

catchment management plan



RIVER SEVERN UPPER REACHES

first annual review

July 1995 - June 1996



**ASiantaeth YR
AMGYLCHEDD
ENVIRONMENT
AGENCY**

**RIVER SEVERN UPPER REACHES****PREVIOUS CATCHMENT MANAGEMENT
PLAN DOCUMENTS**

River Severn Upper Reaches Catchment Management Plan (CMP)
Consultation Report - November 1994

River Severn Upper Reaches Catchment Management Plan (CMP)
Action Plan - June 1995

These documents, including this first Annual Review, are available in English and Welsh.

If you wish to make enquiries about, or would like copies of, any of these documents please contact the Environment Planner, Shelly Beckett, at the address below:-

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* * *

The following documents also relate to the *River Severn catchment* and are available:

River Severn Lower Reaches CMP Consultation Report summary leaflet
River Severn Lower Reaches CMP Action Plan

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Foreword

This year has been one of change. The Environment Agency is one of the largest and most powerful environmental regulators in Europe responsible for regulating waste disposal to land, industrial releases to air, and safeguarding and improving the natural water environment. Its creation on 1 April 1996 was a major and positive step, merging the expertise of the National Rivers Authority (NRA), Her Majesty's Inspectorate of Pollution, the Waste Regulatory Authorities and several smaller units from the Department of the Environment.

This merger results in a more comprehensive approach to the protection and management of the environment by combining many aspects of the regulation of land, air and water. It also provides a single point of contact for its customers.

The process of Catchment Management Planning was used by the former NRA to manage the water environment in an integrated way. Catchment Management Plans identified the uses, pressures and problems within the area and sought through partnership to resolve any issues and conflicts. The objective being to balance the needs of all water users and to manage the area in an environmentally sustainable way. The Agency is committed to continuing integrated planning as a principal means of contributing to the overall objective of sustainable development. Local Environment Agency Plans will be the mechanism by which this will be achieved, and are considered further on page two.

This is the first Annual Review to be produced for the River Severn Upper Reaches. I am pleased to report that good progress has been made in tackling the issues identified in the Action Plan. This was made possible by the commitment of all involved, and greatly enhanced by the collaborative and partnership approach adopted. I look forward to working with you in the coming year to safeguard and enhance our environment.

*Dr. J.H. Kalicki
Upper Severn Area Manager
Midlands Region*

EXECUTIVE SUMMARY

General

This first year of the Action Plan has seen good progress made towards protecting and improving the water quality, water resources and natural habitat in the catchment. Of the 74 actions planned for the 1995-1996 year, progress has been made on 72. Two outstanding actions (1.2, 8.2) have been deferred to a later date in the plan due to a change in work priority. Ten actions not originally scheduled for this review year have been brought forward. Many of the actions have involved organisations working in collaboration with others.

Notable Achievements

- Creation of a significant wetland Nature Reserve at Newtown Sewage Treatment Plant (STP), in collaboration with Severn Trent Water Ltd (STW Ltd), and Montgomeryshire Wildlife Trust (MWT), as part of the Severn Valley Wetlands Project.
- Creation of a new wetland site, by excavating the old river meander on the River Tanat near Pedair - ffordd.
- Construction of new Salmon pass at Pontdolgoch weir, on the Afon Carno, to allow access to a further 12 km of good quality spawning gravels.
- Willow revetment work was carried out on the River Tanat, to reduce bank erosion and to demonstrate the use of soft bio-engineering techniques to local landowners.
- Extensive restoration work has taken place on the Montgomery Canal, carried out by British Waterways (BW) and Montgomery Waterway Restoration Trust (MWRT). The Environment Agency (EA) made a large capital contribution to the reconstruction of the River Perry aqueduct. This has been completed and new stretches of canal have been opened up at Queen's Head and Belan. Phase 1 is now completed.

Other Notable Developments

- Severn Trent Water Ltd has now timetabled the AMP¹2 work for Mile Oak and Newtown Sewage Treatment Plants.
- Shropshire Groundwater Scheme (SGS) Phase 2 was successfully used for the first time contributing to the River Severn regulation support system during the drought of 1995.
- The Environment Agency in collaboration with Forest Enterprise completed and officially opened the "Severn Break - Its - Neck" walkway (Hafren Forest), Llanidloes. This has been well received and used by the public. Other riverside walks at Llanidloes and Penarth were developed or improved.

¹ AMP = Asset Management Plan. See page 13 for further detail.

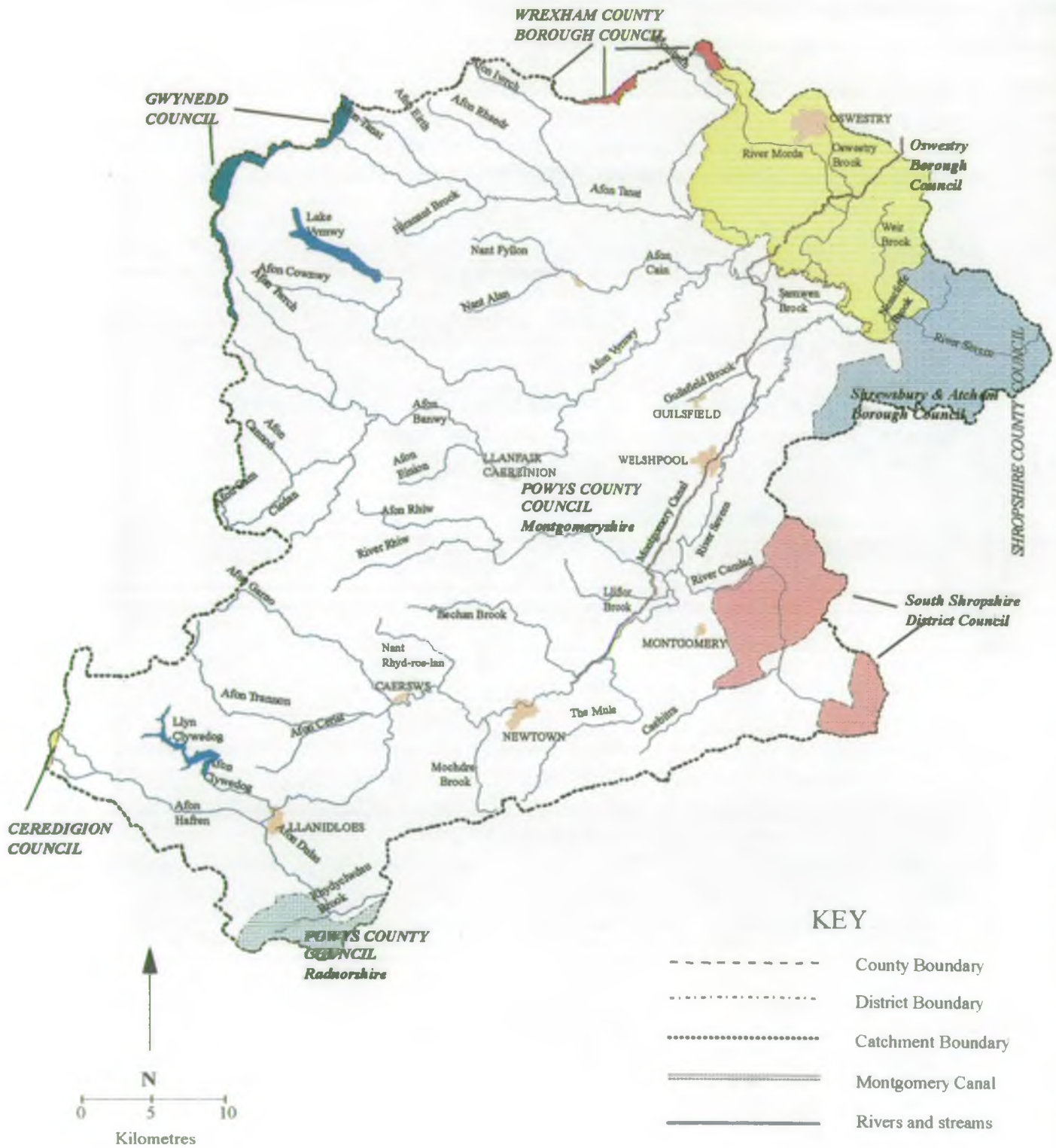
- An All-Wales Database for abandoned metalliferous mines has been created by the Environment Agency and supported by the Welsh Office. This will enable the Agency to prioritise work for those sites having an adverse impact on the environment.
- Improved liaison and consultation procedures between the Forestry Authority and the Agency, on matters such as felling licences and Woodland Grant Scheme Applications have been put in place. A National procedure for processing Forestry Planning Consultation has also been developed.
- The capping of spoil waste at Fan Lead Mine, funded by the Welsh Development Agency (WDA) has seen a reduction of maximum contamination levels in the Afon Cerist. Brown trout have also been observed in the river for the first time. The Agency, University of Aberyswyth and Powys County Council are currently discussing further treatment work and monitoring sites.

Disappointments

- Slow progress made in promoting awareness of the damaging environmental impacts caused by unauthorised river works. This was reflected in the many unauthorised river works carried out in important salmon spawning areas within the catchment.
- The importance in establishing a Site of Special Scientific Interest (SSSI), in the Upper Severn Area for protection of geomorphological interests, has been emphasised to the Countryside Council for Wales (CCW). No progress or decision has been made to date.
- In some Local Authority Development Plans, policies for Caravan Site upgrading have not explicitly excluded further development in the flood plain.

