Learning from experience: promoting integrated catchment management in South East England
The challenge to water resources in the South East

The water resources of South East England are subject to acute pressures, principally because of the high population density and the low rainfall relative to other UK regions. These pressures are likely to increase with climate change and further population increase. Water resource management is essential to maintain the quality of life in this region.

The challenge of sustainable development is to achieve the right balance between social, economic and environmental dimensions. The use of river catchments as a source of water or as a means of dealing with wastes will inevitably lead to some degree of environmental degradation.

The physical disturbances from access for recreation, economic developments or agriculture also have an impact. We need to make sure that these impacts on water quality, water quantity (either low flows or flooding), and the resultant impacts on biodiversity and amenity are minimised and do not threaten long-term sustainability.

Two key challenges:

1. How do we make use of water resources for economic development, drinking, sanitation, recreation and other uses while balancing the cost of any environmental degradation against the benefit to society and the economy?

2. How can management actions that bring about environmental protection or enhancement generate economic and social benefit?

We often think that environmental improvements always entail additional costs, but in many cases there can be ‘win-win’ outcomes. Where there are perceived costs associated with environmental improvements, it is often because the costs fall disproportionately on one sector or party while the benefits are shared. We must challenge these misperceptions, because evidence from this partnership project demonstrates the potential for environmental and economic benefits to be achieved at the same time.

The attraction of these real benefits can persuade many different interest groups and organisations to get involved in a more coherent approach to water resource management, or ‘integrated catchment management’.

Integrated catchment management and the Ecosystem Approach

Integrated Catchment Management (ICM) has been defined as ‘a process bringing the various parties and interests in a catchment together through regional land and water management plans to achieve whole catchment improvements’.

The Ecosystem Approach is an internationally recognised strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in a fair and equitable way. It provides a framework for meeting the challenges of ICM in South East England.

Structures and outcomes of the Ecosystem Approach
The EU Water Framework Directive (WFD)

The Water Framework Directive is designed to protect and improve the environmental condition of all waters, including rivers, lakes, groundwater, estuaries and near coastal waters. It is being implemented through river basin planning, which involves setting environmental objectives for all groundwater and surface water bodies within a river basin district, and devising strategies to meet them. The Directive ensures that European Member States recognise the numerous links between different types of waters and the land activities that affect them.

The SuRCaSE project was designed to demonstrate the value and practical means of applying the Ecosystem Approach to achieve sustainable management of water resources across South East England. There are many linkages between the Ecosystem Approach and the actions needed to implement the Directive. The SuRCaSE project has been a pathfinder project to show how the Directive can be implemented by encouraging coordinated actions between partners in river basins based on the Ecosystem Approach.

Four challenges

The team took forward locally-based water resource protection actions to address four key sustainable development challenges:

- **Diffuse Pollution**
- **Sustainable drainage (SUDS)**
- **Water efficiency**
- **Improving access and amenity to the waterside environment**

### Challenge 1: Tackling Diffuse Pollution

Water quality has improved significantly in recent years because of better control of point source pollution. This is pollution which enters rivers through a single point, such as a discharge from a sewage works. There are still some problems of this kind, but diffuse pollution is becoming a significant barrier to improving water quality in many areas.

Diffuse pollution has many sources but as agriculture occupies more than 70% of the land area of England and Wales it is unsurprising that problems with agricultural sources are widespread. Of special concern are those related to nutrient enrichment, pesticide loss, sedimentation and pathogen loss. There are also impacts from organic pollution, although these may be more localised.

Helping to deliver the Directive - how did we meet the challenges?

The project established a team of advisors in three demonstration catchments in South East England, the Stour, Darent and Kennet.

These three catchments were chosen in consultation with our partners to reflect the range of impacts on water quality and resources in south east catchments.
What did the project do?

We promoted catchment-sensitive farming practices in the three catchments with an emphasis on linked economic benefits, including advice and signposting on appropriate diversification opportunities.

Management plans were developed for individual landowners, which advised on issues such as the application of fertilisers and best practice in pesticide application and handling. The advice aimed to deliver both water quality improvements and important cost savings to farmers at a time of rising input costs. The establishment of unploughed buffer zones around fields near rivers was also encouraged as a way of controlling diffuse pollution.

