



local environment agency plan

MIDDLE SEVERN ACTION PLAN NOVEMBER 1997



EA Midlands LEAPS



ASiantaeth yr Amgylchedd Cymru
ENVIRONMENT AGENCY WALES

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ENVIRONMENT
AGENCY

Middle Severn Key Details

General

Area 2,634km²

Administrative Details

County Councils & Unitary Authorities: % of Area

Shropshire CC	77%
Staffordshire CC	7%
Hereford & Worcester CC	16%
Wrexham County Borough	< 1%
Powys County - Montgomeryshire	< 1%

Population (estimated from 1991 census)

YEAR	POPULATION
1991	506,324
2001 (predicted)	552,834

Water Resources and Flood Defence

Average Annual Rainfall	696mm
Length of Main River in Catchment	484km
Number of operational sluices/ pumping stations	3
Number of Abstraction Licences (Surface Water and Groundwater)	1,756

Water Companies and Internal Drainage Boards

Severn Trent Water Ltd and South Staffordshire Water Company Ltd
Internal Drainage Boards:
Strine IDB and Rea IDB

Wildlife and Conservation

Sites of Special Scientific Interest	158
Prime Sites	887
Scheduled Ancient Monuments	621
Special Areas of Conservation	2

World Heritage Site: Ironbridge Gorge

Area of Outstanding Natural Beauty: Shropshire Hills

English Nature Natural Areas:
main areas include Mosses and Meres,
Midlands Plateau,
Shropshire Hills

Water Quality

Length of watercourse (km) in each component of the General Water Quality Assessment

GQA Grade (1995)	Chemistry	Biology
A GOOD	7.5	105.0
B	327.4	258.1
C FAIR	239.3	160.7
D	34.8	68.4
E POOR	29.2	14.4
F BAD		1.5

Consented Discharges to water
760 including:

364 sewage discharges and storm overflows
264 private sewage treatment plants and
132 industrial



Length of Watercourse designated under EC Directive for Freshwater Fisheries (78/659 EEC)

Salmonid	98.4 km
Cyprinid - rivers	126.4 km
Cyprinid - canals	49.0 km

Pollution Prevention and Control

	No
Landfill Sites (Inert)	29
Landfill Sites (biodegradable)	14
Waste Treatment Plants	4
Metal Recycling Station	18
Household Waste Reclamation Sites	10
Incinerators	1
Former Landfill Sites	55
Transfer Stations	28

Number of:

Integrated Pollution Control Authorisations	12
Radioactive Substances Authorisations	4
Radioactive Substances Registrations	42

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vision for the middle severn area

VISION



The Environment Agency's vision for the Middle Severn area is:

"to protect and enhance the natural resources and beauty of our local area, for all to enjoy".

The Middle Severn area lies mainly within the counties of Shropshire and Hereford & Worcester and covers an area of 2,634 square kilometres. It is an area renowned for its landscape, beauty and natural resources.

Expectation is of a clean, unspoilt countryside with good quality rivers and plentiful water supplies. There are sites of high conservation value with rare flora and fauna. Soil types are suitable for farming and the area is important for agriculture. At the heart of the area is Ironbridge Gorge which is a designated World Heritage Site and recognised as the birthplace of industry.

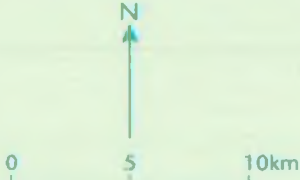
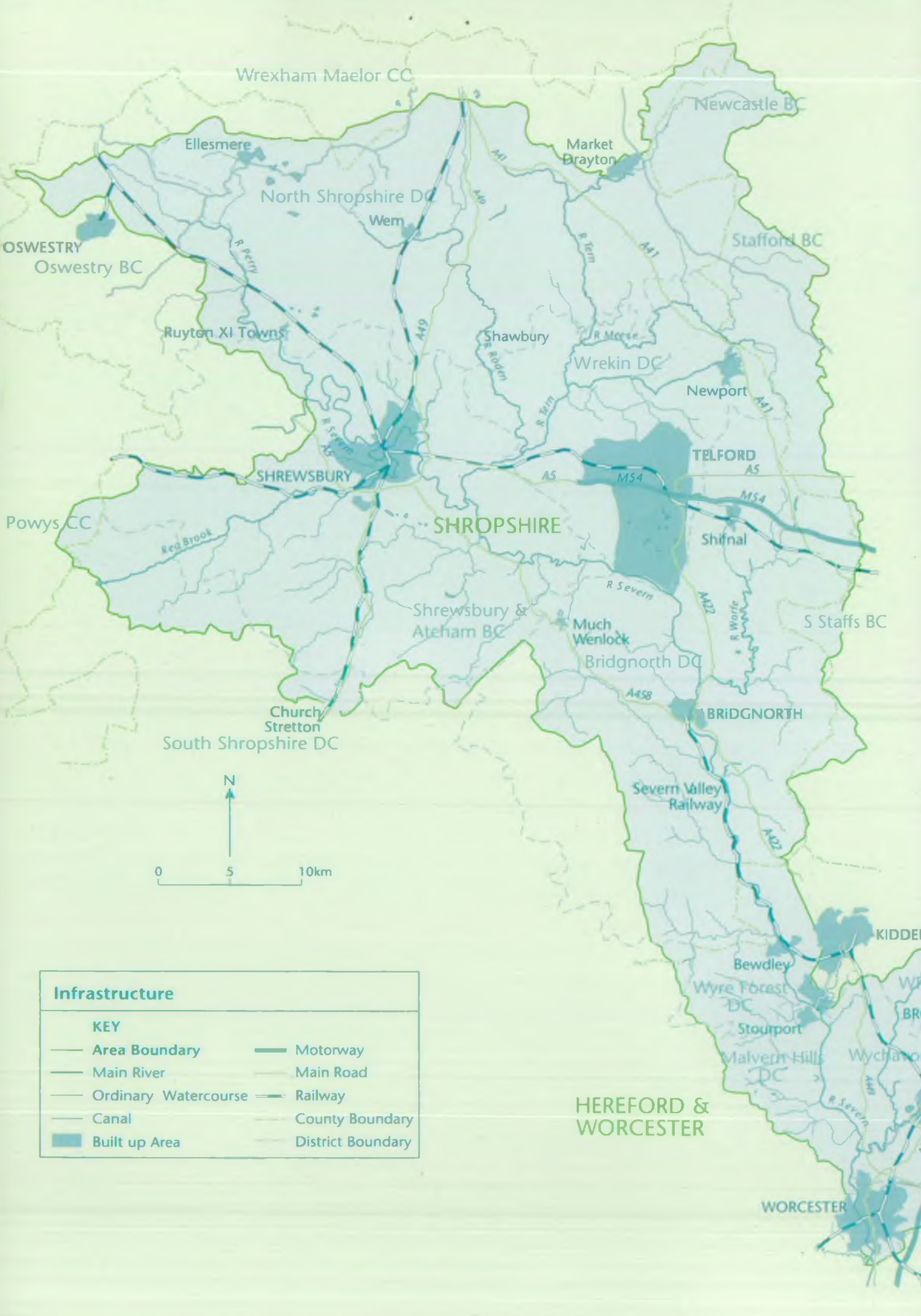
One common thread through the locality is the River Severn, providing good quality water and a recreational facility. The river's 120 kilometre journey within the plan area is through a rural, largely agricultural landscape. Historically, the river has acted as a focus for industry and settlement and urban centres such as Shrewsbury, Bridgnorth, Bewdley, Stourport and Worcester lie on its banks. These centres, together with Bromsgrove, Droitwich and new expanding towns like Telford, are the work place and home of over 500,000 people. It is the diversity and natural beauty of this local environment that provides a constant variety for the visiting and resident population alike.

Increasing industrial, agricultural and domestic demands have resulted in a loss of wildlife and habitat, threats to our water resources and low flows in rivers. The Agency's challenge is to protect and manage our natural resources within its environmental capacity and to work with others to preserve and realise the potential of the area.

To achieve this vision we will:

- Seek to ensure that development in the area is environmentally sustainable.
- Educate and raise awareness of the environment and environmental issues.
- Protect and improve the landscape, conservation and recreation value of our environment.
- Manage our water resources in an environmentally sustainable way, balancing abstraction with the needs of the water environment and its legitimate users.
- Protect and improve the quality of water in rivers and canals.

Some of these objectives have common goals, others may require a degree of compromise between differing demands on the resources of the area. To achieve our objectives we need to work in partnership with Local Authorities, industry, environmental groups and many other agencies and individuals who share the interests of the area. Together, through commitment and enthusiastic cooperation, we can ensure the shared vision of the Middle Severn area becomes reality.



Infrastructure	
KEY	
	Area Boundary
	Motorway
	Main River
	Main Road
	Ordinary Watercourse
	Railway
	Canal
	County Boundary
	Built up Area
	District Boundary

HEREFORD & WORCESTER

WORCESTER



“...England as it should be...
 ...Sweep of the Woodland down to the river...
 ...Wonderful...”

David Bellamy BBC Radio 2 July 1996
 Upstream of Bewdley on the River Severn

foreword

The Middle Severn Action Plan has been produced following widespread consultation after the public launch of the Consultation Report in April 1997. The Environment Agency has set itself the aim of protecting and enhancing the whole environment through the promotion of sustainable development. One way of achieving this aim is through the production of Local Environment Agency Plans (LEAPs), which provide a framework for protecting and improving our local environment.

The Middle Severn area is one of contrasts lying between the West Midlands conurbation to the east and the rural borderlands to the west. It is known for its natural beauty and unspoilt countryside and is a place that is valued by its local residents and visitors alike. Over time, however, development and land use changes have impacted on our local area leading to increased pressures being put on our natural resources, wildlife and habitat. It is our challenge to balance these demands and manage the area in a sustainable way.

I am grateful for the responses to our consultation. The Plan covers a five year period, and outlines both the Agency's and other partners' actions within the area. Annual Reviews will report on the progress being made. I am sure that you will help us to take this Agency initiative forward. Through collaboration and commitment we will turn these words into action on the ground.

Dr J H Kalicki

Upper Severn Area Manager
 Midlands Region
 Environment Agency



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1.0 introduction

This is the first Local Environment Agency Plan (LEAP) for the Middle Severn area. The quality of our local environment and the way it is managed matters to all who live in and visit the area and rely on its natural resources. To manage the environment as a whole and to achieve environmental improvements we need to work together. The Environment Agency is committed to the delivery of environmental improvement at the local level and through this plan we will work in collaboration and partnership with various organisations and individuals to achieve this aim.

This Action Plan is the second stage in the LEAP process for the Middle Severn area, which is shown in Figure 1.

It outlines areas of work and investment proposed by ourselves and other responsible parties over the next five years, and will form the basis for improvements to the environment in the Middle Severn area. Progress against the Action Plan will be monitored and reported annually.

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



1.1 The Environment Agency

The Environment Agency is one of the most powerful regulators in the world. As 'Guardians of the Environment' we have legal duties to protect and improve the environment throughout England and Wales. The Agency was created by the 1995 Environment Act and started working in April 1996. It inherits the many and varied responsibilities of the National Rivers Authority, Her Majesty's Inspectorate of Pollution, the Waste Regulation Authorities, and some technical units of the former Department of the Environment.

Our principal aim is to protect and enhance the environment, thus contributing to the Government's overall commitment to sustainable development. We will do this by integrating environmental protection for land, air and water. Pollution prevention and control, education and enforcement where necessary, will be key means in meeting this aim.

The Agency has eight regions in England and Wales, sub divided into twenty-six areas. These are shown on the back cover of this document. The Midlands Region comprises four areas, and the Middle Severn plan is within the Upper Severn Area. Most of the Agency's work operates at a local level and this allows an integrated and personal approach to managing the environment.

The Agency has responsibility for:

- The maintenance, improvement and regulation of water quality and water resources, and water pollution control
- Flood defence and navigation
- Fisheries
- The regulation of the most potentially polluting industrial processes (IPC processes)
- The regulation of premises that use, store, or dispose of radioactive materials
- Regulating the treating, keeping, movement and disposal of controlled waste, including the producer responsibility obligations
- Advising on the remediation of contaminated land
- Conserving the water environment and promoting its use for recreation

1.1.1 The role of other organisations in protecting and improving the environment

The Environment Agency is not the only organisation involved in managing human activities to protect and improve the environment. Other statutory and non statutory bodies who have responsibilities were referred to in the Consultation Report. We share many of our responsibilities with local authorities, in particular waste management and the regulation of emissions to air.



River Severn at Ironbridge

1.1.2 Routine Work of the Agency

The strategic nature of the LEAP as a planning tool means that the plan is not designed to reflect fully our routine activities within the plan area. Our everyday work commits substantial resources to managing the environment, including extensive monitoring and survey operations. This work is detailed in the Consultation Report (pages 171-172).

1.2 The Local Environment Agency Plan process

For the Agency to fulfil its role and responsibilities, it needs to manage the environment effectively and to work in partnership with others. Local environment planning is an important tool in this process. The plans are non-statutory, integrated action plans based on local river catchments. They provide a focus for those concerned with the future of the local area. We are committed to producing LEAP Consultation Reports for all areas in England and Wales by December 1999.

LEAPs will help contribute to the principle of sustainable development through integrated environmental management and improvement. They will also play a key role in:

- Promoting openness and accountability
- Developing liaison and partnership with key groups
- Educating the public on local environmental issues
- Prioritising issues and establishing an action plan for managing and improving the local area over the next 5 years

This document is, therefore, part of a process that will enable a shared vision to be developed, along with a strategy for the area's management. This will guide all Agency activities for the next five to ten years and will hopefully influence the activities of other key bodies.

Regular monitoring and updating of the plan will be an integral part of the process. To this end annual progress reports will be published and the full consultation process will be repeated every five years.

1.2.1 LEAPs and other plans

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

Public participation in this Plan will increase awareness of environmental issues and it is hoped this will lead to involvement in, and a feeling of ownership of, our local environment.

