HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

Water Resource Management:

science, issues and strategies

Workshop objectives

- To explore areas of agreed knowledge
- To identify gaps in the science knowledge base
- To identify the research priorities for water resource management
- To consider what and how HYDRA can contribute to addressing these priorities
- To prepare the ground for an external workshop on Water Resource Management to be held at the RGS, Autumn 2008 to which Environment Research Funders and Stakeholders will be invited

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

Programme

10.30	Overview of ERFF priorities for water resources research
10.45	Overview of NERC priorities for water resources research
11.00	Brief 5 minute overviews of current water resources research interests and activities at each institution
11.45	Post-It session to explore areas of agreed knowledge, and gaps in the science knowledge base
13.00	*Lunch*
14.00	Briefing on key ideas from the Post-It session
14.15	Break-out sessions to explore priorities and strategies for future Water Resource research
15.30	Feedback from each group, (5 minutes each)
16.00	*Tea and depart*

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

Environment Research Funders Forum

- Founded 2002
- Ensures public money for environmental research is well spent
- Members include:
  - Government departments (Defra, DfID, DfT)
  - Government agencies (Environment Agency, SEPA, Met Office)
  - Research Councils (NERC, ESRC, EPSRC)
  - Others (Natural England, CCW, SNH, EHS)
- In 2007 completed a review for Government of how environmental priorities are being addressed
- Informs Government of how environmental research contributes to a successful and sustainable UK economy

ERFF work on *Living with Environmental Change*

- Conducted a SWOT analysis of environmental research and knowledge within the UK
- Has reviewed existing environmental monitoring to determine whether it is fit for purpose
- Collated a single database of UK environmental research
- Is using the database to:
  - provide an overview of work funded by ERFF members to enable greater strategic co-ordination and maximise synergies
  - identify and address future priorities (gaps, opportunities and training needs) for delivering science needed to deliver the *Living with Environmental Change* initiative
- Has developed a prospectus of research priorities to deliver the UK Sustainable Development Strategy as part of its *Horizon Scanning Study*

Horizon Scanning Study

ERFF prioritised list of the dimensions of uncertainty affecting or likely to affect the UK environment

- Cities and the environment
- Economic growth within environmental limits
- Costs and benefits of renewable energy
- Food production
- ***Sustainability of the water supply***
- Changing behaviours
- Changing ecosystems
- Reducing uncertainty around climate change impacts
- Transport and mobility
- Consequences of population movement, and
- Deploying technology

ERFF priorities for Water Resources Research

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

The issues:

- The UK needs a long term strategy for water
- The UK water supply is currently at risk:
  - The infrastructure is in disrepair
  - There is no grid for water
  - Investment in capture systems is low
  - Groundwater pollution is a concern
  - Population increases will make supply more problematic
  - Consumers appear unaware of these issues and, perhaps, have taken water for granted

ERFF priorities for Water Resources Research

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

The response:

- The UK needs to view water as a strategic resource
- The UK needs to develop a strategy for a sustainable water supply
- It needs to explore options for:
  - Water capture and storage
  - Contingency plans for interruptions to supply due to natural causes or terrorist attack, for example
- Users need to see a clearer demonstration of the cost of consumption

ERFF priorities for Water Resources Research

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

Events and shocks that could impact on WR:

- Order of magnitude population increases due to migration
- Extreme events such as flooding or drought, [climate change]
- Dramatic price increases
- Water quality
- Chemical spills, either accidental or deliberate

ERFF priorities for Water Resources Research

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

Potential impacts that need to be better understood

- The impact of water shortages for agricultural and industrial use
- The impact of improved sustainable business and farming practices on water supply

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

ERFF priorities for Water Resources Research

High level research questions

- The effect of pricing, metering and supply shocks on consumer behaviour
- The ecological changes that could result from overuse of existing supply
- New systems of storage
- Costs, benefits and energy intensity of recycling/reusing domestic and industrial water
- Costs, benefits and energy intensity of new techniques for boosting water supply, such as desalination

Priority actions emerging from the study:

- Identify where existing research activity can answer the questions raised
- Identify where gaps in knowledge exist and use these to inform the future research agenda
- Monitor the trends that might impact on each dimension
- Ensure effective knowledge transfer between ERFF members
- Ensure its activities map onto other projects such as *Living With Environmental Change*
- ERFF members to run internal workshops to identify the strategic implications of the dimensions for their own work

Overarching themes:

- Future ***research needs to anticipate what may happen,*** not merely characterise what has happened
- The ***environment cannot be looked at in isolation*** from social and economic trends
- UK actions cannot be looked at in isolation from the rest of the world
- Policy makers need ***new tools and approaches*** to ***help deal with the complexity and uncertainty*** surrounding environmental issues
- Strong leadership to tackle these issues

Addressing ERFF priorities for water resources research

HYDRA
HYDROSCIENCES RESEARCH ASSOCIATION

A role for HYDRA?

- How do the priorities identified by ERFF map onto our knowledge of the science, gaps and issues relating to water resources and their management?
- Are there gaps in the ERFF agenda in relation to Water Resources research which HYDRA can help address?
- How can HYDRA help ERFF to meet its ambitious agenda?