Submission to the House of Lords Inquiry into EU Freshwater Policy

Evidence relating to catchment management and means for protection of water resources at source

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Dear Sir/Madam,

in response to the Call for Evidence for the Inquiry into EU Freshwater Policy, dated 19 July 2011, we would like to submit the following evidence based on our extensive research into the management of UK freshwater resources at a local catchment scale. This research was funded under the Rural Economy and Land Use (RELU) programme, a joint initiative between the Economic and Social Research Council (ESRC), the Biotechnology and Biological Sciences Research Council (BBSRC) and the Natural Environment Research Council (NERC), with additional support provided by the Scottish Government and Defra.

Strategic objectives of EU freshwater policy

1. We agree that the "sustainable use of good water quality in the long term" should remain a fundamental aim underpinning EU policy. The maintenance of ecologically sustainable water resources will remain a critical natural resource issue in the immediate and long term future in Member States, and the dual challenges continue to be the qualitative and quantitative aspects of water management. With recognition that these are closely inter-linked our focus is the management and protection of water resources at source, with particular emphasis on water quality and the control of diffuse or non-point source pollution. However, this issue cannot be addressed in isolation and improvements must be implemented in the framework of an integrated approach to land and water management in catchments that can deliver benefits for water quality, environmental flows in dry periods and mitigation of flood risk (as well as other potential gains for recreation and tourism, biodiversity conservation and carbon sequestration). In this submission we do not address issues relating to the management of demand for water supply and hence rates of abstraction.

2. The need to protect the quantity and quality of our water resources whilst sustaining and increasing agricultural productivity is both a current issue and one of the most significant challenges of climate change. For any given climate the quantity and quality of groundwater and surface waters are determined primarily by land uses. Thus, in all but urban areas, rural living, the rural economy and the ways in which we use land frame the options available for protection of water at source and how we can adapt to environmental change. The ways we use land and manage, transport and treat

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water also exhibit significant linkages with greenhouse gas emissions and attempts to mitigate climate change.

3. In the UK, as in most countries, changes in the hydrological cycle as a consequence of climate and land use drivers are expected to have significant environmental impacts, but predictions of waterrelated variables show high uncertainty. In summary the current predictions from UKCP09 suggest that all areas of the UK will get warmer, with the warming greater in summer than in winter, and that although there may be little change in the amount of annual precipitation it is likely that it will become wetter in the winter, with drier summers (UK Climate Projections 2009). Thus, under current predictions some regions will suffer greater seasonal water stress while others face greater risk of flooding; in other words location and timing really matter and there are important regional differences. For South West England, for example, it is predicted for the 30-year period from 2070-2099 that under a medium greenhouse gas emissions scenario: the increase in mean temperature will range from 1.6 to 4.3°C in winter; and from 2.1 to 6.4°C in summer; the change in mean precipitation will range from plus 6% to plus 54% in winter; and from minus 50% to plus 6% in summer (UK Climate Projections 2009). The range of these predictions is alarming given that many catchments are already under stress.

4. Our research has focused on the threats to water quality in the UK from intensive farming and other non-point sources of pollution. For example, agriculture is estimated to contribute 28% of the total phosphorus load to water in England, Wales and Scotland, but with wide variation across river basins (White and Hammond 2006). Sediments and organic wastes also largely derive from agriculture (DEFRA 2004). Indicators of water quality have been improving but results for assessed rivers in England and Wales show that for overall ecological classification only 26% of rivers are 'good' or better, 60% are 'moderate', 12% are 'poor' and 2% are 'bad', whilst only 65% of aquifers meet 'good' quantitative status (in relation to abstraction) and 59% meet 'good' status for chemicals (Environment Agency, 2009).

