local environment agency plan

WEST MIDLANDS STOUR

ACTION PLAN

OCTOBER 1998

ENVIRONMENT AGENCY

West Midlands Stour Key Details

General

Area	374km²
Topography	Highest point 315m (AOD) (top of Walton Hill) Lowest point 20m (AOD) (River Stour/River Severn confluence)

Water Companies	Severn Trent Water Ltd South Staffordshire Water Plc	
Population	*Year*	*Population*
(estimated from 1991 Census)	1991	437,341
	2001 (predicted)	439,152

Administrative Details

County Councils	*Metropolitan Borough Councils*	*District Councils*
Staffordshire	Wolverhampton	South Staffordshire
Shropshire	Dudley	Bridgnorth
Worcestershire	Sandwell	Wyre Forest
		Bromsgrove
		Wychavon

Water Resources and Flood Defence

Length of Main River in catchment	90.0km
Average annual rainfall (1961 - 1990)	697mm
Length of navigable canal (administered by British Waterways)	75.1km
River Stour flows at Kidderminster: Mean daily flow (1953 - 1996)	241 Ml/day
Maximum recorded flow (1953 - 1996)	4,500 Ml/day
Mean annual flood flow (1976 - 1996)	1,827 Ml/day
Total licensed abstraction:	76,543 Ml/year
Groundwater	74,839 Ml/year
Surface water	1,704 Ml/year
Number of licensed abstractions:	156
Groundwater	94
Surface water	62

Land Use

Type	*Area covered*
Urban development	32.07%
Arable	35.78%
Grass	18.85%
Woodland	7.55%
Fallow/bare soil	5.66%

Conservation and Fisheries

24km of the Staffordshire & Worcestershire Canal is designated under the EC Freshwater Fisheries Directive (78/659 EEC)

Sites of Special Scientific Interest	20
Special Wildlife Sites	82
Scheduled Ancient Monuments	25
English Nature Natural Area	Midlands Plateau

Integrated Pollution Control (IPC)

IPC authorisations	13
Radioactive substances authorisations	4
Radioactive substances registrations	35

Waste Management Facilities

Landfill sites (inert)	5
Landfill sites (biodegradable)	7
Former landfill sites	226
Waste treatment plants	2
Metal recycling sites	51
Transfer stations	38
Household waste reclamation sites	5

Water Quality

Length of watercourse (km) in each component of the General Quality Assessment (GQA) 1997 is shown below.

Component		GQA Grade Chemistry		GQA Grade Biology	
		Rivers	Canals	Rivers	Canals
GOOD	A	0	0	0	0
	B	15.2	0	1.5	0
FAIR	C	44.9	15.5	4	5.2
	D	15.8	33.4	26	5
POOR	E	29.7	8.5	51.6	0
BAD	F	1	0	14.5	22

Water company sewage discharges and storm overflows	178
Private sewage treatments plants	127
Industrial	47
Surface water sewers	15
Total number of consented discharges:	367

West Midlands Stour Area

KEY

- Area Boundary
- Main River
- Ordinary Watercourse
- Canal
- Built up Area
- Motorway
- Main Road
- Railway
- County boundary
- District boundary
- Metropolitan Borough boundary

vision for the west midlands stour area

vision

The Environment Agency's vision for the West Midlands Stour area is:

> "To develop a better local environment in which people can live and work and maintain this, by sustainable management, for future generations."

It will be evident from the information provided throughout this document that the LEAP area is subject to considerable pressures. The impact of urban development, including housing, industry and infrastructure has resulted in: pressures on water resources, air and water quality; problems resulting from waste production, and the loss of wildlife and habitat. It is, of course, important that the economic and housing needs of the area are met, but at the same time for the impacts of this development to be minimised. The challenge is to ensure that the needs of all users and the environment are balanced and we aim to do this through integrated and sustainable environmental management.

It is important that we realise and develop the full environmental potential of the West Midlands Stour area. By promoting involvement with the local environment and raising people's awareness, we will work towards a healthy and diverse environment that is valued by, and of benefit to, its residents and visitors alike.

The Environment Agency needs the help of others to make this vision reality and effectively carry out the objectives set out below. We will therefore seek to work in partnership with Local Authorities, industry, environmental groups, other organisations and individuals who share an interest in the area.

Our key objectives for the West Midlands Stour area are to:

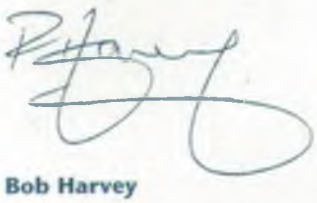
- Educate and raise awareness of the local environment and environmental issues.
- Work in partnership with local people and organisations to realise the potential of the area and encourage involvement with the local environment.
- Maintain and improve the water quality of rivers, canals and groundwater.
- Manage water resources in an environmentally sustainable way by balancing the needs of legitimate users with those of the environment.
- Reduce the impact of flooding on existing developments, where possible, and resist development where it would be at risk from flooding or may cause flooding elsewhere.
- Improve air quality by developing a monitoring programme, in partnership with Local Authorities, to assess air quality and the impact of Integrated Pollution Control (IPC) processes on it and enable improvements to be made.
- Promote waste minimisation, encourage the achievement of national waste management targets where appropriate and ensure the effective regulation of waste.
- Protect and enhance watercourse/green corridors, and support biodiversity through the protection and enhancement of species and habitats.
- Develop the recreational and amenity value of watercourses and protect the varied cultural heritage that exists within the area as a whole.

foreword

The West Midlands Stour Action Plan has been produced following widespread consultation after the public launch of Consultation Report in March 1998. 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, and through collaborative action with both the local community and other organisations.

Over a long period of time a significant part of the landscape of the West Midlands Stour has changed, from rural and relatively undeveloped countryside to built up, intensively developed urban area. This has resulted in significant and varied impacts on the local environment and put pressure on our natural resources, wildlife and habitats. It is our challenge to help balance these demands and conflicts and manage the area in a sustainable way.

The Action Plan covers a five year period, and outlines both the Agency's and other partners' actions for environmental improvements within the area. Annual Reviews will report on the progress being made. I believe that if this plan is delivered there will be an improvement in the environment of the West Midlands Stour area. If you have any comments or views or wish to become involved in addressing the issues raised, we would like to hear from you.



Bob Harvey

Acting Area Manager - Upper Severn

Environment Agency

Contacting the Environment Agency

The Upper Severn Area office is located at:

Hafren House
Welshpool Road
Shelton
Shrewsbury
SY3 8BB

Tel: (01743) 272828
Fax: (01743) 272138

e-mail: dee.murray@environment-agency.gov.uk (turn to Page 45 for more ways to contact us)

If you have any comments or queries on the West Midlands Stour LEAP, please contact Mrs Dee Murray at the above address.

contents

1.0 introduction

This is the first Local Environment Agency Plan (LEAP) for the West Midlands Stour 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 West Midlands Stour 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 West Midlands Stour area. Progress against the Action Plan will be monitored and reported annually.

The five-year programme of actions forms the most important part of this document.
Please turn to Section 4, page 20 if you wish to refer straight to the actions.

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

1 Introduction

1.1 The Environment Agency

The Environment Agency is one of the largest and most powerful environmental protection agencies in Europe. We have legal duties to protect and improve the environment throughout England and Wales. The Agency was created by the 1995 Environment Act and became fully operational in April 1996.

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. We have specific responsibilities for water resources, pollution prevention and control, flood defence, fisheries, conservation, recreation and navigation throughout England and Wales.

Our aims are to:

- Achieve major and continuous improvements in the quality of air, land and water.
- Encourage the conservation of natural resources, animals and plants.
- Make the most of pollution control and river-basin management.
- Provide effective defence and warning systems to protect people and property against flooding from rivers and the sea.
- Reduce the amount of waste by encouraging people to re-use and recycle their waste.
- Improve standards of waste management, recovery and disposal.
- Manage water resources to achieve the proper balance between the country's needs and the environment.
- Work with other organisations to reclaim contaminated land.
- Improve and develop salmon and freshwater fisheries.
- Conserve and improve river navigation.
- Raise awareness about environmental issues by education and informing people.
- Set priorities and work out solutions that society can afford.

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 West Midlands Stour 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.

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.

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 158-160)

1.2 The Local Environment Agency Plan (LEAP) 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:

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

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 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.

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

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 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. The current Chairperson of the AEG is Mr Michael Barker.
A sub-group of the main AEG has been set up for this LEAP and includes members from varying backgrounds who have expressed an interest in the Stour area. The group has had opportunities to input into the plan process from an early stage. The four members of the sub-group are: Mr Gerald Godby, Mr Richard Martin, Cllr Rosemary Tomkinson and Mr Keith Mayou.

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.

In pursuance of the Government's commitment to biodiversity conservation, the Agency has significant responsibilities regarding implementation of the UK Biodiversity Action Plan (BAP) and will be developing targets for species and habitats of conservation concern. In the West Midlands Stour plan area the water vole and otter are of particular significance. Additionally, there are other water-related species and habitats in the area which will require protection. These include the great crested newt, carr, lowland wet grassland, and marsh and reedbed habitats.

All of our operational and regulatory activities will take account of these species and habitats in fulfilment of our commitment to biodiversity. Wherever possible the Agency will seek to meet targets for the restoration and re-creation of priority habitats identified in the UK BAP and the relevant Local BAPs. Additional work will be dependent on available resources and will involve collaborative work with other bodies.

Water Vole

WEST MIDLANDS STOUR

2.0 the west midlands stour plan area

The following gives a summary of the area. More detailed information is available in the Consultation Report, which was published in March 1998.

2.1 Overview

The West Midlands Stour catchment comprises an area of just over 374 square kilometres. The plan area mostly falls within the counties of Staffordshire and Worcestershire, and the West Midlands area which includes the Metropolitan Boroughs of Wolverhampton, Dudley and Sandwell. These three boroughs constitute the majority of the urbanised part of the plan area, approximately 32%, and form much of what is historically known as the Black Country.

The area is dominated in the north-east and east by the urban area of the West Midlands conurbation and by Kidderminster in the south west. The urbanised area has a significant impact on the character of the river and the state of the area in general, a fact which is particularly evident in the Issues raised. The West Midlands Stour area has a history of industrial usage stretching back to before the Industrial Revolution. Much industrial heritage remains, particularly in the form of canals which were built to replace the packhorse as a better means of moving raw materials and finished goods.

The remainder of the plan area to the south and west is largely rural in character, with the exception of Kidderminster and Stourport. Much of this is Green Belt, the urban/sub-urban fringes are mainly pasture land and the rest is utilised for intensive arable agriculture.

River Stour at Kidderminster

2.2 Development and Infrastructure

The principal urban areas in the Stour catchment are, from north to south; Wolverhampton, Dudley, Stourbridge, Kidderminster and Stourport. Much of the area is heavily urbanised, and the headwaters of the principal watercourses rising in these areas are subject to great pressures as a result of urban development. Some sites allocated for development within the areas' Development Plans have the potential to impact on the environment. The Land Use Statements in Section 5.2 should be considered in relation to the development/re-development of these sites.

The recent Government consultation document *'Where Shall We Live'* identifies the West Midlands Region as requiring 367,000 new homes. Accommodating necessary development with minimum environmental damage is a challenge faced by the land use planning system.

Many areas of land, particularly in Dudley and Wolverhampton, are likely to be contaminated due to previous uses, such as mineral mining activities. The potential impacts of contamination on the environment will need to be addressed when such sites are re-developed. These sites may also have culverted watercourses running through them which need to be protected during re-development and may offer opportunities for habitat improvement if culverts can be removed (see Issue 10).

The town of Kidderminster is undergoing re-development as the carpet industry 're-groups' following recession and job losses. There are opportunities on one site in Kidderminster for major improvements to the corridor of the River Stour, which the Local Authority is supporting in partnership with the Agency (see Issue 12).