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River Severn at Worcester



1.2.2 Agency Statutory Committees

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

The Midlands Region is served by three statutory committees:-

- Regional Environment Protection Advisory Committee (REPAC)
- Regional Flood Defence Committee (RFDC)
- Regional Fisheries Advisory Committee (RFAC)

1.2.3 Area Environment Groups

The Upper Severn Area of the Midlands Region is served by its own advisory, non statutory, Area Environment Group (AEG). Membership consists of 20 local people who live and work in the area and who represent a wide range of interests. These include local Authorities, industry, agriculture, conservation, fishing, amenity and recreational interests. The group advises the Agency on LEAPs, the delivery of local services and acts as a link between the local community, the Agency and its statutory committees. Meetings are held four times a year and are open to the public. Although work on the Middle Severn LEAP was commenced in April 1996, some months before the Upper Severn AEG was established, their participation in the process was invited as early as practicable. A list of current members and further information is available from the Area Office.

1.3 Sustainable Development and Biodiversity

1.3.1 Sustainable Development

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

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

In November 1996 Ministers issued statutory guidance to the Agency on its contribution to sustainable development, and have underpinned the Agency's principal aim by setting it seven main objectives governing the manner in which it should carry out its functions.

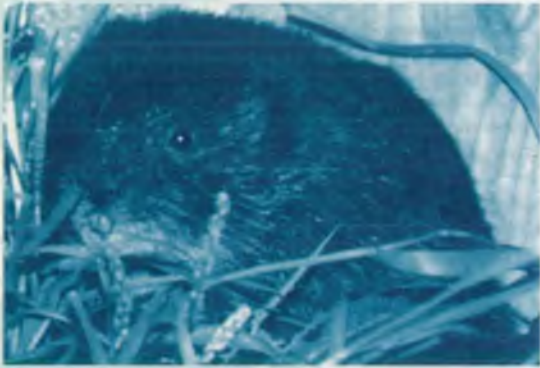
Sustainable development does not necessarily mean less economic development. One of the challenges is to promote ways of encouraging environmentally friendly economic activity, and of discouraging or controlling environmentally damaging activity. Integrated environmental management is a means by which the Agency can promote sustainable development, and LEAPs are an important part of this process.

1.3.2 Biodiversity

The term 'biodiversity' is commonly used to describe the number, variability and variety of living organisms. It is simply a term meaning 'the variety of life'. The Biodiversity Convention, signed by the UK Government at the Rio 'Earth Summit' in 1992, seeks to ensure that the full range of animal and plant species are conserved. A national action plan for biodiversity was subsequently published in January 1994.



Club-tailed Dragonfly



Water Vole

In pursuance of the Government's commitment to biodiversity conservation, the Agency has significant responsibilities regarding implementation of the UK Biodiversity Action Plan and will be developing targets for species and habitats of conservation concern. In the Middle Severn plan area the Water Vole, Otter, White-clawed crayfish, Ribbon-leaved water-plantain, Freshwater pearl mussel and Depressed river mussel (where present) are of particular significance.

Additionally, there are other water related species and habitats in the area which will require protection. These include Great crested newt, Twaité shad, Marsh fritillary, Desmoulin's whorl snail, Floating water-plantain, Fens, Carr, Marsh and Reedbed habitats and Lowland raised bogs.

Our operational and regulatory activities will take account of these species and habitats in fulfilment of our commitment to biodiversity. Additional work will be dependent on available resources and will involve collaborative work with other bodies.

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2.0 the middle severn plan area

2.1 Introduction

The Middle Severn plan area lies mainly within the Counties of Shropshire and Hereford & Worcester. It also includes smaller parts of Staffordshire, Wrexham County Borough and Powys County and covers an area of 2,634 square kilometres. The area is valued for its rich natural beauty and areas of unspoilt countryside.

The area is one of contrasts with two distinct domains: the flatter landscape of the Shropshire Plain in the north and the more undulating, wooded Severn valley to the south, the two areas being separated by the Ironbridge Gorge. The rural nature of the area is reflected by the fact that only around 5% of the area is urban.

The area is also geologically varied, ranging from the craggy scree hills of the Stiperstones to the isolated Wrekin Hill rising from the rolling plain below. The River Severn and its associated tributaries, the Perry, Tern, Worfe and Salwarpe offer good quality waters which support high class fisheries and a diversity of wildlife, including kingfishers, dippers, dragonflies, voles and otters. The rivers are valued for environmental, local amenity and recreational purposes.

Historically the River Severn has been important for settlement and as a transport route for industry. Wroxeter was once a major Roman City, with Shrewsbury and Worcester being medieval centres and sites of monastic settlements. The plentiful supplies of water, coal, iron and lime essential in initiating the industrial revolution were all to be found in the Ironbridge Gorge. The canals also played a major part in the development of the area. Today most of this early industry has vanished with

only industrial ruins and museums remaining. Ironbridge Gorge was designated a World Heritage site in 1986.

Over the years, however, increasing industrial, agricultural and domestic demands have impacted on the area. Since the sixteenth century various areas have been the subject of land drainage and agricultural improvements. In addition some environmental management practices and engineering improvement works which were carried out over twenty years ago and were thought appropriate at the time have now been recognised for their shortcomings.

This has led to a loss and degradation of river corridor and a decline in flora and fauna in areas, for example near the Rivers Perry, Tern and Strine, whilst rivers like the Worfe have been subject to the effects of overabstraction, which has resulted in unacceptably low flows. Urban development pressures have impacted on many towns, which has had a major impact on land use within the area. Future pressure for increased housing development is likely to be an issue in rural areas. These pressures and land use changes impact on our natural resources, transport routes, flood defences and on the local residents and wildlife.



Brown Moss, Whitchurch

2.2 Summary of Uses, Activities and Pressures

A detailed assessment of the Middle Severn plan area was given in the Consultation Report. The following provides a summary of key points.

2.2.1 Development and Infrastructure

The principal urban areas are Telford, Shrewsbury, Worcester, Bromsgrove and Droitwich. Shrewsbury is a major centre for employment, commerce and tourism. Telford is a new town and the major industrial centre of the county of Shropshire.

The City of Worcester has a high proportion of employees within the commercial sector as well as a range of industries including china, porcelain, food and packaging. Many new industries have been attracted to the Bromsgrove area and Droitwich.

In rural areas industry is related to agriculture with processes such as milling, milk processing, meat curing, poultry, fruit processing and agricultural engineering providing employment in many of the smaller towns.

The 'Review of Housing Provision in the West Midlands' (Regional Planning Guidance for the West Midlands, August 1996 report) indicates that around 50,000 new homes will be required in the plan area between 1991 and 2011. The Government consultation document 'Household Growth: where shall we live?' (November 1996) highlights the potential problem of accommodating our new housing, and may result in modifications to predicted figures.

The best location for this new development is likely to be a matter for debate in the Middle Severn area. The Agency wants to make sure that new development does not worsen existing pressure points or risk creating more problems where existing infrastructure and resources are limited or near capacity.

The plan area has major transport corridors associated with the M54/A5 road and rail corridor in the north and with the M5 and routes to the West Midlands to the south. Trunk routes such as the A49 and A41 also carry much traffic through the area.

2.2.2 Heavy Industry

The predominantly rural nature of the area with limited heavy industry is reflected in the good air quality.



Ironbridge Power Station

Industrial processes which are included under the Environmental Protection Act 1990 are regulated either by the Agency or by the relevant Local Authority, to minimise their impact upon the environment. In general the Agency is responsible for regulating those processes having the greatest potential to cause pollution. We have no regulatory control over air quality, but we contribute to the management of air pollution through the integrated pollution control (IPC) system.

There are 12 sites in the plan area having IPC authorisations, operating a range of processes from combustion to aluminium recovery to chemical manufacture. Some sites have more than one authorisation, reflecting the fact that more than one authorised process is operated.

All companies operating IPC processes undertake specific programmes of work to improve the way in which the process is operated; the overall objective of this is to reduce both the potential and the actual emissions from the process. Such improvement programmes are agreed between the Agency and the company, and very often the cost of completing work needed to achieve the required improvement is very high. In view of this, much of the work is scrutinised by both the Agency and the company in order to estimate the cost of the work in relation to the environmental benefit that will be gained from it. The operators of the processes are required to seek continual environmental improvements to the operations.

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2.2.3 Power Generation and Renewable Energy

By far the largest contribution made to the quantity of dust and oxides of sulphur and nitrogen in the area is from the power station at Ironbridge. In view of this, one of the issues raised within this LEAP is to quantify the effect that this process has on the air quality. This 1000 Megawatt coal-fired power station was commissioned in 1970 and can burn about 400 tonnes of coal an hour. It is interesting to note that, for power stations, the impact on the quality of the air is usually greatest some way from the station.

There are no known examples of hydro or wind power schemes in the plan area.

2.2.4 Storage, Use and Disposal of Radioactive Materials

The Radioactive Substances Act 1993 provides for controls to be exercised over the use and keeping of radioactive materials and the accumulation and disposal of radioactive wastes. The Environment Agency is responsible for administration and enforcement of the Act in England and Wales.

The area has 4 sites authorised under the Radioactive Substances Act 1993, including three hospitals and an establishment owned by the Ministry of Defence. Such sites discharge radioactive waste to sewer, controlled waters and air, but the vast majority of the waste is exported from the plan area for incineration. The incinerators also require an authorisation under the Radioactive Substances Act.

Therefore, the disposal of radioactive waste is regulated by the Environment Agency at all stages along its disposal route. When allowing discharges of radioactive waste from such sites the Agency must be satisfied that the radiological effects are insignificant.

2.2.5 Mineral Working

A variety of minerals have been worked throughout the area. The aggregates industry (sands, gravels and roadstone) is currently the most active. Mineral workings tend to coincide with the more attractive areas of countryside such as Wenlock Edge, resulting in conflict between conservation and commercial interests.

2.2.6 Water Resources

The majority (68.4 %) of water licensed to be abstracted is for public water supply to areas around Shrewsbury, Telford, Bridgnorth, Bewdley and parts of the West Midlands conurbation. The total groundwater abstraction for public water supply amounts to 122,782 megalitres per annum (MI/a), and 95,582 MI/a from surface water.

Many surface water abstraction licences and an increasing number of groundwater licences are restricted according to flows in watercourses. Such restrictions are designed to protect existing water users and the environment.

Surface Water - There are seven principal rivers in the Middle Severn area comprising the River Severn, and its tributaries the Perry, Tern, Worfe and Salwarpe, and the two large tributaries of the Tern - the Meese and the Roden. The River Severn is supported by releases from Llyn Clywedog and Lake Vyrnwy, whilst the Perry and Tern are supported at times by discharges from the Shropshire Groundwater Scheme.

Due to low flow problems, some watercourses, for example the Rivers Perry and Worfe, are now closed to further applications to abstract water during the summer. The Agency is encouraging an alternative option to abstract and store water during the winter months for irrigation use during the summer.

Groundwater - Groundwater is pumped mainly from the "Permo Triassic" sandstone aquifer as well as other minor aquifers. It is used for irrigation, public water supply, industry and general agriculture. Due to the rural nature of the area, many domestic properties rely on private supplies from wells and boreholes.



Winter storage reservoir

Certain areas of the catchment have falling groundwater levels, a consequence of licences of right being granted in the 1960s. Such areas can either no longer support new abstractions or require compensation discharges to be made to nearby watercourses to alleviate the effects of the abstraction. Areas where water resources are under pressure are referred to in Issue 10.

River Severn Regulation System - The River Severn Regulation System is designed to meet the water resource demands of major abstractors on the river, while maintaining an acceptable flow for the purposes of fisheries, conservation, recreation and effluent dilution. The principal storage components of this system are the full resource allocation from Llyn Clywedog, limited resources from Lake Vyrnwy, and the Shropshire Groundwater Scheme.

Shropshire Groundwater Scheme - The Shropshire Groundwater Scheme has been devised to supplement releases from Llyn Clywedog during periods of prolonged low flows. The scheme makes use of the large quantities of water stored naturally underground in the Permo-Triassic Sandstone formations underlying much of North Shropshire.

With the exception of a few boreholes the entire proposed eight phases of the Groundwater Scheme lie within the plan area. Each phase consists of a number of abstraction boreholes linked by underground pipelines to discharge points (outfalls) to the receiving watercourses of the Rivers Perry, Roden, Tern and Severn.

2.2.7 Flood Defence

There are several towns, Shrewsbury, Ironbridge, Bridgnorth, Bewdley and Stourport, and the City of Worcester, where historically development has encroached into the floodplain and as a result, parts of them suffer regular flooding.

None of these towns have flood defences as either they have not proved feasible for economic or environmental reasons, or they have not been accepted by the public. The Agency operates a Flood Warning service for the River Severn to mitigate the damage caused by flooding.

In the north west of the plan area many of the lowland watercourses have been regraded during,

and subsequent to, the second World War to improve agricultural productivity in the floodplain and adjoining land. This has created a regime which can only be sustained by continuing work to control river vegetation and siltation.

2.2.8 Water Quality

Surface Water Quality - Generally the quality of the watercourses in the Middle Severn area is good, as measured both by chemical and biological sampling methods. The trend since the early 1990s has been a steady increase in the overall quality of watercourses in the area.

While many improvements have been made, some watercourses still fail to meet their quality targets and they will be the aim of future work of the Agency (see Issue 9).

The main pressures on the quality of the water environment in the area can be summarised as:

- Point source and diffuse pollution from the agricultural industry, both in terms of organic wastes and pesticides (see Issue 1).
- The increasing urbanisation of parts of the area, which leads to increased discharges of sewage effluent and to higher rates of polluted urban runoff (see Issues 2, 5, and 16).
- Threats from specific industrial sites storing hazardous materials on site (see Issues 3 and 16).

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Flooding at Bewdley in the 1940s

Most of the large public sewerage systems have storm water overflows which operate during heavy rainfall.

The majority of these overflows operate without causing nuisance, although those situated in areas of high public amenity, such as Worcester and Shrewsbury, do give rise to justified complaint.