5. While the more strategic, integrated and river basin based approach adopted under the Water Framework Directive (WFD) is adaptable to these emerging challenges, EU water policy also exhibits certain deficiencies; primarily we argue the lack of consideration of local level management activities. Action at a catchment scale is required that is capable of protecting water resources at source, managing abstraction and alleviating flood risk. This requires effective partnership working between the relevant agencies at the local level including the Environment Agency, Natural England, local government, regional water company (or companies), and conservation interest groups. The cooperation of land users and changes in their current practices and businesses are fundamental and are matters of local responsibility that require the appropriate degree of local autonomy. In turn this requires adequate standing for the local governance of catchments, matched with accountability, technical capacity and financial resources.

6. These governance challenges are complex and yet have been addressed by our research which has drawn on both international examples of success and in-depth investigation of English catchment case studies. We conclude that the complexity, temporal and spatial scales, dynamics and inevitable trade-offs of catchment management necessitate an adaptive management cycle, collaboration

between agencies and levels of government and a 'twin-track' of deliberative partner and stakeholder engagement supported by targeted scientific research (our proposal for these elements are presented in more detail in the attached annex). The current EU policy framework is potentially adaptable and capable of accommodating what is required, but at present there is insufficient recognition of the necessary components (as summarised in our annex) and insufficient facilitation and support of the required approach (at least as demonstrated by implementation to date in the UK).

7. We note that Defra has taken some recent steps to address this and greatly welcome the new pilot catchment management approach announced in February 2011 (see: http://www.environment-agency.gov.uk/research/planning/131506.aspx)

Adding value

8. The EU has the capacity to add significant value to the efforts of Member States in meeting objectives for freshwater policy, although to date these have been under-utilised. When comparing water governance in other multi-level systems such as the USA and Australia, the EU provides comparatively limited financial support for lower level implementation of higher level policy (Benson et al., forthcoming). In Australia, for example, environmental management objectives including those for greater public participation as under the National Heritage Trust/Caring for Our Country Policy - are supported at the regional and local catchment level through dedicated centralised funding (Benson 2011; Commonwealth of Australia 2010). The US federal government also supports collaborative catchment management in states through a variety of initiatives, including Soil and Water Conservation Districts and funding under the Clean Water Act. That said, multiple mechanisms for implementing the Water Framework Directive potentially do exist for this purpose under cohesion and agricultural funds. But these remain under-employed for supporting implementation of water directives (ENEA 2006; Deloitte Consulting/IEEP 2011). For example in the UK, area payments have been available through modulated CAP payments but targeted to meet national objectives which are species and habitat rather than water resource protection focused. Catchment management also requires continuity and commitment and in the longer term such CAP based payments may cease.

9. Consequently, given the often transboundary nature of water issues, subsidiarity in EU water policy is perhaps best served by the EU setting overall objectives for Member States (in the form of directives), which are, in respect of differing ecological, economic and social conditions, best left to the national level to implement. However, since the Water Framework Directive is actually physically implemented at the regional level greater EU support for river basin management at this scale and at the sub-regional (local catchment) scale would seem optimal. Of particular concern is that under the current implementation of the Directive in the UK there is a lack of consideration for the sub-River Basin District (RBD) level, where our research demonstrates widespread activity in community-based partnerships and voluntary groups (including Rivers Trusts and other conservation charities (Cook *et al.* 2011). Our survey of such local initiatives revealed little real connectivity with the WFD or 'European' process, and often limited connection to Environment Agency led River Basin District Planning, resource management planning by water companies and spatial planning by local government (Cook *et al.* 2011). By marked contrast such local level collaboration provides, on

the basis of comparative experience in the USA, Australia, Netherlands, Germany and Denmark, significant opportunities to enhance existing institutional arrangements for water management in some other Member States such as the UK.

