Integrated catchment management

Somerset Water Management Partnership

Introduction

The summer floods of 1997 and the prolonged flooding of 1999/2000 proved that Somerset's river and drainage system cannot cope in extreme weather events, and the likelihood of increased stormy conditions, combined with rising sea levels, will make the problem of flooding much greater over the next few decades.

Launched in April 2007, the Somerset Water Management Partnership (SWMP) was co-ordinated by Somerset County Council. The partnership is an association of 14 organisations. The partnership will tackle impacts of flooding on the communities, landscapes, economies and ecologies of the county's three main river catchments – the Parrett, Axe and Brue. The aims are to manage flood risk and water management in a more sustainable way. The partnership is building upon the work of its predecessors, the Parrett Catchment Project and the Levels and Moors Partnership.

Background

Since 2000, an association of 30 individuals, communities, farmers, businesses and other organisations have been working together in the Parrett Catchment Project (PCP) to address the issue of flooding in the area. The PCP membership reflected the diversity of issues and shaped the work of the project to ensure the activities of every single organisation were co-ordinated and contributed to the objectives of the whole. The project has worked with farmers to improve land management practices and planted woodland which has stabilised soils and slowed flood flows. Flood retention schemes have also been built on farmland and much work has been done to raise awareness of water issues through roadshows, campaigns, grant schemes and the annual River festival.

The Somerset Water Management Partnership will build on the success of the PCP. The full membership of the partnership is: Somerset County Council, the Environment Agency, Taunton Deane District Council, Sedgemoor District Council, South Somerset District Council, National Farmers Union, Farming and Wildlife Advisory Group, Somerset Wildlife Trust, Royal Society for the Protection of Birds, Somerset Consortium of Drainage Boards, South West Association of Drainage Authorities, Somerset Waterways Development Trust, Wessex Water and Natural England. Parish councils in the catchments of the Brue, Axe, Parrett, and Tone are represented by individuals at SWMP meetings.

Objectives

Twelve objectives were identified by the PCP:

- Changes to agricultural land management.
- Woodland development.
- Creating temporary flood storage areas on farmland.
- Controlling runoff from development.
- Creating new wetland habitats.
- Spreading floodwater across the moors.
- Upgrading channels to enhance gravity drainage.
- Restricting new development on the floodplain.
- Dredging and maintaining river channels.
- Raising riverbanks.
- Upgrading pumping stations.
- Building a tidal sluice or barrier downstream of Bridgwater.

The Environment Agency identified seven areas with numerous water quality/quantity issues in Somerset. These areas were targeted for community outreach education by first evaluating which parishes considered water issues to be a main concern for them. Following a period of consultation the SWMP decided to initially concentrate on the River Isle and the five parishes within its catchment area.

Methods

The WAVE (Water Adaptation is Valuable for Everybody, supported by the INTERREG IVB NWE Programme: Investing in Opportunities) project will bring in £815,000 of European Regional Development Fund money into the county from 2008-2012. This is towards a better understanding of the likely impacts of climate change and the adaptations that will be required to deal with these. It will involve co-operation between the Somerset Water Management Partnership and the following partners: Somerset County Council, Somerset Wildlife Trust, Environment Agency, Somerset Drainage Boards Consortium, RSPB, Farming and Wildlife Advisory Group and, at a European level, partners in The Netherlands, France, Belgium and Germany.

The main aim of WAVE co-operation is to prepare for future changes in regional water systems brought about by climate change. The WAVE project is a collaborative venture between six regional parties in The Netherlands, Germany, England, France and Belgium. It will contribute to the development of more climate-proof water systems. The project is intended to improve the integration of water management into spatial planning; and regional risk analysis is an important aspect of this. The WAVE partners are also interested in working on 'how to create a spatial balance between water and land use.' And lastly, the project also concentrates on raising awareness of and communicating about climate change and its attendant risks.

Six sub-projects make up the WAVE project in Somerset. Somerset County Council has joined forces with partners from the Environment Agency, Somerset Wildlife Trust, the Royal Society for the Protection of Birds (RSPB), the Somerset Drainage Boards Consortium (SDBC) and the Farming and Wildlife Advisory Group (FWAG) to deliver actions through this project.

The following sub-projects are focused in and around the river catchments of the Parrett, Tone, Brue and Axe, in Somerset.

Flood modelling – Environment Agency

Fluvial and tidal flooding will be investigated for the Parrett and Tone and Brue and Axe catchments, together with the potential implication of drought conditions followed by intense rainfall. Some of these changes may be subtle over the next 50 – 100 years; however there is a need to gauge the effects at a local scale so that strategies can be developed and adapted to deal with changes in the catchment.