What was the outcome?

We produced farm plans covering over 8000ha of farm area, and the distribution of the kinds of opportunities recommended is shown below. Estimates of the potential savings which could be gained from carrying out the advice indicated a benefit/cost ratio of about 3:1. If the project were scaled up over the south east region, the savings could be £100m.

**Challenge 2: Promoting Sustainable Drainage Systems (SUDS)**

Sustainable Drainage Systems (SUDS) provide a means of harnessing natural percolation processes to ensure that the changes to the hydrological cycle and water quality resulting from development are sustainable.

SUDS techniques include features such as filter strips and swales, filter drains and permeable surfaces, infiltration devices or basins and ponds. Applying these techniques maintains a more natural hydrological regime, reduces flood risk, and improves drainage water quality. If correctly planned they can also add amenity and biodiversity value to developments.

What did the project do?

The project built links with local authorities, developers and consultants and offered free advice on identifying opportunities for incorporating sustainable drainage systems into new developments, emphasising benefits for flood risk reduction, environmental enhancement and habitat & amenity improvement within the region.

What was the outcome?

Together with the Environment Agency, the project ran seminars and produced SUDS advice documents for local authority planners. These made the basic principles and techniques of SUDS accessible, and gave them the tools to deal with developers bringing forward plans in the project catchments.

There are about 200,000 properties at flood risk in the South East Region. The project produced SUDS guidance covering four local authorities with a total population of 418,000. Implementation of this advice will help local authorities to meet housing targets with reduced flood risk where developments in flood plains are unavoidable.

**The SUDS management train**
Challenge 3: Promoting Water Efficiency

The three catchments covered by the SuRCaSE project all face serious pressures on water resources. These pressures are likely to increase in the future with increasing demands and the effects of climate change. Increased demand results from greater per capita consumption (pcc), due to the trend for fewer persons per household and a greater use of water consuming appliances.

A general population increase and associated development in the South East are also contributing. But there is now an increasing awareness that water resources, if not managed correctly, could be a constraint on development within the South East, not just in terms of water availability, but also in terms of flooding risk through development on floodplains, and the limits to the capacity of the wastewater treatment network.

What did the project do?

Within the South East, a number of commercial business sectors were researched and identified as the most important in terms of future resource planning and include the agriculture, recreation, education and hotel and restaurant sectors. These were targeted for the delivery of water efficiency measures.

We delivered water efficiency plans for nearly 60 businesses and over 20 farms in the project catchments, and developed a website (http://wateraudit.surcase.org.uk/) which businesses can use to find out more about how they can save water and access site-specific water efficiency advice via a number of routes. It can also be used to develop a site specific water efficiency action plan.

Water resource management option appraisals

The water efficiency programme was complemented by studies of water resources within the Stour catchment and adjacent supply areas. These were carried out by our water company partners, and included evaluation of future options for:

- Demand management
- Water efficiency
- Effluent re-use
- Desalination
- Other major supply improvements

These studies provide a wider strategic framework setting the context for the locally-based catchment activities of all the project themes. This will contribute towards longer-term development of implementation of the WFD in South East England. It will include consideration of both surface water and groundwater resources, since the latter are a key resource in the region.

What was the outcome?

We found that water efficiency taken in isolation was a relatively low priority for many businesses, but when linked to the issue of energy efficiency and carbon footprinting it took on more significance.

We estimated that if the savings advised in the hotel and education sectors alone were applied to the whole South East Region, the amount of water saved would be approximately equal to 20% of the annual flow of the River Darent at Hawley. We also found significant opportunities for better water management in the farm sector. Future water supply investigations by partners progressed steadily throughout the project and contributed to the project’s technical foundation.
**Challenge 4: Improving Access and Amenity to the Waterside Environment**

The SuRCaSE project recognised that improvements in water quality in the project catchments will have indirect as well as direct benefits. A very important indirect benefit, but difficult to value, is the improvement in biodiversity from enhanced water quality, more natural hydrological regimes and habitat created through integrated catchment management.