Map of the Catchment

River Severn Upper Reaches Catchment and Administrative Areas



VISION FOR THE CATCHMENT

The catchment of the upper reaches of the River Severn is predominantly rural in character, and is an area known for its attractive upland landscape and great natural beauty. Most rivers in the catchment support high class fisheries and provide a diversity of habitats for a wide range of flora and fauna.

The catchment is home to around 75,000 people, who depend on the water environment in many ways and value it for the amenities and enjoyment it provides for their local communities. The picturesque and unspoilt countryside within the catchment is also increasingly seen as a tourist attraction.

The catchment has an important role far beyond its physical boundaries, and indirectly affects many people who live outside the catchment. One reason is the plentiful high quality water in its rivers and lakes, which is used as a major source of water supply to surrounding areas. Also of note is the fact that the catchment comprises the upper parts of the longest river in Britain. What occurs in these sensitive upper reaches can have an impact downstream for some 350 kilometres.

The EA's vision for the catchment is to:

- * *safeguard existing high quality water and habitats, and where appropriate work towards enhancing the water environment.*
- * *work in an integrated manner towards resolving those issues and problems that have been identified in the plan.*
- * *ensure that future demands on the water environment from both within and outside the catchment are planned and managed in a balanced and sustainable way for the benefit of all users.*

Key objectives of this plan are to:

- * *ensure proper management of the catchment's valuable water resources.*
- * *maintain the highest possible level of protection for the water environment, restore damaged habitats and protect rare and threatened species.*
- * *quantify the factors contributing to EC Environmental Quality Standard exceedences, in particular in relation to acidification and metalliferous mining.*
- * *improve water quality of the 60 km of rivers where the required longer-term River Ecosystem water quality objective has not already been achieved.*
- * *improve recreational and amenity access to watercourses in the catchment where environmentally appropriate.*
- * *improve fisheries by making spawning areas in rivers more accessible to migratory fish, and of a higher quality.*
- * *influence the planning processes of local authorities to ensure that development does not adversely impact on, and wherever possible proceeds in a way to benefit, the water environment.*

The realisation of the Agency's vision will be achieved through a balanced approach to the management of the catchment. It is our intention to work in partnership with all relevant agencies, organisations and interested individuals to promote and achieve an integrated approach to managing the catchment. The plan will ensure required improvements can be carried out, and future demands catered for, in a sustainable manner.

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1.0 INTRODUCTION

This is the first Annual Review to be produced for the River Severn Upper Reaches Catchment Management Plan. It follows on from the Action Plan produced in June 1995 by the NRA. This review deals with the water environment only and covers the period July 1995- June 1996.

Catchment Management Planning was the means by which the former National Rivers Authority undertook integrated planning for the water environment. The Environment Agency's overall aim of protecting and enhancing the whole environment contributes to the world wide environmental goal of sustainable development. Holistic planning will be a principal tool in delivering this objective. Forward planning in the Agency will be undertaken for the full spectrum of Agency responsibilities and it will build on the Catchment Management Planning process. The plans will be known as Local Environment Agency Plans (LEAPs) and will include the new functions of Integrated Pollution Control (IPC) and Waste Regulation.

Integrated Pollution Control was introduced by the Environmental Protection Act (1990) and is a method by which complex industrial processes having the greatest potential for causing pollution are regulated. This includes the regulation of sites, which use, store or dispose of radioactive material. A main feature of IPC is that it takes account of all releases to air, water and land, in order to achieve the best overall environmental outcome.

The function of Waste Regulation includes the setting of consistent standards for waste management practice to regulate the treatment, storage, movement and disposal of controlled waste.

The schedule for achieving LEAP coverage for all the catchments in England and Wales is currently being decided. In the interim the Agency is committed to preparing Action Plans and Annual Reviews for Catchment Management Plan (CMP) Consultation Reports that were launched before 1 April 1996. Figure 1 (page 3) indicates the steps in the planning process and gives publication dates for the River Severn Upper Reaches CMP Consultation Report and Action Plan.

Monitoring the implementation of identified actions is an important part of the process and this is achieved by Annual Reviews. In the CMP process four annual reviews were normally undertaken prior to producing a further Consultation Report. Due to the requirement to produce a LEAP to plan for all the Agency's responsibilities, this process is likely to be brought forward for the River Severn Upper Reaches.

In this the first year since the publication of the CMP Action Plan, progress has been made on 72 of the 74 actions planned. A number of very notable achievements have been made by the agency and in partnership with other organisations. The integrated planning process takes an open approach and seeks to create a sense of ownership of our environment, so that environmental risks can be minimised and benefits secured. Your involvement in this process is welcomed. Your comments are sought on progress to date and indeed on your perception of the continuing appropriateness of identified actions.

The Planning Process

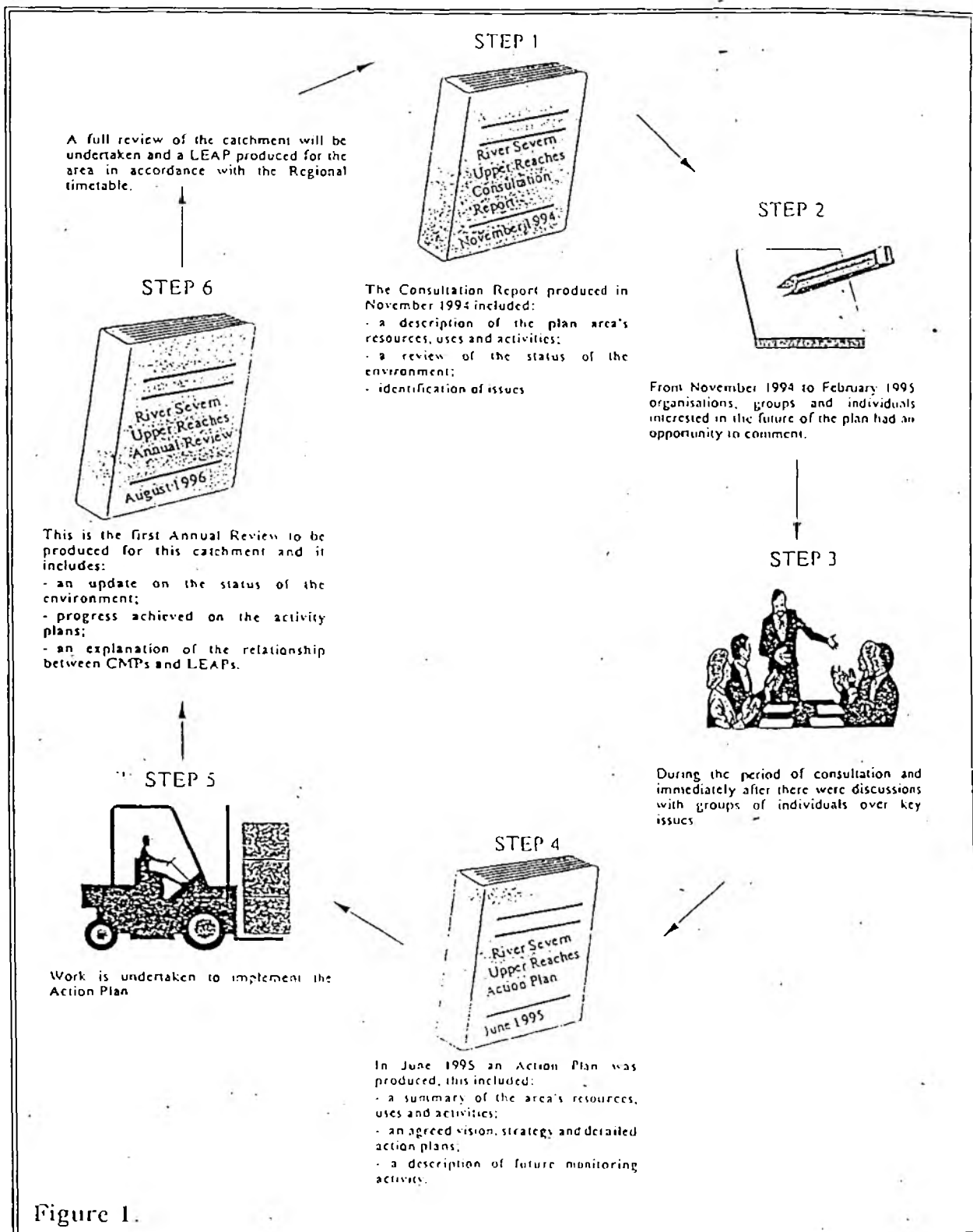


Figure 1.

1.1 The Catchment

The catchment lies across the Welsh/English border and comprises a diverse area within Mid Wales and part of Shropshire, being dominated on its western edge by the Cambrian mountain range. It includes the River Severn and lakes and tributaries from its source in Powys, to where it is joined by the River Perry on the downstream demarcation of the catchment some 6 kilometres to the north west of Shrewsbury. Almost 86% of the total catchment area of 2065 square kilometres lies within Wales, and it comprises a wide variety of attractive landscape types, ranging from the flat low-lying Severn-Vyrnwy flood plain in the east, with isolated border hills, through undulating hills to the moorland plateaux of the Berwyn mountains in the west.

The River Severn covers a distance of approximately 112 km from its source on one of the slopes of Plynlimon to the confluence with the River Perry. From its source it flows south-eastwards to Llanidloes then north-eastwards until it meets the River Vyrnwy, where it continues in a generally easterly direction. The Severn-Vyrnwy confluence area is one of the major flood plain environments in the catchment, and is of national importance for wading birds and overwintering wildfowl.

The rivers and canals support high class fisheries and provide habitats for a wide range of flora and fauna. The high standard of water quality, together with the reliable and plentiful quantities of winter water, make this catchment one of the most important in the country for water resources. Llyn Clywedog and Lake Vyrnwy reservoirs are situated near the western edge of the catchment.