Groundwater Quality - Natural groundwater within the area is of a high standard, suitable for drinking without the treatment that surface waters require. However, nitrate concentrations in some areas are rising due to widespread agricultural activities. The Environment Agency has an involvement with two schemes designed to combat the problem of rising levels of nitrate in groundwater where these are predominantly caused by agriculture. The Agency is not responsible for either scheme but it has assisted in their implementation by collating information and by defining these areas, which are called Nitrate Vulnerable Zones (NVZs) and Nitrate Sensitive Areas (NSAs).

The purpose of the NVZs and NSAs is to protect the affected area and to establish action programmes to reduce nitrate levels. In the area covered by the plan, there are NVZs at Wildmoor, Astley, Tom Hill, Shifnal, Telford, Swynnerton (part of), and NSAs at Wildmoor, Tom Hill, Wellings, Sherrifhales and Grindleforge.

Locally other forms of pollution associated with industrial, commercial and waste operations have occurred.

2.2.9 Waste Management

Centres of population give rise to waste which has to be managed (see Issue 20). Whilst waste management facilities do not represent an important land use in terms of the total area they cover in the plan, in terms of potential environmental impact they are very significant unless suitably regulated.

There are 99 sites in the plan area which have a waste management licence, of which 41 are landfill sites. In 1995-96 approximately 1.2 million tonnes of waste was disposed of to landfills within the plan area. Some of this will represent wastes imported from other sites into the plan area for treatment or disposal. Likewise some waste produced within the area will go beyond the boundary for treatment or disposal.



Site engineering to prevent pollution at a landfill site

Certain activities are exempt from the requirement for a waste management licence. The exemptions cover mainly reuse and recovery operations with the aim of encouraging such operations by reducing the legislative burden on them. Exempt activities include the temporary storage of wastes which are to be recycled, the recycling of scrap plastic, the use of waste soil for land reclamation and construction and the landspreading of certain organic industrial waste (see Issue 1).

2.2.10 Contaminated Land

The Middle Severn area has a history of industrial usage stretching back to the start of the industrial revolution. Past industrial practices were often subject to fewer controls than they are today, consequently land contamination has occurred through a mixture of accidental spillage and casual disposal during the normal operation of the factory or plant. More recent land use developments have also resulted in areas of land being contaminated. This contamination can remain in the ground until the site is redeveloped.

Contaminated sites within the area include closed landfills, old gasworks sites and a wide range of industrial sites, many of which are located in environmentally sensitive locations such as near rivers or on aquifers (see Issue 3).

Examples of potential development sites known to be contaminated include Shrewsbury gasworks and Diglis Industrial Estate in Worcester, both adjacent to the River Severn, and at Overley Hill, Telford, near a public water supply borehole. We are aware of a number of service stations within the plan area which have leaked petroleum and diesel fuels into groundwater beneath the site. Expensive remedial treatments are already underway to clean the aquifer.

2.2.11 Agriculture and Forestry

Agriculture is the most important land use in the area with dairy farms representing the single largest section of the industry. There has been a large increase in poultry farming over the last ten years, and to a lesser extent sheep and pig farming. Crop production accounts for 40% of the total agricultural land use in the area, with cereals, primarily wheat and barley, accounting for a large part of this. Other crops grown include sugar beet and potatoes.



Agricultural landscape in the Middle Severn area

Agriculture has the potential to affect the environment in various ways, through discharges of organic waste, its demands on ground and surface waters and the use of fertilisers. Rivers like the Perry and Roden have suffered in the past from agricultural pollution.

The Agency monitors the River Severn and its tributaries regularly for the presence of herbicides and pesticides used in intensive crop production and maintains regular contact with farming groups to advise on pollution prevention matters.

Forest cover within the catchment is little more than half the UK average. With the exception of the Wyre Forest at Bewdley this cover is mainly in small, scattered pockets set within an agricultural context.

The area upstream of Bewdley broadly coincides with the Northern Plain and South Eastern Plateau Management Plan Areas of the Shropshire County Council 'Indicative Trees, Woodland and Forestry Strategy'. It is anticipated that this strategy will promote a doubling of forest cover in the catchment during the first half of the next century. Forest cover in the catchment below Bewdley is extremely sparse.

2.2.12 Fisheries and angling

The whole of the River Severn through this catchment is an EC designated Cyprinid Fishery (EC Directive 78/659/EEC) as are several of the tributary streams, some of which are also EC designated Salmonid Fisheries. The Agency operates publicly available fisheries at Atcham, Coalport and Market Drayton.

Of the native British freshwater fish nearly all the species, including the rare twaite shad, are present. Barbel, chub, dace and roach are the dominant fish in the Middle Severn. Salmon pass through the catchment on their migration to spawning areas further upstream and wild brown trout are present in a number of the tributary streams.

The middle reaches of the River Severn provide some of the best coarse fishing in the country, particularly for barbel, chub and roach. Salmon fishing is available in the River Severn, primarily below weirs such as those at Diglis, Holt Fleet and Shrewsbury. There are many stillwater coarse and trout fisheries, including major day-ticket waters at Moorlands, near Kidderminster, and Woodlands, near Ombersley. Canal fishing is also available, most notably on the Shropshire Union Canal and the Birmingham/Worcester Canal.

Eels, once very abundant in most rivers, have declined in recent times (see Issue 7).



Barbel

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2.2.13 Wildlife - flora and fauna

The Middle Severn area is diverse, containing many different types of habitat which in turn support an abundant and varied flora and fauna. Many of the sites of conservation interest have a river or wetland component.

Fauna associated with aquatic habitats in this area include otters, mink, kingfishers, dippers, sand martins and grey wagtails. Invertebrates are well represented, including the nationally rare Desmoulin's whorl snail, club-tailed dragonfly and the raft spider. The diverse flora found in the catchment reflects the geological variation and includes the nationally scarce species, floating water plantain and ribbon-leaved water plantain.

Agricultural intensification and loss of wetland habitats have led to reductions in biodiversity in some parts of the area (see Issue 8). Wading birds such as lapwing, curlew and snipe have shown a particular decline as a result. Water voles have also

suffered a severe decline in numbers in recent years, probably through loss of habitat and predation by mink (see Issue 12).

Of the 158 designated Sites of Special Scientific Interest (SSSIs), 94 are associated with watercourses or wetlands. A large section of the Ironbridge Gorge is a SSSI and the Buildwas section of the river is a geological SSSI. The Wyre Forest National Nature Reserve (NNR) and SSSI is an extensive tract of semi-natural woodland centred on Dowles Brook, a tributary of the River Severn. The River Severn is a Special Wildlife Site throughout the catchment.

The meres and mosses of the Clwyd/ Shropshire/ Cheshire/Staffordshire plain form an important series of open water (meres) and peatlands (mosses). Their associated fringing habitats (eg reed swamp, fen, carr and damp pasture), add to their conservation value. Sixteen SSSIs including Berrington Pool, Bomere and Shomere Pools, Brown Moss, Marton Pool, Fenemere, White Mere, and Clarepool Moss are designated as RAMSAR sites.



Black Poplar

2.2.14 Landscape, Archaeology and Heritage

The River Severn has been of historical importance for settlement throughout the ages. Ironbridge Gorge, centred on the River Severn, was designated as the first UK World Heritage Site in 1986. It is recognised as the birthplace of the industrial revolution and is a major tourist attraction of international importance.

The area is dominated by agricultural landscapes, but there are a number of large estates and numerous historic parks and gardens, for example Aqualate, Attingham and Dudmaston.

Remaining wetland areas in the catchment are potentially important archaeological sites as they retain environmental deposits and waterlogged objects are usually well preserved. The Strine Levels, north of Wellington, show signs of prehistoric settlement linked to the wet and inhospitable nature of this terrain before it was subject to extensive agricultural improvement and drainage.

The River Severn has a long history of commercial exploitation of its fishery resources, most particularly for salmon and eels. Remains of historic fish weirs exist at a number of sites along the river, associated with islands and bylets constructed for early navigation. Remains of eel traps also exist at various weirs in the area. Coracle fishing, netting and trapping of fish were methods in common usage in the past, but almost none remains today. Commercial exploitation is now restricted primarily to fish farming operations.

2.2.15 Recreation and Navigation

One of the delights of the area is the peace and quiet of the countryside and its natural beauty. This, together with its close proximity to the large conurbations of the West Midlands, means it is a popular tourist area attracting large numbers of walkers, water sports enthusiasts, bird watchers and holiday makers. Care is required to balance the pressures associated with this high level of recreational use and the need to preserve the quality of the environment on which this depends.

The Severn Way footpath, promoted by the Agency, is a popular walkers' route, as are the Jack Mytton and Silkin Ways. Ellesmere is very popular for informal recreation as are many of the pools in Telford, which include some disabled fishing facilities.

The River Severn is used extensively for boating activities, but with larger craft mostly restricted to the lower reaches of the river downstream of Bewdley. Canoeing and rowing are widely enjoyed throughout the river. Although there is scope for further water-based use of the river, this will have to be carefully considered in terms of environmental impact and potential conflicts with existing users.

The main canals actively used for boating and recreation purposes in the area are the Shropshire Union and Worcester & Birmingham Canals. Projects for restoration of derelict canals are being pursued on the Droitwich and Shrewsbury Canals. Scope exists for restoration of derelict canals, subject to this being environmentally sustainable.

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Pleasure boat at Worcester

3.0 review of the consultation process

3.1 Summary of Public Consultation

The Environment Agency is committed to full consultation during all stages of the Local Environment Agency Plan (LEAP) process. During the compilation of the Middle Severn LEAP, launched in April 1997, we undertook extensive consultation with interested parties and the general public. This section reviews the consultation process and provides a brief summary of the results of the consultation. A more detailed review of the comments, including individual responses, is given in a separate document entitled "Statement of Public Consultation".

3.1.1 Informal Consultation

In September 1996 the Agency wrote to 120 key groups, local authorities and other representative bodies asking for comments on an initial list of issues and problems affecting the environment in the area. In total 39 organisations responded. All comments from this initial informal consultation were considered and where appropriate were incorporated into the Consultation Report.

The Upper Severn Area Environment Group was set up during the time that the Consultation Report was being compiled. Members were invited to comment on and participate in the development of the Report.

3.1.2 Formal Consultation

The Consultation Report was launched on 25 April 1997 in Telford, Shropshire. We invited over 200

organisations and individuals to the launch. A total of 89 attended the launch meeting, representing a wide range of interests from within the area including local authorities, government departments, environmental organisations, industry, recreation, sports groups and angling clubs. All delegates received a copy of the Consultation Report, and directly after the launch a further 195 reports were distributed to a wide range of organisations and individuals on our mailing list and on request.

The launch marked the start of a formal three month consultation period, which ended on 25 July 1997. During this time the Consultation Report was promoted by:-

- Radio interviews, press releases and public notices in the press
- Wide distribution of the summary booklet, which included a questionnaire
- Display boards about the LEAP which toured ten libraries in the plan area
- Copies of the report placed on deposit at local authority offices and libraries

3.2 Summary of Responses

A total of 130 responses to the consultation were received - 72 letters and 58 questionnaires. The response was very encouraging, with those consultees that responded representing a wide cross section of interests. A list of all those who commented is included in Appendix 1. More detail, including a table summarising the comments and

our response, is given in the “Statement of Public Consultation”. All letters and questionnaires were acknowledged, and detailed follow ups were sent to the majority of those who sent letters.

All comments have been considered, and where appropriate and practicable, incorporated into the Action Plan. During the consultation process and via the responses many organisations expressed an interest in working in partnership with the Agency towards resolving the issues highlighted in the Plan. We received many helpful and welcome suggestions. Errors and omissions were also highlighted, and these are summarised in Appendix 2.

The consultation process has given us a more comprehensive understanding of the issues and options presented in the LEAP and of the public’s concern for the plan area. Key points raised during the consultation process include:

Issue 1: Agricultural Pollution and the Land Spreading of Controlled Waste

The rising nitrate levels in some parts of the plan area were of concern for many organisations and individuals. In the questionnaire responses, this issue was selected as important by most of those responding.

Issue 5: The impact of urban pollution and development

The question of litter and urban debris was raised by some consultees, and should be given greater importance in the Plan.

Issue 10: The impacts of water abstraction

It was felt that this issue had serious implications for many organisations and individuals especially water based recreation and sport groups. Also many wildlife groups expressed concern over the effects of abstraction on the river environment.

Issue 19: Opportunities for amenity, recreation and navigation

The proposals by the Severn Navigation Restoration Trust (SNRT) to increase navigation on the River Severn was commented on by many consultees. The majority raised concerns over the proposals and the effects such development would have on the habitats, flora and fauna of the river environment. There was also some response in favour of the proposals.

Issue 20: Sustainable Waste Management (previously The Management of Industrial and Commercial Wastes)

Consultees welcomed the Waste Minimisation Initiative. It was recognised that the Agency’s partnership with organisations and individuals in this matter will lead to benefits of reduced commercial and industrial wastes and increased environmental awareness. However, it was felt that this issue should be broadened to include actions relating to household waste.

Section 4 : Protection through Partnership

This was welcomed by the majority of organisations and individuals. Consultees welcomed the opportunity of working with the Agency with the mutual aim of environmental improvement. Emphasis was placed on Local Agenda 21, sustainable development and education.

3.3 Further Action

A number of changes to the issues, options and proposals have been made as a consequence of the public consultation. The vision and planning guidance statements have been modified and partnerships developed following meetings with key organisations and groups.

Changes to existing issues have been identified in the Action Plan tables in Section 4. Suggested new issues, for example minewater drainage, have been incorporated as action points under existing issue headings where appropriate. We have considered the responses made and have developed the Action Plan in a way that reflects a balance between the opinions expressed and the need to ensure a workable and feasible plan.

