Knowledge/Data elicitation (Grampian Case Study)

At the September CAVES meeting, the issue of knowledge/data elicitation came to the fore. This concern has two elements: the logistics of eliciting data from study respondents about their social networks; and the appropriate use of field research data in computer modelling at various grains. These will be addressed in turn.

In the CAVES Grampian study, we had the advantage of undertaking the theoretical construction of our research plan prior to the issue of data elicitation being raised. As a result, we were able to include these concerns in the criteria for selection of a theoretical approach. The selection of social capital as an approach in part reflected the issue of data collection: given previous research experience in Grampian, it was deemed unlikely that land use managers would be willing to specifically identify the entire range of network members necessary for a valid social network analysis of nodes and ties. By utilising social capital, we could focus instead on identifying the types of social relationships which influenced the land use change process, and their relative importance. The results of the Grampian field research will thus be the identification of types of network relationship, and the impact of these relationships on land use change processes, rather than examples of specific networks and their structures.

Research findings are being structured for communication into modelling terms. Results from the Grampian field research will identify demographic *characteristics* of land use managers in the study area, patterns of change in the land use system in the past (*assumptions*), ecological *limitations* on land use change in the future, and *decision rules* – a series of criteria to be met in order for specific land use changes to occur in the computer model. There will be two sets of these rules – one general, and one specific to identified subsets of land managers. Network influences will be identified in the demographic characteristics of land use managers (farmer 'type' and network membership) and in the decision-rules (significance of social norms, personal reputation). The challenge will be determining the relative 'weight' of different factors, in order to operationalise the decision rules. This will largely be determined by the relative importance of factors as identified by respondents. It will be necessary to trial various weightings, in comparison with previous land use decisions, in order to determine validity. Even so, this is one area that will inevitably remain grey, as perfect measurement of these factors is not achievable. The issue of scaling up from detailed fine grain models will be addressed as the field research progresses; it is anticipated that field research will demonstrate the issues of greatest significance to land use change processes, and these will be included in the coarse grain models.

The Grampian study also has the advantage of housing the field researcher in the same location as the computer modellers. This facilitates regular communication regarding the limits and requirements of the two different types of work. To ensure the ongoing 'fit' between field research and computer modelling, the Grampian team are working on a joint ontology as part of the data analysis process.