Agriculture is the main land use in this predominantly rural catchment. Upland pasture accounts for about a third of the area, woodland approximately 10% (both mainly in the west) and arable farming accounts for 17% of the catchment area.

Settlement generally has focused on the river valleys, and in particular the valley of the River Severn. Urban development is characterised mainly by market towns and local administrative centres, many with business-parks and light industrial estates. These towns and most of the population are located mainly in the eastern and southern parts of the catchment. There is very little major industry.

1.2 Assessment of the Catchment and Major Changes Since Publication of the First Plan

One purpose of this Annual Review is to assess the relevance of the activities in the Action Plan and report significant changes in the catchment area. This review should be read in conjunction with the River Severn - Upper Reaches Action Plan (June 1995). Changes occurring over the last year are highlighted below but none are sufficient to merit new issues being introduced at this time.

a) New Legislation

The Environment Act 1995 which created the Agency, also introduced legislative changes which impact on the Agency's functions. Significant features of the Act include the Agency's duty to play its part in achieving the objective of sustainable development and to have regard to likely costs and benefits in the undertaking of its functional responsibilities.

b) Planning and Development

1 April 1996 saw changes in the administration of the catchment as a result of the Local Government (Wales) Act 1994 and the Environment Act 1995. The formation of the Environment Agency led to a review of its existing administration boundaries. Boundaries derived for the Agency's eight Regions have resulted in a Welsh Region, which has a boundary coincident with the existing political Welsh boundary.

The Local Authority administration in Wales is now covered by Unitary Authorities of which Powys County Council(CC) - Montgomeryshire covers the majority of the Upper Severn area.

Powys CC - Montgomeryshire is within the EA Welsh Region, Northern Area; Powys CC - Radnorshire is within the EA Welsh Region, South East Area; and Shropshire areas are within the EA Midlands Region - Upper Severn Area.

Please refer to the map on page (iv) for the new boundaries.

Until Unitary development plans are produced, the existing plans by the predecessor authority will generally remain in force.

The current status of Development Plans within the catchment is summarised in Appendix 1.

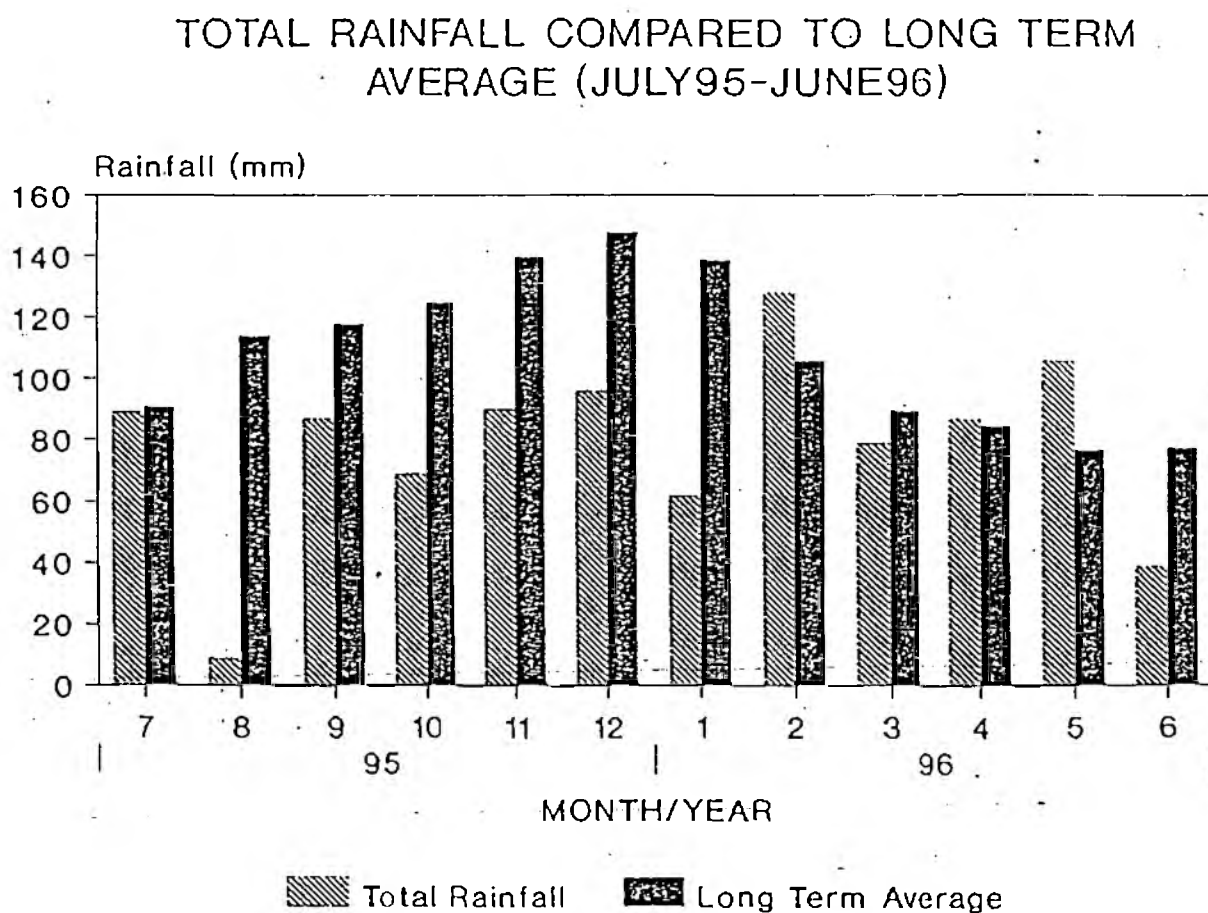
There has been a review of the Government's planning policy guidelines (PPG) for Wales. The majority of guidance applicable to Wales is now contained in the Planning Guidance (Wales) Planning Policy (May 1996).

The Government also issued the Regional Planning Guidance 11 (RPG) for the West Midlands Region in September 1995, which applies to Shropshire.

c) The Drought of Summer 1995

The Summer of 1995 was unusually hot and very dry. Rainfall in the catchment during the period was 941 millimetres (mm) representing only 72 % of the long term average for the area. This proved a very testing time for those managing and using water resources.

The chart below shows the rainfall over the review year.



A hosepipe ban was enforced by Severn Trent Water Ltd within the catchment from 22 August 1995 to 19 January 1996. Fortunately no drought orders were necessary during the 1995 Severn Regulation Season, with the minimum Llyn Clywedog storage of 40.5 % remaining 5.4 % above the 'Seek Drought Order' control curve, thanks to the support provided by the Shropshire Groundwater Scheme (SGS). North West Water Ltd, however, were granted a Drought Order for Lake Vyrnwy from mid-March to mid-June 1996, authorising a reduction in flow compensation, to assist with refill to protect supplies in 1996.

Restrictions were placed on those abstraction licences tied to the River Tanat at Llanyblodwel in early July 1995. Llyn Clywedog and Lake Vyrnwy reservoirs and to a lesser extent Shropshire Groundwater Scheme were all used for regulating the River Severn during the period 17 June to 11 November 1995.

Peak augmentation releases of 495 megalitres per day (Ml/d) were recorded from Llyn Clywedog; 150 Ml/d from Lake Vyrnwy and 85 Ml/d net from SGS. (N.B. only Phases (1) and (2) of the scheme have been developed for operation and were used during the period and only 3 boreholes of Phase (2) are in the area covered by this plan.)

By the end of the regulation period a total of 30,758 megalitres (Ml) had been released for regulation from Llyn Clywedog which had fallen to a low of 40% capacity. Lake Vyrnwy (which is mainly used for public supply to the North West but also plays a role in river support) had fallen to 30% capacity and a total of 4,821 Ml had been released for river regulation. Although only three of the Shropshire Groundwater Phase (2) boreholes are within the area covered, the main outfall for Phase (2) is into the River Severn at the most downstream point of the catchment. During the regulation period last summer a total of 3,020 Ml were discharged to the river at this outfall.

The winter refilling of the reservoirs was slow. Llyn Clywedog achieved full capacity by 31 May 1996, but Lake Vyrnwy only reached a maximum of 85 % capacity on 4 June 1996. With drought conditions persisting this summer, water resources will again need to be managed and used carefully.

d) River Severn Control Rules Review

The original rules controlling River Severn regulation were set by the Clywedog Joint Authority Act 1963. It was always envisaged these operating rules would need periodic review as the needs of the river and abstractors evolved.

The first review was undertaken in 1978 and changed the maintained flow at Bewdley from a fixed 727 Ml/d to a mean five day flow of 850 Ml/d, and established a maximum discharge obligation from Llyn Clywedog. This was to optimise resource use following the experiences of 1976 and to recognise the increased demands for abstraction in the lower reaches.

The need for a second review has long been recognised. By May 1996, the major issues were identified and possible options for change defined. These will now to be assessed in greater detail in this coming year.

The key issue remains the increasing development of abstractions below Bewdley and the need to improve the control over the residual flows to the estuary. This control may be better achieved by the use of lower and upper control points on the River Severn. In attempting to protect this residual flow however, within the resource limits, it is important that the needs of existing river users along the river are not adversely affected.

This review will result in amendments to Issue 5, Issue 6; action 6.1 and 6.3 and Issue 8 action 8.3. Please refer to the Action Plan Tables.

2.0 SUMMARY OF PROGRESS

Considerable progress has been made on a number of issues within the plan.

