Human dimensions of adaptive forest management

This study draws on international experience with adaptive management to consider lessons for woodland management in the UK.

Adaptive management is a systematic approach to learning from innovative resource management. Many of the challenges for implementation are social, particularly communication and decision-making among diverse stakeholders, and change to organisational learning culture.

Some examples of innovation in British forestry provide entry points for a more adaptive approach in the UK. The specific conditions in the UK suggest that learning networks could be a useful way forward.

An adaptive management approach encourages a disciplined approach to management, without constraining the creativity that is vital to dealing effectively with uncertainty, risk, and change.
(Bell et al. 2008)

Background

Adaptive management is widely proposed as a suitable approach for dealing with uncertainty and complexity in natural systems, particularly in relation to climate change. It is essentially an iterative, experimental and collaborative approach to resource management.

The terminology of adaptive management is not yet widely used in the UK but is common elsewhere. This literature review assesses international experience in adaptive forest management (AFM) and its implications for forest management in the UK.

Objectives

o   Review literature (including academic papers, practitioners' manuals, and policy documents) with a view to understanding the human (social, cultural and organisational) aspects of adaptive forest management;

o   Identify areas which require further study in order to better understand the relevance of adaptive forest management to the UK.

Findings

Definitions of adaptive management range from 'learning by doing' to 'a highly structured and scientific approach to planning, implementing, monitoring, reviewing, and modifying management in the light of new evidence, in collaboration with relevant stakeholders'. This second definition serves as an ideal, or framework for thinking about AFM, but there may be benefits to adopting a less rigid definition in some contexts.

The concept of adaptive management is widely known and advocated in North America and other temperate forest regions. It is less widely *implemented*, but experiences have been well analysed and documented in Canada, Northwest USA, Australia and New Zealand.

Whilst there are technical challenges (for example, modelling complex systems), the main challenges for implementing adaptive management are often social and institutional. These include challenges around:

- stakeholder engagement (who to involve and at what stage in the process);
- organisational culture (tendency for natural resource agencies to be hierarchical, practical, competitive, expert and risk averse organisations with little time for reflection and deliberation);
- interactions between forest researchers and managers (conventionally they occupy separate roles, locations and activities, but under adaptive management have to hybridise);
- communication amongst stakeholders around technical and social aspects (often they come from very different backgrounds);
- monitoring, information management, and acting on the information (i.e. closing the loop):
- measuring success (measuring process or outcomes?)

AFM relies on innovation and creative thinking about new ways of doing silviculture. Whilst the literature highlights the need for 'learning organisations' there is little discussion of ways to encourage and use innovation.

Adaptive management is not explicitly adopted in British forestry. However recent innovations such as continuous cover forestry, and new approaches to monitoring woodland grazing, offer promising examples of a more adaptive approach.

Compared with many of the areas where AFM is applied, the UK context shows relatively small scale and diverse patterns of land use, high societal expectations and use, relatively high private ownership, and an increasing institutional culture of partnership. These conditions might best be addressed through learning coalitions and networks.

Recommendations for research

Research could most usefully focus on the following questions:

- **Innovation:** What is innovative in forestry practice, how is this being monitored, and how is monitoring linked to learning?
- **Policy and practice:** Do we learn upwards from local experiments, or do policy changes provide the space in which to experiment?
- **Science and practice:** How do scientists and practitioners interact, and what might they need to do differently in AFM?
- **Learning organisations:** How do forestry organisations, stakeholders, and individuals in the UK learn and adapt?
- **Participatory modelling:** How do different stakeholders engage with models and decision support tools available for use in AFM?
- **Partnerships:** Are there examples of good practice that could enhance AFM?
- **Evaluating AFM:** How can the success of AFM be evaluated, building on work to develop indicators of resilience and uncertainty?