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4.0 actions

4.1 Implementation

Implementation of the plan is based on the 22 key issues set out below. These were discussed in detail in the Consultation Report and have been modified where appropriate in the light of the consultation responses. Their resolution is considered necessary in order that the plan can be successful in achieving real improvements within the plan area. Following the end of the consultation period the Agency has undertaken extensive negotiations with key groups and individuals.

The consultation process generally supported the issues raised by the Agency. Many of the options have been carried through into the action tables but many new actions have been added, and new approaches taken. Actions which have resulted from the consultation process are highlighted (+).

4.2 Issues

The issues are presented with a number of actions, a target timetable and the identification of responsible parties. The Action Plan primarily covers the five year period to 2002. Where possible, costs have been outlined for the period covered by the plan. This does not necessarily reflect the total cost of the schemes and is sometimes a projected estimate to be more accurately costed later. Costs shown are Agency costs unless indicated otherwise. The plan represents the non routine investment of the Agency and others. This document is produced in good faith, recognising current priorities both within the Agency and other organisations.

Key

- < less than.
- Action in the year indicated (cost figures given if known).
- R Recurring - no additional costs to annual budgetary provision.
- U Unknown costs at this time.
- U(i) Individual costs will be identified and agreed during negotiations.
- U(ii) Capital costs will be identified during investigations or surveys.
- + Action added as a result of consultation.
- K £1,000

A number of the actions will require feasibility studies and an appraisal of options prior to work commencing. In some cases, depending on the outcome of these studies, further action may not be required. All changes will be highlighted in the Annual Review.

Notes on abbreviations

AMP	Asset Management Plan
CC	County Council
BW	British Waterways
DC	District Council
EN	English Nature
EP	English Partnerships
FA	Forestry Authority
FWAG	Farming and Wildlife Advisory Group
LA	Local Authority
MAFF	Ministry of Agriculture, Fisheries and Food

NSA	Nitrate Sensitive Area
NVZ	Nitrate Vulnerable Zone
RA	Ramblers' Association
SABC	Shrewsbury & Atcham Borough Council
SCC	Shropshire County Council
STW	Sewage Treatment Works
STW Ltd	Severn Trent Water Ltd
TBG	Tidy Britain Group
WCC	Worcester City Council
WMRC	West Midlands Rowing Council
WT	Wildlife Trust

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ISSUE 1 Agricultural pollution and the land spreading of controlled waste



Land injection of waste

Agriculture has the potential to adversely affect groundwaters used for drinking and water supply. Fertilisers used for crop production and organic wastes from livestock farms can result in nitrates being leached into the aquifers. In the plan area there is concern over the rising nitrate levels in some parts.

Organic wastes from some of the industries in the area are applied to agricultural land where the application will result in benefit to that land. The landspreading of such wastes is an activity with the potential for pollution if not properly carried out; strict regulation is therefore necessary.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
1.1 Inspect land spreading activities as a priority. Provide advice to industry, contractors and farmers on best practice. ¹	Environment Agency	Industry, STW Ltd Contractors Farmers FWAG	R	●	●	●	●	●	
1.2 Monitor water quality effects of measures taken by farmers in NSAs and NVZs in the area.	Environment Agency	MAFF Farmers	0	●	●	●	●	●	
1.3 Report on above water quality and actual changes to land use/ fertiliser use in NSAs and NVZs.	MAFF Environment Agency		U					●	

Note ¹ Meetings to be arranged with Farming and Wildlife Advisory Group (FWAG) to assess opportunities for collaborative/supportive working.

ISSUE 2 The disposal of sewage in rural areas

Recent additions to the Water Industry Act 1991 provide a new way in which first time sewerage schemes can be financed in addition to the requisitioning of schemes by Local Authorities. Local Councils, groups or individuals can apply for schemes in their area and should the situation meet various economic and environmental criteria the cost of the scheme would be spread across all of the water company's customers. As a result it is possible that a greater number of schemes will be introduced and it is important that the Agency is involved in helping to prioritise future investment programmes. Investigative work and close liaison with Local Authorities will be required in order to seek the best way forward in dealing with problem areas.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
2.1 Negotiate improvements to village drainage systems in Vennington and Lyneal.	Environment Agency	STW Ltd	R	●	●	●			
2.2 Negotiate sewerage improvements at Hartlebury.	Environment Agency STW Ltd	LA	R	●	●	●			
2.3+ Negotiate sewerage improvements at Maer village.	Environment Agency	STW Ltd Parish Council Owner/ occupiers	R	●	●	●			
2.4+ Negotiate sewerage improvements at Waters Upton (north side of village).	Parish Council	STW Ltd Owner/ occupiers	R	●	●	●			

Note It is part of the Environment Agency's routine work to establish the impact of inadequate rural sewerage facilities within the area, specific problems will be included as future actions as appropriate.

ISSUE 3 The impact of contaminated sites

The Environment Agency is aware of a variety of potentially contaminated sites within the area. These include closed landfills, old gasworks sites and a wide range of industrial sites, many of which are located in environmentally sensitive locations, near rivers or on aquifers. Sites which have been identified in the area are Betton Abbots Landfill and Overley Hill, Telford. In addition there is a site at Bridgnorth that has associated contaminated groundwater.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
3.1 Investigate the potential for pollution from Betton Abbots landfill site, including any potential impact on nearby Betton Pool SSSI.	Environment Agency	Shropshire Waste Management	U(i)	●	●				
3.2 Investigate the risk of pollution from Overley Hill, Telford (risk assessment).	Environment Agency	owner	20	5	15	●	●	●	
3.3 Continue groundwater remediation at Bridgnorth to Agency satisfaction.	owner		U(ii)	●	●	●	●	●	
3.4+ Investigate potential problem of minewater drainage in Telford area.	Wrekin Council Environment Agency		U(i)	●	●	●			

Note Option in Issue 3 in the Consultation Report to "Investigate the source and impact of pollution at the Telford site" is not included as it has now been resolved.

ISSUE 4 Monitoring of Ironbridge Power Station air emissions

Ironbridge is a coal-fired Power Station and generates approximately 1 to 2 % of the electricity supplied in England and Wales. The site has recently been issued with a long-term improvement programme requiring significant reduction in the quantity of oxides of sulphur and nitrogen emitted. The action plan requires the power station to monitor the effect of the reduction on air quality.

ACTIONS	RESPONSIBILITY		TOTAL COST (£M)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
4.1 Undertake dispersion modelling to estimate concentration of pollutants in air.	Eastern Merchant Generation'/ Environment Agency		Nil to Agency		●				
4.2 Measure the concentration of pollutants in air local to station.	Eastern Merchant Generation'/ Environment Agency		Nil to Agency		●				
4.3 Identify the main areas where emissions have greatest impact and measure the concentration of pollutants.	Eastern Merchant Generation'/ Environment Agency		Nil to Agency		●				
4.4+ Assess potential impacts of emissions on SACs, SSSIs and other sites of conservation importance.	Environment Agency		10		5	5			

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Note 1 Part of company's requirement under authorisation and additional work being conducted by company to gain information on dispersion and effects of their discharge.

ISSUE 5 The impact of urban pollution and development

Despite the largely rural nature of the area there are problems due to urban development which has resulted in local environmental problems. Areas of concern include foul water infrastructure, industrial developments, litter and debris.

One of the areas in which improvements are to be sought are combined sewer overflows (CSOs), which occur as a result of combined sewerage systems filling with rainwater during storm events and overflowing to local watercourses. Overflows in Shrewsbury, Worcester and Highley have led to a significant amount of public complaint and it is anticipated that problem discharges will be entered onto future investment programmes.

A large part of the industry remaining in the area is characterised by small or medium sized industrial estates, often located on the outskirts of towns. These sites can cause pollution problems to local watercourses either through direct discharges of polluting effluents or through contaminated rainwater runoff. Groundwater pollution can also occur due to leaking pipes or poor waste disposal methods.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
5.1 Identify unsatisfactory combined sewer overflows that will form part of AMP 3 programme.	Environment Agency	STW Ltd	R	●	●				
5.2 Investigate the cause and effects of the discoloured discharge from Rushmoor STW.	STW Ltd	Environment Agency	U(i)	●	●	●	●		
5.3 Target inspections of industrial units draining to the Battlefield Brook, Shrewsbury.	Environment Agency	STW Ltd Industry	2	●	●				
5.4 Liaise with LAs to persuade them to enforce maintenance of ordinary watercourses to an acceptable standard: i) Battlefield Brook.	Environment Agency	LAs SABC	R	●	●	●	●	●	
5.5 Identify areas where litter is a particular problem and liaise with TBG and LAs to develop a strategy for litter control.	Environment Agency TBG/LAs		R	●	●				
5.6 Monitor improvements to drainage and investigate remaining sources of pollution from industrial units on the Honeyman's Brook, Droitwich. ¹	Environment Agency	STW Ltd LA	10	2	2	2	2	2	
5.7+ Assess potential impacts of new boat moorings on swan sanctuary, R Severn at Worcester.	Environment Agency	WCC Civic Society	2	●					

Note ¹ Improved oil interception under discussion. STW Ltd have targeted mailshots to industrialists.

ISSUE 6 Caravan site development in the floodplain

The scenic beauty of the Severn Valley from Shrewsbury to Worcester means that there is an ever present pressure for tourist facilities. Caravan sites, both tourist and static, are an important part of such facilities, and riverside sites are often seen as an idyllic setting.

Caravan sites in flood risk areas create two main problems. Firstly the risk of damage to caravans, and even loss of life, by flooding and the risk of floating items being washed downstream. Secondly, experience has shown an inevitable development progression from touring caravans to static caravans to mobile homes to permanent residential development. Caravan sites can also impact on the landscape.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
6.1 Set up roadshows and additional consultation with LAs to press for policies to be included in Development Plans to protect flood plain from caravan site development. (also see 22.1)	Environment Agency	LAs	0	0					

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ISSUE 7 Decline in eel fisheries

Eel stocks have declined in rivers throughout Europe in recent years, and the River Severn is no exception in this respect. Restocking with elvers (young eels) has been carried out in past years by the former National Rivers Authority and its predecessor organisation in order to help redress this problem. As costs of elvers are presently prohibitive, the Agency is proposing an alternative strategy through the opportunistic construction of inexpensive elver passes on weirs and other structures which inhibit the upstream passage of these small fish. This will enable eels to more readily spread throughout the available feeding areas and thereby maximise the potential for their survival and production.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
7.1 Construct elver passes on navigation weirs along the R. Severn and at other appropriate weirs on tributary streams.	Environment Agency		15			5	5	5	

ISSUE 8 Degradation of wetland and riverine habitats

Intensive agricultural improvements have resulted in the degradation and destruction of many wetland habitats within the area and once common wading birds have declined dramatically as a result. Action is required to improve and create new wetland habitats and to prevent further damage and loss. The West Midlands Meres and Mosses are amongst the most important local habitat features where detrimental changes have occurred as a result of agriculture, population growth and recreational use. English Nature have proposed a new management strategy for protection of the Meres and Mosses which we will support. There is a legacy of river engineering works which caused significant environmental degradation of river channels, especially in the River Perry and River Tern catchments. Considerable work has been undertaken in recent years by the Agency to increase both instream and riparian habitat diversity in these rivers. This work will be continued by the Agency with the aim of improving biodiversity and the sustainability of river channel maintenance operations.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
8.1 Identify and implement wetland creation opportunities as part of the Severn Valley Wetland strategy.	Environment Agency	EN, WTs owners, Water Co FWAG	100	20	20	20	20	20	
8.2 Develop and implement management strategy for Shropshire Meres and Mosses (eg Wem Moss, Brown Moss).	EN	Environment Agency LAs	75	15	15	15	15	15	
8.3+ Establish forum with English Nature to investigate polluting impacts on the Meres and Mosses, including septic tanks at Fenns and Whixall Mosses (SAC).	Environment Agency EN	owners	R		●				
8.4 Carry out habitat rehabilitation work on degraded rivers, including the R.Perry, R.Tern and R.Strine.	Environment Agency		100	25	20	20	20	15	
8.5 Create 'Buffer Strips' on degraded rivers by fencing in conjunction with above works, and through Countryside Stewardship schemes.	Environment Agency MAFF	FWAG	25	5	5	5	5	5	
8.6+ Identify opportunities for wetland creation in Worfe catchment following reductions in abstractions.	Environment Agency	owners EN, WTs	R		●	●	●		
8.7+ Develop 'River Corridor' project group to identify and target rehabilitation of degraded rivers.	Environment Agency FWAG	EN, WTs owners LAs	R		●	●			

Also refer to Issue 11.

ISSUE 9 Failure to comply with Water Quality Objectives and EC Standards

Background

While the majority of the watercourses within the area comply with EC Directives and their Rivers Ecosystem (RE) targets, some problem areas do exist which require work by the Agency. An assessment of river quality data for the 3 years 1993 - 95 has shown 3 general categories into which the quality objective failures fall:-

- i) Failures Requiring Investigation by the Environment Agency
- ii) Failures Involving Sewage Treatment Works
- iii) Failures to meet EC Directives

ISSUE 9.1 Failures requiring investigation by the Environment Agency

In instances where a watercourse does not meet its long term Rivers Ecosystem (RE) Classification target, the Agency has assigned a medium term objective for the period of the plan which reflects the quality of water which can be assured during this time. Failures caused by unknown sources will be investigated to attempt to ensure long term targets are met.