There are 27 issues highlighted in the plan with a total of 109 actions over the 5 year plan period. Of 74 actions planned for this year 72 have been completed with two (Action 1.2 and 8.2) being deferred to a later date in this plan due to a change in work priority. Ten actions not scheduled for this year were brought forward and have been started. Further details can be found in the Action Tables on pages 14 - 41.

2.1 Notable Achievements, Notable Developments and Disappointments

Notable Achievements

- * Creation of significant new wetland Nature Reserve at Newtown Sewage Treatment Plant (STP), in collaboration with Severn Trent Water Ltd (STW Ltd) and Montgomeryshire Wildlife Trust (MWT) as part of the Severn Valley Wetland Project. Further improvements were also made to the Dolydd Hafren wetland site, including the provision of a new bird hide. A new wetland was also created by excavating an old river meander on the River Tanat near Pedair-ffordd.
- * Construction of a new salmon pass at Pontdolgoch Weir on the Afon Carno has opened up a further 12 kms of good quality spawning gravels which could support up to 200 additional spawning salmon. Salmon successfully used the pass in Autumn 1995 and spawned upstream.
- * Willow revetment works were carried out on a 0.5 km length of the River Tanat as a demonstration project in the use of soft bio-engineering techniques to reduce bank erosion problems. Unauthorised anti-erosion works have been carried out by riparian owners on the River Tanat in the past with damaging impacts to the river's ecology. The willow revetment works will also help to protect an important salmon spawning gravel at the same location.
- * Extensive restoration work has taken place on the Montgomery Canal, carried out by British Waterways (BW) and Montgomery Waterway Restoration Trust (MWRT). The River Perry aqueduct has been completed, with the aid of a large capital contribution (£149k) from the Agency Flood Defence function. New stretches of canal have been opened up at Queen's Head and Belan. Off-stream and on-line nature reserves have also been developed with Phase (1) completed and opened. Restoration work is ongoing with Phase (2) due for completion in September 1996.

Notable Developments

- * AMP 2 implementation programme has been timetabled by Severn Trent Water, with Mile Oak STP targeted for August 1998 and Newtown STP for December 2000.

- * Shropshire Groundwater Scheme (SGS) Phase (2) was used for the very first time to contribute to the River Severn Regulation Support System during the 1995 drought, successfully contributing over 2,800 Ml to the River Severn.
- * The Environment Agency in collaboration with Forest Enterprise completed and officially opened the "Severn Break - Its - Neck" walkway (Hafren Forest), Llanidloes. This has been well received and used by the public. Other riverside walks at Llanidloes and Penarth were developed or improved.
- * An All-Wales Database to store data about abandoned metalliferous mines has been created by the Agency and the Welsh Office. This will enable the Agency to prioritise work at those sites having an adverse impact on the environment.
- * Improved liaison and consultation procedures between the Forestry Authority and the Agency, on matters such as felling licences and Woodland Grant Scheme Applications have been put in place. A National procedure for processing Forestry Planning Consultation, has also been developed.
- * Ongoing monitoring at Fan Lead Mine has identified a reduction of maximum contamination levels related to weather conditions, due to capping of spoil waste. The background level of pollution is still higher than expected due to infiltration water, however the two on site treatment lagoons are reducing contamination levels by 50%. Work carried out by the University of Aberystwyth is currently considering ways to increase on-site treatment lagoons efficiency. Discussions with Powys County Council are planned following the outcome of the study. Ongoing river monitoring is undertaken by the Agency. Brown trout have been observed in the Afon Cerist since the reclamation works were completed.
- * Organic pollution problems have been identified on the River Camlad and work undertaken to stop the discharges.

Disappointments

- * Slow progress made in promoting awareness of the damaging environmental impacts of unauthorised river works. This was reflected in the many unauthorised river works carried out in important salmon spawning areas within the catchment.
- * The importance in establishing a SSSI area on the Upper Severn for protection of geomorphological interests has been emphasised to the Countryside Council for Wales (CCW). No progress on decision has been made to date. This would have helped control some of the damaging activities described above and would have provided extra protection for the high quality wildlife habitats in the area.
- * In some Local Authority development plans, policies for Caravan Site upgrading have not explicitly excluded further development in flood plain.

2.2 Summary of the Environment Agency's routine activities within the catchment:

In addition to the progress reported, the Agency has undertaken a variety of day to day activities to protect and improve the water environment. This routine work includes:

- * Environmental Quality Enforcement and routine monitoring work.
(April 1995-March 1996.)
 - Responded to 132 pollution incidents.
 - Inspected 338 sewage works (Private and Water Company STW).
 - Inspected 64 industrial sites.
 - Inspected 60 contaminated land and waste disposal site.
 - Visited 130 farms.
 - Inspected 120 combined sewer overflows (CSO) and other sewerage problems.
 - Inspected 380 river sites.
 - Issued 1 warning letter.
 - Obtained and analysed 2,464 chemical samples (July 1995 - June 1996).
 - Obtained and analysed 240 biological samples (July 1995 - June 1996).
- * Water Resources - Licence Determination, Policing and Enforcement
(July 1995 - June 1996).
 - Carried out 73 enforcement visits.
 - Sent 4 warning letters.
 - Investigated 5 incidents.
 - Issued 4 new abstraction licences.
- * Fisheries (July 1995 - June 1996)
 - Carried out 4 fish surveys at 20 sites in the catchment
 - Fisheries staff attended 3 fish kills.
 - Stocked 63,700 salmon (smolt and fry) in the catchment.
 - Witnessed a record salmon spawning year in the catchment with 3,566 salmon redds counted compared with the long term average of 1,495.
- * Flood defence activities cover regulation (including issuing of land drainage consents), enforcement, maintenance and emergency response.
 - Two lengths of Flood Defence Argae¹ on the River Vyrnwy were successfully reconstructed in 1995, one between Llanymynech and Rhandregynwen, and one between the Shores and the Ark (River Vyrnwy).
- * The EA works closely with local planning authorities through its planning liaison function, commenting on planning application consultations and proposals associated with Local Development Plans.

Appendix 2 gives the pollution incident report for 1995/1996.

Appendix 3 gives further details of the fisheries surveys and salmon stocking carried out in the catchment.

¹Argae - flood embankment

3.0 ACTIONS UPDATE

The following Action Plan tables have been reproduced from Section 5 of the River Severn Upper Reaches Action Plan (June 1995). The tables have been updated to show progress and any changes that have occurred since the Action Plan was published. Progress for each action is summarised in the column on the right hand side. Any changes from the Action Plan are highlighted in bold text.

3.1 Additions and Alterations to the Plan Table

Due to the evolving nature of the Action Plan, some changes are inevitable as a result of the past year's activities.

Some routine actions form part of the every day protection policies of the Agency. Where applicable, progress has been reported on these issues. In subsequent reviews however, these activities will receive a reduced profile as CMPs and their successor documents LEAPs become increasingly issue lead.

There have been some amendments to various issues and actions. In some instances the issue has become more focused, and the actions changed accordingly. This has occurred in Issues 5, 6, 7, 8, 9, 13 and 14. Further details about these amendments are found in the respective tables.

3.2 Issues

The issues are presented with a number of actions, a target timetable and the identification of responsible parties. Whilst every effort has been made in both the Action Plan and Annual Review to reflect the current priorities and cost of schemes, it must be recognised that these have been developed within existing economic and political constraints. Progress will depend on the resources available and recognising the competing priorities of all organisations involved.

3.3 Action Plan table

The following tables report on progress for the catchment. The key to use these tables is given below:

Notes and abbreviations

AMP	ASSET MANAGEMENT PLAN	LA	LOCAL AUTHORITY
BCU	BRITISH CANOE UNION	LPA	LOCAL PLANNING AUTHORITY
BW	BRITISH WATERWAYS	MAFF	MINISTRY OF AGRICULTURE, FISHERIES & FOOD
CC	COUNTY COUNCIL	MWRT	MONTGOMERY WATERWAY RESTORATION TRUST
CCW	COUNTRYSIDE COUNCIL OF WALES	MWT	MONTGOMERYSHIRE WILDLIFE TRUST
CLA	COUNTRYSIDE LANDOWNERS ASSOCIATION	NFU	NATIONAL FARMERS UNION
CoCo	COUNTRYSIDE COMMISSION	NWW Ltd	NORTH WEST WATER LTD
DBRW	DEVELOPMENT BOARD FOR RURAL WALES	RSNC	ROYAL SOCIETY FOR NATURE CONSERVATION
DoE	DEPARTMENT OF THE ENVIRONMENT	RSPB	ROYAL SOCIETY FOR THE PROTECTION OF BIRDS
DoT	DEPARTMENT OF TRANSPORT	STW Ltd	SEVERN TRENT WATER LTD
EA	ENVIRONMENT AGENCY	SWT	SHROPSHIRE WILDLIFE TRUST
EN	ENGLISH NATURE	WCA	WELSH CANOE ASSOCIATION
FA	FORESTRY AUTHORITY	WDA	WELSH DEVELOPMENT AGENCY
FE	FOREST ENTERPRISE	WO	WELSH OFFICE
FUW	FARMERS' UNION OF WALES	WOAD	WELSH OFFICE AGRICULTURE DEPARTMENT
IDB	INTERNAL DRAINAGE BOARD		

KEY

<	Less than
==	Action in the year indicated (numeric entry given if costs known)
U	Unknown at this time
CS	Commercially sensitive
R	No additional costs to annual budgetary provision (recurring or routine)
*	Costs shared between identified bodies
Δ	Activity added as a result of consultation
pa	Per annum
TN	Timing dependent on national water resources strategy actions.
C	Capital expenditure

AMP2 = Asset Management Plan 2 produced by the Water Companies for the Office of Water Services (OFWAT). It sets out the water industry investment programme for the period 1995 to 2000. AMP3 will set out the water industry investment programme for the period 2000 - 2005.

