National level Natural Capital Accounting in the United Kingdom

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Focus of this workshop:
To help develop the accounting & valuation aspects of Action 5 of the EU Biodiversity Strategy, i.e.:
- to assess the **economic value** of ecosystems and their services
- to ensure an integration of these values into accounting and reporting systems at EU and **national level** by 2020

“We will put natural capital at the heart of Government accounting. We will work with the Office for National Statistics to fully include natural capital in the UK Environmental Accounts.”

_Natural Environment White Paper 2011_
The story so far …

2011
• UK Government – ONS commit to incorporate natural capital into UK Accounts by 2020

2012
• UN SEEA Experimental Ecosystem Accounting
• UK Natural Capital Accounting Roadmap

2013
• Initial ecosystem woodland accounts and discussion papers
• Defra-ONS convene international seminar on valuation

2014
• ONS experimental partial estimates of total UK Natural Capital
• Defra-ONS ecosystem accounting principles published

2015
• Initial Land cover, woodlands, freshwater accounts
• Scoping studies on marine and peatland areas
• Review of first phase of Roadmap and Forward Look
Distinctive features of UK programme

- More emphasis on **measurement of services** than stock/asset accounts
- **Monetary valuation**, in which the National Statistics Institute (ONS) is closely involved
- **Coherent, staged and systematic approach** formally involving the policy division and others (e.g., NCC)
- Emphasis on **national level accounts**, supported by experimental, spatially disaggregated estimates
- Features a range of different accounts, including those for **individual broad habitats**
Four stage, step-wise process

1. Compile **stock accounts**, extent and condition
2. Assess **flows of final services** and identify users of those services, now and in the future
3. Estimate **monetary values** for services (both market and non-market)
4. Calculate **asset value** using Net Present Value of expected sustainable flow of services into the future
Issues of valuation in accounting

- Not just monetary accounting
- Valuation as an important entry point
- Emphasise services actually benefitting society – distinguishing ecosystem inputs from economic inputs and associated environmental impacts
- Asset value based on the NPV of expected flow of services discounted over 50 years using HM Treasury determined rates
Two methods to determine resource rents

- **Aggregate residual value**: residual after economic inputs deducted (based on SNA Gross Value Added)
  
  \[
  \text{Resource Rent} = \text{Gross Operating Surplus} - (\text{subsidies} - \text{taxes}) - \text{return to produced capital}
  \]

  Residual value can be low/negative in some market structures (e.g. abstracted water, fisheries)

- **Access price** determined by unit trade value
  (e.g. stumpage timber prices; quotas for fisheries)

**Conclusion**: Pros & cons to each method —

Choice should depend on type of market
Valuing Regulating services

- **Carbon sequestration** – prices determined using Government impact appraisal guidelines
  Non-traded carbon price used although traded and non-traded values converge after 20 years

- **Air filtration** – values based on avoided damage from pollutants (e.g. PM10) absorbed by habitat elements

- **Flood protection** – challenging, depends upon the counterfactual

- **Other regulating services** – valuation not yet attempted – advice welcome
Valuing Cultural services

• **Recreation** – Some variant of travel cost methods including car parking and admission charges

• **Education** – Similar approach possible for educational visits. Possibly include the value of teachers’ time.

• **Amenity** – generally these values embedded in SNA values (e.g. property values) ; difficult to isolate to any particular service
Key messages on National level Accounting

- **Spatially detailed modelling** - useful but is not universally needed.
  - National level data available for **most provisioning services**, not readily disaggregated to specific locations
  - **Carbon sequestration** by woodland
  - derived from national GHG inventory
  - **Recreation values** estimated by sample surveys of site visits or analysing particular types of recreational use

- **Bio-physical models** --needed for the valuation of flood protection, air quality, etc:
  Development needed for better understanding should not impede valuing other services.
In principle the objective is to be able to posit some kind of market in which values could be exchanged.

We are looking to establish a set of ‘conventions’ for assessing each service.

Residual value is not satisfactory method for valuing some provisioning services – possible alternatives include Access price.

Bottom-line: the challenge is not so much in obtaining a reasonable preliminary estimate of ‘price’, but a meaningful measurement of changes over time.
Thank you

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ONS Natural Capital Accounts website

Natural Capital Committee website
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