The area has very high levels of traffic and transport, the heavily used M5 motorway brushes the catchment in the east, whilst the A449 north/south corridor and the A458 east/west are also very busy. Kidderminster is a hub for several trunk and A roads. Dudley and Wolverhampton have high levels of road traffic associated with retailing, commerce and industry as well as their residential areas. There are relatively few rail routes in the plan area but the West Midlands conurbation is well served by buses.

The West Midlands Trunk Road Plan does not propose any new road building for the area, the only new road in the Action Plan period will be the Dudley Southern Bypass, now under construction. Small-scale improvements are proposed for the A449, Kidderminster to Worcester, and the A456, Kidderminster to M5.

2.3 Mineral working, power generation and renewable energy

This area, due to its geology, is rich in exploitable mineral deposits and historically provided the raw materials to fuel the industrial revolution. The 'Thick Coal' or 'Ten Yard Seam' as it was known in the 1700s occurred in the Stour valley at or near the surface and was extensively exploited particularly around Netherton, Stourbridge and Brierley Hill. This has left a legacy of abandoned mine workings and disused shafts. Ironstone was found in geological association with the coal, and limestone and clay were also mined.

Today only a few sites are exploited. The current sites fall into two main categories of sand and gravel and brick clay extraction sites. The Sherwood Sandstones, which underlie a large part of the catchment, are an important source of sand and gravel. Sand and gravel extraction mainly takes place in South Staffordshire and the brick clays are mostly found in and around Dudley.

There are no fossil fuel power stations in the West Midlands Stour area. Examples of renewable energy production in the area are the new Municipal Waste Incinerators being constructed at Wolverhampton and Dudley. Jointly these will deal with up to 200,000 tonnes of waste annually producing some 15 Megawatts (MW) of electricity to be fed direct into the national grid. The releases of sulphur dioxide, oxides of nitrogen, particulates and heavy metals should all be lower than those produced by a conventional coal fired power station. Landfill sites at Himley Wood, Dudley and Rowley Regis, Sandwell generate landfill gas, which is used to produce some 2MW of electricity at each site, and this is fed into the national grid.

2.4 Heavy Industry

Industrial processes which are regulated under the Environmental Protection Act (EPA) 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 twelve sites in the West Midlands Stour area which hold authorisations under Part 1 of the EPA 1990 i.e. IPC processes regulated by the Agency. These operate a range of processes including the incineration of municipal waste, aluminium recovery and chemical manufacture.

2.5 Contaminated Land

The West Midlands Stour area has a history of industrial usage stretching back to before the start of the Industrial Revolution. Whilst providing the area with an industrial heritage, it also leaves a less desirable legacy, contaminated land. In the Black Country (Dudley, Sandwell, and Wolverhampton) and in Kidderminster, industry was so widespread that few areas can be considered uncontaminated. In addition, more recent land use developments have resulted in fresh areas of land being contaminated. Many contaminated land sites are located in environmentally sensitive locations such as near rivers or above aquifers.

Past industrial practices were subject to fewer controls than they are today and less account was taken of the by-products of manufacturing and extractive processes. Consequently, contamination has occurred through a mixture of accidental spillage and casual disposal during the normal operation of the factory or plant. This contamination can remain within the ground until sites are re-developed.

Addressing the problem of contaminated land is made difficult by the fact that detailed information on the location of contaminated sites is scarce. It is often necessary to carry out a thorough site investigation in an attempt to reveal the location and nature of contamination. This can be a costly exercise for potential developers, especially if investigation reveals that remediation works are necessary.

2.6 Waste

The built up areas, especially in and around Dudley, are characterised by a high proportion of metal recycling sites, waste transfer stations and old landfill sites. There are 108 licensed waste management facilities within the plan area, 2 incinerators which hold IPC Authorisations, and 226 closed landfill sites. Whilst waste management facilities do not represent a major land use in terms of the total plan area they cover, their potential environmental impact can be very significant unless suitably regulated.

Many of the former landfill sites were operated prior to the introduction of the waste management licensing regime in 1974, and little is known about what was deposited.

Flytipping of biodegradable wastes at inert sites has been a problem in the past and a number of so called inert sites continue to produce elevated levels of landfill gas above that expected for a purely inert site.

Dudley, Sandwell and Wolverhampton have a high number of transfer stations and treatment facilities for dealing with special wastes. Facilities exist for the treatment of a wide range of wastes, which include contaminated water, acid and alkaline wastes, organic wastes, solvents and oil/water mixtures. A large proportion of the waste handled at these facilities is imported from the surrounding counties.

Himley Landfill Site

Most of the metal recycling facilities in the plan area are concentrated in the district of Dudley. A number of these sites are not currently regulated (see Issue 19).

Site engineering to prevent pollution at a landfill site

2.7 Agriculture and Forestry

Less than two-thirds of the LEAP area is used for agriculture, this is mainly due to the high percentage of land taken up by the urbanised areas of the catchment. In the rural parts of the area, however, agriculture forms the economic base.

Just under half of the agricultural area in 1995 was under crops and fallow and a similar proportion was grassland. Agricultural activities include fruit and vegetable growing in addition to arable cropping and dairying. The area of farm woodland has increased by almost half since 1985, reflecting grant scheme incentives to encourage the planting of trees and increased conservation interest, but still represents a very small proportion of the agricultural land in the plan area. Creation of golf courses and fishing pools for leisure use are a popular farm diversification.

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, herbicides and pesticides (see Issue 8).

The West Midlands Stour area contains a number of Nitrate Sensitive Areas (NSAs), and Nitrate Vulnerable Zones (NVZs) have also been identified (see Glossary). Compensation is given to farmers for farming practices which take into account the NSAs. The scheme will be compulsory with the designation of statutory NVZs (see 2.11.2).

Before Saxon times the whole of the West Midlands Stour area had extensive areas of woodland. With the beginnings of the Industrial Revolution, however, timber was needed for the production of charcoal to feed the many blast furnaces, forges and slitting mills in the Black Country. This, and the continued industrialisation and urbanisation of the area, has meant that forests are now few and far between. Isolated pockets still remain, for example, the wooded slopes of the Clent Hills. The Black Country Urban Forestry Unit has produced a strategy to encourage the 'greening' of the area to aid environmental and economic regeneration. The Environment Agency supports this initiative and will help promote the idea and adopt the principles of the Urban Forest.

2.8 Air Quality

Nationally there have been significant improvements in air quality since the famous London smogs of 1951/2. Levels of sulphur dioxide and smoke have fallen considerably. Other pollutants, however, have increased in significance as road traffic has increased, particularly in urban areas. High levels of oxides of nitrogen (NO_2), fine particulates (PM_{10}) and volatile organic compounds (VOCs) can be present at times of high traffic flows.

The monitoring of air quality is undertaken by central government and Local Authorities. The low level of monitoring currently taking place is of concern to the Agency (see Issue 1), but it is possible to make general assessments of air quality for the catchment. Where monitoring has been carried out in the plan area indications are that the EC standards for annual average background levels for nitrogen dioxide and sulphur dioxide are generally being met. Parts of the West Midlands conurbation, however, do show elevated levels of nitrogen oxides.

In line with trends elsewhere in the UK road traffic levels are increasing in the West Midlands Stour LEAP area. The information available on air quality is fairly limited, however, the contribution of road traffic to the overall level of air pollution is shown with raised levels of oxides of nitrogen and particulates in Wolverhampton and Dudley.

2.9 Water Resources

2.9.1 Surface Water

The two principal watercourses within the catchment are the River Stour and its main tributary, the Smestow Brook, which rise in the Clent Hills and Wolverhampton, respectively. They flow west and south through the heavily urbanised environment of the West Midlands conurbation to their confluence at Stourton. The River Stour continues south through the town of Kidderminster and flows into the River Severn at Stourport. A section of the Staffordshire and Worcestershire Canal follows the course of the Smestow Brook and then the River Stour.

The River Stour and its tributaries are important for water supply to agriculture and industry. The flow regime of the River Stour and its tributaries is unregulated. However, the flow in the Stour upstream of the Smestow Brook is artificial due to significant discharges of treated sewage effluent, currently discharged mainly from the Freehold and Caledonia Sewage Treatment Works (STW). These works are to close, and treatment of the sewage will take place at Roundhill STW, with some of the effluent being piped back to mitigate reduction in flows. Further work is being carried out by Severn Trent Water Ltd. to assess the impact of reduced flows. The River Stour itself, particularly upstream of the confluence with the Smestow Brook, responds very quickly to rainfall due to the urbanised nature of the catchment.

Licences to abstract from watercourses are currently issued subject to special conditions which have the effect of restricting abstraction at times of low flows.

2.9.2 Groundwater

The Sherwood Sandstone which underlies much of the West Midlands Stour area is classified by the Agency as a major aquifer and has historically supported a high level of groundwater abstraction for public supplies. However, there are no public water supply abstractions from the Carboniferous and Devonian strata, which are classified as minor aquifers and are not significant sources of groundwater in the area.

The Agency manages groundwater resources in terms of groundwater management units. The Sherwood Sandstone in the West Midlands Stour area includes the whole of the Stourbridge groundwater management unit and parts of the Wombourne, Kidderminster and Stourport units. The groundwater resources in each of these units are either fully or over committed. As a result, these units are closed to further abstractions to protect existing users and the environment, and efforts are being made to reduce abstraction to more sustainable levels.

The groundwater levels in the Sherwood Sandstone slope generally towards the River Stour, but superimposed on this are the cones of depression (see Glossary) caused by abstraction from public water supply boreholes. In addition, the drier weather conditions experienced in recent years have caused a further decline in levels due to a lack of groundwater recharge. This decline has also led to a reduction in the baseflow contribution to streams with consequent detrimental effects on wetland areas (see Issues 2 and 3). Reductions in groundwater abstraction allied to several years of above average rainfall are needed to restore the water table to environmentally acceptable levels.

2.10 Flood Defence

A consequence of the historic urbanisation of the West Midlands Stour area has been the encroachment of buildings onto the floodplain, in particular those of the River Stour and the Smestow Brook. This is particularly true of the town centre of Kidderminster, where since 1795, there have been at least nineteen serious flood events. This has resulted in a loss of flood flow area and flood storage volume (see Issue 16). These losses increase the effects of high flood flows and the frequency of floods. Development pressures continue to be significant. Wherever possible, through regulation, the Agency endeavours to ameliorate both past and future losses, such as in the Kidderminster Town Centre re-development (see Issue 12).

Flooding in central Kidderminster, 1955

There are also problems with unauthorised tipping and debris being washed down the watercourse. There is a particular problem in Kidderminster, with shopping trolleys being dumped into the river (see Issue 11).

Blockage/debris on the River Stour, Cradley Heath Area

Many of the watercourses in this catchment suffer from culverting (see Issue 10). Although culverting of watercourses is necessary for access purposes, historically many lengths of watercourse have been culverted in order to build factories and houses. This impacts on flood defence maintenance activities, making it much more difficult to clear debris from the watercourse. Particular examples of this are on the Lutley Gutter and Warstones Brook.

The Agency operates a flood forecasting and warning service for Kidderminster. However there is currently only limited dissemination of this information and a larger coverage, as well as alternative ways to warn people, are being considered (see Issue 15).

2.11 Water Quality

2.11.1 Surface Water Quality

River water quality, as measured by chemical sampling methods in 1997, was generally 'fair'. Biological sampling methods, however, indicate that the quality of invertebrate life is lower than the water quality would suggest, and is typical of watercourses in an urban area which receive intermittent discharges of surface water and storm sewage. Since 1990 the overall quality of the Stour catchment's watercourses has improved slightly.

Most of the canals in the plan area are chemically of 'fair' quality. There is a greater variety in the biological quality, which ranges from 'fair' to 'bad'. The biological assessment for 1997 shown on the inside cover is now based on GQA grades, not on inferred class as in the Consultation Report, and these are not directly comparable. The majority of the classified canal stretches in the area comply with their River Quality Objectives (RQOs).

