



**WATER SECURITY**  
Knowledge Exchange Programme



## Specific Priority Subject 1.1 Summary Report

### Assessing upstream methods of land/water management that improve water quality and quantity

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## Acronyms

WSKEP      Water Security Knowledge Exchange Programme

## Acknowledgement

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## Summary

This report is the Summary Outcomes Report of the WSKEP Specific Priority Subject Workshop 1.1 on Assessing upstream methods of land/water management that improve water quality and quantity. It includes an introduction reporting the key recommendations resulting from the Workshop. This document will be made available on the Programme website [www.wskep.net](http://www.wskep.net). The full Participants Outcomes Report was distributed to all participants of the Workshop.

## Disclaimer

This document reflects only the combined views of participants at the Workshop

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# 1. Overview

## 1.1. Introduction

This Workshop was the first of a series to be delivered by the Water Security Knowledge Exchange Programme in 2011/12 under three priority areas. As the title implies it tackled the issue of upstream catchment management where flood waters and water resources most often originate from. As this was the first workshop in a series of 9, Graham Leek of CEH and a member of the WSKEP Programme Advisory Group (PAG) gave an overall introduction to the need for more integrated knowledge exchange processes to accelerate the uptake of research in water security and help inform the direction of future science. Without this we will not be able to achieve the required step change in water management and science needed to combat the effects of climate change and ever increasing populations and associated urbanisation. The NERC WSKEP must bring together the research and user communities through a common programme of knowledge exchange, and the purpose of these workshops is to map how water knowledge originates, how it is disseminated and shared, how it is stored and how in future it can be accessed through research/user group collaboration and networks.

Martin Ross then gave a presentation on the ground breaking work that he has been leading for South West Water. His work has been to proactively manage drainage and flood pathways in upstream catchment areas to provide flood protection to urban communities whilst at the same time improving water quality including that of source waters passing forward for water supply and biodiversity. Through sound scientific arguments and business cases based on whole community engagement in catchment management, Martin has given South West Water the case to request funding for work on assets that it does not directly own but that in turn will lead to significantly higher benefits in terms of water resource management and flood protection – far higher in fact than it could have achieved with traditional asset creation and maintenance approaches. South West Water has identified that when assessed over a 30 year period, £1 invested now in catchment management could save £65 in additional treatment costs.

Martin's work served to show the audience, comprising professionals from a wide range of aspects of water management, how innovative approaches such as those adopted by South West Water can lead to far wider benefits than would be the case if we continue to pursue our old ways. His presentation served to inspire the group activities to think out of the box and generate innovative ideas for future water knowledge development and exchange programmes.

## 1.2. What is the big science issue / challenge

Bob Harris of the WSKEP PAG gave an excellent introduction to current research activity and how we should be making the most use of this in water security knowledge exchange. He reminded the audience that in the tough economic times that we are experiencing, science funding must shift from being interest driven to being driven by specific need. Science for

science sake is no longer affordable and instead research need has to assess who the users of research information are going to be; what use will science-derived knowledge be put to; what format will the resulting knowledge be presented in; and when it will be needed. Knowledge exchange must move from being a process to an emergent property, i.e. it should be a desired outcome rather than an inconsequential output. A group workshop followed this presentation and eight recommendations for new areas of work and new research programmes emerged including formal catchment characterisation, local water catchment and supply, formalised post-project appraisal of stakeholder involvement and operationalizing the use of ecosystem service indicators in water asset management.

### **1.3. Networks and alliances**

The workshop served to highlight the plethora of research programmes, specific interest organisations, institutions and associations that now exist with an interest in water and that the sharing of knowledge between them is somewhat ad hoc and very difficult to navigate. This is especially so where organisations are embarking upon a new area of research. In fact the number of organisations embarking on research or knowledge exchange on water issues is steadily increasing. Water knowledge availability is often not transparent and there is a great risk of ‘reinventing the wheel’ because research activity into water issues has either not been published widely, is held within ‘closed-loop’ organisations or is deliberately withheld for whatever reason – usually IPR related. Alastair Moseley gave an overview of the wide range of organisations involved and highlighted in particular the professional institutions as organisations that promote knowledge exchange on water topics but which don’t necessarily capture and store it or disseminate it beyond the scope of the professional community that they serve.

The general consensus was that there is a need for some form of central hub for water knowledge that can serve to direct interested organisations and researchers to current information on water issues as well as ensure a base line for quality and currency. Ideas generated in discussion included the creation of some form of notice board to signpost users to specific areas of activity; a proactive exercise to map as far as possible where water research and knowledge is being created and stored and the organisations and networks that create it; the need to learn lessons from knowledge hubs that exist in other scientific communities; and the raising of priorities for this at a political level. If we get this right we could unlock huge potential for economic development and for being better able to tackle the challenges of drought and water availability more quickly and effectively.