What did the project do?

The project offered free advice and support for local authorities, landowners and other stakeholders in identification and promotion of opportunities and strategies for improving public access to riverside areas, aiming to contribute to improving the region’s quality of life.

What was the outcome?

We helped to facilitate several significant access & amenity improvements in the catchments, and helped to bring about improved/improving access and interpretation to a total of 12km riverside environments.

An example is our work to support the development of the Chartham to Canterbury shared use cycle path, which is expected to open in 2009 and improve sustainable travel between Chartham in the Stour Valley and the nearby city of Canterbury. Across the catchments as a whole, even a modest increase in the numbers of people encouraged to do more leisure walking by these improvements could be worth several million pounds a year to local economies and savings to the Health Service.

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There is also a growing awareness that strong links exist between improving access to the countryside, benefits to the rural economy and human health benefits, and greater appreciation of the countryside as a resource. We worked to bring these elements together in a practical, locally-based way.

The three catchments posed different challenges and opportunities for improved recreational opportunities. The SuRCaSE project helped take forward a number of opportunities for improving the wider enjoyment and appreciation of the riverside environment.
The value of partnership

Many of the concerns that need to be tackled in an integrated catchment management strategy are the responsibility of multiple organisations, or partly fall outside the remit of statutory agencies, such as water efficiency measures or the encouragement of SUDS. In these cases the partnership approach of the project was used to bridge the gaps and address issues for which there is no single responsibility. For example, we worked closely with the Environment Agency to raise awareness and knowledge of SUDS among local authority planning teams by funding an advisor who was able to focus on producing a tailor-made educational package.

Where do we go from here?

The long-term aim of the project is to develop a practical model for sustainable development of water resources in one of Europe's most water stressed regions. The full value of the project will be realised as the partners and other organisations develop successful approaches more widely from the experimental catchments.

This is already happening and examples of the progress already made include:

- Support for the Thames River Restoration Trust Action Plan, through which the Trust aims to continue the application of the Ecosystem Approach in the Thames river basin.

- Building on the national partnership agreement between the Association of Rivers Trusts (ART) and the Environment Agency as a project partner, the project commissioned an ART-supported study into the potential for the formation of river-focused groups or trusts within the South East of England. The implementation of the WFD offers wide ranging opportunities for such partnership-based work, and helping to make this possible is a major part of the project’s legacy.

Ongoing progress with these initiatives will be reported on the SuRCaSE project website and associated links.

http://www.liv.ac.uk/surcase

In our diffuse pollution work, we worked closely with Natural England to support the existing Catchment Sensitive Farming initiative in ways which helped us to signpost farmers to the scheme and avoided unnecessary duplication.

Full contact details for partners is given on the back page of this leaflet.
Project partners are:

**SWIMMER**

The Institute for Sustainable Water, Integrated Management and Ecosystem Research (SWIMMER) (based at the University of Liverpool):

- **Lead technical partner**
  
  www.liv.ac.uk/swimmer

  River Catchment Co-ordinator: Dr Chris Sollars
  Advisors: Paul Cobb, Rosemary Hoare, Dr Catherine Morris, Giles Rickard, Abhishek Sharma, Dr Jeff Shi
  Technical Advisors: Dr Conor Linstead, Dr Ian McConnell
  Technical Director: Professor Edward Maltby

**SEEDA**

South East England Development Agency (SEEDA):

- **lead partner**

  www.seeda.co.uk

  Partner representatives:
  Simon Richardson and Dan Lo Russo

**South East Water**

South East Kent Water

- **www.southeastwater.co.uk**

  Partner representative: Lee Dance

The Westcountry Rivers Trust: lead training partner

- **www.tamarconsulting.org/wrt**

  Partner representative: Dr Laurence Couldrick

**The Environment Agency**

- **www.environment-agency.gov.uk**

  Partner representative: David Howarth

**Natural England**

- **www.naturalengland.org.uk**

  Partner representative: Dr Russ Money

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For further project details go to the SuRCaSE website: www.liv.ac.uk/surcase

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