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ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
9.1.1 River Severn, Cressage and Bevere: Assess reason for failure to meet quality target.	Environment Agency		8	●	●	●			
9.1.2 River Perry, Gobowen: Target farm inspections.	Environment Agency	Farmers	2	●	●				
9.1.3 Stoke Brook, Stoke-on-Tern: Monitor to ensure anticipated improvements in quality occur.	Environment Agency		1	●	●				
9.1.4 River Worfe, Stableford: Investigate quality target failure.	Environment Agency		2	●	●				
9.1.5 Barbourne Brook, Worcester:									
i) Assess need for further farm inspections upstream of Blackpole	Environment Agency	Farmers		●	●				One problem identified and rectified Aug '97 2 boreholes in use, effectiveness under assessment
ii) Continue leachate extraction from landfill	Environment Agency	WCC	5	●	●	●	●	●	
iii) Continue water quality monitoring.	Environment Agency		10	2	2	2	2	2	
9.1.6 Cound Brook: Assess work required to achieve quality target.	Environment Agency		1	●	●				

ISSUE 9.2 Failures involving Sewage Treatment Works

Compliance with effluent consent conditions at the sewage treatment works (STWs) owned by Severn Trent Water Ltd is generally very good in the Middle Severn area. However, in some cases the quality conditions historically imposed on the discharges are not sufficient to enable the receiving watercourses to achieve current targets. In these cases the Agency generally seeks to ensure the STWs concerned are programmed for investment in future water company plans.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
9.2.1 Wesley Brook, Shifnal. STW: Assess what improvements are necessary.	Environment Agency LA	STW Ltd	R	●	●	●			
9.2.2 River Tern, Market Drayton: Assess effects of sewer overflows and seek improvements.	Environment Agency	STW Ltd	R	●	●	●			
9.2.3 River Salwarpe catchment:									
i) Implement planned improvements to Droitwich and Stoke Prior STWs	STW Ltd	Environment Agency LA	U(ii)	●	●	●			
ii) Negotiate improvements to Bromsgrove and Stoke Prior STWs	Environment Agency	STW Ltd	R	●	●	●			
iii) Seek to tighten discharge consent limits at a Bromsgrove industrial site.	STW Ltd	Environment Agency Industry	U(ii)	●	●	●			
9.2.4 Lakehouse Dingle, Hampton Loade: Assess need for future investment at Alveley STW.	Environment Agency	STW Ltd	R	●	●	●			

ISSUE 9.3 Failure to meet EC Directive Standards

River Severn, Shelton

This site intermittently breaches the 1 microgramme/litre limit for cadmium under the Dangerous Substances Directive (76/464/EEC). However, samples taken at the same time at the nearby Shelton Water Treatment Works do not give similar results and investigations by the Agency into the discrepancy have as yet failed to establish a reason for the results. Further work is to be carried out to attempt to resolve this anomaly.

River Severn, Hampton Loade

On one occasion during 1995 this point exceeded the Surface Water Abstraction Directive (75/440/EEC) limit for oil. The cause is unknown and monitoring of the site will continue.

Minsterley Brook, Minsterley

This brook is affected by the legacy of the lead mining industry which was prominent in the locality. Although a large land reclamation scheme has recently been completed, the brook is still contaminated by polluted groundwater discharging from adits. As a result the brook fails to meet EC Dangerous Substances Directive standards for cadmium and zinc.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
9.3.1 River Severn, Shrewsbury: Investigate cause of exceedance of EC limit for cadmium.	Environment Agency	LA	8	●	●				
9.3.2 Assess impact of inputs from adits to Minsterley Brook.	Environment Agency		2		●	●			

Note All sites that are subject to EC Directives are monitored as part of the Environment Agency's routine work. Any failures to comply with these standards automatically trigger an increase in monitoring to identify the cause of failure.

ISSUE 9.4 Potential revision of quality targets and derogations

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The original quality targets set for surface waters were based upon data collected in the late 1970s. River Quality Objectives (RQOs) were drawn up using the National Water Council (NWC) classification system and generally these have been translated into the equivalent RE targets. However, in some cases water quality data was insufficient to accurately set quality targets and may have led to inappropriate RQOs being set. Also, land use changes over the past 20 years could mean that previously appropriate targets need to be reassessed.

The LEAP is the vehicle for consulting on the potential revision of RQOs, and those raised as issues are included in the table below. Although the potential revision of targets in this table is focused on those stretches that have failed their quality objectives, any analysis of RQOs will also highlight those that can be improved.

Derogations

A number of stretches of watercourse fail to meet their objectives due to naturally occurring background levels of some contaminants. Where this is the case the Agency intends to give derogations for the failing chemicals, allowing the otherwise good quality watercourses to meet their targets, for example: River Meese.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
9.4.1 Examine water quality data and land use changes to determine appropriate sustainable targets:									
a) Soulton Brook, currently RE2.	Environment Agency		8			●	●		
b) Mad Brook, Haldane, currently RE2.	Environment Agency		8			●	●		
c) Elmbridge Brook, Droitwich, currently RE2.	Environment Agency		8			●	●		
9.4.2 River Meese Derogate for effects of algae.	Environment Agency		8			●	●		

In the Consultation Report this issue was titled 'Revised quality targets and derogations'.

Note 9.4.2 - The cause of algal blooms in the River Meese and potential sources of high nutrient water entering Aqualate Mere are being investigated by the Agency as part of the duty under the Urban Waste Water Treatment Directive (91/271/EEC).

ISSUE 10 Impacts of water abstraction

Overabstraction of surface water and groundwater can result in the depletion of stream flows and have a detrimental effect on wetland areas. Some catchments and groundwater units have been closed to new summer abstraction licences. A study is being undertaken on the Cound Brook to establish the relationship between reduction in flows and loss of habitat and the effect on native trout populations. Modelling of groundwater resources is also being carried out.

Existing summer abstraction licences often have to be restricted early in the summer in a dry year. For this reason there is a severe problem in meeting summer demands for water by farmers. The agricultural community need to consider winter abstraction and storage in such circumstances. Once the reservoir is full, a guaranteed quantity of water is available for summer irrigation. The Agency will promote dual purposes of such reservoirs to include nature conservation wherever possible. Applicants will also be referred to the Farming and Wildlife Advisory Group (FWAG) for advice.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
10.1 Groundwater modelling of Kidderminster/Stourbridge/Wombourne and Cosford/Worfield aquifers.	Environment Agency		c220	120	● 100	●			Costs spread over 18 months - 2 years Costs spread over 18 months - 2 years
10.2+ Investigate short term options to restore flows to affected reaches and implement viable schemes.	Environment Agency	STW Ltd	<500	c50	c450				
10.3 Reduce groundwater abstractions from sensitive areas e.g. Cosford aquifer through AMP 3 periodic review.	STW Ltd/ Environment Agency		U					●	
10.4 Encourage conjunctive use of local sources within Worfe catchment to reduce seasonal overabstraction of surface water for spray irrigation.	Environment Agency	Farmers	R	●	●	●	●	●	
10.5 Encourage winter abstraction and storage e.g R Worfe, Perry, Cound, other smaller brooks.	Environment Agency	Farmers	R	●	●	●	●	●	
10.6 Construct new gauging station on Cound Brook.	Environment Agency		143 (13 prior to April 1997)	130					

Note' Will be considered as part of modelling options.

ISSUE 11 Protection of existing high quality riverine and other wetland habitats

The area contains many water-related SSSIs and Aqualate Mere is also a National Nature Reserve (NNR). The Shropshire Meres and Mosses form part of a RAMSAR site and some are also (candidate) Special Areas of Conservation (SACs). These sites are potentially at risk from agricultural improvements, land drainage, river engineering works, overabstraction of groundwater and surface water sources, and from inappropriate recreational use. Protection will be given through the use of the Agency's regulatory powers and encouragement will be given to winter abstraction to reduce pressure on summer resources. Water Level Management Plans (WLMPs) will also be implemented at agreed locations in order to balance and integrate water level requirements for agriculture, flood defence and conservation purposes.

Many of the watercourses in the area are designated as Cyprinid or Salmonid Fisheries under EC Directive (78/659/EEC), reflecting their high water quality status and providing an additional level of protection in this respect. Further protection will be sought for non-designated rivers detailed in the table below. Invasive alien plants, including Giant Hogweed, are present in many parts of the catchment and pose a threat to native flora by dominating riparian habitats. The Agency has previously sought to control these weeds when carrying out its routine works, but will need to review such activities in view of the high costs and very widespread distribution of the problem.

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ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
11.1 Review all relevant Agency consents at SACs (EC Habitats Directive).	Environment Agency		R	●	●				
11.2+ Investigate source of nutrient enrichment entering Aqualate Mere (SSSI) and undertake remedial action if appropriate.	Environment Agency		R	●	●				
11.3 Prepare Water Level Management Plans for Aqualate Mere, Fernhill Pastures, Marton Pool and Rue Wood Pastures.	Environment Agency	EN owners	S	S					
11.4 Seek additional EC fisheries designations on Sheinton, Cound, Mor, Borle, Coal, Minsterley and Claverley Brooks.	Environment Agency		R	●					

Also refer to Issue 8.

Note The Old River Bed SSSI at Shrewsbury may be at risk from the proposed Shrewsbury north west relief road. Currently this road development is unlikely to take place during the plan 5 year period, but if brought forward, the Agency will aim to ensure the long term security of the SSSI by seeking appropriate environmental protection measures in the design and construction stages of the works. Other road schemes, such as the proposed Hodnet bypass, which could impact on important wetland sites will need similar consideration.

The Agency is reviewing its policy on the reduction of Giant Hogweed and other invasive weeds in the catchment and will include an action in future plans if appropriate.

ISSUE 12 Protection of Biodiversity

In pursuance of the Government's commitment to biodiversity conservation, the Agency will be developing targets for key species and habitats of conservation concern as identified in the UK Biodiversity Action Plan. A variety of rare and threatened species and habitats also exist in this area, including species notified under Annex II of the European Habitats Directive. We will aim to protect these species, along with the habitats upon which they are dependent.



Otters

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
12.1 Determine the present distribution and status of water vole, otter, crayfish, freshwater pearl mussel and depressed river mussel, and develop targets for the protection of these species.	Environment Agency	EN WTs	10	2	2	2	2	2	
12.2+ Monitor the otter populations through the River Severn Otter Project.	Environment Agency	WTs EN LAs	10	2	2	2	2	2	
12.3+ Create new otter habitat in conjunction with river maintenance works and habitat improvement schemes.	Environment Agency		10	2	2	2	2	2	
12.4 Investigate status of shad and assess suitability of habitat upstream of Diglis as spawning area.	Environment Agency		2			1	1		
12.5+ Seek protection for remaining native crayfish populations in the catchment area.	Environment Agency MAFF	FA	R	●	●				
12.6 Assess the distribution of alder disease to support Forestry Authority studies.	Environment Agency	LAs FA	2	1	1				
12.7 Determine the distribution, types and scope for regeneration of Black Poplars and undertake planting schemes.	Environment Agency		20	10	5	5			
12.8 Implement Barn Owl nest box scheme on River Perry.	Environment Agency		3		1	1	1		

ISSUE 13 Protection of high quality Coarse and Game Fisheries

The middle reaches of the River Severn provide some of the best coarse fisheries in the country. Fishing for barbel, chub and roach is especially renowned. The middle reaches are also an important migratory route for salmon to their main spawning areas in the upper reaches of the river system. Good salmon fisheries exist especially at weirs such as Diglis, Holt, Lincomb and Shrewsbury. Some important native brown trout populations are present in the tributary streams including the Cound Brook, River Worfe, River Tern, Dowles Brook, Mor Brook and Borle Brook. Such populations are a nationally threatened resource, particularly in lowland rivers.

Preservation and protection of these high quality resources is one of the most important fisheries issues in this catchment area. Protection will be afforded primarily through the use of the Agency's regulatory and fishery law enforcement powers, but additional actions may be required as detailed in the table below.

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ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
13.1 Review Fisheries Byelaws to control fish removals from watercourses.	Environment Agency	MAFF	R	●					
13.2 Monitor impacts of pike and zander on other fish stocks in the middle reaches of the River Severn.	Environment Agency	Angling clubs	5	1	1	1	1	1	
13.3 Maintain and improve security provisions at vulnerable locations near weirs on the River Severn.	Environment Agency		5	1	1	1	1	1	
13.4 Seek funding and plan for future installation of salmon passes on the River Severn navigation weirs and weirs on tributary streams.	Environment Agency		R		●				
13.5 Review byelaws and voluntary restrictions on salmon fishing methods.	Environment Agency	MAFF	R	●					
13.6 Seek funding and re-establishment of Shrewsbury salmon counter.	Environment Agency		25						25
13.7 Review and implement S30 trout stocking policy.	Environment Agency		R	●	●				

In addition to the above actions, the Agency will through its routine work have regard to:

Effects of flow variations on angling relating to major water supply abstractions from the River Severn.

Protection of fisheries requirements in the middle reaches of the river and its tributaries in reviewing the River Severn flow operating rules (also see Issue 21).

Low flow problems - Certain watercourses in the area suffer from low flow problems which have an adverse impact on native brown trout populations. Further details on low flow problems are given in Issue 10.

ISSUE 14 The protection of high quality water resources

The safeguarding of water quality is fundamental to the management of the water resources within the area. The River Severn and its tributaries are extensively used for drinking water supply, agricultural and industrial abstraction and for a wide range of water based leisure activities. In addition, many communities in the area are supplied with drinking water from groundwater sources. All of these activities depend on the water being of high quality and the Environment Agency is committed to maintaining and where necessary improving the quality of all water resources in the catchment.

The Agency has an ongoing programme of pollution prevention inspections of major installations within river and borehole catchments. Borehole protection zones currently being drawn up for potable supply boreholes will enable the Agency to target better pollution prevention visits to these areas. All of the public water supply boreholes within the catchment will be surveyed within 5 years. The philosophy of the Agency is simple: prevention is better than cure.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
14.1 Undertake programme of pollution prevention site inspections in catchment and around water supply boreholes.	Environment Agency	Industry Farmers	20	4	4	4	4	4	5 year rolling programme
14.2 Assess the possibility of installing additional surface water pollution monitoring equipment in the catchment.	Environment Agency		1			●	●		
14.3 Ensure that pesticides from the wool industry in Telford do not affect the River Severn.	Environment Agency	STW Ltd Brintons	1		●				

ISSUE 15 Water temperature impact of Shropshire Groundwater Scheme on the aquatic habitat

Operational pumping of the Shropshire Groundwater Scheme boreholes helps to regulate flows in the River Severn and the smaller tributaries, the Perry and Tern. Current statutory environmental monitoring activities include soil moisture, groundwater and water quality monitoring. Invertebrate and spot water temperature samples are also taken. No impact has yet been observed on the aquatic habitat in terms of quality or invertebrate numbers or distribution. However, concern has been raised as to what degree of impact, if any, the cooler groundwater has upon the aquatic habitat and its associated species.

