a consultation document setting out a new framework for the sustainable management of water resources. This was in response to a Government consultation paper in 1998 (*The Review of the Water Abstraction Licensing System in England and Wales*), and subsequent decision paper *Taking Water Responsibly* (1999).

Catchment Abstraction Management Strategies provide the opportunity to manage our water resources effectively. We must take a holistic approach in considering the needs of abstractors, alongside those of fisheries, recreation and navigation as well as the need to protect water quality and generally conserve the aquatic environment. CAMS will provide information on:

- availability of water in a catchment,
- licensing practice for dealing with new applications,
- changes required to the abstraction regime in order to achieve sustainable long term use of water resources.

CAMS will provide a sound basis for planning by abstractors, the Agency and all other interested parties. They will also be the mechanism for reviewing time-limited licences, deciding whether they should be renewed, and on what terms. They may well include the identification of opportunities for, and possible limitations to, licence trading. However, there will be further consultation on whether licence trading should be introduced.

Integrated Pollution Prevention and Control

The law enacting the EC Directive came into force in October 1999 and extended the concept of Integrated Pollution Control to a wide range of industrial sectors, embraces elements of waste management licensing and includes aspects such as noise, energy and waste minimisation. It applies immediately to new or substantially changed installations but will be phased in over a seven-year period.

COMAH

This replaces the former Directive on Control of Industrial Major Accident Hazards (CIMAH) and requires operators of industrial processes involving dangerous substances to take all measures necessary to prevent and mitigate the effects of major accidents on man and the environment. The COMAH regulations place a statutory duty on the Agency, along with the Health and Safety Executive (HSE) as part of a Competent Authority, to enforce the requirements of the regulations in England & Wales.

Minewaters

There are a number of issues relating to European legislation, in particular the Dangerous Substances Directive and Groundwater Directive that will impact on the way the UK deals with minewaters. These issues have implications for the Agency specifically in terms of its monitoring regime and consenting policy. It is anticipated that the bulk of the improvement work will fall to the Coal Authority, subject to adequate funding being made available. The Agency will be responsible for the regulatory role and will need to balance this additional requirement with the existing programme for minewater remediation. This will ensure that the priority for action

remains focused on the significant environmental improvements, whilst maintaining progress towards meeting the objectives of the relevant Directives.

Contaminated Land

The Environment Act 1995 (section 57) introduced the framework for a new contaminated land regime. This legislation implemented on 1st April 2000 will provide new duties and powers to Local Authorities and the Agency and enable the legacy of potential problem sites to be tackled.

Under this new legislation the two joint regulators have the following responsibilities:

Local Authorities	Agency
Duties: Inspect their areas to identify contaminated land (CL). Consult the Agency where CL affects the pollution of controlled waters. Ensure remediation of CL. Transfer regulatory responsibility of 'special sites' to the Agency. Maintain 'remediation register'.	Duties: Ensure remediation of 'special sites'* Maintain a register of 'special site' remediation. Prepare a national report on the state of CL. Powers: To provide advice to local authorities on: Identifying pollution of controlled waters The remediation of contaminated land.

- *Special sites are ones which effect the environmental quality standards of surface waters, major aquifers or public water supplies, or are sites with IPC processes or tar lagoons, or are owned by the Ministry of Defence.

Habitats Directive

The Habitats Directive is a major European initiative that aims to contribute towards protecting biodiversity – the variety of life – through the conservation of natural habitats and wild plants and animals. Recognising that wildlife habitats are under pressure from increasing demands made on the environment, the Directive provides for the creation of a network of protected areas across the European Union to be known as 'Natura 2000'.

New Regulations to implement this Directive came into force in 1994. Its provisions require a widespread review of environmental consents and licences to ensure that they take account of the impacts of abstractions, discharges or atmospheric emissions on Special Protection Areas (SPA) or Special Areas of Conservation (SAC). These reviews must be carried out between 1998 and 2010 on a prioritised basis.

Water Framework Directive

The Water Framework Directive (WFD) is the most significant piece of European water legislation to be produced for over twenty years. The WFD will rationalise and update existing water legislation and introduce an integrated and co-ordinated approach to water management in Europe based on the concept of river basin planning.

The Directive has set common EU wide objectives for water that is:

- prevent further deterioration and protect and enhance the status of aquatic ecosystems and associated wetlands,

- promote sustainable water consumption, and
- contribute to mitigating the effects of floods and droughts.

The aim of the Directive is to take a holistic approach to water management, as water flows through a catchment from lakes, rivers and groundwaters towards estuaries and thence the sea. Surface and groundwater are to be considered together, in both qualitative and quantitative terms.

