

Introduction

The UK National Ecosystem Assessment (UK NEA) is a two year project; the half-time milestone was reached in February 2010. In the spirit of the MA, the analysis is centred around the contributions that ecosystems make to sustain society, economy and human well-being.

The scenario component is a vehicle to convey current and plausible future states of the natural environment as well as a tool to trigger evidence-based policy discussions. The scenarios are successful if they result in a learning process of the participating users and stakeholders, and are used to test and evaluate policy and management interventions.

Uncertainty in current evidence and future development is managed by a fully transparent scenario development methodology to allow users to interpret the plausibility of events.

Exploration

- Scenarios are a tool to explore new paradigms and stretch the range of thought space beyond extrapolations of the present
- Can be used to 'wind-tunnel' impact of policy options

Transparency

- The morphological approach is used to make the assumptions of driver variables transparent
- Scenarios can be modelled based on driver variables and plausible linkages using Bayesian Belief Networks (BBN)
- Probability transition matrices for land use change is used to model change in quality and quantity of ecosystem service output
- Functions for marginal value change in BBN are used to estimate marginal benefit change (£) in a given scenario

Flexibility

- The functions and probabilities can be updated over time
- Transition models can be staggered for example 2010-2030 and 2030-2060

Overarching questions for UK NEA scenarios

1. How might ecosystems and their services in the UK change in the future under plausible scenarios?
2. What are the future possible effects of changes in ecosystems on human well-being and who might most be affected?

Review of 21 global, European and UK environmental scenarios is used to gather information for projections of drivers of change and to underpin the scenario logic.

Client group questions, for example:
What is the plausible outcome if sustainable management practices are implemented?
What are the synergies and trade-offs between different ecosystem services?

UK NEA Policy Response Group to engage in the development in scenario storylines and use the scenarios to test plausible impact of policy interventions.

Morphological approach

A method to structure complex parameters in a solution space and link cells in plausible combinations to construct scenarios (Ritchey, 2006). The method allows for more variety and flexibility compared to a 2x2 grid.

Food production self-sufficiency	Energy crops	Future of the CAP	Adoption of GM biotechnology	Research & Development	Life Style choices
Low	High National Production	Enhanced agri-environment schemes	Accepted	High	Greener
Same as 2010	Same as 2010	Enhance food production	Rejected	Low	No nod to green lifestyle
High	Low National Production	Enhance provision of Ecosystem Services	No Support		

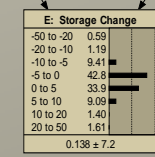
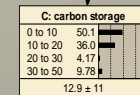
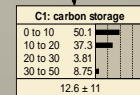
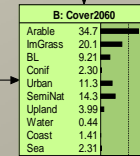
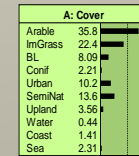
Scenario storylines describe the plausible future based on the drivers of change

Bayesian Belief Networks help to characterise the impact of scenarios on ecosystem services (Haines-Young et al., 2010)

Scope, policy relevant questions, and scenario expertise input from the client group

Science input from Habitat Chapter authors

Valuation criteria from Habitat economists



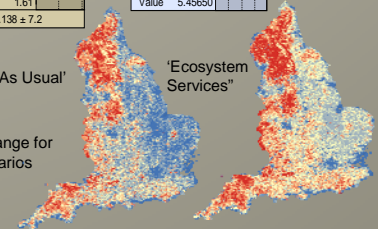
Apply function to spatial unit (1km², catchments or administrative unit)

K: Change in value

L: Change in Value (£)

Value 5,45650

'Business As Usual' Carbon storage change for England two scenarios



Reference: Ritchey, T., (2006) General Morphological Analysis - A general method for non-quantified modelling. (www.swemorph.com)

The data presented here is based on the work in the following working papers. To access them go to www.nottingham.ac.uk/cem/workingpapers

1. Haines-Young, R., Moore, K., Potschin, M., Paterson, J., Silfwerbrand, G. (2010): The Development of Scenarios for the UK NEA- Interim Report
2. Paterson, J., Haines-Young, R., Moore, K., Potschin, M., Silfwerbrand, G. (2010): Utility of the existing scenarios frameworks for the UK NEA
3. Moore, K., Haines-Young, R., Potschin, M., Paterson, J., Silfwerbrand, G. (2010): User needs and development of focal questions for the UK NEA Scenarios
4. Silfwerbrand, G., Haines-Young, R., Moore, K., Potschin, M., Paterson, J. (2010): Linking drivers of change to ecosystems service output for the UK NEA

The work on the development for the UK NEA scenarios started in November 2009 and will run through to January, 2011.

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Key lessons learned so far

- Engage with the stakeholders in a learning process to increase the intellectual property from the exercise
- Use the scenarios to communicate ecosystem services value now and in the future
- Process is equally important to product output

Next steps and key challenges

- Consult with individual countries and include their local needs
- Link scenario work to Policy Response Group (iterative process)
- Collect evidence for functions of marginal value change from Habitat Chapter authors
- Assign plausible extreme values to the drivers of change
- Derive logic between drivers of change for plausible scenario storylines