More detailed temperature profiling studies are therefore required, to quantify the degree and extent to which ambient river temperature is lowered by the discharge of cooler groundwater, and what effect this may have on the fish or invertebrates immediately downstream of the outfalls.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
15.1 Investigate the extent and impact of temperature changes in receiving watercourses.	Environment Agency		U(ii)	●	●	●	●	●	Costing and timing dependent on year by year use of scheme.

ISSUE 16 Threats to the Farley Brook, Much Wenlock

Farley Oil Terminal is situated within the hillside above Farley Brook. It houses several vast underground tanks containing liquid waste. Concern has been expressed for a number of years that the waste could escape should the tanks corrode. The site owners in conjunction with Shropshire County Council are having the waste removed from the tanks and the Agency is to monitor its removal and proper disposal of the waste. Landowner Liquid Fertiliser is also situated over the Farley Brook, which runs under the site in a culvert. Concern has been expressed at the occasional elevated ammonia levels in the brook, and a number of complaints have been received about air quality in the vicinity.

Much Wenlock Sewage Treatment Works (STW) discharges into the upper reaches of the brook. The sewage overflow at the STW often overflows prematurely and may suffer from a large amount of infiltration water to the sewerage system. A proposal for further housing development in the town could exacerbate the problems and the Agency is to ensure that Severn Trent Water Ltd carry out a thorough analysis of flow patterns in the system and carry out improvement work if necessary.

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ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
16.1 Monitor the disposal of liquid waste stored on industrial site. ¹	SCC Environment Agency Site owners	Biffa Waste EP	1000 disposal cost (SCC)	●	●				
16.2 Assess current and future flows from Much Wenlock STW and their impact on the brook.	Environment Agency	STW Ltd	1	●	●				

Note¹ 16.1 - Ammonia releases from the IPC process to the Farley Brook are regulated by the Environment Agency.

Option 16.3 in the Consultation Report "Assess the effects of increasing abstraction from Much Wenlock borehole" is not being taken forward within the Action Plan timescale. There is no immediate intention to increase abstraction; any increase will reflect growth in the Much Wenlock area. The works which have recently occurred are to meet peak demands in the area. If it is intended to increase abstraction then STW Ltd will liaise with the Environment Agency regarding investigation and monitoring of impacts (if any). There is no threat to Much Wenlock borehole from the two premises referred to above.

ISSUE 17 Stability in the Ironbridge Gorge Area

The existing steep slopes of Ironbridge Gorge are not at their final angle of repose and are therefore unstable. Mining has added to the problem in certain areas. The industrial heritage of the gorge has also exacerbated the problem with much of the river bank being made of tipped material, particularly in the Jackfield area. The instability of the river bank could lead to large quantities of material slipping into the river, which would increase the risk of flooding.

There is an Inter-Agency Group, of which the Agency and Shropshire County Council are members, which has the role of co-ordinating policies and the management of the Ironbridge World Heritage site. This group has identified the stability of the gorge as a major issue.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
17.1 Monitor the geological stability of the area.	Inter-Agency Group	Environment Agency	U	●	●	●	●	●	

ISSUE 18 Flood alleviation schemes

Within the area there are numerous flooding problems. However, at very few of these locations will it be technically, economically and environmentally feasible to construct a flood alleviation scheme to improve the situation. In some areas, it may be feasible to construct a scheme, but the Agency will listen to public opinion, if they do not want one. If flood alleviation schemes are not possible, then it is even more important to control further development in these flood risk areas, to ensure that existing flooding problems both there and elsewhere are not made worse.

In the Diglis area of Worcester, residents suffer fairly frequent flooding and the Agency is continuing to gather information on high flow levels in order to further evaluate the viability of a potential flood alleviation scheme.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
18.1 Evaluate hydrometric data and reassess need for flood alleviation scheme for the Diglis area of Worcester.	Environment Agency		R	●	●				Dependent on flooding occurring
18.2+Re-visit flood alleviation scheme for Bewdley.	Environment Agency		10						In approx. 10-20 years or after major flood.



Flooding at Bewdley in the 1940s

ISSUE 19 Opportunities for amenity, recreation and navigation

The middle reaches of the River Severn are extensively used for recreational activities, including boating, angling and riverside walking. There is scope for further recreational development, particularly around urban areas, but care is needed to avoid conflict between different user groups and to take appropriate account of potential environmental impacts.

Speculative proposals by the Severn Navigation Restoration Trust (SNRT) to establish extensive navigation, involving the construction of weirs and locks, on the River Severn upstream of Stourport have caused considerable public debate and substantial opposition from other river users, environmental interests and local authorities. The Agency, through consultation, will form a strategic view on this matter to guide its future response to any specific developments.

Together with the County Councils, the Agency will be promoting and marketing the Severn Way, a long distance footpath recently completed through the area, and will be seeking collaborative opportunities to improve access and recreational facilities for the disabled. The Agency also intends to increase its involvement with stillwater fisheries in the future and in particular will be seeking opportunities to develop angling facilities near urban areas. Possible sites have been identified in the Shrewsbury and Wellington areas.

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ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
19.1 Seek opportunities for increased recreational and amenity use of rivers in urban areas (eg Worcester and Shrewsbury).	Environment Agency LAs Sports Council	Land owners	25	5	5	5	5	5	
19.2 Establish an Agency view on potential increased navigational use of the River Severn.	Environment Agency	BW	2		2				
19.3 Undertake baseline River Habitat Surveys of middle reaches of the R. Severn in relation to potential future river uses eg SNRT navigation proposals.	Environment Agency		2	2					
19.4 Implement marketing and promotion strategy for the Severn Way footpath.	Environment Agency CCs	RA	15	10	5				
19.5 Seek opportunities for better access to and use of watercourses by disabled persons (eg Telford, Albrighton and Shrewsbury).	Environment Agency LAs Sports Council	Land owners	30	10	5	5	5	5	
19.6 Seek opportunities for further development of stillwater fishing opportunities near urban areas.	Environment Agency	Angling clubs	40		10	10	10	10	
19.7 Update and reprint the River Severn canoe guide.	Environment Agency	Drummond Outdoor	4		4				
19.8+ Produce rowing information for River Severn.	Environment Agency	WMRC	2			2			

Further significant initiatives relating to recreational use of watercourses are being pursued by other bodies, including proposals to restore the Droitwich Canal navigation by the Droitwich Canals Trust (and restoration of the towpath to potentially provide cycle route), and the development of a rowing/canoeing centre on the River Severn at Worcester by the Sports Council. Opportunities also exist for restoration of other canals such as the Shrewsbury Canal and the Coalport Canal system in the Ironbridge Gorge. Although the Agency currently has no plans for financial involvement in these schemes, we will support these restorations provided it can be demonstrated that these developments are environmentally sustainable.

ISSUE 20 Sustainable Waste Management

Every year in the UK we produce about 245 million tonnes of household, commercial and industrial waste, most of which (70%) is currently disposed of to landfill. There are a number of issues associated with the production of waste and its management. In particular, waste represents a loss of natural resources and there are a limited number of sites which are suitable for landfilling with wastes. We therefore need to reduce the amount of waste we produce and make the best use of that waste which is produced. National targets have been set to reduce the proportion of controlled waste going to landfill by 2005, and to recover 40% of municipal waste by 2005 (recovery includes recycling, composting and energy recovery). Progress towards these targets is slow and major improvements are required. This will necessitate close working and cooperation from a wide number of organisations.

Industrial and Commercial Waste

Waste is often given low priority by companies who do not quantify how much waste is being produced, from which process(es) and why. Waste Minimisation Groups are an effective way of demonstrating the benefits of waste minimisation to local companies leading to reductions in water usage, energy usage and solid wastes.

Household waste

The key factors in achieving the targets relating to household waste will be action by individual householders, who need to be made aware of the issues associated with waste production and the need for sustainable waste management, and action taken by local authorities in providing the necessary facilities e.g. recycling banks.

Composting is recognised as an important method by which the amount of waste requiring landfilling can be reduced and whereby some value is obtained from the waste. This can be done via large scale central composting schemes and/or home composting.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
20.1 Expand the Waste Minimisation Initiative to cover the plan area.	Environment Agency	Partners	<65	<65	●	●	●	●	
20.2+ Investigate potential local markets for composted material.	Wrekin Council	Environment Agency	R	●	●				
20.3+ Promote home composting and raise public awareness of the need for sustainable waste management.	LAs	Environment Agency	U		●	●	●	●	

In the Consultation Report this issue was titled 'The Management of Industrial and Commercial Wastes', but following consultation it has been broadened to include actions relating to household waste.



Landfill site

ISSUE 21 River Severn Control Rules

Rules for regulating the flow of the River Severn were first established in the Clywedog Reservoir Joint Authority Act of 1963 which authorised construction of Clywedog reservoir, the flows to be maintained in the River Severn and in Afon Clywedog downstream of the dam, maximum winter water levels within the reservoir (for flood retention purposes) and, lastly, increased abstractions from the river for public water supply and power generation.

A review of the adequacy of the current rules to meet present and future needs has been underway by the former National Rivers Authority and later the Agency during the period 1990 to date. The review has identified several alternative ways of managing river flows in the future and these alternatives have been modelled on computer to predict the impact of various options on storage and river conditions. A list of options is being drawn up to form the basis for external consultation.

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ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
21.1 Review and reassess Control Rules.	Environment Agency	Major Users of the River Severn	45	5	5	15	10	5	Monitor impacts and effects. Expenditure 5 (outside 5 year plan).



River Severn at Bewdley

ISSUE 22 Floodplain management

Parts of Shrewsbury, Ironbridge, Bridgnorth, Stourport and Bewdley, and the City of Worcester, are at risk of flooding from the River Severn and there is pressure to further develop the floodplain. There are also other areas where there is pressure to develop land within the floodplain, particularly the River Perry at Gobowen and the River Roden at Wem. The Agency has the objective to ensure that development should not take place which has an unacceptable risk of flooding and that the development should not create or exacerbate flooding elsewhere.

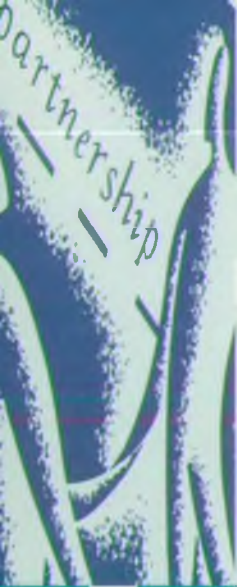
In March 1997 the Agency published the 'Policy and Practice for the Protection of Floodplains'. This reinforces and compliments current Government guidance on flood risk issues in relation to development planning. It contains guidance for Local Authorities on policies to adopt in local plans for the protection of floodplains. We will actively encourage the adoption of these policies.

Flood warnings (colour coded according to severity of impact) are issued for five reaches of the River Severn within the plan area. Dissemination of the warnings relies mainly on schemes of volunteer flood wardens recruited by Local Authorities, backed up by local radio broadcasts and a telephone recorded message system. Bewdley, Stourport and other 'at risk' property in the Wyre Forest District Council area do not benefit from a flood warden scheme and are solely reliant on the other dissemination routes.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1997/98	1998/99	1999/2000	2000/01	2001/02	FUTURE
	LEAD	OTHER							
22.1 Set up roadshows and additional consultation with LAs to persuade them that long term strategic withdrawal from the flood plain is the only sustainable option.	Environment Agency	LAs	R	●	●				
22.2+ Floodwarning:									
i) Collate database of flood risk property, Bewdley to Stourport.	Environment Agency		<5		●				
ii) Consult 'at risk' property owners on possible warning dissemination methods.	Environment Agency		R		●				
iii) Implement flood warning scheme, Bewdley to Stourport.	Environment Agency		<5			●			

In addition to the above, the Agency will address this issue through its routine activities, in particular by pressing for the policies in the Agency's 'Policy and Practice for the Protection of Floodplains' to be included in Development Plans, via roadshows and consultation with LAs.





5.0

protection through partnership

5.1 Introduction

Our natural environment is complex. Even where we do have a good understanding of a particular element of the environment, what is often much less clear is how it interacts with all other aspects of the local, regional, national and global environment. It is becoming clear that even local environmental impacts can have knock on effects on other parts of the environment. It is this kind of understanding that led to the Rio Earth Summit in 1992, the adoption of Sustainable Development principles and the commitment to manage the environment in an integrated way through partnership.

The Agency is well placed to influence many of the activities affecting the environment through its own activities and enforcing the Environment Act 1995 and other legislation. However, achieving environmental improvement often depends on co-operation between the Agency and others. The Memorandum of Understanding between the Agency and the Local Authority Associations sets out how we will work with local authorities in protecting and improving the environment. It seeks to establish a framework to promote better integration of our work and ensure the best use is made of resources.

Partnerships will enable the key objectives and the long term vision of this plan to be realised. Implementation of the plan will involve the joint action of a number of organisations, such as local authorities, businesses, conservation organisations and community groups, as well as actions by the Agency.

5.2 Land Use Planning and LEAPs

5.2.1 Planning Liaison

The control of land use change is primarily the responsibility of Local Planning Authorities (LPAs), through implementation of the town and country planning acts. Local development plans provide a framework for land use change and are the key consideration in the determination of planning applications.

The Agency is a statutory consultee on development plans and certain categories of planning application. This allows the Agency's views to be considered by the Council prior to a planning application being decided or policies in a Development Plan being approved. Guidance regarding the applications the Agency would wish to see is contained in our publication '*Liaison with Local Planning Authorities*' (Environment Agency, March 1997). An annex to this document, '*The Environment Agency and Development Plans*', is being published in November 1997.