In addition to the improvement works required to prevent deterioration of water quality in the West Midlands Stour catchment, further work has been agreed in conjunction with users of the watercourses, especially Severn Trent Water Ltd. This program of work will result in greater and more sustainable achievement of RQOs.

In addition to the improvement works required to prevent deterioration of water quality in the West Midlands Stour catchment, further work has been agreed in conjunction with users of the watercourses, especially Severn Trent Water Ltd. This program of work will result in greater and more sustainable achievement of RQOs. Agreed work includes improvements to Sewage Treatment Works, sewerage overflows and wrong connections (see Issue 6). In some cases where the current quality is higher than the long term objective there appears to be a planned long term reduction in water quality. This is due to the objectives being calculated on all discharges as operating at the highest permissible value on their consent. In many cases these discharges are 'cleaner' than is required by law, and this can result in a current quality that may not be realistic or sustainable.

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

- point source pollution from Sewage Treatment Works and industry
- the urban nature of the catchment
- low flow in watercourses.

2.11.2 Groundwater Quality

The quality of groundwater in the West Midlands Stour catchment is generally good, particularly in the areas underlain by the Sherwood Sandstone Group. However, the eastern part of the area is underlain by Coal Measures within which groundwater quality can be affected naturally by the minerals in the strata and by chemical changes induced by the closure of coal mines. Certain areas yield poor quality water as a result of contamination related to urban and industrial development. Past industrial practices in the upper reaches of the

catchment have created large tracts of contaminated land, which can result in the pollution of groundwater due to the leaching of contaminants (see Land Use Statement No. 6).

Groundwater quality has deteriorated in parts of the West Midlands Stour area mainly as a result of increased crop production and grassland management. These types of farming practice involve the use of nitrates, which can be leached into underlying aquifers where there is insufficient natural protection against such contamination.

In response to the EC Nitrate Directive, the Agency has defined Nitrate Vulnerable Zones (NVZs) around public water supply abstractions, where nitrate concentrations in groundwater have been found to exceed a certain level (see Issue 8). The purpose of the NVZs is to protect the affected area and to establish action plans to reduce nitrate levels. There are four NVZs in the plan area, at Tom Hill, Hinksford, Kinver and Wildmoor.

Discharge to the Dawley Brook

2.12 Wildlife - flora and fauna

A significant part of the Stour area is urban and this is the major factor influencing the wildlife. However, it is an area of surprises and amongst the industry and houses, pockets of green exist, some of them supporting important species such as the water vole. These open spaces are essential as refuges for both people and wildlife. Rivers are of particular importance, as they tend to form green corridors linking urban areas to the surrounding countryside (see Issue 14). For example, in Kidderminster the Stour valley still supports some of the richest and most important marshland in the area. In general, however, the principal rivers of the area, the Stour and Smestow Brook, are ecologically poor.

The main factors limiting the value of the area for wildlife, including fish stocks, are water quality and water quantity. The over-abstraction of groundwater in the Blakedown area (Issue 3) is causing a problem to several important areas for nature conservation. The areas of open space mentioned above are under pressure both directly from development and from degradation resulting from pollution and flytipping (see Issue 18).

Of the twenty designated Sites of Special Scientific Interest (SSSIs) in the West Midlands Stour area, six are associated with watercourses or wetlands. There are also thirty water-related Special Wildlife Sites (SWS) which are of county importance for nature conservation. The area is particularly rich in sites of geological importance. The Hoo and Blakedown Brooks and their associated pools and wetlands are of great ecological value and have been designated as Special Wildlife Sites, whilst Hurcott and Podmore Pools are SSSIs. These valleys represent some of the largest areas of alder carr woodland in the Midlands. The canals and their associated reservoirs, such as Fens Pool and Lodge Farm, are also very important to wildlife.

Marshland is a habitat that was of former importance in the area and substantial areas still exist, especially in Kidderminster, including Puxton, Stourvale and Wilden marshes which are all SSSIs. This is a habitat noted under the UK Biodiversity Action Plan.

The native black poplar, *Populus nigra* sub sp. *betulifolia*, which is one of our rarest native trees, is of particular importance in the Stour area. Otters, water voles and great crested newts are species which come under the UK Biodiversity Action Plan and are present in the area. Recent evidence shows that otters are moving back into the Stour area, and water voles are thriving near the Smestow Brook and on the canal network. (see Issue 4).

Black Poplar Trees

2.13 Fisheries and angling

The rivers in the West Midlands Stour area are not designated fisheries under the EC Fisheries Directive (78/659/EEC), however, the Staffordshire & Worcestershire Canal is designated as a coarse fishery between Swindon and the junction with the River Severn, a length of 26.2km.

Coarse fish are widespread in the River Stour but species diversity and abundance vary widely from place to place. Although the physical habitat is often of good quality the distribution of fish continues to be limited by the quality of the water. (see Issue 5). The Staffordshire & Worcestershire Canal holds a relatively good fish population, dominated by roach but with reasonable numbers of perch, carp, gudgeon, bream, dace, chub and bleak. Extensive angling takes place on the canal, especially in the vicinity of Kidderminster.

Coarse fish angling in pools is reasonably widely available in the Stour catchment. Lakes at Himley Hall and Pool Hall provide 'traditional' coarse fishing in naturalised pools, whilst Shatterford Pools and several smaller fisheries provide opportunities for angling in intensively stocked waters.

It is likely that at one time the River Stour and its tributaries supported an excellent trout population, as the physical habitat provided by the river in its natural state is well suited to this species. Unfortunately the quality of the water in most of the Stour itself and many of the tributaries is now too poor to support trout. There is no organised angling for trout in the rivers of the West Midlands Stour catchment. Some angling for stocked trout in stillwaters is available.

2.14 Landscape, Archaeology and Heritage

The landscape of the area falls into four main landscape types, these are shown on a national map published jointly by the Countryside Commission and English Nature *'The Character of England; landscape, wildlife and natural features'*. The main areas of landscape character are:

- Industrial, post industrial and urban areas
- Arable land with heathland and conifer plantations
- Broadleaved woodlands and hedgerow trees
- Ancient landscape of small fields and winding lanes

Much of the area's heritage is in the form of industrial remains, which are a legacy of the Industrial Revolution. The energy harnessed from the fast flowing River Stour was one of the reasons why industry developed in parts of the area. The importance of the river is reflected in the large number of mill sites. There are also many fine examples of canals and canal architecture for example the locks at Delph, Compton and Bratch, the tunnels at Dudley and Netherton and Cobs Engine House. The canal port and complex of basins at Stourport is of both historic and recreational interest.

There are a number of large estate houses with their associated parks and gardens. Some of these are now open to the public, whilst others now have alternative uses such as old peoples homes, country clubs and golf courses.

The intensive urbanisation of the area has meant that sites of earlier history have often become masked. Exceptions to this are a site on the Lutley Gutter, which bears ancient artefacts, and Roman camps at Greensforge. However, new sites of importance are continually being discovered, often having been buried by industrial activity and thus relatively well protected (see Issue 17).

2.15 Recreation and Navigation

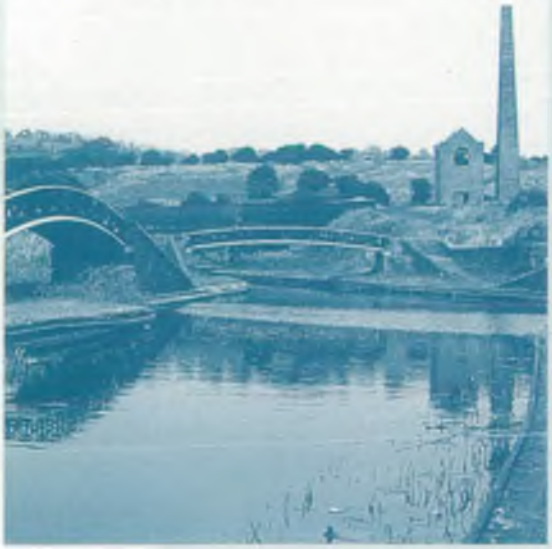
Water sports are poorly catered for in the area, this is largely due to problems with water quality. In the case of river angling, the poor water quality means that in many areas there is little to catch (see Issue 5). With immersion sports such as canoeing there are the potential dangers of Weils disease, though canoeing does take place on an informal basis and there is a great demand for further provision. The canals, however, with their fine architecture and impressive flights of locks, are very popular and attract visitors to the area on boating holidays.

There are ample opportunities for walking and cycling and many disused railways and canal towpaths are used for passive recreation, although in the heavily urbanised areas access tends to be fragmented. There are also four Country Parks in the area.

Canal boats at the Stourbridge Extension Canal (Courtesey of British Waterways)

River Stour, Kidderminster

Wilden Marsh with Black Poplar



Windmill End Junction, Dudley Canal, (Courtesey of British Waterways)

Water Vole

consultation 3

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 West Midlands Stour LEAP, launched in March 1998, 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 1997, the Agency wrote to all the Local Authorities in the area and representatives of over 50 other organisations that have an interest in the local environment. We asked for comments on an initial list of issues affecting the environment in the area, and 23 organisations responded. All comments from this initial informal consultation were considered and where appropriate were incorporated into the Consultation Report.

A sub-group of the Upper Severn Area Environment Group was set up for the West Midlands Stour LEAP (see page 5). The four members of the sub-group participated in the development of the Consultation Report.

3.1.2 Formal Consultation

The Consultation Report was launched on 19th March 1998 at Himley, near Kingswinford in the heart of the area. We invited over 200 organisations and individuals to the launch. A total of 46 attended the launch, representing a wide range of interests from within the area including Local Authorities, environmental organisations, industry, housing and development agencies and conservation organisations. All delegates received a copy of the Consultation Report and Summary Booklet, and directly after the launch over 200 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 19th June 1998. 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 nine libraries and two community centres in the plan area
- Copies of the report placed on deposit at Local Authority offices and libraries
- Discussion at the Dudley Pollution Workshop on 21 March 1998

3.2 Summary of Responses

A total of 99 responses to the consultation were received, 37 letters and 62 questionnaires. A list of all those who commented is included in Appendix 1. A more detailed review of comments, and our

response, is given in the "Statement of Public Consultation", which is available from the address on the front cover. An analysis of information from the questionnaires in the summary booklet is also given in the statement. All letters and questionnaires were acknowledged, and detailed responses were sent where appropriate.

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. The topics that were raised most frequently and were of particular interest to consultees included:

Issue 1: Compliance with River Quality Objectives and EC Directives (now Issue 6)
A number of consultees felt that the overall quality of the River Stour was still cause for concern, and there was concern over the drop in long term River Quality Objectives for certain stretches of watercourse (see 2.11.1).

Issue 4: The sustainability of water resources (now Issue 2) and Issue 5: Impacts of over-abstraction within the Blakedown Valley (now Issue 3)
Water resources issues, and the best means of resolving these problems, were raised by a number of consultees.

Issue 6: Flytipping and litter (now Issue 18)
Many consultees recognised the problem of litter and urban debris in the plan area, and supported the inclusion of this issue.

Issue 15: Low conservation value and poor biodiversity (now Issue 4)
A number of organisations considered there should be more links with Biodiversity Action Plans within the LEAP.

Issue 17: Lack of recreation and amenity facilities (now Issue 13)
This issue was selected as an important concern by many organisations and individuals. Several commented that increasing recreational opportunities should take into account the need to protect and enhance local wildlife habitats.

Issue 19: The effects of development on wildlife, cultural heritage and the landscape (now Issue 17)
Many consultees raised concerns over the effects of development on the habitats, flora and fauna of the river environment.

Issue 14: The need to raise and promote environmental awareness and education (now Issue 22)
This was selected as the most important issue by the questionnaire responses. Education and awareness raising is an important part of the Agency's work, and we currently do this by undertaking pollution prevention visits and running campaigns, attending road shows and science fairs, providing speakers, and producing and distributing a wide range of leaflets and publications (see Section 5.4 and Appendix 3).