Future policy

10. In our view, EU (and hence national) water policy should then, in order to meet the demands of long term sustainability, do much more to promote innovative catchment management at the sub-RBD scale in support of the regional scale approach adopted under the WFD. The findings of our research suggest that such approaches should: support the needs and aspirations of local communities; reflect local geographical diversity; involve local responsibilities and inclusive deliberation under a framework of multi-level governance; encourage new collaborative institutional arrangements for local stakeholder engagement; provide mechanisms for legitimacy and accountability; facilitate linkage to national level enablers and delivery tools; and, finally, provide financial support to facilitate these processes (see below) (Smith *et al.* 2011). The development of adaptive environmental management capacity on a catchment scale based on local responsibilities is in our view the only viable means to achieve both short term improvement in the protection and management of water resources, and resilience in the face of climate change and other drivers of stress upon the ecology and sustainability of our rivers, groundwater and other water bodies.

Research and innovation

11. Again, while much research has been conducted on the regional scale implementation of the Water Framework Directive, and other EU water directives, little consideration has been given to how new forms of local level collaboration and institutional arrangements might help address the twin challenges of climate change and non-point source pollution. The EU's research programmes could then do more to support investigations in this area.

12. The capacity for research and innovation is also highly relevant at the catchment level. Local engagement of stakeholders and improved planning and decision making requires the 'twin-track' of deliberation supported by analysis and credible 'first class' science. Capable technical providers at the local level are essential as we note in our annex, and also effective partnerships with Universities and other research institutes.

Other policy areas: agriculture and cohesion

13. Far greater integration is required between EU water policy and cognate sectors, in particular agricultural and regional policy. Better local level targeting of CAP payments could involve funding for land area agreements and actions to support the types of measures outlined above. Existing provisions for regulation and cross-compliance should be strengthened to limit defaults in delivery. Although significant regional funding is already provided for water-related projects (IEEP 2011), cohesion policy should also be better integrated with water policies and presents a significant opportunity to support regional or local scale initiatives, thereby enhancing subsidiarity in water management.

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Annex: A 'Template' for Catchment Management

1. The term 'catchment' refers to the sub-basins of tributaries or the whole river basin itself, as defined by the watersheds that divide drainage areas. In some countries 'watershed' also refers to this basin or catchment land area. The need to manage water from its source to its sink, and the inter-dependence of our water uses with each other and natural processes, require holistic and catchment-based management. Technical capability, leadership and coordination of actions are required for catchments that rarely correspond to administrative boundaries.





2. Over abstraction, flood risk and water quality are common concerns. Water pollution comprises point and non point source contamination including discharges from water treatment and industry, surface run off from fields, seepage of nutrients from soil into ground water, stream bank erosion and discharges from dispersed and numerous minor point sources such as field, farmyard and urban drains.

3. Based on the achievements of innovative catchment management programmes in the USA, Australia and north west Europe, and on piloting of approaches in England, this project has derived a 'template' to guide integrated catchment governance through:

- the use of science and communication tools to guide policy, decision making, and management measures;

- collaborative partnerships and stakeholder participation that direct and enhance decision making;

- and decision making and implementation at the level which is most effective and accepted within catchments.

Key Components of the Template

An Adaptive Management Cycle

4. The complexity, temporal and spatial scales, dynamics and inevitable trade-offs of catchment management necessitate an adaptive management cycle, collaboration between agencies and levels of government and a 'twin-track' of deliberative partner and stakeholder engagement supported by targeted scientific research.



Aims and Outcome Criteria

Delivery of Long Term Water Quality Improvements and Sustainable Management of Water Resources

5. Ultimate goals are to sustain designated uses of land and water in a catchment with a functioning ecology, accounting for inter-generational needs and guarding the future against present uses.

Cost Effectiveness and Efficiency in the Delivery of Outcomes

6. Achieved through the prioritization of needs and targeting of resources based on catchment assessments, with flexibility in policy and delivery for well adapted local solutions. Monitoring and reporting should also demonstrate cost effective delivery compared to alternative approaches.

Assurance and Acceptance of the Burden of Costs and Distribution of Benefits

7. Allocation of catchment resources based on all legitimate interests and values that is accepted as fair and equitable, and an equitable allocation of financial and other costs to sustain catchment management.