### **1.4. The Water Security KE Programme**

Although the workshop was primarily focussed on the aspects of water security relating to upstream methods of land and water management, the issues that emerged regarding the creation and sharing of water knowledge were in fact quite generic and will dominate most of the discussions regarding knowledge dissemination and storage in all of the priority subject areas. The need for greater visibility, easier access, and identification of knowledge held and

research done previously together with clearer and faster links to researchers and users alike was common throughout all of the discussion forums and the WSKEP programme is clearly much needed. However, to succeed it will have to be seen to be not just an inward NERC focussed exercise but to have a genuine outreach to wider research and user communities and have an outcome that lives far beyond the scope of the WSKEP programme. The outcome will undoubtedly be very IT based and ownership of the resulting systems and processes will be key to future success. The outcomes of this workshop will need to be blended with those of the other nine workshops and the success of the Programme will depend on how well this is achieved.

## 2. The workshop and report

This workshop was the first in a series being run on behalf of the Water Security Knowledge Exchange Programme (WSKEP) with funding from NERC. It was organized by Bob Earll. Nine Priority Subjects were identified at a national consultation event held in June 2011. The theme of this workshop was **Assessing upstream methods of land/water management that improve water quality and quantity**.

The workshop was designed to support the following key aims:

- increase awareness and uptake of research outputs in the focus area of ‘Assessing upstream methods of land/water management that improve water quality and quantity’
- identify user needs and potential future research projects
- strengthen research/user group collaboration and networks

The workshop was divided into 4 sessions with initial presentations (available separately) as follows:

**Session 1      Setting the scene and making connections**  
Introduction: Graham Leeks, Principal Hydrologist, CEH Wallingford

**Towards a shared understanding of Priority Subject Area**  
Introduction: Martin Ross, Environmental Manager, Southwest Water

**Session 2      Making the most of current research activity**  
Introduction: Bob Harris Demonstration Test Catchments Secretariat, DEFRA

**Session 3      Identify areas for future research activity/collaborations**  
Introduction: Neil Runnalls WSKEP Programme Development Manager, CEH

**Session 4      Alliances, networks and advice to the WSKEP**  
Introduction: Alistair Mosley, Water and Environmental Consultant

The heart of the workshop time was devoted to opportunities for participative working among the 35 delegates. This Report features the outcomes from those interactions as written up by delegates during the sessions. As such this report is primarily aimed as an ‘aide memoire’ for participants.

Elements from this report will be used to inform further development of the Water Security KEP.

### 3. Towards a shared understanding of the Priority Subject Area

Table groups discussed the contextual presentation by Martin Ross and noted key insights and issues, supported by a brief narrative, that enrich the Priority Subject Area, as follows:

Ref	Insight/issue
<b>3.1</b>	<b>Ensure a connection between global issues and local action</b>
3.1.1	Ensure connection with Global problems; connection with strategic plans and need for local action that "impinges on every field and ditch"
<b>3.2</b>	<b>Making the case for 'softer' approaches</b>
3.2.1	The importance of convincing and enabling organisations (intra & inter) of the benefits of risky 'softer' approaches to catchment management, based on sound scientific evidence. (risky means it could fail).
3.2.2	How much and what kinds of evidence are needed to compel organisations (regulators, water companies, others) to adopt softer approaches to integrated catchment management. We need to know what levels of certainty are required by different organisations
3.2.3	Corporates need to understand the multiple benefits of a catchment approach
3.2.4	Are we too "standards" led? Aim for outputs or outcomes that meet regulation and catchment needs.
<b>3.3</b>	<b>Need for credible and accessible information</b>
3.3.1	Research is used to validate actions and the accessibility of outputs via databases, directories is essential
3.3.2	Local groups/action need research capacity, links and support. How to fund and sustain knowledge exchange at this level
3.3.3	Lowland complexities versus upland- examples of links and solutions required
3.3.4	More information and innovation on systems of payment for ecosystem services provision
3.3.5	Good evidence is critical for farmer participation and partnership
3.3.6	Ecosystem services needs a common language. W.I.I.M, full cost recovery for water
3.3.7	Communication is key to farmer input from critical knowledge base
<b>3.4</b>	<b>Mainstreaming water catchment management approaches</b>

3.4.1	Scale Issue – how can great work be rolled out at a much larger scale – catchment and beyond? Can resources be pooled (bottom up)?
3.4.2	Demonstration is important:- ‘seeing once is better than listening 1000 times’. But, when/how/on what basis does demonstration become mainstream? Difficulty/importance of geographical/ cultural differences and boundaries
3.4.3	Getting the right scale for decision making. Do local authorities have appropriate knowledge for managing catchments? Are decision makers aware of issues generated beyond their patch or problems exported from their patch
<b>3.5</b>	<b>Stakeholder targeting and engagement</b>
3.5.1	Getting the right people – who are the stakeholders? Need decision makers eg local authorities, business, farmers etc
3.5.2	The challenge of how to engage the 20% “not interested” key polluters. Better to adopt 80:20 risk-based effort?
3.5.3	Loads of advice or prescriptive regulation. Who facilitates interactions? EA does both but should it. Use FWAG?
3.5.4	Business to business partnerships work but need legitimacy from wide engagement and support
3.5.5	Getting the right accessible language eg What does catchment mean?

