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Developing Tools for Interdisciplinary Research: Physical and Social Science Perspectives on the Use of Rural Catchments

This research has developed a conceptual framework to link social and physical sciences in the study of changes in the natural environment. The project involved physical and social scientists together with other stakeholders in exploring the ways in which natural and physical processes are linked and understood. The catchment of the upland river Esk in the North York Moors was used as a case study. A series of seminars with stakeholders discussed four themes: knowledges, entitlements, livelihoods and regulation, linking human activities to the natural environment.

The first objective was to understand knowledges, claims and practices within the rural landscape. People drew on both formal and non-formal knowledges at different scales and were clearly aware of the interconnections between social behaviour and the natural environment. It was widely acknowledged that groups had different knowledges that could play a role in their behaviour. However, love of the landscape united practising scientists, locals, incomers and visitors. Claims ranged from the material to the spiritual including direct livelihood claims from fishing, farming and shooting. Private property proved overwhelmingly important in framing claims. Debates on entitlements (the broad category of rights, claims and access) were dominated by issues of access in various forms and discussion revealed issues of conflict and ambivalence.

The second objective was to explore the ways in which information was communicated between different stakeholders. Seminar participants were good at identifying gaps in knowledge, and had a lively awareness of where to obtain information and how to plug in to appropriate networks. Local champions were very significant for communication and action. Communication could be seen as both horizontal – between people at the same level; and vertical – within a hierarchical system. The communication of formal regulations brought up issues of reconciling regulations at different scales, whether European, national or local.

The third objective was to identify the points at which human behaviours map on to river catchments, paying particular attention to the scale of human activity. Sources for livelihoods were grouped according to three scales: intra catchment livelihoods, based entirely on resources and the environment within the catchment; livelihoods earned outside the catchment, but within daily commuting distance; and livelihoods which derived from a market beyond any daily commute. Seminar participants gave clear interpretations of how livelihoods at each of these scales affected the physical and social environment.

The fourth objective was to develop a framework to explore relationships between human behaviour and the physical landscapes. We built on environmental entitlements analysis which explicitly links the natural and the social, incorporating the role of institutions and therefore of power. The framework was designed to capture systematically the processes at work in the development of natural resource use. Thus the model was designed to follow the processes by which an innovating stakeholder brings about a deliberate change to the environment. Its usefulness lies in

drawing attention to some of the key relationships involved in introducing new ways of acting. It is a conceptual framework that can be tested by interdisciplinary researchers in other contexts.

The final objective was to build interdisciplinary capacity. Interdisciplinary capacity was developed at each stage of the design implementation and analysis of the project with both physical and social scientists working together. Throughout the project the team took great care to be self reflexive.