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 mutual aim of environmental improvement. Emphasis was based on education, Local Agenda 21, sustainable development and biodiversity.

In the Summary Booklet questionnaire responses, most of which were sent in by the general public, the issues considered to be most important were (in order, with the new issue numbers in brackets): Issue 14 - The need to raise and promote environmental awareness and education (22), Issue 6 - Flytipping and litter (18), Issue 1 - Compliance with River Quality Objectives and EC Directives (6), Issue 4 - The sustainability of water resources (2), Issue 19 - The effects of development on wildlife, cultural heritage and landscape (17), and Issue 18 - Protection and expansion of the river corridor and its associated wildlife (14).

3.3 Further Action

A number of changes to the issues, options and proposals have ben 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 actions have been incorporated under existing issue headings where appropriate and a new issue - **Issue 9, Pollution from industrial estates and the construction sector**, has been included. The Action Plan reflects a balance between opinions expressed and the need to ensure a feasible and workable plan.

4.0 actions

4 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 2003. 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. This document is produced in good faith, recognising current priorities both within the Agency and other organisations.

Key

●	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.
CS	Commercially Sensitive
+	Action added, or added to, 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. Some work may take longer than indicated due to funding availability, Government policy or more urgent priorities. All changes will be highlighted in the Annual Review.

Notes on abbreviations

AMP	Asset Management Plan
CC	County Council
BCBEA	Black Country Business Environment Association
BCU	British Canoe Union
BTCV	British Trust for Conservation Volunteers
BW	British Waterways
DC	District Council
DETR	Department of the Environment, Transport and the Regions
EN	English Nature
FC	Forestry Commission
FWAG	Farming and Wildlife Advisory Group
IWA	Inland Waterways Association
LA	Local Authority
MAFF	Ministry of Agriculture, Fisheries & Food
MBC	Metropolitan Borough Council
NFU	National Farmers Union
NSA	Nitrate Sensitive Area
NVZ	Nitrate Vulnerable Zone
RA	Ramblers Association
SSW plc	South Staffordshire Water plc
STW	Sewage Treatment Works
STW Ltd	Severn Trent Water Ltd
TBG	Tidy Britain Group
UDP	Unitary Development Plan
UWT	Urban Wildlife Trust
VOs	Voluntary Organisations
WFDC	Wyre Forest District Council
WMBC	Wolverhampton Metropolitan Borough Council
WT	Wildlife Trust
WWT	Worcestershire Wildlife Trust

LEAPs translate the Agency's long term *'Environmental Strategy for the Millennium and Beyond'* into action on the ground. The issues in the LEAP are grouped into the nine environmental themes set out in the Environmental Strategy:

- Addressing climate change
- Improving air quality
- Managing our water resources
- Enhancing biodiversity
- Managing our freshwater fisheries
- Delivering integrated river-basin management
- Conserving the land
- Managing waste
- Regulating major industries

The issue numbers are different from those in the Consultation Report, as the issues have now been grouped into these themes. The previous issue number is shown in brackets in the list below.

ADDRESSING CLIMATE CHANGE

No specific local issues in this category. Locally the Agency's main influence on climate change will be to help ensure that the Government's greenhouse gas reduction targets are met by regulating emissions from major industrial processes. We will also set an example by reducing our own energy and fossil fuel consumption.

IMPROVING AIR QUALITY

Issue 1: The current level of air quality monitoring (10)

MANAGING OUR WATER RESOURCES

Issue 2: The sustainability of water resources (4)
Issue 3: Impacts of over-abstraction within the Blakedown Valley (5)

ENHANCING BIODIVERSITY

Issue 4: Low conservation value and poor biodiversity (15)

MANAGING OUR FRESHWATER FISHERIES

Issue 5: Poor fish stocks (16)

DELIVERING INTEGRATED RIVER-BASIN MANAGEMENT

Issue 6: Compliance with River Quality Objectives and EC Directives (1)
Issue 7: The need for assessment of the current status of the Pensnett Canal (2)
Issue 8: Nitrate contamination of groundwater (3)
Issue 9: Pollution from industrial estates and the construction sector (new issue)
Issue 10: The impact of culverted watercourses (7)
Issue 11: Shopping trolleys in watercourses (6a)
Issue 12: Kidderminster town centre redevelopment (8)
Issue 13: Lack of recreation and amenity facilities (17)
Issue 14: Protection and expansion of watercourses and other green corridors and associated wildlife (18)
Issue 15: Development of flood warning system (9)

CONSERVING THE LAND

Issue 16: Flooding resulting from urban development (9)
Issue 17: The effects of development on wildlife, cultural heritage and the landscape (19)

MANAGING WASTE

Issue 18: Flytipping and litter (6)
Issue 19: Metal recycling sites (12)
Issue 20: Sustainable waste management (13)

REGULATING MAJOR INDUSTRIES

Issue 21: Environmental monitoring of Integrated Pollution Control Authorisations (11)

and: BUSINESS DEVELOPMENT

Issue 22: The need to raise and promote environmental awareness and education (14)

ISSUE 1 The current level of air quality monitoring

At present, monitoring of air quality within the LEAP area is limited and does not allow a full assessment to be made against the standards for the eight airborne pollutants identified in the National Air Quality Strategy, or the identification of likely problem areas.

The Department of the Environment, Transport and the Regions (DETR) has established a national network of automatic monitoring stations covering both urban and rural sites, including one in Wolverhampton which is the only such site in the LEAP area. Whilst the network can provide useful information at a national level, it is of limited value locally. Additional air quality monitoring is carried out by Local Authorities at a number of sites in the LEAP area, but this work is usually limited to two parameters, nitrogen dioxide (primarily from road traffic) and sulphur dioxide (mainly from the combustion of coal and oil). The data is often not readily comparable with the national network or standards because of different measurement time periods.

In certain circumstances some processes regulated by the Environment Agency are likely to have a significant impact on air quality. It is proposed that work be carried out to assess the available air quality data, identify any deficiencies in this data and produce an estimate of the impact of IPC processes on air quality within the LEAP area. This should allow priorities to be set in process improvements. (See Issue 21).

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
	LEAD	OTHER							
1.1 Work with Local Authorities to assess air quality monitoring needs for the area.	LAs Environment Agency		R	●	●	●			
1.2 Agree common data sets.	LAs Environment Agency	DETR	R		●				
1.3 Estimate the impact of IPC processes.	Environment Agency		U		●	●			

ISSUE 2 The sustainability of water resources

Groundwater abstraction from the Sherwood Sandstone has exceeded the available resource in many parts of the Stour catchment which, combined with the effect of recent droughts, has resulted in a fall in the water table. This over-abstraction is a result of historic "Licences of Right" which were issued in the 1960s when there was no legal need to consider environmental sustainability. These licences are largely for public water supplies in the area, which are dominated by groundwater. The high levels of abstraction have led to a reduction in baseflow contribution to stream flows with consequent detrimental effects on wetland areas and their wildlife.

The Agency has defined areas where no further groundwater resources are available for licensing. It is considering enhancement of the existing gauging site at Swindon on the Smestow Brook in order to provide greater control over surface water abstraction at times of low flow, and encourages winter abstraction into storage reservoirs to relieve the pressure on depleted summer resources. The Agency has also commissioned a groundwater model, which will provide a resource management tool for the aquifer and will enable the Agency to refine its groundwater licensing policy. This will then form a basis for negotiations with the water supply companies on reductions in licensed quantities to sustainable levels, as part of the ongoing AMP3 process.

ISSUE 2 (continued)

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
2.1 Develop groundwater model.	Environment Agency		118	40	18				£60k spent 1997/98
2.2 No new licences and negotiate options for reduced abstraction, using model above.	Environment Agency/ Water Company		U/CS	●	●	●	●	●	Ongoing in AMP3 negotiations. Groundwater policy review once model is complete.
2.3 Enhance Swindon gauging station for low flow measurements.	Environment Agency		U	●	●				
2.4 Encourage winter abstraction and storage.	Environment Agency		U/R	●	●	●	●	●	Site specific
2.5+ Investigate possible low flow problem on Spittle Brook.	Environment Agency		R	●	●				

ISSUE 3 Impacts of over-abstraction within the Blakedown Valley

The Blakedown Valley contains a large number of artificially created pools, two of which, Podmore and Hurcott, are significant as Sites of Special Scientific Interest (SSSI), and the remainder of the valley is designated as a Special Wildlife Site (SWS). Water features are dependent on either flows from upstream, groundwater levels or both. In the Blakedown area the abstraction of groundwater has led to a fall in the water table with consequent reduction in baseflows to both watercourses and dependent pools, resulting in a threat to the sustainability of water dependent habitats.

The Agency's long term strategy for managing resources in the Blakedown Valley is discussed in Issue 2. Short term action has been taken to restore water levels in some of the pools by transferring water from purpose-drilled boreholes. We will now examine the potential to support water levels beyond these pools in the brook itself, and thereby to supplement flows downstream into Hurcott and Podmore Pools SSSI. The Agency is working towards these short and long term goals in partnership with the Water Companies.

Swan Pool - before and after artificial restoration of water levels

ACTIONS Long term measures see Issue 2	RESPONSIBILITY LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
3.1 Quantify impacts:	Environment Agency	EN LA							
a) Install observation wells and water level monitoring equipment.			8						£8k spent 1997/98
b) Determine effects on i) ecological and			11.5	11.5					
ii) archaeological environment.			U	●	●	●	●	●	
3.2 Complete project to augment water levels in Swan Pool, Forge Pool and Ladies Pool in 1998 using groundwater.	Environment Agency		25	25					
3.3 Review trial releases of water to Blakedown Brook in 1998/99 and assess the benefit to Hurcott/Podmore SSSI.	Environment Agency STW Ltd SSW plc		3	3					
3.4 Reduce groundwater licences to a sustainable volume as indicated by groundwater modelling (Issue 2).	Environment Agency STW Ltd SSW plc		U	●	●	●	●	●	
3.5 Review the possibility of restoring dried pools higher up system in Blakedown using groundwater from new and/or existing sources.	STW Ltd SSW plc Environment Agency		U		●	●			

ISSUE 4 Low conservation value and poor 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 (BAP). 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.

The Agency will lead and co-ordinate conservation action to help deliver the national BAP objectives and targets for aquatic/wetland habitats and species relevant to the Stour catchment. We will support and facilitate the development and implementation of local habitat and species action plans for the above through the county BAP Steering Groups and wider fora.

Spennells Valley Local Nature Reserve - Timber extraction on a wetland site

ISSUE 4 (continued)

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
	LEAD	OTHER							
4.1 Develop and implement appropriate guidelines for the protection and management of riparian habitats for water voles.	Environment Agency UWT LAs	WTs IWA	15	3	3	3	3	3	
4.2 Monitor otter distribution and undertake habitat improvements.	WTs, LAs Environment Agency		15	3	3	3	3	3	
4.3 Determine the current status of native brown trout and investigate the degree of genetic diversity in these relict populations in line with the Wild Brown Trout Strategy.	Environment Agency		4	2	2				
4.4 Implement planting and management schemes to ensure the continued presence of native black poplar in the catchment.	Environment Agency	FC WTs	12		3	3	3	3	
4.5+ Seek opportunities for reed bed creation, lowland wet grassland and floodplain woodland.	Environment Agency Developers LAs	FRCA MAFF STW Ltd	35	15	5	5	5	5	
4.6 a) Restore wetlands and develop management plans at Puxton, Stourvale, Wilden & Spennells Valley in Kidderminster and develop a Country Park and Local Nature Reserve.	Environment Agency WFDC WWT Landowners EN		50		20	10	10	10	
+ b) Investigate similar possibilities on Stanklyn Pool and Barnet Brook.			R		●				
4.7+ Carry out baseline survey of great crested newts and potential habitat in key parts of the catchment, and support development of species Action Plan.	Environment Agency LAs EN WTs		5		5				
4.8+ Resurvey wetland Special Wildlife Sites in Worcestershire.	WTs EN	Environment Agency	5	5					
4.9+Work with others to identify targets for national BAP species/habitats for which the Agency is the lead.	Environment Agency EN, WTs LAs		R	●	●	●	●		

ISSUE 5 Poor fish stocks

Fish provide a good indication of the overall health of a river. Cyprinid fish are widespread in the catchment but generally their numbers and diversity are low, mostly because of poor water quality. The Agency seeks to develop fish stocks in the river system as water quality and flows improve, and to protect the EC Designated Canal Fishery.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
	LEAD	OTHER							
5.1 Develop and implement a strategy for the creation of instream habitat and riparian buffer zones.	Environment Agency	Landowners Anglers FRCA	35		5	5	15	10	
5.2 Selective fish stocking.	Environment Agency		5	1	1	1	1	1	

ISSUE 6 Compliance with River Quality Objectives and EC Directives

While the majority of the watercourses within the LEAP area comply with EC Directives and their River Ecosystem (RE) targets, some problem areas do exist which require work by the Agency. An assessment of the river quality data for the three years 1994 to 1996 inclusive, has shown three general categories into which the quality objective failures fall:

i) Failure to meet EC Directives

ii) Failures involving specific discharges

iii) Failures requiring investigation by the Agency

A fourth category is included for sites which do not necessarily experience River Quality Objective failures but have in the past attracted justified public complaint.

iv) Problems associated with unsatisfactory sewer overflows.