Sustainable Vision for Levels and Moors – Somerset County Council

This socio-economic study will provide a 'vision' for the future of the Somerset Levels and Moors. The 'vision' includes promotion of integrated, sustainable land use, planning and resource management, taking into account impacts of climate change and using the scenarios arising from the Environment Agency's flood modelling project.

Brue Valley Living Landscape Project – Somerset Wildlife Trust

Faced with the uncertainties of climate change, the fragmentation of habitat is one of the main threats to wildlife in Somerset. The vision is for a Living Landscape: a joined up landscape where there is connectivity between habitats, allowing species to expand their range and move through a wildlife-rich countryside along networks of linked up habitat. The first step will be to map wildlife habitats in the project area. This will inform the work on rebuilding connections in the landscape. The present-day habitat map will then be combined with the different climate change scenarios. It will investigate how possible futures will affect the land use, wildlife and economy of the Brue Valley and how the landscape can adapt to these new circumstances.

Habitat and Floodplain Connectivity Project – RSPB and Somerset Drainage Boards

The project aims to develop a multi-functional washland area at the RSPB Greylake site in Kings Sedgemoor. This will increase floodplain and habitat connectivity and re-establish hydrological links to the main river system, thereby increasing the resilience and adaptability of wetland habitats on the Somerset Levels and Moors to predicted climate change. The project will also conduct a strategic assessment of the floodplain identifying habitats with vulnerable peat soils and high biodiversity potential.

Catchment Woodland and Farm Water Management Plans – FWAG

FWAG advisers are working with farmers in Somerset to create wet woodland in the River Parrett Catchment and surrounding area with a view to slowing rainfall runoff, reducing soil erosion and peak flows in flood-prone rivers. FWAG also helps farmers to develop 'Farm Water Management Plans', looking at ways to save water and create new storage for water on their farms.

Community Woodland – Somerset County Council

The project aims to create multifunctional woodland, rich in wildlife in the catchment area and on the floodplains of the Rivers Tone, Parrett, Yeo, Isle, Cary and their tributaries. Studies have shown that woodland allows 60 times more rainfall to penetrate the surface than adjacent grassland. Two community woodlands are being established within the river catchments. These are useful as a tool to explain the link between woodland and climate change, and will provide benefits in terms of recreation, education, nature conservation and community working, whilst also helping to reduce rainfall runoff.

Results

These findings are taken from Somper (2005) and summarise the Parrett Catchment Project's impact on local sustainability:

- **Natural capital** The project made considerable progress in resolving soil management and water storage issues to benefit local communities. River water and soil quality improved as a result. Although not directly targeted, landscape character was also enhanced.

- **Social capital** The project was successful in bringing together a wide range of stakeholders to raise awareness of the issues, agree a comprehensive and forward looking strategy and to celebrate the catchment's history and character with local communities, e.g. an annual Parrett River Festival.

- **Human capital** Directly investing in increased capacity for FWAG built trust with local farmers, provided specialist advice on changing management practices, and helped farmers to share ideas and try new techniques. EU funding meant that project partners benefited from collaboration with European partners, to spread the learning process. The project's outreach extended to working with local schools, special interest groups and communities through a number of initiatives.

- **Manufactured capital** The PCP worked with local planners on development issues in the catchment concerning flood risk management, including small-scale water storage features and more resilient building design. Improved soils and water management have reduced sediment washed over local roads and have reduced peat shrinkage to safeguard archaeological features. Effort was made to minimise the need for "end-of-pipe" hard engineering solutions by using land management alternatives. However, progress in implementing Sustainable Drainage Systems (SuDS) across the catchment was slow due to uncertainty over maintenance responsibilities.

- **Financial capital** Key partners have worked through the project to optimise the results of disparate funding streams. The project partnership and shared strategy have provided a strong focus for agreement on spending priorities. The PCP obtained considerable EU funding to implement specific components of the strategy, enabling much more to be done within a shorter timescale.

Conclusion

The PCP concentrated initial efforts on practical ways to tackle the most immediate problems – soil management and flooding issues – working directly with farmers and other land managers. It achieved considerable success in doing this through influencing and facilitating relationships between the public sector agencies, advisory services, NGOs and local landowners, farmers and communities to join up the land and water management agendas at the local level. This development of trust and capacity-building helped to increase knowledge and communicate the issues and practical solutions to all stakeholder group. The PCP's partnership approach was a great strength and the key to its success.

Future plans

The SWMP will continue to build on the success of the earlier projects. The SCC are developing a Water Management Strategy (part of the Natural Environment Strategy) that will bring together core information and data about water management such as plans, policies, and issues regarding water management in Somerset.

Reference

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