Issue 1. Need To Safeguard High Quality Water, Water Resources and Habitats

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/ 96	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
1.1 Seek additional EC fisheries designations on Rivers Trannon, Clywedog, Rhacadr, Mule, Iwrch, Cynllaith and Caebitra Brook.	EA		R	=====						Area submissions made to Region
1.2 Identify potential impact of existing catchment uses on surface and groundwater sources	EA	B	R 10	3		5	5		5 Year Review	Not commenced due to delay in receiving catchment zone maps - due in December 1996. Work rescheduled for June 1997 - June 1999.
1.3 Monitor protection of water environment through planning liaison and the application of EA's regulatory powers.	EA	LPAs	R	=====	=====	=====	=====	=====	Ongoing	Ongoing process through planning liaison. Routine monitoring and annual GQA survey completed. This routine work has continued through the year and is ongoing. As it forms part of the Agency's day to day activities progress will not be reported in future Annual Reviews.
1.4 Monitor protection of water environment through the implementation of EA's area conservation and fisheries strategies.	EA		R	=====	=====	=====	=====	=====	Ongoing	Ongoing routine work. As above.

Issue 2. Reduction and Mitigation of Acidification Impacts

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
2.1 Contribute to the development of national EA Acidification and Forestry Business Plans.	EA		R2	1	1					Active input into National Group. Forestry Business plan produced and incorporated into published pollution prevention business plan.
2.2 Promote EA Forestry Business Plans (2.1) to influence the control and management of coniferous forests	EA	FA CC	U	====	====	====	====	====	Ongoing	Improved liaison and consultation with Forestry Authority eg Felling licence and woodland grant scheme applications, also direct contract with foresters. Ongoing quality monitoring to detect trends within identified and acid sensitive areas.
2.3 Monitor impacts of acidification on water quality, fish populations and aquatic fauna.	EA		R75	15	15	15	15	15	Ongoing	Adverse impacts still evident on upper reaches of River Severn. Some improvement noted on Afon Twrch (possibly associated with 2.4 below). Participation in All Wales 1995 Acid Waters Survey.
2.4 Investigate and implement instream liming techniques for mitigating acidification impacts.	EA		35	R<5	R<5	<10	<10	<10		Limewell operation progressing with increased Calcium levels recorded downstream.

Issue 3. Achievement of Longer Term Water Quality Objectives (WQOs) and Compliance with EC Water Quality Directives

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
3.1 Monitor completion of land reclamation scheme at Fan Lead Mine.	EA	Powys CC	R6	2	2	2				Continuation of monitoring of water quality of Afon Cerist downstream site. Improvement detected in reduction of maximum contamination levels. Brown trout observed in Afon Cerist for the first time.
3.2 Monitor restoration of Montgomery Canal.	EA	BW MWRT	R5	1	1	1	1	1	Ongoing	Water quality monitoring continuing. No changes.
3.3 Monitor investment at Newtown and Oswestry - Mile Oak Sewage Treatment Plants under AMP2 programme.	EA	STW Ltd	R10 CS	2	2	2	2	2	Ongoing	Investment now timetabled. Routine discharge and water quality monitoring continuing.
3.4 Investigate cause of non-compliance with RE long term WQO and establish plan for improvement of: (a) Afon Vyrnwy - lower reach (b) Camlad - lower reach (c) Weir Brook (d) Afon Cain - upper reaches	EA									(a) Data examined. Breaches of limits associated with storm conditions not point sources. As no further action proposed, progress will not be reported in future reviews. (b) Biological investigation undertaken. Farms identified with inadequate drainage/containment facilities. Improvement work undertaken. Further investigation planned. (c) Data examination has shown that the long term RQO is being achieved. As no future action is proposed, this will not appear in future reviews. (d) Ongoing investigation with additional biological and chemical monitoring.
3.5 Identify areas of contaminated land, assess potential for impact on water quality and assess third party proposals for restoration where appropriate.	EA	CC WDA	U						Ongoing	Development of an All-Wales Abandoned Mine Databases Programme of site inspections, to populate database is being developed

Issue 4. Sewerage and Sewage Disposal in Rural Areas

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/ 96	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
4.1 Identify locations and establish impact of inadequate sewerage and sewage treatment facilities within catchment.	EA	LA STW Ltd	R	=====	=====	=====	=====	=====	Ongoing	Maesbury Marsh sewerage problems concerns are increasing with further pressure for development and restoration of existing property. Watercourse quality and associated uses are also at risk.
4.2 Promote policies in Structure and Local Plans to prevent further problems in critical locations.	EA	LA CC	R	=====	=====	=====	=====	=====	Ongoing	Policies promoted and comments produced for Powys Structure Plan (Adopted 31.1.96). Montgomeryshire D C local plan (report draft Oct 1995) and Oswestry B C local plan review.
4.3 a Make detailed assessment of foul sewage disposal proposals for new development within locations listed in Land Use Statement LU2 ¹ , and any new locations identified in 4.1 above.	EA	LA	R	=====	=====	=====	=====	=====	Ongoing	Ongoing process though planning liaison. New sewerage and sewage treatment facilities for Ardleen and Burgedin now programmed by STW Ltd. Commission date not yet available. Replacement sewage treatment facilities for Knockin and Llansantffraid also scheduled by STW Ltd.

Note: LU2¹ - Land Use Statement 2, taken from the Action Plan (June 1995) Section 4:2 page 16.

Issue 5. Stewardship Role for Abundant Surface Waters

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
5.1 Determine Control Point flows for Upper Reaches of River Severn taking into account downstream needs.	EA	Water Cos Downstream river users	R 30	10	10	10				Initial study in progress, reporting later this year on relationship between changes in flow regime and changes in available habitat for salmon.
5.2 Construct Upper Reaches Control Point river flow measurement station at or near Dolwen.	EA		C170		10	160				Under investigation to confirm option requirements and implicate sites.
5.3 Review S.20 Agreement to incorporate provisions for Upper Reaches Control Point taking into account downstream needs.	EA	STW Ltd NWW Ltd	R10					10	10 year Review	Initial investigations underway.

Note: In the coming Action year and in subsequent annual reviews, Issue 5 and Issue 6 will focus on the Review of River Severn Regulation Control and Reservoir operation.
The amended actions to compliment this issue are shown in the Action table overleaf.

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1996/97	1997/98	1998/99	1999/2000	FUTURE
	LEAD	OTHER						
5.1 Review requirement for/and if needed construct Upper Reaches Control point at Dolwen.	EA	Water Cos Downstream river users	C190*	20	170			
5.2 Investigate scale of flooding problems and impact of existing flood drawdown guidelines for Llyn Clynwedog and Lake Vyrnwy.	EA		C10		10			
5.3 Review reservoir control rules and operating guidelines for Llyn Clynwedog and Lake Vyrnwy as result of 5.1 and 5.2 above and also to take account of any changes to the River Severn Control Rules.	EA		C10		10			

* The same cost estimate will apply

Issue 6. River Regulation & Reservoir Control

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
6.1 Update Reservoir Operating Guidelines to take account of changes to River Severn Control Rules.	EA	STW Ltd NWW Ltd	R 10			10				Pending review of 'River Severn Control rules'.(RSCR) ¹
6.2 ▲ Investigate scope to reduce large river releases following periods of flooding at Severn/Vyrnwy confluence.	EA	STW Ltd	R 5		5					Work scheduled for 1996/97.
6.3 Review reservoir control curves to take into account changes to configuration of Shropshire Groundwater Scheme and hydropower facilities.	EA	STW Ltd NWW Ltd	R 10		10					As 6.1.

Note: In the coming years and subsequent Annual Reviews, Action 6.1 and 6.2 will merge with Issue 5 to form the new amended Issue 5. This will also allow the EA to focus on the flooding problems at the River Severn Vyrnwy confluence. This will be reflected in the issue title which will now read "Stewardship Role for Abundant Surface Waters - Review of River Severn Regulation Controls and Reservoir Operation". The actions to complement this issue are shown on the table on page 19.

¹ For further details of RSCR see page 7.

Issue 7. Export of Water from the Catchment:

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
7.1 Determine whether existing use of Lake Vyrnwy Water Bank maximises local benefits and establish scope for reducing winter spillage (see also 6.3)	EA	STW Lid NWW Lid	R 10 U			10				Joint strategy group set up between the Agency's Welsh, North West and Midlands Region.
7.2 Incorporate demand-management and leakage control monitoring of 'external' water companies into River Severn future demand scenarios ongoing part of established Water Resources Input Strategy	EA	Water Cos	R 10 U		10					Ongoing routine work, part of established Water Resources Management Strategy Progress will not be reported in future reviews.
7.3 Complete appraisals of alternative provisions in NW England to some of public water supply demand currently provided by Lake Vyrnwy	EA	NWW Lid	U U						TN	

Note: In the coming years and subsequent Annual Reviews, Action 7.1 and 7.3 and Issue 13.1 will merge. The amended Issue 7, Export of Water from the Catchment will focus on a review of the use of Lake Vyrnwy. The proposal to increase the use of Lake Vyrnwy as a regulating reservoir could have potential environmental impact. The actions to compliment this issue are shown in the table overleaf

Amended Issue 7. Export of Water from the Catchment: Review of use of Lake Vyrnwy

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE
	LEAD	OTHER						
7.1 Establish optimum use of Lake Vyrnwy as a joint provider of supplies to NW England and of regulated flows to the River Severn.	EA	STW Ltd NWW Ltd	R10		10			
7.2 Assess further potential for use of Lake Vyrnwy as a regulating reservoir including the environmental impact of such proposals.	EA	NWW Ltd	U					TN

Issue 8. Future Transfer of Water Using the River Severn

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
8.1 Continue feasibility studies into use of River Severn water when naturally plentiful to meet demands downstream of catchment.	EA	Water Cos	U						TN	Subject to Reappraisal and National Water Resources Strategy Review ¹ .
8.2 Commence impact appraisals of increased use of medium river flows for new abstractions on existing River Severn lawful users.	EA	River users	R 20		10	10				Deferred to 96/97 due to change in work priority. Pending review of Regional Resource Strategy due end of 1996/1997. ¹
8.3 Programme long-term appraisal of reservoir storage needs to support higher regulated flows in River Severn.	EA	Water Cos	U U					U	TN	Pending River Severn Control Rules ¹ (RSCR). ²

¹ Note: For details on RSCR please see page 7.