ISSUE 6(i) Failure to meet EC Directives

Dangerous Substances Directive

There have been no failures for List I substances caused by Sewage Treatment Works (STW) discharges but the following have occurred for List II substances:

River Stour at Stourport, failure for Cyfluthrin (a pesticide), concentration slightly above UK National Environmental Quality Standard (EQS).

Wom Brook at its confluence with the Smestow Brook, failure for copper. It is thought that the low dilution of the effluent combined with the slightly above average copper levels in the water distribution system are the cause of this exceedance. It has been agreed to improve the levels of treatment at Wombourne STW and direct the discharge to the Smestow Brook where the greater dilution will significantly reduce the impact of the STW on the water quality of this stretch.

ISSUE 6(i) (continued)

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
6(i).1 List 2 failures: a. River Stour at Stourport. Investigate results, check the error inherent in this type of sampling.	Environment Agency STW Ltd		R/U	●	●				
b. Wom Brook, Smestow confluence Pipe Wombourne STW effluent to Smestow Brook to reduce localised impact (see Issue 6 (ii).2).	STW Ltd	Environment Agency	CS	●	●				

ISSUE 6(ii) Failures involving specific discharges

Where a watercourse does not meet its RE target due to the discharge from a STW, or there is potential for the RE target not to be met if the STW discharged at the limit of its consent, then the Agency will seek improvements in treatment facilities and/or a tightening of consent conditions. Watercourses affected in this way, which were referred to in detail in the Consultation Report, include the River Stour, the Mousesweet Brook, the Smestow Brook, Wom/Penn Brook and Blakedown Brook.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
6(ii).1+ Monitor the improvements made under AMP2 to Roundhill STW, Wombourne STW, and West Hagley STW; and the effects of transferring sewage from Freehold and Caledonian STWs to Roundhill STW.	Environment Agency STW Ltd		R		●	●	●		
6(ii).2 Pipe Wombourne STW effluent to Smestow Brook to improve dilution (see Issue 6 (i)).	STW Ltd Environment Agency		CS	●	●				
6(ii).3+ Promote the inclusion of funding under AMP3 for possible improvement work at the following STWs: Trescott; Gospel End; Blakedown and Belbroughton.	Environment Agency STW Ltd		R CS	●	●				

ISSUE 6(iii) Failures requiring investigation by the Agency

In instances where a watercourse does not meet its long term RE target, the Agency has assigned a short term objective for the period of this plan which reflects the quality of water which can be assured during this time. Failures caused by unknown sources will be investigated in an attempt to ensure that long term targets are met. These failures were discussed in detail in the Consultation Report.

In the Stour catchment, routine dredging of canals to remove silt is no longer carried out. This has led to the accumulation of large quantities of organic material, toxic metals and other pollutants originating from treated sewage effluent, in the bed sediments. This is particularly relevant for the Staffordshire & Worcestershire Canal downstream of Barnhurst STW.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
6(iii).1 Investigate to identify/confirm cause of failure:	Environment Agency		R						
Smestow Brook	"	WMBC		●	●	●			
Lutley Gutter	"			●	●				
Merryhill/Warstones Brook	"			●	●				
Hoo Brook	"			●	●				
Staffs/Worcs Canal	"	BW		●	●				
Dudley Canal.	"	BW		●	●				
6(iii).2+ Encourage the removal of contaminated sediments from Staffs & Worcs canal bed.	Environment Agency	BW STW Ltd	U	●	●				

ISSUE 6(iv) Problems associated with unsatisfactory combined sewer overflows

A number of combined sewer overflows (CSOs) discharge to the River Stour along its length. Some of these contribute to water quality and aesthetic environmental problems leading to public complaint, but do not necessarily lead to River Quality Objective failures.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
6(iv).1 Assess the improvements to the 10 CSOs in the AMP2 scheme.	Environment Agency STW Ltd.		R CS	●	●	●			
6(iv).2 Identify further CSOs for improvement.	Environment Agency STW Ltd.		R CS	●	●	●	●	●	

ISSUE 7 The need for assessment of the current status of the Pensnett Canal

The Pensnett Canal is a disused branch of the Dudley Canal that is privately owned by Dudley Metropolitan Borough Council (MBC). This has the potential, if cleaned up, to become an interesting urban walkway and an important site for local conservation.

The main problems are aesthetic. The canal is subject to the impact of flytipped wastes and receives surface water run-off from adjacent metal recycling sites (see Issue 19). Water quality problems include a persistent layer of oil on the water surface.

Any assessment will need to have due regard for the current status and future development of the canal.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
	LEAD	OTHER							
7.1 Discuss current status and future proposals for canal with Dudley MBC and local wildlife groups.	Environment Agency Dudley MBC Wildlife Groups BW, IWA		U	●	●	●			
7.2 Assess water quality of canal.	Environment Agency		R		●	●	●		
7.3 Assess polluting inputs to canal. (also see Issue 19)	Environment Agency		U		●	●	●		
7.4 Assess importance/ potential importance of canal to local conservation.	Environment Agency Dudley MBC Wildlife Groups BW, IWA		U		●	●	●		

Pensnett Canal and adjacent metal recycling site

ISSUE 8 Nitrate contamination of groundwater

The majority of the Stour catchment is underlain by the Sherwood Sandstone, which is a major aquifer and has historically supported a high level of groundwater abstraction for public and private supplies. However, fertilisers used for crop production and organic wastes which are spread onto farmland, for example, are sources of nitrate which can leach into underlying aquifers where there is insufficient natural protection against such contamination. In conjunction with the Ministry of Agriculture, Fisheries and Food (MAFF), the Farming and Rural Conservation Agency (FRCA) and the Public Water Supply Companies, the Agency is involved in monitoring the nitrate concentrations in areas of the aquifer which are potentially at risk from nitrate leaching.

The Nitrate Sensitive Areas scheme was set up in 1990 to encourage voluntary changes in farming practice which would reduce the amounts of nitrate leaching. However, in response to the EC Nitrate Directive the Government intends to replace this by the Statutory Nitrate Vulnerable Zone (NVZ) scheme, where compulsory action programmes to reduce nitrate levels within these zones, as defined by the Agency, are due to be implemented before 1999.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
8.1 Implement and extend NVZ scheme within the LEAP area.	Action plan to be agreed between Environment Agency and DETR		U	●	●	●	●	●	Implementation of NVZ scheme anticipated by end of 1998.

ISSUE 9 (new issue) Pollution from industrial estates and the construction sector

Industrial Estates

In the UK more than 90% of all firms are small to medium sized enterprises (SMEs), that is they employ less than 250 employees. Of these SMEs, the majority employ less than 10 employees. Although the environmental impact of individual manufacturing SMEs is small compared to large companies, their overall impact is significant due to their large numbers. The most significant environmental impacts from such companies are thought to be: the use of water, the use and storage of chemicals, emissions of water and waste. Soil contamination is also a potential risk.

In addition many industrial estates in the Plan area are old established sites where infrastructure does not meet modern standards, for example no separation of foul and surface water drainage and the lack of interception facilities. Accidental spillages from sites may result in environmental pollution.

Construction sites

In 1997 the construction industry accounted for over 600 substantiated water pollution incidents in England and Wales. As a result the construction industry has been identified as a priority industrial sector to target.

The Agency is seeking to reduce the risk of pollution from small to medium sized companies by working with firms to encourage the adoption of good environmental practices.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
9.1 Hold 'roadshow' style seminars and/or undertake on-site visits for SMEs on industrial estates where a) pollution incidents are a problem, or b) diffuse pollution is believed to be significant.	Environment Agency	LAs Partners	R	●	●	●	●		
9.2 Visit new construction sites located in sensitive areas prior to commencement of operations.	Environment Agency		R	●	●				

ISSUE 10 The impact of culverted watercourses

Historically many smaller watercourses have been culverted for the purposes of access or developing the land above. This culverting can cause many problems, such as: increased likelihood of flooding due to blockage, increased impact of flooding, loss of storage of floodwater, increased difficulties in providing for drainage connections, loss and interruption to the continuity of wildlife habitats, loss of amenity value, reduced groundwater recharge, and increased difficulty in detecting pollution and monitoring water quality.

The Environment Agency has prepared a policy document on the issue of culverting. The Agency will only approve an application to culvert a watercourse where there is a demonstrable need, no practical alternative and damage to habitats is not caused.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
10.1+ Identify significant lengths of culverting for potential removal and identify possible areas for river corridor appraisals.	Environment Agency		3		3				
10.2 Remove culverts, where possible.	Riparian owner		U	●	●	●	●	●	
10.3+ Produce display and educational material to highlight issues in the LEAP area.	Environment Agency		2		2				

Note National culverting policy is due to be published 1998/99 (proposed action in the Consultation Report)
In addition to the above actions, the Agency will address this issue through its routine activities by undertaking enforcement action on illegal culverting works. This will be reported in the Annual Reviews as appropriate.

ISSUE 11 Shopping trolleys in watercourses

One aspect of flytipping/littering is the problem of debris being washed down/deposited in watercourses. There is a particular problem in Kidderminster with shopping trolleys being thrown into the river. There can be over 200 trolleys per year retrieved from the River Stour by the Agency. The Agency has to remove these in order to prevent blockages, as the trolleys often catch branches and leaves, as well as other man-made debris. These unsightly obstructions can lead to flooding of property and affect the visual quality of watercourses.

Wyre Forest District Council Environmental Health Department is taking positive steps to address the problem, which occurs from retail outlets using trolleys throughout Kidderminster town centre.

Shopping Trolleys in a Watercourse

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
11.1 Seek solutions in partnership with others to resolve the problem.	Supermarkets WFDC Environment Agency		U	●	●				
11.2 Implement use of coin operated shopping trolleys.	Supermarkets		U	●	●				

In addition to the above actions, the Agency will address this issue through its routine activities by taking action against offenders under Land Drainage Byelaw 11 for permitting an obstruction to a main river (and under its Enforcement Policy). This will be reported in the Annual Reviews as appropriate.

ISSUE 12 Kidderminster town centre redevelopment

For many years, the River Stour, through the town centre of Kidderminster, has been culverted beneath the Brintons carpet factory. A major redevelopment of Kidderminster town centre is planned, which will open up the watercourse. This will be beneficial in terms of both flood defence and conservation interests. Through partnership with the developers, the Agency will seek to make a major improvement to flood protection in Kidderminster and an open channel will improve the wildlife habitat and recreational access in the town centre.