The overriding objective of the Directive, is that Member States will be required to achieve "good surface water status" and "good groundwater status", and also to prevent deterioration in the quality of those waters, which are already "good". The major change of approach in this Directive is that ecological quality is a key means by which, surface waters in particular, will be assessed against "good status" as well as the more traditional assessment of chemical quality.

The Directive also provides for protection to higher standards through the designation of Protected Areas, for example for water supply, recreational waters, nutrient sensitive waters or nature conservation or economically important aquatic species.

These improvements in water status are to be achieved through a system of analysis and planning based upon the river basin, called River Basin Management Planning (RBMP). River Basin Management Plans will set out a Programme of Measures for the achievement of "Good Status", and will be subject to public consultation.

Landfill Directive

The European Landfill Directive applies to all landfills accepting waste on or after 16 July 2001. New landfill, or those requiring a substantial modification to their existing licence, will need to comply from that date. Existing landfills are required to meet the Directive requirement by no later than July 2009, and to submit site conditioning plans by 16 July, 2002 setting out how these requirements are to be met. There are various intervening dates that existing landfills will also have to meet concerning banned or prohibited wastes.

The UK already has equivalent regulations in place that cover the majority of the Directive's requirements that relate to the standards of landfill. However, there are a number of new elements within the Directive that will have a major impact on the waste industry in the UK, and on waste regulation.

The Directive imposes three broad prohibitions on landfill that will fundamentally change how we manage waste. These are:

- the progressive reduction (under Article 5) in the national quantities of landfilled biodegradable municipal solid waste (MSW) to 35% of 1995 levels by 2020. These targets are covered in the DEFRA's (previously DETR) recently published "Waste Strategy 2000".
- A ban on all liquids, as well as explosive, corrosive, oxidising, flammable, highly flammable and some form of clinical waste to landfill;
- Prohibition of the mixing of hazardous with non-hazardous waste in landfill (co-disposal).

For every landfill the Directive also requires:

- The site to be classed as hazardous, non-hazardous or inert
- Detailed operations and monitoring plans
- Plans for closure and aftercare
- Plans to prevent accidents and limit their consequences
- Adequate financial provisions to cover site maintenance, closure and aftercare
- Operators and their staff to be technically competent
- Prescribed engineering requirements to protect ground and surface waters or an auditable site risk assessment to demonstrate equivalent environmental protection
- Controls on the migration of landfill gas and measures to use or flare it

Existing landfills are required to submit by 16 July 2002 a site conditioning plan setting out how they will meet the above requirements and the Agency is required to close down, as soon as possible after 2002, those sites that will not meet them.

APPENDICES

APPENDIX 1: GLOSSARY

ABSTRACTION LICENCE

A licence to abstract water issued by the Agency. The maximum annual, daily, and hourly abstraction rates are normally set within the terms of the licence.

CHANNEL

A cutting in land along which a watercourse flows.

CONFLUENCE

Point where two, or more, rivers meet.

CONTROLLED WASTE

Household, commercial or industrial waste from a house, school, university, hospital, residential or nursing home, shop, office, factory or any other trade or business. It may be solid or liquid, but not necessarily hazardous or toxic.

CULVERT

Covered channel or large pipe to carry water below ground level e.g. under a road, railway or building.

CYPRINIDS

The Carp family of fish comprising some 200 freshwater species.

DEPOSITION

Where a river flows more slowly it may deposit gravel, sand and silt in its channel – often on the inside edge of bends or meanders.

ENDOCRINE

Physiology of or denoting glands which secrete hormones or other products directly into the blood.

EUTROPHICATION

Enrichment of water by nutrients causing an accelerated growth of algae and higher forms of plant life to produce an undesirable disturbance to the balance of organisms present in the water and to the quality of the water concerned.

FAUNA

Animal life.

FLUVIAL

Adjective of rivers.

FRESHWATER FISH

For the purpose of the Salmon and Freshwater Fisheries Act 1975, fish other than salmon, brown trout, sea trout, rainbow trout and char.

GEOMORPHOLOGICAL FEATURES

Physical features of a river, which include meandering (winding) channel, gravel beds and shoals, ox-bows, earth cliffs and river terraces.

INDICATIVE STANDARDS

Ministry of Agriculture, Fisheries and Food defined standards of flood protection according to current land use.

INVERTEBRATE

Animal without a backbone for example insects.

LANDFILL

The deposit of waste into or onto land, which can then be restored to some other use. The predominant method for the disposal of controlled waste in the UK.

LANDFILL GAS

Gas arising from the natural biological degradation of organic materials in landfill. It consists mainly of methane and carbon dioxide and can cause problems such as damage to crops and vegetation, and hazards such as risk of asphyxiation or explosion in confined spaces. Landfill gas may, however, be exploited as an energy source.