² Note: In the coming Action years and subsequent Annual Reviews Actions 8.1, 8.2 and 8.3 will merge and the amended action to compliment the above Issue is on the table overleaf.

Amended Issue 8. Future Transfer of Water Using the River Severn

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE
	LEAD	OTHER						
8.1 Assess options for and impacts of potential future transfers of water out of the Severn Catchment.	EA	Water Cos River users	U					TN

Issue 9. Reliability of Water Supplies in Meeting Peak Demands

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
9.1 Appraise adequacy of public water supply provision to meet future peak demands in the catchment.	EA	STW Ltd	R 5 U		5					Deferred to 1996/97, due to action reappraisal. See note below.
9.2 Secure commitment to improve demand management by meeting economic leakage levels in Llandinam & North Montgomery Distribution Area.	EA	STW Ltd	R 5 U		5					Information has been provided by STW Ltd towards determining economic leakage levels in Llandinam and North Montgomery areas.
9.3 Ensure new options to meet peak demands do not derogate existing uses of surface or groundwater.	EA	STW Ltd River users	R 10				10			Routine work carried out during the year. EA has a statutory duty to ensure new water sources do not derogate existing protected rights. As this is part of the every day work, progress will not be reported in future reviews.

Note: In future Issue 9 will focus on Llandinam and North Montgomery Distribution Area. The amended issue title 'Reliability of Water Supplies in Meeting Peak Demands - Montgomery Distribution Area' will reflect this.

Issues 10. Shropshire Groundwater Scheme (SGS) : Use and Impacts

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
10.1 Consolidate Phase II SGS Operating Rules into Scheme Operational Manual.	EA	SGS Liaison Committee	R 5	5						Data Collection from water companies undertaken and initial assessment carried out.
10.2 Monitor impact of scheme through operational or group test pumping of boreholes.	EA	SGS Liaison Committee	R	=====	=====	=====	=====	=====	Ongoing	Statutory monitoring undertaken on both commissioned Phases 1 & 2 Results to be presented to SGS Liaison Committee and ADAS report.
10.3 Provide alternative water supplies if appropriate under agreed model terms and conditions.	EA		R	=====	=====	=====	=====	=====	Ongoing	No requests made during 1995/96..

Issue 11. Use of River Severn Water for Montgomery Canal

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/ 96	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
11.1 Monitor use of river water fed into the canal system according to Standing Agreement (1988).	EA	BW	R	====	====	====	====	====	Ongoing	Work has been carried out to monitor water fed into control system.
11.2 Review use of river water as restoration proceeds to test adequacy of flow controls to minimise unnecessary water losses.	EA	BW MWRT	R 10		5				5	No work planned for this reporting year.
11.3 Develop operational flow control measures to ensure best use of scarce river supplies when resources are limited (via the Agreement during droughts, see 6.3).	EA	BW STW Ltd	R 5			5				As above.

Issue 12. Abstractions from River Gravels: Use and Impacts

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
12.1 Monitor impact of increased abstractions from river gravels at Llandinam on river flows.	EA	STW Ltd	R 5 U	5	R					Flows gauged upstream and downstream of Llandinam. Consistent with influent seepage. Further work planned for 1996/97
12.2 Maintain awareness of legislative change affecting non-water resources impacts of groundwater abstractions. (See also 9.3).	EA		R	====	====					Routine work ongoing. Progress will not be reported in future reviews
12.3 Ensure use of those gravels supplies reliant on flow augmentation support is matched by explicit reservoir releases and river abstraction provisions.	EA	STW Ltd	10 U				10			No work planned for this reporting year.

Note 12.3: In the coming Action years and subsequent Annual Reviews action 12.3 will be deleted and merged as it is now covered by with action 12.1, focusing the augmentation philosophy on Llandinam.

Issue 13. Lake Vyrnwy Possible Future Change of Use :

No work was planned for this year. This issue will merge with amended Issue 7 at the next review. Please see page 22 for further detail.

Issue 14. Groundwater Abstraction Licensing Exemptions

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
14.1 Confirm extent of existing problems allegedly attributable to the exemptions.	EA	STW Ltd Private Abstractors Environ. Interests	R 10 U		10					No work planned for this reporting year.
14.2 Assess best method to appraise groundwater resources of exempt area.	EA	STW Ltd Environ. Interests	R 10 U		10					See above.
14.3 Determine balance of evidence in support of existing policy and any need to change it.	EA	STW Ltd Abstractors	R 10 U			10				See above.

Note: Actions 14.1, 14.2 and 14.3 will be merged. It is felt that this consolidated action will more effectively deal with the issue. The new action proposed is:

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1996/97	1997/98	1998/99	1999/2000	FUTURE
	LEAD	OTHER						
14.1 Carry out study to determine the extent of existing problems caused by the exemption, including recommendations for any change in policy and how best to assess groundwater resources.	EA	STW Ltd Private Abstractors Environ. Interests	R 30		20 -	10		

Note: The same cost estimate is given.

Issue 15. Protection of Rare and Threatened Species

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
15.1 Identify key habitat types and species within the catchment and develop and implement objectives for their protection.	EN/CCW	EA	U	=====	=====	=====	=====	=====	Ongoing	MWT progressing with development of local biodiversity initiatives. Key species, habitat types and some costed action plans also identified in UK Biodiversity Plan. Regional targets have been identified.
15.2 Maintain and improve bankside cover for otters.	EA WOAD	Landowners	<10	=====	=====	=====	=====	=====	Ongoing	Revetment works carried out on River Tanat. Planting schemes at Severn/Vymwy confluence.
15.3 Develop policy on mink hunting to reduce disturbance of otters.	EN/CCW RSNC	Landowners EA	U	=====	=====	=====	=====	=====	Ongoing	EA leaflet including position on mink hunting has been produced and is available.
15.4 Identify current distribution of alien crayfish species.	EA	MAFF/WOAD	C<5	<5						Details of authorised sites obtained from MAFF registered fish farm list.
15.5 Develop policy on alien crayfish and restrict introductions to the catchment.	MAFF WOAD	EA EN/CCW	U	=====	=====					MAFF have declined to include the Severn catchment on the list of 'no go' areas for alien crayfish introductions.
15.6 Survey and identify conservation requirements for floating water-plantain.	EN/CCW EA	Wildlife Trusts	C<5		<5					Identified in UK Biodiversity Plan. MWT are collecting records of distribution in catchment.
15.7 Identify Black Poplar distribution and develop objectives for the protection and enhancement of the species.	EN/CCW EA FA/FE	Wildlife Trusts	C<5		<5					Distribution identified and mapped. Further surveys, DNA testing and taking of cuttings to be progressed in 1996/97.

Issue 16. Increased Demand for Amenity and Recreation Opportunities

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
16.1 Δ Develop new amenity/recreation and fishing facilities on Montgomery Canal.	BW/MWRT		U	=====	=====	=====	=====	=====	Ongoing	Good progress with re-opening of stretches of the canal at Betan to Refail Queen's Head and Perry aqueduct.
16.2 Develop canoe launches on River Severn 'free navigation', including 'head of navigation' site in Pool Quay area.	BCU/WCA EA	Landowners LAS	C30 *							Site investigation completed. No suitable sites found. Project now considered impractical because of adverse bank profiles, poor access, safety considerations and high costs.
16.3 Δ Improve canoe facilities at Newtown for disabled users.	EA LA	WCA DBRW	C10 *			10.				Deferred beyond 1996/97 due to Grant In Aid (GIA) funding reductions.
16.4 Δ Investigate possibility of extending the Severn Way footpath along the whole of the River Severn in this catchment area.	EA LAS CC	CoCo/CCW Ramblers Assoc.	C5		5					Section up to Shropshire County boundary completed. Extension to Newtown planned 1996/97. Newtown to source to be progressed in future years.
16.5 Promote and develop waterside footpaths at suitable locations including Hafren Forest, Llanidloes, Newtown, wetland nature reserves and other appropriate sites.	EA LAS CC	FE Wildlife Trusts	C30 *			10	10	10		Footpaths at Hafren Forest, Penarth Wetland site and Llanidloes completed.
16.6 Promote birdwatching facilities at Dolydd Hafren, Coed y Dinas and Severn/Vyrnwy confluence.	EA	CCW/EN RSPB MWT, SWT	C10	5		5				Hide constructed at Dolydd Hafren Autumn 1995.
16.7 Δ Improve Riverline service for canoeists by including details of reservoir releases and overflows.	EA		R	=====						Level gauge readings downstream of Clywedog and Vyrnwy reservoirs incorporated into Riverline message for benefit of canoeists.
16.8 Δ Promote co-operation between canoeists, riparian owners and other river users.	BCU/ WCM	EA Landowners Angling Clubs	R	=====	=====	=====	=====	=====	Ongoing	Discussions/meetings with Newtown Town Council/Local Angling Clubs and Welsh Canoeing Association.