Although the extent of flooding will be reduced within the town centre area, the increased flow which will be able to pass through the open channel may exacerbate flooding downstream of the development. In its consideration of the development proposals, the Agency must ensure that the flood risk to other properties is not increased. Further hydraulic modelling is being undertaken to determine the extent of any remaining areas at risk from flooding. A flood alleviation scheme may then be required to upgrade the flood defences in any areas where it is economically and environmentally viable.

ACTIONS	RESPONSIBILITY LEAD	RESPONSIBILITY OTHER	TOTAL COST (£K)	1998/99	1999/2000	2000/01	2001/02	2002/03	FUTURE/COMMENTS
12.1 Continue to provide advice at feasibility stage of the town centre development on the improvement of flood defence standards and ecological quality.	Environment Agency		R	●	●	●	●		
12.2 Improve "off-site" flood defences.	Environment Agency		1487	78		1407*			*£1407k scheduled for that year and beyond, subject to outcome of feasibility study - to be determined. £2k 1997/98.

ISSUE 13 Lack of recreation and amenity facilities

There is a demand for increased amenity and recreational facilities associated with the water environment in the urbanised areas of the catchment. In particular, there is a lack of provision for disabled anglers and the facilities for angling on rivers, canals and still waters could be increased.

There is a particular demand for greater canoe access and there is ample opportunity for circular routes to be developed using the canal network too. However, the lack of navigational rights and poor water quality make this difficult to pursue at present.

There are often disputes between different recreational users, and the needs and considerations of all parties should be carefully considered when drawing up proposals. Any commitments to increase recreational use should take into account the need to protect and enhance local wildlife habitats.

ACTIONS	RESPONSIBILITY		TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
	LEAD	OTHER							
13.1 Increase the opportunities for angling on the rivers, canals and other water bodies.	Environment Agency Angling Clubs LAs	IWA BW Landowners	15			2	3	10	
13.2 Improve the opportunities for disabled angling.	Environment Agency Angling Clubs LAs	IWA BW Landowners	15			2	3	10	
13.3 Promote and support access initiatives.	LAs Groundwork Sustrans BW RA	Environment Agency Landowners MAFF	R	●	●	●	●	●	
13.4 Improve public access at Mushroom Green.	Environment Agency Sandwell MBC Dudley MBC	UWT BTCV	5		5				
13.5+ Consider opportunities for greater canoeing as water quality improves.	BCU	Environment Agency BW IWA WTs	4				2	2	

ISSUE 14 Protection and expansion of watercourses and other green corridors and associated wildlife

Whilst the Agency recognises and supports the fact that sites of high nature conservation value must be protected and managed, there is also much scope for improving other areas. Green corridors are always of particular importance to wildlife but where the surrounding areas are industrialised and highly populated their value increases.

Rivers, brooks, canals and disused railways are all examples of green corridors. Their importance is highlighted in the Black Country Nature Conservation Strategy, which has been compiled and published by all the Local Authorities in the area and English Nature. The Agency is already supporting this policy by promoting particular projects and commenting on planning applications.

These corridors also provide important recreational access, although conflict of interest can occur and needs to be identified and managed. The creation of riparian buffer zones in the more rural areas of the catchment can bring about benefits for conservation and fisheries as well as for water quality and flood defence.

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
14.1 Continue to implement and promote collaborative schemes that enhance areas of urban green desert adjacent to watercourses and wetland e.g. Wom Brook Walk.	Environment Agency LAs	WTs Local community groups and forums	15			5	5	5	
14.2+ Encourage the development of riparian buffer zones by use of agri-environment schemes.	MAFF FRCA EN landowners	Environment Agency NFU	R	●	●	●	●	●	
14.3+ Develop a closer liaison with those involved with the restoration and/or creation of wildlife corridors e.g. river corridor in Halesowen town centre as highlighted in Dudley UDP review; restoration of section of Dudley No.2 Canal.	Environment Agency LAs BW IWA EN Canal Trusts		R	●	●	●			

ISSUE 15 Development of flood warning system

The Agency operates a flood forecasting and warning service for Kidderminster. Currently, flood warnings are disseminated to the Local Authority, local radio and the police. At present in this catchment, there is only coverage of a limited area. If it is technically feasible and economically justifiable a larger area could be warned.

As a result of taking over the flood warning dissemination role of the police in many parts of the country from September 1996, the Agency has developed new systems and technology. Some of these systems could be applied to Kidderminster and in the future the Agency may consider introducing direct dissemination to the public by an automatic voice messaging system.

Flooding in Vicar Street, Kidderminster 27th March 1955

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
15.1 Investigate the feasibility of improving/ extending the flood warning system.	Environment Agency	LAs	10		5	5			

ISSUE 16 Flooding resulting from urban development

The River Stour, Smestow Brook and their tributaries all have limited capacity to contain flood flows and use adjoining land (the floodplain) to assist in conveying and temporarily storing flood water in excess of their capacity. This is not a problem unless:

- the floodplain is used for intensive, high value arable crops; residential or commercial development.
- flooding is made worse by restricting flood flows (e.g. bridges, culverts, infilling and development of the floodplain)
- flood flows are increased by development that makes land more impermeable

All of the above have occurred in the West Midlands Stour area, resulting in conflict between the needs of the watercourse and land uses. This has led to flooding problems in a number of areas, which were referred to in more detail in the Consultation Report.

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
16.1 Alleviate risk of flooding to property at locations identified in S105 survey: a) Construct flood defences to protect property at risk b) Reduce flood levels by increasing watercourse capacity to protect property at risk c) Reduce flood flows by upstream surface water balancing.	Environment Agency LAs	Property owners/ developers	See final column	●	●	●	●	●	Environment Agency assessing costs where works worthwhile.
16.2 Remove obstructions/developments which increase flood levels (also see Issue 10).	Environment Agency LAs Property owners/ developers		U	●	●	●	●	●	Progress dependent on opportunities arising e.g. Kidderminster town centre.
16.3 Map floodplain, provide maps for Local Authorities and highlight areas where restoration of floodplain capacity is advantageous.	Environment Agency	LAs	5		5				
16.4 Model effects of urbanisation on flooding regime and devise long-term strategy to reduce detrimental effects.	Environment Agency		25				●	●	
16.5 Ensure proposed new development does not add to existing flooding problems.	LAs	Environment Agency	R	●	●	●	●	●	Ongoing work but a key task in minimising flood risks.

ISSUE 17 The effects of development on wildlife, cultural heritage, recreation and the landscape

Any landscape is made up of many facets. In the West Midlands Stour area past intensive use has left its mark, contributing to the present varied landscape which, today, still demonstrates a strong sense of place. In contrast many new developments are bland and it is recognised that damage to the landscape has occurred as a result of schemes which do not respect local character.

Thorough consideration of wildlife, cultural heritage, access and the landscape is essential to ensure that new engineering and redevelopment schemes contribute to creating an environment that is both attractive to those that live and work there and sympathetic to conservation. The Agency is committed to working with other partners to ensure that best practice guidelines for development are drawn up and adhered to.

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
17.1 Develop a joint and consistent approach between all those involved with new developments and other changes in land use in the area.	LAs Developers Environment Agency	STW Ltd WTs	R	●	●	●	●	●	
17.2 Actively seek greater publicity for examples of best practice in development and engineering.	Environment Agency LAs Developers	STW Ltd WTs	4		1	1	1	1	
17.3+ Continue to raise awareness of cultural heritage.	Environment Agency LAs Developers BWIIWA		R	●	●	●	●	●	

Note The proposed action in the Consultation Report "Launch the Community Pride initiative in Dudley" has been completed. The Agency will continue to sponsor this initiative (see Issue 22). Refer to section 5.3.3 for further information.

ISSUE 18 Flytipping and litter

Flytipping is the illegal disposal of waste. It occurs on both private and public land and may vary from a single black bag of domestic refuse to one or more skip loads of waste. There are a number of litter and flytipping hot spots and a strategy needs to be developed for litter and flytipping control at these locations. For example, flytipping occurs around the Oak Lane area (see Issue 19).

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
18.1 Develop a strategy to control flytipping/litter at specific locations.	LAs Environment Agency	Groundwork Trust TBG VOs	R	●	●				
18.2 Remove the 'build up' of litter at certain locations.	LAs	Groundwork Trust TBG Environment Agency VOs	R	●	●	●	●	●	
18.3 Hold discussions with responsible parties to tackle flytipping/littering in Mushroom Green area.	Dudley/ Sandwell MBCs Environment Agency	Groundwork Trust UWT	R	●	●				

Note Since publication of the Consultation Report the build up of litter at the Mousesweet/Black Brooks has been removed.

ISSUE 19 Metal recycling sites

There are a number of sites in the Dudley area, notably in Kingswinford (Oak Lane) and Brierley Hill (Canal Street) which do not have a waste management licence and are not registered as an exempt activity, they are therefore not currently regulated. In addition, there are a number of other sites which, whilst regulated, are not complying with the conditions attached to the licence or the exemption criteria. The result has been a number of incidents in these areas including fires, flytipping (see Issue 18) and pollution of the Pensnett Canal (see Issue 7)

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
19.1 Unlicensed sites: a) ensure that all operations are licensed or registered as exempt b) take enforcement action as appropriate.	Environment Agency		R	●	●				
19.2 Licensed sites: a) enforce licence conditions b) improve operating standards where necessary through a review of licence conditions.	Environment Agency		R	●	●				
19.3 Exempt sites: a) ensure sites are registered and complying with criteria. Take enforcement action where necessary. b) improve operating standards where necessary.	Environment Agency		R R	● ●	●				
19.4 Flytipped waste: require landowners/local authorities to remove flytipped waste as appropriate.	Environment Agency	LAs Landowners	R	●					
19.5 Regularly review the situation and monitor progress. Undertake appropriate enforcement action if land occupiers/licence holders are not making improvements in accordance with set, agreed timetables.	Environment Agency		R	●	●				

Note It is envisaged that the current problems at these sites will be resolved during the periods indicated. Thereafter routine monitoring will continue at the sites in accordance with the Agency's policy.

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 (about 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 that are suitable for landfilling with wastes. We therefore need to reduce the amount of waste that we produce and make the best use of that waste which is produced.

Industrial and Commercial Waste

Waste is often given a low priority by companies who do not quantify how much waste is being produced, from which process(es) and why. Waste Minimisation Groups can be an effective way of demonstrating the benefits of waste minimisation to local companies.

Landfill Compactor

Household Waste

Individual householders need to be made aware of the issues associated with waste production and the need for more sustainable waste management. Local authorities are responsible for providing the necessary facilities for collecting household wastes suitable for recycling e.g. recycling banks.

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
20.1 Set up waste minimisation initiatives.	BCBEA Environment Agency	Partners	U(i)		●				
20.2+ Develop local initiatives to promote the sustainable management of household waste.	LAs	Environment Agency	U	●	●	●	●	●	
20.3 Promote waste minimisation to companies during routine industrial visits.	Environment Agency		R	●	●	●	●	●	

ISSUE 21 Environmental monitoring of Integrated Pollution Control authorisations

Integrated Pollution Control (IPC) authorisations set limits on releases to all media from regulated processes to protect the environment. These releases are regularly monitored on site by the Agency and process operators. No general monitoring of the immediate environment (soil, herbage, ambient air etc) has been undertaken and it is proposed that monitoring for specific persistent pollutants that accumulate in the environment (e.g. heavy metals, dioxins, furans etc) local to known point sources, be carried out. This will then establish a datum against which the impact of IPC processes can be monitored and assessed, and will also allow potential "hot spots" to be investigated.

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
21.1 Develop a joint and consistent approach on environmental monitoring with local authorities.	LAs Environment Agency		R	●	●				
21.2 Identify sites for environmental monitoring.	LAs Environment Agency		R		●	●			
21.3 Undertake monitoring at agreed sites.	LAs Environment Agency	Site Operators	40		20	20			

ISSUE 22 The need to raise and promote environmental awareness and education

Raising environmental awareness and education is a key objective for the Agency (see Section 5.4). A lack of information and awareness can lead to environmental damage or neglect, and it is vital to educate and influence individuals, groups and industries to promote best environmental practice. Many of the issues included in this plan, and the actions proposed to address them, involve raising environmental awareness and a partnership approach.