## 4. Making the most of current research activity

This session gave participants the opportunity to learn more about current research programmes and to make new connections to add value to research taking place. Bob Harris introduced some research projects.

Individuals then gave a short introduction to research work they were involved with. Other participants had the opportunity to connect with programmes that interested them. Comments were captured, and participants logged their interest. 66 connections were identified across 14 research programmes.

## 5. Identify areas for potential future research activity / collaborations

Through table group discussions, individuals were invited to identify key propositions where further research/activity could be of value in taking forward this Priority Subject Area.

Other delegates were invited to join in a conversation to further develop the proposition and indicate if they were interested in collaboration in this area, beyond the workshop.

Eight propositions were developed and discussed, as follows:

<b>Ref</b>	<b>Propositions for further research / activity</b>
5.1	Standardised approach (and agreed set of characteristics) to characterising catchments. <b>Lead:</b> Jenny Bashford, NFU
5.2	Experimental trials in de-centralised water supply: water efficiency, rainwater capture and re-use, grey water, local treatment, local engagement/ responsibility <b>Lead:</b> Alastair Moseley, Water & Env Mgmt. Consultant, certainly interested in researching what has been done so far.
5.3	Farming – (land use). Advice – regulation, understanding current status re. Organisations. Any resolutions? <b>Lead:</b> Russ Money, Natural England
5.4	Ecosystem good & services – projects – go WRC – NE, National Eco Assessment BUT operationalizing it! EGS is extended CBA/CEA, now or 2015-2020. <b>Lead:</b> Kieran Conlan ( Cascade Consulting), Michael Payne( Env Consultants), Tim Pagella (Bangor University)
5.5	'Non-water' businesses' roles in integrated catchment management. Direct (planning, emergency responses etc.). Indirect (purchasing, sales). E.g. construction, supermarkets, electricity companies <b>Lead:</b> Carolyn Roberts, ESKTN
5.6	Post-project appraisal of stakeholder involvement and behaviour change <b>Lead:</b> Martin Ross, South West Water
5.7	Role of protected area, network/high quality habitat in protecting aquifers/drinking water sources - part of valuing nature. Research into how habitat creation for biodiversity can benefit WQ. <b>Lead:</b> Alex Back - Veolia Water
5.8	Efficient waste water treatment ( resource recovery) – using waste as a resource-recovering species and using for energy generation to do this need to increase organic load to STW's via sewers ( food waste etc.) <b>Lead:</b> Michael Payne, NFU

## 6. Improving alliances and networks

Alistair Moseley, Water and Environmental Consultant, gave an overview of alliances and network approaches that help foster research and practice in this area.

Delegates, in table groups, were then invited to make suggestions for steps to further improve communication and networking, as follows:

Ref	Suggestions to improve networks/communication
6.1	Develop a "notice board" where researchers & users can be signposted to info/activity – a real two-way exchange between & within 'silos'
6.2	there is a good case for mapping the networks & relationships of all the players involved to avoid working in parallel or isolation on catchment management
6.3	Hub of knowledge ( make/take hard decision to integrate)
6.4	Quality assurance, accessible language in any "repositories" of knowledge
6.5	Transfer KE experience from other research areas such as international water management programmes
6.6	Set research outcomes in political context (greater advocacy)

## 7. How do we maximise the value of the Water Security KEP?

Table groups were invited to suggest ways to maximise the value of the Water Security Knowledge Exchange programme, as follows:

Ref	Insights for WSKEP
7.1	Better "bridging community" user-academic integration, embed consultants (client focused)
7.2	How can KE promote more widely its finding, activities and recommendations to influence an open accessible knowledge base. KE to KS
7.3	Explore institutional barriers to data sharing and find solutions for the barriers
7.4	Prioritising areas for better integration of knowledge across national initiatives.
7.5	Know more about who is and who should be interested in water security. Making

	water security issues more visible to end users. Highlighting/driving practical relevant research.
7.6	Better define users/'customer' of the KEP and formulate what they are looking for

In addition, individuals were invited to make further comments/ideas to assist in taking forward both the outcomes from the workshop and the wider Water security Knowledge Exchange programme.

7.7	Mechanisms to involve consulting community with NERC funding
7.8	Get consultants involved as 'bridging community' to broaden academic dissemination of evidence and tools. Pay them to do it.
7.9	Network mapping of key resources/people to facilitate continued exchange
7.10	Agencies/research councils should attach greater value and resources to paid professional knowledge brokers and intermediaries. Don't expect too much of researchers. See the activities of the RELU secretariat as a model
7.11	Wide dissemination in a way that others can add to – WIKI?
7.12	It will be very interesting to see how the conclusions of the individual workshops can be integrated
7.13	KE is not the magic bullet. KE exists in and as a part of a social process. This determines what happens to the knowledge and whether it becomes part of practice.
7.14	ESKTN is always willing to assist with activities on dissemination, collaboration, business – university linkages for research development and innovation
7.15	Concentrate on improving the KE process and not the KE itself – ie get it right for future beneficial research-end user interaction, not necessarily about transferring knowledge from existing NERC research
7.16	Create a network where conference members can discuss before/after actual conference

End