Issue 17. Restoration of Damaged Habitats

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
17.1 Restore old and create new wetland habitats	EA Wildlife Trusts	EN/CCW Landowners WOAD	C25	5	5	5	5	5		Pedairfford Wetland (River Tanat) constructed Autumn 1995.
17.2 Develop and implement Severn Valley wetlands strategy.	EA MWT	RSPB CCW	C71	51	10	10				Further wetland development at Penarth (£46k) and Dolydd Hafren (£5k).
17.3 Improve riparian and instream habitat Afon Trannon/Cerist.	EA	10	C5	5						Instream improvements in Upper Cerist associated with Fan Lead Mine reclamation and willow revetment associated with Flood Defence maintenance works on Afon Tanat.
17.4 Improve salmon spawning gravels where appropriate.	EA		C25	<5	<5	<5	<5	<5		Improvements achieved on River Tanat, Llangedwyn in association with willow revetment works.
17.5 Improve riparian and instream habitat on River Morda.	EA		C10		15		15			Included in 1996/97 Regional Business Plan.
17.6 Promote Tir Cymen, Water Fringe Habitats Scheme, Countryside Stewardship and other appropriate schemes in riparian locations.	CCW MAFF WOAD	U	=====	=====	=====	=====	=====	=====	Ongoing	Ongoing activity. EA is consultee in MAFF/WOAD application procedures. As this forms part of the Agency's day to day work, progress will not be reported in future Annual Reviews.
17.7 Investigate riparian tree planting and fencing opportunities and implement where appropriate.	EA	Landowners	C20		10		10			No work planned for this reporting year.
17.8 Develop regional EA Policy on invasive weed control, implement on EA landholdings and encourage others to follow lead.	EA	Landowners	C20	2	<5	<5	<5	<5	Ongoing	Regional Policy now operative. Annual spraying undertaken on EA land and in conjunction with Flood Defence maintenance operations. Increasing concern about spread of Giant Hogweed plus habitat degradation and health risks.
17.9 Recreate and maintain botanical status of Montgomery Canal in off-line nature reserves.	BW/MWRT	EN/CCW	U	=====	=====	=====	=====	=====	Ongoing	New nature Reserves constructed at Brithdir, Whitehouse and Aston. Establishment of flora and fauna in the reserves will be an ongoing process.

Issue 18. Obstacles to Salmon Migration

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
18.1 Construct salmon pass at Pontdolgoch Weir on Afon Garno.	EA		C30	30'						Pass completed Autumn 1995. Salmon have now spawned upstream.
18.2 Investigate possibility of providing access for spawning salmon to the upper reaches of the River Mule.	EA		R	=====						Investigations completed. Report produced. Further progress impractical. Weir owners unwilling to have weirs removed. Fish passes or other measures too costly.
18.3 Stock rivers above other obstacles with local hatchery reared juvenile salmon and/or transport adult salmon upstream.	EA		C40	<10	<10	<10	<10	<10		58,000 salmon fry and 10,000 salmon smolts were stocked out during 1995 into rivers in the catchment.
18.4 Investigate viability of providing access for salmon to the River Severn upstream of Felindre Weir.	EA		U					=====		No work planned for this reporting year.
18.5 Investigate alternative funding for improvement projects in light of diminishing Grant in Aid.	EA		U	=====	=====	=====	=====	=====	Ongoing	No immediate options. A local Salmon Management Plan (1996/97) for the River Severn will consider this point further.

Issue 19. Protection and Maintenance of Native Brown Trout Population

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
19.1 Safeguard habitats (see issue 1).	See Issue 1		U	=====	=====	=====	=====	=====	Ongoing	Routine/Ongoing. See Issue 1. As this forms part of the Agency's routine/ongoing work, progress will not be reported in future reviews.
19.2 Resolve acidification problems (see Issue 2).	See Issue 2		U	=====	=====	=====	=====	=====	Ongoing	Routine/Ongoing. See Issue 2. As above.
19.3 Determine and implement S30 Stocking Consent Policy for brown and rainbow trout in rivers.	EA		R	=====	=====	=====	=====	=====	Ongoing	Investigations undertaken in 1995/96. Policy development in 1996/97
19.4 Protect isolated population of native brown trout in upper reaches of Afon Dulas.	EA		R	=====	=====	=====	=====	=====	Ongoing	Routine/ongoing. No specific threats in 1995/96.
19.5 Assess present status of native brown trout populations in the catchment.	EA		R50	10	10	10	10	10		Surveys undertaken on Afon Rhiw and River Tanat. Concerns about apparent decline of trout in River Tanat will be investigated further.
19.6 Determine measures to mitigate any declines in river brown trout populations	EA		U	=====	=====	=====	=====	=====	Ongoing	Habitat improvements undertaken on River Tanat, Afon Rhiw, Ceris/Trannon. S30 stocking policy (see 19.3) to be developed and implemented in future years.

Note: In future Action years and subsequent Annual Reviews, Actions 19.1 and 19.2 will be addressed under Issue 1 and 2 respectively.

Issue 20. Poaching and Illegal Fishing

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/ 96	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
20.1 Maintain surveillance and anti poaching patrols by Water Bailiffs.	EA		R 125	25	25	25	25	25		Extensive patrols/surveillance undertaken in October-December 1995 at vulnerable locations (eg: Penarth Weir and spawning gravel areas).
20.2 Maintain checks on illegal sales of salmon at major outlets.	EA		R10	<5	<5	<5	<5	<5		Checks made at various locations in the in catchment - no illegal activity detected.
20.3 Review Fisheries Bylaws to combat illegal salmon fishing in close season.	EA		U			=====				No work planned for this reporting year.

Issue 21. Impact of Piscivorous Birds on Fish Stocks

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/ 96	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
21.1 Assess the population trends and current distribution of cormorants and goosanders in the catchment.	RSPB		<5		<5					No work planned for this reporting year.
21.2 Monitor impacts of piscivorous birds on local fish stocks where appropriate.	EA	EN/CCW RSPB, EA	R	=====	=====	=====	=====	=====	Ongoing	No specific reports of damage were received.
21.3 Ensure appropriate consultation on applications to control piscivorous birds.	MAFF WOAD		R	=====	=====	=====	=====	=====	Ongoing	No applications were referred by MAFF/WOAD to EA or former NRA

Issue 22. Prevention of Unauthorised and Other Environmentally Damaging River Works

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
22.1 Promote awareness in agricultural community of damaging environmental impacts of unauthorised river works.	EA		R	=====	=====	=====	=====	=====	Ongoing	Extensive problems occurred during 1995/96 in the prevailing low flow conditions. Visits made by Fisheries and Conservation staff to offending parties. The matter was also discussed at the Regional Annual Agricultural Liaison Group Meeting.
22.2 Enforce Water Resources Act 1991 to prevent unauthorised river works.	EA		R	=====	=====	=====	=====	=====	Ongoing	Enforcement notice served on River Tanat riparian owner
22.3 Notification of Dolwen/Penslrowed geomorphological SSSI on River Severn.	CCW		U	=====	=====					Importance has been emphasised to CCW Chief Executive, but no decisions/progress to date
22.4 Enforce Fisheries Legislation to protect salmon spawning gravels from unauthorised river works.	EA		R	=====	=====	=====	=====	=====	Ongoing	Landowners were given warnings on Rivers Gam, Camo and Tanat. As a result, no instream works took place during the critical spawning period.
22.5 Δ Promote the use of 'soft' bio-engineering works for bankside protection.	EA		U	=====	=====	=====	=====	=====	Ongoing	Willow revegetation works were carried out on the River Tanat and Trannon.

Issue 23. Water Level Management in the Severn-Vyrnwy Confluence Area

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
23.1 Develop long term environmental strategy for water level and land use management in the confluence area.	CoCo EA, IDB NFU/FUW CLA	Landowners Wildlife Trust EN/CCW	U		=====					Work commenced 1995/96 under the leadership of CoCo, this involves a Severn/Vyrnwy Confluence Land Use Study with the strategic assessment completed.
23.2 Develop and implement strategy for flood defence capital and maintenance works in the confluence area.	EA		C50 C65	50 40	25	=====	=====	=====	Ongoing	Draft report on strategy for flood defence works now expected in September 1996, with implementation of strategy then on going.
23.3 Merge environmental and flood defence strategies to form overall strategy.	EA		C<10	<10	=====					Work started on environmental strategy 1995/96: to be merged with Flood Defence strategy early 1997.
23.4 Identify sites of archaeological importance in the confluence area.	Clwyd-Powys Arch. Trust	EA	C<5	<5						Completed April 1995.

Note 1 - £40k = actual spend.