A national education strategy *'Green Shoots'* has been published which considers environmental education into the next century. We will now put this strategy into a local context and identify how to deliver it. Key objectives will be to:

- help educate young people to equip them to make informed judgements about future environmental decisions;
- educate industry through consultation, collaborative activities and targeted campaigns to promote the culture of prevention rather than cure; and
- raise public awareness of environmental issues to engender in society a common ownership of the environment and its challenges.

ISSUE 22 (continued)

ACTIONS	LEAD	OTHER	TOTAL COST (£K)	1998/ 99	1999/ 2000	2000/ 01	2001/ 02	2002/ 03	FUTURE/ COMMENTS
22.1 Develop a local education strategy and establish partnerships to deliver it.'	Environment Agency	LAs Community Groups WTs STW Ltd TBG and other partners	U	●	●	●			
22. 2 + Continue to support the Community Pride initiative in Dudley and investigate expanding to other parts of the LEAP area (see Section 5.3.3).	Environment Agency	LAs Community Groups	4		1	1	1	1	

Note1

Topics to be investigated include: the promotion of environmental education material to schools and colleges (including evaluation of needs for Key Stage material/packs); promotion of the Eco-schools project (select and train an assessor for the LEAP area); targeted environmental awareness and pollution prevention campaigns and roadshows for industry and local businesses; supporting Local Agenda 21 initiatives; participation in local community events to raise public awareness about environmental issues.

We will use the LEAP Annual Review process to report on the developing local education strategy, and will include specific actions and more detail in the next Annual Review as the strategy evolves.

At the Community Pride Launch in Dudley, 1998

partnership

5

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 later this year.

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 Land Use/ Planning Guidance Statements

In the Consultation Report we set out draft land use 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 to seek a solution.

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 WMS/LUS 2, 3, 6, 8, 9 and 10. 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 statements are intended to assist local authority planners and others, including developers, 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.

Land Use/Planning Guidance Statements

WMS/LUS 1 - Sustainable Development
The adoption of a precautionary approach to development which might affect the environment is encouraged. The environmental effects of development should minimise adverse impacts and maximise potential benefits. In particular, opportunities should be taken to incorporate natural features and environmental enhancements as part of development.

WMS/LUS 2 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 the promotion of energy saving construction and production, promotion of facilities enabling recycling of materials and encouraging, where possible, aggregate reuse and reclamation of production process base materials, would reduce demand on primary resources, waste disposal facilities and landfill space etc.

WMS/LUS 3 - Effluent Disposal
The availability and provision of sewerage/drainage and pollution prevention facilities will be taken into account when development is planned so that adequate means of disposal for foul sewage, surface water and effluent are provided. The operation of effluent treatment/disposal sites must not be jeopardised by locating new, sensitive development in the immediate vicinity. In the case of proposals producing effluent or waste it should be established that there is an adequate means of disposal. Developments involving the storage or use of potentially polluting toxic substances must incorporate adequate safe-guards, including measures to retain fire fighting water, to minimise pollution risk. Developments such as intensive livestock units must be located where effluent and waste can be disposed of safely. The use of source control techniques to reduce diffuse pollution will be encouraged.

WMS/LUS 4 - Water Resources
Full account will be taken of the availability of water resources and provision of water supplies in considering the location and extent of significant new developments. 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. 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.

WMS/LUS 5 - Floodplain and Surface Water Runoff
The floodplains of watercourses will be safeguarded from encroachment by development. Where appropriate, changes in land use which will lead to a reduction in life and property at risk from flooding will be sought. Additionally, development must not exacerbate flooding elsewhere due to increased rates of run off. To address these problems, the use of wetland restoration and source control techniques is encouraged.

WMS/LUS 6 - Contaminated and Reclaimed Sites
Contaminated sites, such as ex-industrial, gas works, waste disposal operations and old mine workings cause, or have the potential to cause, pollution problems. Any scheme for the redevelopment of such sites should be accompanied by a site investigation indicating the degree of contamination and, where appropriate, remediation proposals. Proposals that present opportunities for environmental enhancement will be encouraged. The Environment Agency will be consulted as early as possible in the pre-planning/planning application process for developments involving contaminated land.

5 partnership

WMS/LUS 7 - Source Control
Local Authorities, in partnership with the Environment Agency, will encourage the use of environmentally sensitive techniques, such as source control, to ensure the problems of surges in surface water run off, pollution loads (including silt) and diminished aquifer recharge are not exacerbated by new development. Where possible, the solution adopted should address existing problems.

WMS/LUS 8 - Mineral Extraction and Waste Disposal
The management of mineral extraction and waste disposal sites must provide for the protection of the environment from pollution in their construction, operation and aftercare. The effects on water resources, site drainage, leachate and air born litter will be considered. Consideration will given to the possible effects of pollution and nuisance when determining the appropriateness of development within the vicinity of these sites, to avoid conflicting land uses jeopardising their effective operation. Proposals for restoration of worked-out mineral sites which present opportunities for environmental enhancement will be encouraged. The Environment Agency will be consulted both prior to and at the planning application stage for developments involving mineral working and waste disposal.

WMS/LUS 9 - Air Quality
Local Authorities will work in partnership with developers, the Environment Agency and others to meet the aims of the 'National Air Quality Strategy'. Development Plans will promote new development which does not adversely impact upon air quality and promotes improvements by minimising HGV and car journeys and encouraging the use of less polluting means of transport. Consideration will given to the possible effects of pollution when determining the appropriateness of development within the vicinity of these sites.

WMS/LUS 10 - Watercourse Corridors
The conservation, fisheries, landscape, heritage/archaeological and recreational value of watercourse corridors will be protected and enhanced. Commensurate protection will be afforded to statutory, locally designated and non-designated water based sites. Appropriate guidelines, such as those produced by the Forestry Authority, will be used. Inappropriate uses leading to degradation by soil erosion, increased flood risk, etc. will be avoided. The value of buffer zones and of sensitive riparian management is recognised.

WMS/LUS 11 - Tourism and Recreation
Local Authorities in partnership with the Environment Agency will seek to ensure tourism and recreation developments are sympathetically designed and located to take into account the protection, and where possible enhancement, of the water environment. Promotion of water-based recreation facilities will take into account the need to safeguard high quality riverine habitats, with sensitive areas being monitored and protected from recreational pressure as appropriate.

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 (LA21)

Agenda 21 is a global action plan for the 21st century that was produced at the Rio Earth Summit in 1992. It brings together economic, environmental and social concerns into a 'blueprint' for a more sustainable way of life for everyone. Local Agenda 21 recognises that action by governments alone is not enough and that all groups, civic, community, business and industrial, have to be involved to bring about change. The Environment Agency supports this approach by providing information, expertise and support where possible. In the West Midlands Stour area we have representatives on several Local Authorities' LA21 working groups.

Government has produced guidance for Local Authorities on LA21 and expects each Local Authority to produce a LA21 plan by the year 2000. In the West Midlands Stour area they are all at different stages of this process. Details of contacts and progress were given in the Consultation Report on page 69.

Partnership exercise with the Fire Service - boom to contain oil spillage

5.3.2 Other partnerships

Partnerships in the LEAP area were referred to in detail in the Consultation Report. They include:

- Waste Minimisation Groups (three groups in the LEAP area -Worcestershire, Silver End and Shropshire Waste Minimisation Groups)
- Oil Care Campaign
- Heart of England Biodiversity Forum (including four groups in the LEAP area - West
- Midlands, Worcestershire, Staffordshire and Shropshire)
- Work with Fire Services
- Community Pride (see 5.3.3)

5.3.3 Conservation, recreation and other collaborative projects

Some of the projects currently being undertaken in partnership in the area are: Graiseley Brook reed beds, the management of the Valley Park Nature Reserve in Wolverhampton, work at Saltwells Nature Reserve and Worn Brook walk, and disabled fishing platforms at Bumble Hole and Warrens Hall. These projects are joint ventures by a number of organisations including Local Authorities, English Nature, Wildlife Trusts and other environmental groups and residents in the local area.

Wetland creation on the Graiseley Brook

The Agency launched a Community Pride initiative in Dudley in 1998. This initiative provides local groups with the opportunity to get involved in community based environmental projects.

5.4 Education

Environmental education is central to our aim of achieving sustainable development. We are developing an education strategy to address the need to educate young people on environmental issues, and to inform and educate the wider society, including industry, agriculture and local communities (see Issue 22). To add value in the wide field of environmental education, it is vital that we work in partnership with other organisations. To develop this strategy at the local level we have appointed a regional education co-ordinator and created Customer Contact teams in each Area office.

The production of this LEAP is one step towards increasing the accessibility of information about our local environment. The Agency has a wide range of leaflets and publications (see Appendix 3), which are available from our Customer Contact team at the Area office. Information is also available on the Internet at our web site. The web site will also provide you with links to other sources of environmental information.

General Enquiry line -
0645 333 111
Upper Severn Area Office -
Tel: 01743 272828/ Fax: 01743 272138
Internet World Wide Web -
www.environment-agency.gov.uk
E-mail messages -
enquiries@environment-agency.gov.uk
Flood Warning Information Service -
0645 88 11 88
ECOfactsSM 'fax back' service -
0881 88 22 88
Minicom Service -
01904 692 297

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** - open 24 hours a day.

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 December 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.

River Stour at Kidderminster

appendix one

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

Mr A Bostock - Salopian Flyfishers (AEG)

Bridgnorth District Council

British Canoe Union (Head Office)

British Canoe Union (West Midlands)

British Trust for Conservation Volunteers

British Waterways

Bromsgrove District Council

Churchill & Blakedown Parish Council

Countryside Commission (Midlands Region)

G Darby

Dudley Metropolitan Borough Council

English Nature - West Midlands and Three Counties

Farming And Rural Conservation Agency

Friends of the Earth - Birmingham

Mrs M Froggatt

Halesowen Township Council

Revd R Hoare - Bishop of Dudley

Inland Waterways Association - Black Country

Inland Waterways Association - Head Office

Ministry of Agriculture, Fisheries & Food

RSPB - North West England

Rural Development Commission

Sandwell Metropolitan Borough Council

Severn Trent Water Ltd

South Staffordshire Council

Staffordshire County Council Development Services

Staffordshire & Worcestershire Canal Society

Stourport-on-Severn Civic Society

The Coal Authority

The National Trust

Tidy Britain Group

University of Wolverhampton

West Midlands Joint Data Team

Worcestershire Wildlife Trust

Wulfrun College

Wychavon District Council

Wyre Forest District Council

appendix

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

Anonymous - 24

Mrs A Austin

Mrs R Bailey

Mr P A Beards

Mr A Bostock

Mr R Bowling

K Brookes

Mr L Brookes

Mr G Burgess

Mr Cameron

Mr R J Carlos

Mr M Carpenter

Mr P J Drinkwater

Mr F C Fielding

Mrs C Freer

Mrs M Froggatt

A Hassan

Revd R Hoare

R Homer

W J Hutton

Mr A Jones

Miss E Jones

Mr J Kernohan

Mrs F Lewis

Ms J Mackenzie

Mr P Martin

Miss K Mills

Mr P Mitchell

Mr B Noonan

D A Oliver

P Packay

Ms Z Pottinger

Mr I Rean

Mr J S Rowlands

Mr G Warburton

T Weller

Mr J Wood

Mr N Woodward

Mr R H Wright

The Environment Agency gratefully acknowledges all comments received.