Governance Components

Meaningful and Sustained Opportunities for Public Participation

8. Deliberation with partner organizations and other stakeholders can integrate environmental and public health criteria with economic and social goals. Stakeholders can contribute to catchment assessments and programme design, and implementation will be enhanced by local knowledge, acceptance and ownership.

Cooperative Partnerships Within and Between Levels of Government, Sectoral and Area Responsibilities, the Private Sector and Non-Governmental Organizations

9. Catchment programmes should be built from existing organisations and partnerships, centred on those with current management responsibilities, and working within the framework of prevailing law. The building of partnerships must establish shared goals and recognize differentiated interests and responsibilities. Catchment management requires technical capability, leadership and capacity for coordination covering at least agriculture, water supply, wastewater and waste management, highway and other storm runoff, stream corridor restoration, and development and spatial planning. Laws are needed that facilitate rather than prohibit partnership arrangements and appropriate delegation.

Legitimacy and Institutionalization of Programme Status

10. Integrated land and water management involves local responsibilities and requires inclusive deliberation at the local level under the framework of existing multi-level government. Thus locally acceptable responsibilities and rights must be translated from higher level regulation, with provision for inter-locality cooperation and coordination. Informal partnerships with effective leadership are often a starting point but growth in funds, capacity and authority usually necessitate standing, legitimacy and a formalised legal status.

Transparency and Accountability

11. All data, synthesized information and decision making should be available to the public and open to scrutiny. Key actors must assume and be accountable for their delegated responsibilities and outcomes. Accountability through elected officials is preferred, implying that at least an oversight role for local government is important.

Funding

12. Successful catchment management programmes access diverse funding sources including the private sector. However, continuity in institutional development and capacity building can be expected to require core public funding, and thus appropriate mechanisms for funding from higher levels of government.

Capacity Components

Mobilization of Locally Accepted Technical Providers

13. Trusted individuals, agencies or groups are needed for capacity building and advisory work, not least with farming communities. Their essential functions include convening and mediating to foster trust, participation, collaboration and co-production of knowledge.

Capacity to Conduct Comprehensive Condition and Threat Assessments, and Strategic and Action Planning, Based on Sound Science and Best Available Knowledge

14. Programmes must be able to make assessments of the condition of and all threats to water resources and prepare comprehensive and integrated plans. Ideally all partners will agree and refer to one integrated plan for the catchment. Planning and implementation must be based on credible science, and there must also be the capacity to commission external expertise and scientific peer review.

Capacity for Monitoring of Performance and Outcomes

15. Monitoring and evaluation of the processes and outcomes of catchment management is essential to the learning and responsiveness inherent in an adaptive management cycle, and for determination of the effectiveness and efficiency of outcomes. Reporting on governance, achievements and outcomes is also inherent to sustaining stakeholder and partner engagement, and to demonstrating the benefits of collaborative and integrated catchment management.

Capacity for Knowledge Exchange

16. Programme technical providers need to act as brokers to compile, synthesize and communicate information, enabling decision makers to consider and use diverse data sources. Education about water resources for children, parents and communities can be a facilitator for commitment and action and a two-way process. Gaining the benefits of partner and stakeholder participation in terms of enhanced diagnosis, planning and implementation requires an accessible knowledge base, skilled intermediaries, and high quality communication and decision-support tools.

Further Information:

17. This research has been carried out at the Universities of London, East Anglia and Cornell. Contact: Laurence Smith, SOAS, University of London, email: <u>l.smith@soas.ac.uk</u>

18. Partners in the project include:

The Westcountry Rivers Trust, the Association of Rivers Trusts and the Broads Authority and Upper Thurne Working Group in the UK;

Delaware County Action Plan; the Upper Susquehanna Coalition; and the Hudson River Estuary Programme in New York State, USA;

The South East Queensland Healthy Waterways Partnership, Australia;

The City of Aalborg, Denmark;

Drinking Water Company Drenthe and Drenthe Province, The Netherlands; and OOWV, Germany.