5.2.2 LEAPs

LEAPs, in addition to providing a vision for the future, set out problems, issues and actions within the plan area, providing an important source of information to LPAs. This is recognised in RPG 11 '*Regional Planning Guidance for the West Midlands*' (Government Office for the West Midlands September 1995), which indicates that LEAPs

(as successors to Catchment Management Plans) should also be taken into consideration by LPAs when preparing Development Plans. Similarly, the Agency considers Development Plans and liaises with LPAs when preparing LEAPs.

5.2.3 Planning Guidance Statements

In the Consultation Report we set out draft planning guidance statements relating to land use issues raised in the LEAP and to other areas of concern which will also require the support of our local planning authorities.

These statements were considered and several consultees, mainly LPAs, made specific comments and suggestions. The statements have been modified in light of the comments received, resulting in amendments to statements MS/LUS2,3,4,5,6,7 and 8. Support was given to the Agency's continued involvement in land use planning and guidance issued in the plan. We are grateful for the supportive and useful suggestions.

The planning guidance statements are intended to assist local authority planners and others to identify areas of constraint and to integrate environmental issues into their decisions. We would like them to be taken into account by LPAs when Development Plans are reviewed.

Planning Guidance Statements

MS/LUS 1 - Sustainable Development

The Agency will encourage all local authorities to adopt a precautionary approach to development which might affect the environment in this high quality area. The environmental effects of development should be considered so as to minimise adverse impacts and maximise potential benefits. In particular, opportunities should be taken to encourage developers and others to include environmental enhancements (e.g. integration of existing watercourses and wetland habitats), as part of development wherever appropriate.

MS/LUS 2 - Effluent Disposal

Full account needs to be taken of the availability and provision of sewerage and sewage treatment facilities in considering the location, extent and timing of new developments. Many smaller villages and some larger settlements in the area have inadequate sewerage facilities or no sewerage provision at all. In the case

of proposals producing effluent/waste, it should be established that there is an adequate means of disposal. The use of source control techniques such as infiltration ponds, porous pavements etc., to reduce diffuse pollution, is encouraged.

MS/LUS 3 - Water Resources

Full account needs to be taken of the availability of water resources and provision of water supplies in considering the location and extent of significant new developments. The key issues are quantity, location, and source (i.e. surface water or groundwater) of abstractions and the need to maintain aquifer recharge whilst protecting the resource from pollution. (For further guidance see the policy statements in 'Policy and Practice for the Protection of Groundwater'- HMSO:ISBN 0 11 885822X). There is a limited availability of water resources to support surface water abstractions during the summer, and groundwater resources are generally very limited in the west. Measures to maintain aquifer recharge and minimise waste through leakage control and demand management are supported. The Water Companies are encouraged to meet current and increased demands in an environmentally sustainable manner.

MS/LUS 4 - Watercourse Corridors

The conservation, fisheries, landscape, heritage/archaeological and recreational value of watercourse corridors need to be protected and enhanced. This includes protection under conservation legislation such as designation of AONBs, ESAs, SSSIs, SAMs etc, Development Plan designations such as Area of Special Landscape Character/Great Landscape Value/Conservation Area and guidelines such as those produced by the Forestry Authority. It also involves prevention of soil erosion by inappropriate riverside land use (e.g development involving loss of existing flow control structures, obstructive hard structures, landraising, defoliation, undue wear of footpaths/ access points, etc.) and the consideration of increased flood risk. The value of buffer zones and sensitive riparian management is recognised.

MS/LUS 5 - Flood Plain and Surface Water Runoff

The flood plains of rivers and watercourses in the catchment need safeguarding from encroachment by development. (For further guidance see the policy statements in 'Policy and Practice for the Protection of Floodplains' - Environment Agency 1997). The River Severn and its tributaries are naturally prone to regular flooding. Where appropriate, changes in land use leading to a reduction in life and property at risk from flooding will be sought, also benefitting wetland

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MIDDLE SEVERN





Partnership

restoration by relaxing current levels of flood protection. Additionally it must be ensured that development does not exacerbate flooding elsewhere from the effects of the additional rate of runoff. To address this problem, use of source control techniques such as retention ponds, infiltration trenches etc., will be encouraged.

MS/LUS 6 - Contaminated and Reclaimed Sites

There are a number of ex-industrial, gas works, waste disposal and old mine working sites where pollution problems occur, or have the potential to occur. Any scheme for the redevelopment of such sites should be accompanied by a site investigation indicating the nature and extent of contamination and, where appropriate, remediation proposals. The management of waste disposal sites must give due care to the protection of the environment in their construction, operation and aftercare. Proposals for restoration of worked-out mineral sites can present opportunities for environmental enhancement, including features of historic interest, and should be encouraged. The Agency should be consulted both prior to and at the planning application stage for developments involving contaminated land, waste disposal and mineral working.

MS/LUS 7 - Tourism and Recreation

There is an increasing amount of tourism and countryside recreation occurring within the area. Rivers, watercourses, canals and lakes are an integral and attractive part of the countryside scene, and will play an increasingly important role in tourism and water-based recreation. The Agency will seek to ensure such developments are sustainable (see MS/LU1), sympathetically designed and located to take into account the safeguarding of the water environment, and where possible its enhancement. Promotion of water-based recreation facilities must take into account the need to safeguard high quality riverine habitats with sensitive areas being monitored and protected from recreational pressure as appropriate.

MS/LUS 8 - Energy Conservation and Waste Minimisation

To promote a pattern of development and use which is more sustainable, opportunities for recycling, waste minimisation and energy conservation must be considered. Examples such as aggregate reuse, reclaiming of base materials in production processes, facilities enabling recycling of materials and the promotion of energy saving construction and production process would reduce demand on primary resources, waste disposal facilities, landfill, etc.

5.3 Partnerships

There are a number of joint initiatives with local authorities and other groups that have already been undertaken or are in progress. Examples are highlighted below.

5.3.1 Local Agenda 21

Agenda 21 was one of four main agreements signed at the Earth conference held in Rio de Janeiro in 1992. It is intended to be a:-

“Comprehensive programme of action needed throughout the world to achieve a sustainable pattern of development for the next century”

In 1994 the Government produced a national sustainable development strategy and action plan for the UK. This is an environmental action plan for the next century, which recognises the central role of local authorities, the value of partnerships and the local community in achieving sustainable development.

At the local level, most local authorities are working with local communities to produce their own Local Agenda 21 programmes. It reflects the idea of thinking globally, acting locally. A Local Agenda 21 Action Plan has been drawn up in Hereford & Worcester, and working groups have been established to implement the actions identified. The same process is underway in Shropshire, with Wrekin Council in particular being well advanced in developing their District Environmental Strategy. As members of steering groups and working groups, we will advise, provide information and facilitate action where practical.



Local Authorities in the Middle Severn area

5.3.2 Other partnerships

The first three were referred to in detail in the Consultation Report. Partnerships include:

- Hereford and Worcester Waste Minimisation Group
- Oil Care Campaign
- Shropshire Biodiversity Group
- Heart of England Biodiversity Forum
- Rural Development Programme
- Shropshire Fire and Rescue Service
- Hereford & Worcester Fire Brigade

5.3.3 Other Conservation and Recreation collaborative projects



Some of the projects currently being undertaken in the area are: the Severn Way footpath, Severn Valley Wetlands Project, Black Poplar Trees, facilities for disabled anglers (Homer Lake and Dandy Pools, Telford), facilities for disabled visitors (Albrighton Moat), Ironbridge Visitor Centre refurbishment.

These projects are joint ventures by a number of organisations which include: Countryside Commission, English Nature, Wildlife Trusts, Shropshire Ornithological Trust, Forestry Commission, Bees and Trees Charity, Sports Council and Local Authorities.

5.4 Education

The Environment Agency sees education as an important part of its work and is currently developing its strategy for environmental education. In many cases a lack of information and awareness is one of the factors which leads to environmental damage or neglect whether it be accidental or deliberate. There is a need for a greater level of educational involvement by the Agency and a need to raise awareness of environmental issues. Locally the Environment Agency has been involved in a collaborative educational project with the Ironbridge Gorge Museum Trust in refurbishing the Ironbridge Visitor Centre.



The production of this LEAP is one step towards increasing the accessibility of information about everyone's local environment. The Agency has a wide range of leaflets and publications (see Appendix 3), which are available from the Customer Services departments at Area offices. Information is also available on the Internet at our web site.

Internet World Wide Web

www.environment-agency.gov.uk

ECOfacts™ 'fax back' service

0881 88 22 88

General Enquiry line

0645 333 111

Flood Warning Information Service

0645 88 11 88

Upper Severn Area Office

Tel: 01743 272828/ Fax: 01743 272138

Information exchange and education is a two-way process. Please help us to protect the environment by reporting environmental incidents and emergencies on our **Emergency Hotline 0800 80 70 60**.



LOCAL ENVIRONMENT AGENCY PLAN

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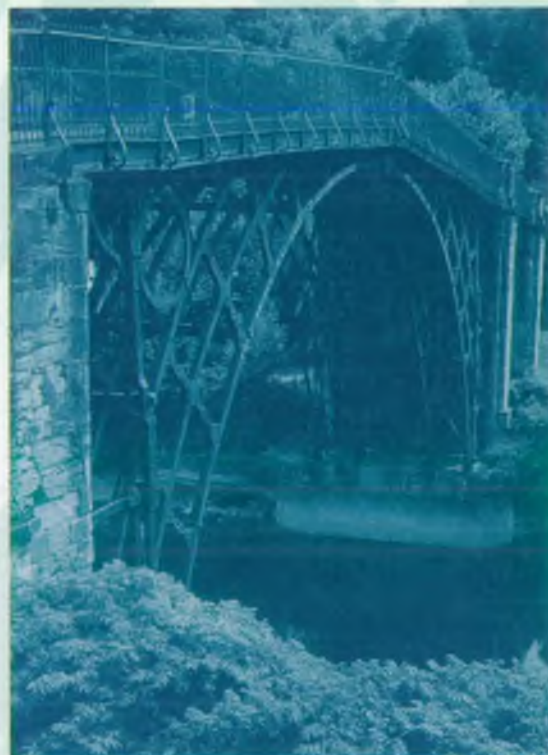


6.0 future review and monitoring

The Agency will be jointly responsible, with other identified organisations and individuals, for implementing this Action Plan. Progress will be monitored and reported annually by the Agency to all the key partners and other interested parties. The first Annual Review is due at the end of January 1999.

The Annual Review will take the form of a short progress report and will:-

- Examine the need to update the LEAP in the light of changes in the plan area.
- Compare actual progress with planned progress, and explain the reason for any changes to the content or timing of individual actions.
- Report on other matters, including any legislative and classification scheme changes, affecting the LEAP.
- Roll forward the detailed actions.



Ironbridge, Telford

appendix one

MIDDLE SEVERN



List of Organisations and Individuals who made Written Responses to the Consultation Report

- ARC Central
- Bridgnorth District Council, Environmental Health
- Bridgnorth District Council, Planning
- British Canoe Union, Head Office
- British Canoe Union, Regional Access Officer
- British Canoe Union, West Midlands Region
- British Trust for Conservation Volunteers, Herefordshire & Worcestershire
- British Trust for Conservation Volunteers, Shropshire
- British Waterways, Border Counties
- British Waterways, Gloucester & River Severn
- Bromsgrove District Council
- Cheltenham Canoe Club
- Council for the Protection of Rural England, N Shropshire
- Council for the Protection of Rural England, Staffordshire
- Countryside Council for Wales
- H Crowther
- Drummond Outdoors
- Dyfed- Powys Police - Emergency Planning Officer
- English Heritage
- English Nature, West Midlands
- English Nature, Three Counties Team
- Farming & Rural Conservation Agency
- Farming & Rural Conservation Agency, Wales
- Farming & Wildlife Advisory Group
- Forestry Authority, Midlands Conservancy
- Friends of the Earth, Shropshire
- Heart of England Tourist Board
- Hereford & Worcester County Council
- Inland Waterways Association, Birmingham, Black Country & Worcestershire Branch
- Inland Waterways Association, Head Office
- Jackfield Residents Association
- J W Lane
- Leaton Knolls Estate
- Malvern Hills District Council
- Midlands Amenity Societies Association
- Ministry of Agriculture, Fisheries & Food
- D H Morgan
- National Association of Boat Owners
- National Farmers Union, North Wales
- National Farmers Union, West Midlands Region
- National Trust - Mercia Region
- National Trust
- North Shropshire District Council
- Ramblers' Association, Shropshire Area
- Royal Commission on the Ancient & Historical Monuments of Wales
- Royal Sutton Coldfield Canoe Club
- Royal Society for the Protection of Birds
- Rural Development Commission

appendix

Salopian Fly Fishers Association Ltd
Severn Gorge Countryside Trust
Severn Liaison Group
Severn Navigation Restoration Trust
(I Walker & Associates on behalf of)
Severn Trent Water Ltd
Shrewsbury and Atcham Borough Council
Shropshire County Council, Environment
Department
Shropshire County Council, Fire & Rescue Service
Shropshire Wildlife Trust
E R Smith
Soil Survey & Land Research Centre
Sports Council, West Midlands Region
Staffordshire County Council, Development Services
Stourport-on-Severn Town Council
Strine Internal Drainage Board
K C G Stroud
Sustrans - Routes for People
Tidy Britain Group
UK Irrigation Association Ltd.
West Midlands Rowing Council
Worcester City Council
Worcestershire Wildlife Trust
Wrekin Council
Wyre Forest District Council

The following sent in completed
questionnaires from the Consultation
Report Summary:

Albrighton Parish Council
C Allen
Anonymous - 16
M Atherton
A Baker
P Best
Bewdley Town Council
A Bostock