appendix two

Amendments to the Consultation Report

SECTION	PAGE	ERROR/OMISSION	RAISED BY
	ii	Reference should be made to guidance provided by Local Biodiversity Action Plans (LBAP) and the UK Biodiversity Action Plan (BAP).	RSPB
1.1.1	3	Reference should be made to the Agency's navigations and the Agency's general responsibility to promote the use of inland waters (and associated land) for recreation.	Inland Waterways Association
2.0	10-25	Most of the major industrial initiatives and developments seen in Coalbrookdale started in the West Midlands first. 2.4.2 for 'signs' read 'sites'.	West Midlands Joint Data Team
3.0 Issue 2	36	Pensnett Canal is a branch from the Dudley Canal, not of it.	Inland Waterways Association
3.0 Issue 3	37	Paragraph 2 (more detail). Replace "The Nitrate Sensitive Areas (NSA) scheme.....before 1999." with "The Pilot Nitrate Sensitive Areas (NSA) scheme was set up in 1990 to encourage changes in farming practice which would reduce the amount of nitrate leaching. In 1994, a further 22 Nitrate Sensitive Areas were designated and an expanded scheme was launched under the EC Agri-Environment Programme. Farmers can voluntarily join the scheme, and receive compensation for introducing changes to their farming systems going well beyond good agricultural practice. All NSAs are situated within Nitrate Vulnerable Zones (NVZs), designated by the Government in response to the EC Nitrate Directive (91/676), and within which a compulsory uncompensated Action Programme will take effect from 19 December 1998."	Ministry of Agriculture, Fisheries and Food
Issue 17	59	Does not recognise the effects of development on wildlife. Suggested addition of "whilst protecting and enhancing local wildlife habitats".	Worcestershire Wildlife Trust
4.1.3	68	Sandwell Unitary Development Plan was adopted in January 1995.	Sandwell MBC
4.2.1 Table 6	69	Amend Dudley MBC entry to "LA21 Forum discusses issues. Published LA21 Action Plan 'Towards a Sustainable Environment', and currently developing a LA21 Action Plan with measurable targets".	Dudley MBC

appendix

Amendments to the Consultation Report

SECTION	PAGE	ERROR/OMISSION	RAISED BY
4.2.1 Table 6	69	Correct phone number for Sandwell Local Agenda 21 co-ordinator is 0121 569 4004.	Sandwell MBC
4.2.1 Table 6	69	Correct contact/phone number for Wyre Forest DC Local Agenda 21 co-ordinator is Sue Bayliss/ Phillipa Pearson - Glaze on 01562 732167.	Wyre Forest DC
4.2.5	72	Reference should have been made to the Staffordshire Biodiversity Steering Group, and the Heart of England Regional Biodiversity Forum. This important group brings together all the LBAP groups present in the LEAP area. Its aim is to share knowledge and good practice, monitor BAP action at the regional level and to act as a catalyst for implementing biodiversity targets. The RSPB has been omitted from the list of LBAP partners.	RSPB
4.2.5	72	Include reference to the Staffordshire Biodiversity Action Plan, due for publication at the end of 1998.	Staffordshire County Council
5.1 Table 7	80	The population of Wyre Forest District within the Stour LEAP should be approximately 59,477.	Wyre Forest DC
5.6	86	The 10 yard seam stretched as far as Wolverhampton and Bilston, not just Dudley Borough.	West Midlands Joint Data Team.
5.11	103	Industrial usage of the area stretches back before the industrial revolution.	West Midlands Joint Data Team.
5.12	106	Paragraph 3. Replace "for farming practices...of statutory NVZs." with "within NSAs who substantially change their farming practices to reduce nitrate leaching. Compulsory uncompensated measures will take effect in NVZs from 19 December 1998."	Ministry of Agriculture, Fisheries and Food
5.14.1 Map 15	110	A number of SSSIs and wildlife sites in South Staffordshire district were omitted or incorrect.	Staffordshire County Council
5.14.2 Map 16	114	The Countryside Character Area shown as Mid Severn Sandstone Plateaux should be referred to as Mid Severn Sandstone Plateau.	Countryside Commission
5.15	116	No mention of the old BCN crane at the end of Bumblehole Branch on the Dudley No.2 Canal.	Inland Waterways Association
5.15	116	No mention of the historically important 200 year old embankment of the Dudley No.2 canal which runs through Leasows Park. Other important canalside features have been missed.	Inland Waterways Association
5.16	118	Paragraph 2 should read "There are various proposals to restore the canals in the area e.g. Dudley No.2 Canal from Hawne Basin in Halesowen through Lapal Tunnel to Selly Oak in Birmingham, the Fens Branch of the Stourbridge Canal back into Wide Waters adjacent to Fens Pools and to reconnect the Bumblehole and Boshboil arms of the Dudley No.2 Canal in Netherton."	Inland Waterways Association

Amendments to the Consultation Report

SECTION	PAGE	ERROR/OMISSION	RAISED BY
5.16 Map 17	119	Stourbridge Extension Canal should be shown as navigable. The isolated section of the Pensnett Canal should be shown as non-navigable.	Inland Waterways Association
5.16 Map 17	119	Leapgate Country Park at Wilden, Stourport-on-Severn, was omitted.	Wyre Forest DC
5.16 Map 17	119	The Severn Way, which is within the southern boundary, should have been shown.	Stourport-on-Severn Civic Society
6.2.2.2	145	Replace first paragraph with "Nitrate Sensitive Areas represent groundwater catchments, identified by the National Rivers Authority (now subsumed within the Environment Agency), which are important sources of drinking water for public supply. Under the NSA scheme farmers can voluntarily make substantial changes to their farming system going well beyond good agricultural practice which are designed to reduce nitrate leaching. Farmers enter into five year agreements and receive compensation in line with the perceived reduction in crop yield. All Nitrate Sensitive Areas lie within Vulnerable Zones (NVZs) and three of the four NVZs within the plan area have associated NSAs".	Ministry of Agriculture, Fisheries and Food
6.2.2.2	146	Second bullet -replace "at a date to be agreed between 1995 and 1999" with "within two years following initial designation".	Ministry of Agriculture, Fisheries and Food
6.2.2.2	146	First paragraph after bullets -Replace "the scheme required the Environment Agency to assess" with "The Environment Agency is required to assess...."	Ministry of Agriculture, Fisheries and Food
6.2.2.2	146	Fourth paragraph after bullets replace "('the Action Plan') have been put....Protection of Water" with "(the Action Programme') are contained in the Action Programme for Nitrate Vulnerable Zones (England and Wales) Regulations 1998. Broadly, these measures place restrictions on the timing and volume of fertiliser and manure applications".	Ministry of Agriculture, Fisheries and Food
6.2.2.2	146	Fifth paragraph after bullets replace "when the scheme is implemented prior to December 1999" with "from 19 December 1998", and replace "plan" with "programme". Delete sentence beginning "These programmes will replace...." .	Ministry of Agriculture, Fisheries and Food
Glossary	173	Definition of NSA -replace "were introduced in 1990" with "have been introduced".	Ministry of Agriculture, Fisheries and Food
Glossary	173	Definition of NVZ -replace "were introduced from 1996" with "will come into force on 19 December 1998....".	Ministry of Agriculture, Fisheries and Food
General	–	Reference should have been made to the joint 'Stour Valley Action Plan' produced by Sandwell and Dudley MBCs in conjunction with the Urban Wildlife Trust.	Sandwell MBC

appendix

appendix two (continued)

Reassessment of River Stour River Quality Objectives (RQOs)

A reassessment has been made of the River Ecosystem (RE) RQOs for the River Stour catchment (Table 21 in the Consultation Report). The following table shows a list of the changes. Please note that medium term objectives have been replaced by short term objectives.

NAME OF WATERCOURSE	START OF STRETCH	END OF STRETCH	SHORT TERM OBJECTIVE	LONG TERM OBJECTIVE
River Stour	Tack Farm Bridge	Confluence with Illey Brook	*	RE3
River Stour	Confluence with Illey Brook	Footbridge at Lodge Forge	*	RE3
Illey Brook	Footbridge at Twiland Wood	Confluence with River Severn	*	RE3
Illey Brook	Footbridge at Twiland Wood	Confluence with River Severn	*	RE3
Mousesweet Brook	Black Brook	River Stour	*	RE3
Wom/Penn Brook	Gospel End STW	A463 Road Bridge	RE5 (2006)	RE4
Merryhill Brook	Road Bridge Newhouse	Confluence with Wom Brook	*	RE3
Blakedown Brook	Gallows Brook	Blakedown STW	RE3 (2006)	RE2

* No Short Term Objective

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 Better Environment for England and Wales
- 0800 Leaflet (Emergency Hotline)
- Customer Charter
- Corporate Plan Summary
- Annual Report and Accounts
- Complaint and Commendation Procedure
- Charging for Information
- 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
- Our Midlands Environment
- Local Agenda 21
- Planning and acting for a Better Environment (joint leaflet with West Midlands Local Govt. Association)

Environment Protection/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
- Mobile Sheep Dipping - a guide to reducing pollution risks
- 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 - Summary
- Recovering the Cost of Pollution
- Discharge to Controlled Water 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
- A Guide to Sustainable Urban Drainage
- Integrated Pollution Control Fees and Charges
- Charging Scheme for Radioactive Substances Act Regulation
- Integrated Pollution Control and You

appendix

- 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

Fisheries, Conservation and Recreation

- Anglers and the Agency
- Rod Fishing Licences 1997/98
- 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
- Phytopthora disease of Alder

- The Severn Way
- Aquatic Weed Control Operation
- Phytopthora disease of Alder

- Severn Bore and Trent Aegir
- Climate Change in the Garden
- River Life - from Source to Sea

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
- Water Abstraction Can Cause Pollution
- Abstraction Licensing and Water Resources
- Spray Irrigation
- Making the most of your Spray Irrigation Abstraction Licence
- Water Alert
- 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
- Living on the Edge - a guide for riverside owners
- Safeguard the Environment: A guide for developers

Please contact the Customer Contact team at your Area office for further information and to obtain these and other leaflets (subject to stock availability).

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.

Aquatic Pertaining to the water environment.

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

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

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

Biodiversity Diversity of animal and plant life.

Borehole Well sunk into a water bearing rock.

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

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.

Cone of depression The conical depression in the water table around a borehole produced by pumping from the borehole. The shape and extent of the cone depends on the rate of pumping, the length of time that pumping has continued and the hydraulic characteristics of the aquifer.

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.

Dioxins and **Furans** A group of 210 closely related organo-chlorine compounds which can be formed as by-products in some chemical processes and in various combustion processes such as waste incineration and coal burning.

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.

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

Heavy Metals A loose term covering potentially toxic metals used in industrial processes, common

appendix

ones include chromium, copper, lead, zinc and cadmium.

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

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

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.

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 have been introduced 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 come into force on 19 December 1998 as a means of reducing those levels.

Nitrogen dioxide (NO_2), Nitric Oxide (NO), Oxides of Nitrogen (NO_x)

NO_2 and NO are both oxides of nitrogen (NO_x) produced by traffic and industry. NO_2 can have an adverse effect on human health, increasing the symptons associated with respiratory illness. NO_2 is a target pollutant in the UK National Air Quality Strategy.

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

Particulates Small particles of matter released from a number of sources which can affect the respiratory and cardiovascular systems. A target pollutant in the UK National Air Quality Strategy. PM_{10}-particles below 10µm.

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

Riparian Owner of land adjacent to the river.

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

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

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

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

Sewerage Means of conveying foul or surface water.

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

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

Sulphur Dioxide (SO_2) A gas which dissolves in water to give an acidic solution. It is an Irritant when inhaled and may cause breathing difficulties. Emissions of SO_2 can lead to acid rain, affecting ecosystems and water quality. A target pollutant in the UK National Air Quality Strategy.

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

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

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

Volatile Organic Compound A term which includes all organic compounds released to air in the gas phase.

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

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

MANAGEMENT AND CONTACTS:

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

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

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

Internet World Wide Web www.environment-agency.gov.uk

ENVIRONMENT AGENCY REGIONAL OFFICES

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

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

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

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

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

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

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

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

M-10/98-1K-C-BDKU Printed on Recycled Paper

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