Issue 24. Preservation and Definition of Flood Plain

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
24.1 Press for policies to be included in Development Plans to protect flood plain from development.	EA	LPA	R	=====	=====	=====	=====	=====	Ongoing	Plans adopted and progressed during the year have incorporated suitable policies. These include Powys Structure Plan, Montgomeryshire Local Plan and Oswestry Borough Local Plan. Progress for this routine, ongoing work will not be reported in future reviews.
24.2 Press for policies in Development Plans to remove redundant structures from flood plain.	EA	LPA	R	=====	=====	=====	=====	=====	Ongoing	No progress in 1995/96. Work ongoing. As above.
24.3 Install more level and flow gauging stations.	EA		C7	7	U					Gauges installed on the River Severn. Further gauges programmed for Afon Vyrnwy in 1996/97.
24.4 Carry out ground level surveys and computer modelling.	EA		C224		100	124				Two computer models within Upper Severn Reaches. Contract for work on River Severn has been let to H R Wallingford ¹ , with survey currently being undertaken. Model likely to be completed by May 1997. Modelling work on River Vyrnwy to commence 1997/98.
24.5 Update flooding survey for S105 Water Resources Act 1991.	EA		U	=====	=====	=====	=====	=====		No progress to date. This work depends on results obtained from the modelling work outlined in 24.4.

Note: ¹ Hydrological Research Centre, Wallingford.

Issue 25. Caravan Sites in Flood Plain

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
25.1 Monitor inclusion of policies in Development Plans to prevent development of caravan sites in flood risk areas.	EA	LPA	R	-----	-----	-----	-----	-----	Ongoing	See 24.1 and page 8

Issue 26. Impact of Land Use Changes Including Hill Land Improvements and Afforestation, and Rates of Run-Off

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/96	1996/97	1997/98	1998/99	1999/2000	FUTURE	PROGRESS
	LEAD	OTHER								
26.1 Investigate scale of impact.	EA	LPAs	C15		15					Literature search commenced in 1996.

Issue 27. Impact of Development on the Water Environment

ACTIONS	RESPONSIBILITY		Total Cost (£k)	1995/ 96	1996/ 97	1997/ 98	1998/ 99	1999/ 2000	FUTURE	PROGRESS
	LEAD	OTHER								
27.1 Liaise with LPAs and seek adoption of appropriate policies in Development Plans.	EA	LPAs Developers	R	=====	=====	=====	=====	=====	Ongoing	Policies in plans adopted have progressed during the year in accordance with EA guidelines.
27.2 Increase EA involvement in pre-planning enquiries, development briefs and planning agreements.	EA	LPAs Developers	R	=====	=====	=====	=====	=====	Ongoing	Discussion regards planning agreement is ongoing over the Timber Treatment plant in Oswestry.
27.3 Include environmental enhancement as part of development where appropriate, and press for aftercare programmes.	Developers LPAs	EA DoT WO Riparian Owners	U	=====	=====	=====	=====	=====	Ongoing	Routine/ongoing. No specific examples in 1995/96.
27.4 Δ Encourage bridge designers to incorporate holes and ledges into new structures for enhancing bird and bat habitats.	EA DoT	LAs RSPB	U	=====	=====	=====	=====	=====	Ongoing	Routine/ongoing. No specific examples in 1995/96.
27.5 Δ When river gravels are used for construction works, encourage extraction from flood plain areas where compensatory wetlands can be created (subject to Issue 12).	LPAs EA	Wildlife Trusts	U	=====	=====	=====	=====	=====	Ongoing	Minerals Authority encouraged to identify suitable flood plain locations for gravel extraction. No immediate opportunities.
27.6 Δ Control and monitor economically viable and environmentally acceptable hydropower developments.	EA	LPAs Developers	R	=====	=====	=====	=====	=====	Ongoing	Installation at Dolanog 1995. Other sites identified on Rivers Iwrch and Trannon. No new applications received in the review year.

Note: 27.1, 27.2, 27.3, - Progress on these routine, ongoing activities will not be reported in future reviews.

4.0 FUTURE REVIEWS

It is important to monitor the Action Plan, to ensure that targets and actions are achieved and that the plan continues to address relevant and significant issues in the catchment in an appropriate manner. This report summarises the progress made since the publication of the Action Plan in June 1995. The following annual review will cover the period July 1996 - June 1997, and will deal with the water environment only. At the next formal review of the catchment, the full spectrum of Agency responsibilities will be considered.

APPENDIX 1 Current status of the Local Authority Development Plans in the Catchment

Local Authority	Development Plan and Current Status
<p>Powys County Council</p> <p>-Radnorshire</p> <p>-Montgomeryshire</p> <p><i>For ex Clwyd/ Glyndwr Areas:</i></p>	<p>Powys County Structure Plan(Replacement)1991- 2006 -Adopted February 1996.</p> <p>Minerals Local Plan - Adopted March 1995.</p> <p>Radnorshire Local Plan, Consultation Draft July 1994.</p> <p>Montgomeryshire Local Plan (including waste policies) - Deposit draft October 1995. Public Inquiry September 1996.</p> <p>Clwyd County Council Structure Plan (1986 -2006). Amended Deposit Draft Jan 1996.</p> <p>Glyndwr District Local Plan - adopted 14 February 1994.</p>
Shropshire County Council	<p>Shropshire County Structure Plan 1989 - 2006 - operative from 1 January 1993. Review commenced - Consultation Draft due Spring 1997.</p> <p>Shropshire Minerals Local Plan - Deposit Draft April 1996.</p> <p>Shropshire Waste Local Plan - Consultation Draft in preparation</p>
Oswestry Borough Council	<p>Oswestry Rural Area Local Plan - adopted 1991.</p> <p>Oswestry Borough Local Plan (District Wide) - Deposit Draft May 1996. Public inquiry expected late 1996/early 1997.</p>
Shrewsbury & Atcham Borough Council	<p>Shrewsbury & Atcham Rural Area Local Plan - adopted 9 June 1992.</p> <p>Shrewsbury Urban Area Local Plan - adopted 1985.</p> <p>Shrewsbury & Atcham Local Plan (District Wide) - Consultation Draft Feb 1995. Deposit stage due early 1997.</p>
South Shropshire District Council	<p>South Shropshire Local Plan - Adopted October 1994. Review commenced. Public Construction Draft due Spring 1997.</p>
Wrexham County Borough	<p>Clywd County Council Structure Plan (1986-2006) Amended Deposit Draft January 1996.</p> <p>Glyndwr District Local Plan-adopted 14 February 1994.</p> <p>Work commenced on unitary plan.</p>
Ceredigion Council	<p>Dyfed County Structure Plan - Alteration No.1 adopted October 1989.</p> <p>Ceredigion District local Plan Consultation Draft May 1995</p>
Gwynedd Council	<p>Gwynedd County Structure Plan (1991-2006) - adopted 29 October 1993.</p> <p>Eryri Local Plan - Consultation Draft October 1995 prepared by Snowdonia National Park</p>

APPENDIX 2 Pollution Incidents April 1995 - March 1996.

The table below shows the pollution incidents for April 1995 to March 1996. The type and cause of the pollution is indicated, together with the severity, as denoted by the classification of the incident. (See over for details).

		Class 1	Class 2	Class 3	Class 4 (No pollution)	TOTAL
TYPE	Agriculture	0	2	33		35
	Oil	0	0	11		11
	Chemical	0	1	5		6
	Sewage	0	0	11		11
	Other	0	2	37	30	69
					TOTAL	132
CAUSE	Industry & Commercial	0	1	8		9
	Agriculture	0	3	36		39
	Water Utility Company	0	0	10		10
	Other	0	1	43	30	74
					TOTAL	132

The number of pollution reports received and investigated in 1995 - 1996 were similar to that of 1993 but higher than 1994 (82 incidents).

Agriculture accounted for 34 % of substantiated pollution incidents (by type) in the catchment.

Criteria for assessing Pollution events 1995-1996.

Class 1: A major incident involving one or more of the following:

- Extensive fish kill (more than 100 fish)
- Closure of potable water, industrial or agricultural abstraction necessary.
- Excessive breaches of consent conditions and environmental impact.
- Potential or actual persistent effect on water quality or aquatic life greater than 1 week.
- Extensive remedial measures necessary.
- Major effect on amenity value.
- Effect on conservation value.

Class 2: A significant pollution which involves one or more of the following:

- Notification of abstractors necessary
- Significant fish kill (10-100 fish)
- Readily observable effect on invertebrate life
- Water judged unfit for stock
- Bed of watercourse contaminated
- Amenity value to the public, owners or users reduced

Class 3: A minor pollution which involves one or more of the following:

- Notification of abstractors not necessary
- Fish kill (< 10)
- No observable effect on invertebrate life.
- Suitable for stock watering
- Stream bed locally contaminated (at discharge point)
- Minimum environmental impact

Class 4 : Unsubstantiated pollution

- A reported pollution which upon investigation proves to be unsubstantiated - ie no evidence can be found of a pollution incident having occurred.

APPENDIX 3 Fisheries Surveys and Fish Stockings

1. Fisheries Surveys

The following fisheries surveys were carried out in the catchment:

<u>Location</u>	<u>Sites</u>	<u>Purpose</u>	<u>Results and comments</u>
Afon Twrch	5	Acidification	Good populations of salmon and trout in downstream sites with poorer numbers upstream. Good survival of salmon from 1994.
R Severn	5	Acidification	Poorer results than 1994, especially for trout. Two upstream sites still fishless.
R Tanat	5	Salmon Index	Good trout at upstream sites, other river sites poorer. Salmon numbers low upstream.
R Rhiew	5	Salmon Index	Trout and salmon numbers river generally better than in previous survey. Some individual sites poor in trout.

2. Salmon Stocking

The following salmon stocking was carried out in the catchment:

River	Reach	Salmon stocked	
		Life stage	Number
Vymwy	Llanwyddyn to Llwydiarth	smolt	4000
Hirnant	Middle reaches	"	1300
Camlad	Marrington Dingle	"	400
Camlad	Marrington Dingle	fry	22000
Nant Llwydiarth	Lower/middle reaches	"	30000
Iwrch	Lower/middle reaches	"	6000