LANDFILL TAX

Introduced in October 1996, a tax paid by landfill operators to ensure that landfill costs reflect environmental impact, thereby encouraging waste reduction, reuse and recovery.

LEACHATE

Liquid containing material in solution, draining from the ground.

LOAD

A measure of the material carried by a river either in suspension or as dissolved material.

MAIN RIVER

Some, but not all, watercourses are designated as Main River. Main River status of a watercourse must first be approved by DEFRA. The Environment Agency has the power to carry out works to improve drainage or protect land and property against flooding on watercourses designated as Main River.

MARGINAL

At the water's edge.

OCHRE

Iron based orange discoloration.

PASTURE

Semi-improved and improved grazed grassland.

POOL

A deep slowing flowing section of a river or stream.

PRODUCER RESPONSIBILITY

A business-led approach, which may be underpinned by legislation, to achieve the reuse, recovery and recycling of waste.

RETURN PERIOD

The frequency within which, on average, an event of a certain severity may be expected to return (expressed in years).

RIFFLE

A shallow, but fast flowing part of a river or stream.

RIPARIAN

Of, or on, the banks of a river.

RIPARIAN OWNER

Owner of land abutting a river or lake. Normally riparian owners own the bed of river to the mid point of the channel.

RIVER CORRIDOR

Stretch of river including its banks and the land close by.

SALMONIDS

Fish classified as belonging to the Salmon family, such as Salmon, Trout and Char.

SHOAL

A sand and/or gravel deposit at the edge of or within a river channel.

SPECIAL WASTE

A strictly defined group of controlled wastes, which are considered to be particularly dangerous or difficult, usually by virtue of hazard or toxicity, and therefore subject to additional controls.

TOPOGRAPHY

Physical features of a geographical area.

TRANSFER STATION (Waste disposal)

A licensed depot where controlled waste is stored and sorted for disposal or recycling.

TREATMENT

The physical, chemical or biological processing of certain wastes to reduce volume or pollution potential before recovery or disposal.

WASTE MINIMISATION

Reducing the quantity and/or hazard of waste produced.

WATER TABLE

The surface of a body of groundwater within the underground strata. The water table will fluctuate as a result of natural or artificial causes.

APPENDIX 2: ABBREVIATIONS

AOD	-	Above ordnance datum
ADAS	-	Agricultural Development Advisory Service
AMP	-	Asset Management Plan
BOD	-	Biochemical Oxygen Demand
BTCV	-	British Trust for Conservation Volunteers
CLA	-	Country Land Owners Association
CMP	-	Catchment Management Plan
CPRE	-	Council for the Protection of Rural England
CSO	-	Combined Sewer Overflow
CSW	-	Contaminated Surface Water
DEFRA	-	Department for Environment, Food and Rural Affairs (formerly DETR)
EC	-	European Commission
EO	-	Emergency Overflow
EN	-	English Nature
ESA	-	Environmentally Sensitive Area
EQS	-	Environmental Quality Standard
FRCA	-	Farming & Rural Conservation Agency
FAS/WLMP	-	Flood Alleviation Scheme/Water Level Management Plan
FWAG	-	Farming and Wildlife Advisory Group
FTE	-	Full time equivalent
GQA	-	General Quality Assessment
IPC	-	Integrated Pollution Control
JCAS	-	Joint Countryside Advisory Service
LBAP	-	Local Biodiversity Action Plan
LPA	-	Local Planning Authority

NAW	-	National Assembly for Wales
NFU	-	National Farmers Union
NWC	-	National Water Council
OFWAT	-	Office of Water Services
QSL	-	Quality Survey Limit
RE	-	River Ecosystem
RHS	-	River Habitat Survey
RQO	-	River Quality Objective
RSPB	-	Royal Society for the Protection of Birds
SBI	-	Site of Biological Importance
SPA	-	Special Protection Area
SSSI	-	Site of Special Scientific Interest
SWQO	-	Statutory Water Quality Objectives
UDP	-	Unitary Development Plan
WML	-	Waste Management Licence
WwTW	-	Wastewater Treatment Works

ACKNOWLEDGMENTS

The Environment Agency has compiled this report with contributions from key organisations in the area. The Agency is particularly grateful to

Sustainability Northwest for excerpts from their publication *From Power to Prosperity – advancing renewable energy in northwest England*.

The **Environment Agency**, Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS32 4UD for excerpts from their publication *Environmental Issues Series – Tyres in the Environment*.

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LOWER MERSEY LOCAL ENVIRONMENT AGENCY PLAN – SECOND ANNUAL REVIEW

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For further information about the Environment Agency, our web site is www.environment-agency.gov.uk

There is a Lower Mersey Summary document
that contains key achievements for the area.
It is available on request.