P Brown
S Brown
Buildwas Parish Council
R Clay
R Clark (Salopian Fly Fishers Ltd)
J W Cousens
Dudley Angling Society
Cllr I Etherington (Weston under Redcastle Parish
Council)
E Evans (National Trust Regional Land Agent)
E J Everall
M A Ford
Friends of the Earth, Shrewsbury
C Glanville
M J Halford
E Harris
Holt Parish Council
W Hutton
G Jones
R J Jones
E Liptrot
P J Parker (British Waterways)
M C Pickthorn
J Porter
A Pulford
Ramblers' Association (Hereford & Worcester)
P Reynolds
P Richardson
N Smith
K C G Stroud
A Taft
T Teearu
S Townsend
A E Wallis
H Woodman
R Young

The Environment Agency gratefully acknowledges
all comments received.

appendix two

Amendments to the Consultation Report

LOCAL ENVIRONMENT
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SECTION	PAGE	ERROR/OMISSION	RAISED BY
1	-	Lack of reference to recreation or navigation in key details and Vision.	Inland Waterways Association, Head Office
3	28	Map 7 omits the Droitwich Junction Canal (under restoration), Newport Arm of Shropshire Union Canal, Shropshire Canal and Shrewsbury Canal (all derelict but with potential for restoration).	
3.3, Issue 12	53	Reference should have been made to Biodiversity Action Plan targets for otters and River Severn Otter Project.	Worcestershire Wildlife Trust
3.3, Issue 12	53	Otters should be added as an action point, as it was referred to on p51.	Wrekin Council
3.3, Issue 17	60	Jackfields should read 'jackfield'. Lloyds should read 'The Lloyds'.	Jackfield Residents Association
3.4, Issue 19	62	Issue 19 mentions facilities for the disabled at the Telford Town Pools and Ellesmere but omits the ramp at Shrewsbury.	Drummond Outdoor
3.4 Issue 19 and 5.15	62-63 and 125-126	River Salwarpe has been used for centuries as a navigation and is still used upstream from the Severn to Hawford Mill. Un-navigable canals are owned by LAs or private Trusts - Droitwich Canals are owned by the Droitwich Canals Trust. The restoration scheme is being carried out by the Trust. There are two separate canals - Droitwich Barge Canal and the Droitwich Junction Canal. Except for the 1/4 mile between the A449 and the River Severn, the whole of Barge Canal is in water, and, except for the A449, has not been built over. The Junction Canal is not in water.	Inland Waterways Association, Birmingham, Black Country & Worcestershire Branch
3.3, Issue 19	63	The Regional Rowing Centre at Worcester already exists.	Sports Council
4.1.3	72	Statement MS/LUS7 was omitted in error during printing.	Environment Agency
4.2	74	Recommend inclusion of the Shropshire Fire And Rescue Service in list of partnerships.	Shropshire County Council, Fire and Rescue Service
4.2	74	Recommend inclusion of Rural Development Commission in list of partnerships.	Rural Development Commission
4.2	74	Recommend reference made to the Heart of England Biodiversity Forum.	Royal Society for the Protection of Birds
5.1	79/80	There should be a reference to Local Government re-organisation.	Worcester City Council

appendix

SECTION	PAGE	ERROR/OMISSION	RAISED BY
5.1, Table 3	82	Update Worcester City Plan to 'Modifications February 1997 following the Inspector's report'.	Worcester City Council
5.4	88	Two of the sites shown as sand and gravel in south Telford are coal -fireclay. There is a sand and gravel site at Wood Lane near Ellesmere and a Gritstone quarry at Grinshill which is omitted from the map.	Shropshire Wildlife Trust
5.11	107	Paragraph 2, 'large parlours, producing vast quantities' should be replaced by 'cubicle housing, producing a large volume'.	Ministry of Agriculture, Fisheries & Food
5.11	109	Last paragraph: Delete '29% to 1,369 hectares' and replace with '1,369 hectares an increase of 29% to 6,131 hectares in 1995'.	Ministry of Agriculture, Fisheries & Food
5.13	111,124	Maps 15 and 18 do not show canal fisheries, although mentioned in text.	British Waterways
5.13	112	Amend the heading 'Conservation - Wildlife and Heritage and Recreation' to 'Conservation, Fisheries and Wildlife'.	Environment Agency
5.13.2	116	Recommend mention of Severn Vyrnwy confluence, near boundary of plan area. Reference could also be made to the UK Biodiversity Plan for Bittern.	Royal Society for the Protection of Birds
5.14	121	Map 17 omits the Hereford & Worcester County Structure Plan 'Areas of Great Landscape Value' and the Local Plan 'Landscape Protection Areas'.	Wyre Forest District Council
5.14	122	National Trust properties should be referred to in this section: Chadwick Manor Estate, Dudmaston Estate, the Long Mynd, Attingham Park, Knowles Mill, Wilderhope Manor, Benthall Hall, Hill Crest: Lee Brockhurst.	National Trust
5.14	123	The statement regarding the restricted use of the river is incorrect. Records show that in the 1780s the section above Worcester to Coalbrookdale was <i>"passable generally in the winter but that difficulties arose in the summer when navigation was restricted to small boats or for nearly two months in an average year by none at all"</i> .	Severn Navigation Restoration Trust (Ian Walker & Associates on behalf of)
5.14	124	Map 18 omits the Blackstone Picnic Site Blackstone Meadows Country Park picnic facilities and the Redstone Local Nature Reserve.	Wyre Forest District Council
5.15	125	Arley Ferry has been closed for some years. There is a ferry at Hampton Loade.	K C G Stroud
6.2.2	147	Paragraph 1, line 2, replace 'at present' with 'already'. Paragraph 3, line 5, replace 'published' with 'designated'. Nitrate Sensitive Areas paragraph replace penultimate sentence with 'farmers can join at any time up to 30 June 1998 signing up for a period of 5 years'.	Ministry of Agriculture, Fisheries & Food
6.2.2, Table 16	150	Amend 'Leaton Brook, Medley Farm Near Bomere' to 'Leaton Brook, Leaton Hall Farm'.	Leaton Knolls Estate
6.2.3, Table 18	160	Amend 'Wyre Forest Borough Council' to 'Wyre Forest District Council'.	Wyre Forest District Council
6.2.3, Table 18	160	Amend 'Worthern Brook' to 'Worthen Brook'.	Environment Agency
Glossary	182	Revise definition of 'Green Belt' to 'A zone of countryside immediately adjacent to a town or city, and designated as Green Belt for the purposes of restricting outward expansion of the urban areas'.	Rural Development Commission

appendix three

Environment Agency Leaflets and Information

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

General Information

- A Guide to Information Available to the Public
- Guardians of the Environment
- 0800 Leaflet (Emergency Hotline)
- Customer Charter
- Corporate Plan Summary 1997/1998
- Annual Report and Accounts
- Complaint and Commendation Procedure
- Worldwide Web - State of the Environment
- The Environment of England and Wales - A Snapshot
- Green Shoots - Strategy for Environmental Education
- An Environmental Strategy for the Millennium and Beyond
- Partnership in Environment Protection

Water Quality/Pollution Prevention

- Blue Green Algae
- Identifying Freshwater Life
- 'How to Avoid' Pollution Series
- Making the Right Connection - Avoiding Water Pollution
- Designs that Prevent Pollution - Nature's Way
- Farm Waste Management Plans
- The Oil Care Code: a number of leaflets
- Pollution Prevention Guidelines (PPGs): PPG1-PPG20
- Building a Cleaner Future
- Water Pollution Incidents in England and Wales - 1996 Report Summary
- Recovering the Cost of Pollution
- Accreditation Scheme for Spill Response Contractors
- Discharge to Controlled Water 1997-1998 Annual Charges
- Recommendations for Statutory Water Quality Objectives - the Worcestershire Stour Catchment
- Assessing Water Quality
- The Use of Licences to prevent pollution
- A Guide to Groundwater Vulnerability Maps



Integrated Pollution Control IPC/Radioactive Substances (RAS)

- Integrated Pollution Control Fees and Charges 1997/98
- Charging Scheme for Radioactive Substances Act Regulation 1997/98
- Integrated Pollution Control and You

Waste

- What a Waste!
- Special Waste Regulations 1996 - How they affect you
- Classification of Special Waste
- Use of the Consignment Note
- Obtaining and Sending Consignment Notes
- Waste Regulation and You
- The Registration of Waste Carriers
- New Packaging Regulations - How do they affect you
- Clinical Waste
- Producer Responsibility Obligations 1997 (1st Ed, July 1997)
- Producer Responsibility Obligations (Packaging Waste) Regs 1997
- The Agency's Contribution to Sustainable Development Waste Minimisation

Regional and Area Facts

- Midlands Region Map
- Area Maps and Fact Sheets
 - Upper Severn
 - Lower Severn
 - Upper Trent
 - Lower Trent
- Severn Bore and Trent Aegir 1997

Fisheries Conservation and Recreation

- Anglers and the Agency
- Rod Fishing Licences 1996/97
- Buyer Beware - Your Guide to Stocking Fish
- Fisheries News
- Fishing Guide 1997/98
- Conservation - Work in the Midlands Region
- Mink
- Understanding Buffer Strips
- Control of Invasive Plants Near Watercourses

- Have Fun, Have a Care (Water recreation information)
- Recreation Sites (Midlands)
- Enjoy Your Garden - Care for our Environment
- Conservation Designations
- Rod Fishing Bylaws
- The Severn Way
- Aquatic Weed Control Operation
- Phytophthora disease of Alder

Flood Defence and Water Resources

- Flood Warning Information: What to do if your property is at risk
- Flood Warning Information: Various rivers
- Schedule of Main Rivers
- Land Drainage Byelaws
- Water Abstraction Charges 1997/98
- Water Abstraction Can Cause Pollution
- Abstraction Licensing and Water Resources
- Spray Irrigation
- Making the most of your Spray Irrigation Abstraction Licence
- Water Alert - The Campaign for Water Conservation in England and Wales
- Information Sheets 1-23 - Flood Defence - various subjects
- Flood Defence Factsheet
- Application for Consent for works affecting watercourses and/or flood defences - Explanatory Notes
- Rivers and Wetlands - Best Practice Guidelines
- Defying the Disaster: Memories of the 1947 floods
- Safeguard the Environment: A guide for developers

Please contact Customer Services at your Area office for further information and to obtain these and other leaflets.

appendix four

Glossary

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

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

Agenda 21 A comprehensive programme of worldwide action to achieve a more sustainable pattern of development for the next century. UK Government adopted the declaration at the UN Conference on Environment and Development (the Earth Summit) held in Rio de Janeiro in 1992.

Ammonia A chemical compound found in water often as a result of pollution by sewage and farm effluents. It is widely used to determine water quality. Ammonia can be toxic to fish.

Aquatic Pertaining to the water environment.

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

Asset Management Plan (AMP) Water Companies' Strategic Business Plans - initiated (eg AMP 2) by OFWAT as part of the periodic review of water company charges.

Biodiversity Diversity of animal and plant life.

Borehole Well sunk into a water bearing rock.

Buffer Zone Strip of land 10-100m wide, alongside rivers which is removed from intensive agricultural use and managed to provide appropriate habitat types.

Cadmium A very toxic heavy metal with a wide variety of uses.

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

Coarse Fish Freshwater fish other than salmon and trout.

Combined Sewer Overflow (CSO) An overflow structure which permits a discharge from the sewerage system during wet weather.

Culvert Drain or covered channel carrying water across or under a road, canal etc.

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

Derogation The permitted relaxation of water quality standards where the target class for one or more standards is not achievable because of natural conditions.

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

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

Fauna/Flora Animal life/ Plant life.

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

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

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



appendix

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

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

Landfill Site used for waste disposal into/onto land.

Leachate Liquor formed by the act of leaching.

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

National Nature Reserve (NNR) Sites owned or leased and managed by English Nature and established as reserves under the National Parks and Access to the Countryside Act 1949.

Nitrate Sensitive Areas (NSA) An area where nitrate concentrations in sources of public drinking water exceed, or are at risk of exceeding the limit of 50 mg/l laid down in the 1980 EC Drinking Water Directive, and where voluntary, compensated agricultural measures were introduced in 1990 as a means of reducing those levels.

Nitrate Vulnerable Zone (NVZ) An area where nitrate concentrations in sources of public drinking water exceed, or are at risk of exceeding the limit of 50 mg/l laid down in the 1991 EC Nitrate Directive, and where compulsory, un-compensated agricultural measures will be introduced from 1996 as a means of reducing those levels.

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

Pesticides Substances used to kill pests, weeds, insects, fungi, rodents etc.

RAMSAR Wetland site of International Importance that is designated under the Ramsar* convention (*a town in Iran where the international convention originally agreed in 1975 to stem the progressive encroachment on, and loss of, wetland).

Reach A length of a river.

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

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

Salmonid Fish Game fish eg. trout and salmon.

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

Sewerage Means of conveying foul or surface water.

Shropshire Groundwater Scheme The Shropshire Groundwater Scheme (SGS) has been devised to supplement the releases from Clywedog during periods of prolonged drought. The scheme will make use of large quantities of water stored naturally underground in the sandstone formations underlying much of north Shropshire.

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

Surface Water Water collecting on and running off the surface of the ground.

Sustainable Development Development that meets the needs of the present without compromising the ability of future generations to meet their own needs.

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

MANAGEMENT AND CONTACTS:

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

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

Rio House, Waterside Drive, Aztec West, Almondsbury, Bristol BS12 4UD
Tel: 01454 624 400 Fax: 01454 624 409

ENVIRONMENT AGENCY REGIONAL OFFICES

ANGLIAN

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

SOUTHERN

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

MIDLANDS

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

SOUTH WEST

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

NORTH EAST

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

THAMES

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

NORTH WEST

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

WELSH

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



For general enquiries please call your local Environment Agency office. If you are unsure who to contact, or which is your local office, please call our general enquiry line.

ENVIRONMENT AGENCY
GENERAL ENQUIRY LINE

0645 333 111

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

ENVIRONMENT AGENCY
EMERGENCY HOTLINE

0800 80 70 60



**ENVIRONMENT
AGENCY**



**Upper Severn Area
Hafren House
Welshpool Road
Shelton
Shrewsbury
SY3 8BB
Tel 01743 272828
Fax 01743 272138**