Relu conference 16 November 2011: “Who Should Run the Countryside?”

**Workshop discussion 2: Environmental modelling:**

**master or servant?**

14.20-15.20 hrs

**Chaired by Mark Holdstock**

Modelling is a technique increasingly used by policymakers and government organisations but it can provoke controversy “on the ground” if it fails to be right for every time and every place. This session provides a forum for examining some of the challenges.

**Panel**: **Stuart Lane,** University of Lausanne

 **Lisa Norton,** Centre for Ecology and Hydrology, Lancaster

 **Adrian Hilton,** Climate NE

 **Lydia Speakman,** Natural England

**An introduction from Mark Holdstock**:

For anybody to have any degree of credibility if they are to run the countryside the decisions they make need to be backed up with evidence. Whether it is the management of the environment or the infrastructure or even emergencies affecting the countryside. One way to provide that evidence is to spend a long time observing, gathering those observations together, testing the observations. Very often this can be time consuming and expensive, often every different situation will need a different set of observations, a common solution is to provide a model. Often computer based these models can be adapted for different situations. They will have the benefit of being  quicker, and cheaper, but do they have the credibility to convince people in rural areas that the evidence they provide is the truth, the whole truth and nothing but the truth? The question is whether environmental modelling is the master, or the servant...? Should it be used to make decisions about how the environment is managed, or should it be a tool within that decision making process...? And to what extent should `local knowledge’ both inform the design of the models, or perhaps even take precedence over them? The question, master or servant?

Modelling can be used in some particularly contentious decisions which may change the degree to which local people can manage the countryside around them, when control of the management process is taken over by bodies acting for the protection of the environment or landscape in the countryside... particularly when the way that the countryside, its environment and infrastructure is managed may have an impact on a wider community, perhaps even in urban areas.

Stuart Lane posed some questions about why we should accord modelling any credibility: Is it “pseudo-science”? It makes statements about placed the modeller may never have been to eg diffuse pollution models. But we need to know what is happening in every field in every part of the country – is that possible? They have to be calibrated and validated.

Lisa Norton pointed out that models may cover a whole range of different things, from the very simple to the extremely complex. But we need to understand how the public perceive models. They may inspire some kind of awe but they probably aren’t going to answer all the questions at local level – that needs local knowledge.

Rebekah Widdowfield observed that models have a key role to play in an era of climate change, and when we have to prioritise resources. They may be needed as an alternative to data collection and to judge risk and sometimes quick decisions are needed. But there is sometimes a reluctance to highlight their limitations. They are never perfect and we need to be clear about what they can and can’t do. Authorities need to be better at coproduction of knowledge with stakeholders but local knowledge isn’t a panacea either. Too many models are mono-disciplinary and may lack the element of human behaviour.

Lydia Speakman said that at first it seemed obvious they must be servants, just one of many tools, but actually “master” can mean “expert” which throws a different light on the issue. They are important in climate change when natural world is vulnerable and there is little available to help organisations make judgements. Natural England has databases that enable comparisons between areas. But need quality assurance and good data. It can be a mechanism to master a topic.

Discussion:

* We need openness about the limitations of models, so they are peer reviewed and in the public domain
* Is there a problem about commercial confidentiality?
* Open access is written into the contacts for Scottish government
* There is democratic obligation to openness
* Field measurements may also lack credibility and can be misleading – it’s not just models
* What made the environmental controversies project different was that the competency group was able to negotiate what went into the model then the research student involved wrote the maths code for it and the group tried it out. So the situation was “I believe the model because I have used it”
* Can models be manipulated? Probably. But they have to be made to work otherwise they will fail peer review.
* Where does the risk of bias lie? Part of culture? Some organisations fear models being used against them.
* We need to know what a model has been created for and how to be used.
* Are pop-science models useful? Eg to work out your carbon footprint – if there are several each will give a different answer? Maybe they are useful to highlight specific areas of high carbon footprint and make you think about your usage.