Pan-European Approach to valuation of ecosystem services

*Expert sub-group 3: means to facilitate implementation*

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Forestry Commission
“Instead of measuring the destruction of nature as a economic gain, we need to address its stewardship as an economic opportunity”

(Aldersgate Group 2011)
Objective of the sub-group:
“develop broad recommendations to facilitate implementation of the valuation approach”

examining:
strategies, policies and actions to promote incentives that can turn forest ecosystem service (FES) values into concrete actions or initiatives (incorporate into NFPs, market-based instruments schemes, etc).

Implementation means both:
a. Enabling the use of methods to value FES; and,
b. Capturing FES values ‘on the ground’
The challenge

To maintain natural capital & the ecosystem services that flow from it

But, economic and business accounting and markets fail in large part to account for the value of natural capital or ecosystem services

- difficult to observe their values directly
- forest owners given little financial incentive to provide them
Valuing ecosystem services

- Decision support - to assess relative impacts of alternative actions
- Better understanding of their contribution to social and economic well-being

valuation methods have been unevenly distributed
  - geographically
  - across different services

Further points to note:
  - comparing values estimated in different contexts?
  - different uses may require different degrees of accuracy
  - Values versus price
  - Availability of values remains limited
  - More understanding and knowledge needed
  - A lack of standards and some confusion over definitions
What is natural capital

One type of capital on which people ultimately depend:
(i) *produced or manufactured capital* (money, buildings, machines)
(ii) *human capital* (health, knowledge, culture and institutions)
(iii) *natural capital* (available from nature)
Natural capital is a stock, from which people derive benefits. One subset of the stock of natural capital is ecosystems, and the benefits are then called ecosystem services.
Concept of economic value

- measuring wellbeing – trade-offs & marginal changes
- market goods – prices (often) reflect value
- non-market goods – unpriced but concept of trade-offs & opportunity costs remain

⇒ methods to estimate monetary value of non-market goods
  incl. revealed preference, stated preference, value transfer

- evolution of valuation approaches and models
Woodland resource

Use
- Direct
  - e.g. timber

- Indirect
  - health, recreation

Non-use
- Bequest
  - future generations

- Existence
  - biodiversity preservation

Total market benefits
Total non-market benefits
Determinants of value

biophysical quantity & quality + human interactions ⇒ large spatial variations

Where should we plant Britain’s new forests?

We could… maximise market value…

...and now consider… green house gases and recreation

Net cost/benefit: -£65 million p.a.

UKNEA Follow-on study (2014)
Enabling the use of methods to value FES
Policy approaches

Market failure used to justify policy interventions

Options include:
• Liability laws
• Property rights
• Command-and-control
• Economic incentives

But questions arise about policy interventions:
• actual impact on ecosystem service provision?
• possible conflicts between services?
• replacing lost services or generating new services?
Barriers

- Data requirements are demanding – gaps remain, access limited
- Lack of standards on implementation
- Different purposes of valuation
- ES values depend on human interactions & vary spatially
- Valuation methods are contested & studies are ‘patchy’
- Confusion over terms and definitions
- Estimated values do not define price

⇒ pan-European approaches to valuation and implementation are challenging
GUIDE TO ECONOMIC APPRAISAL AND EVALUATION IN THE FORESTRY COMMISSION

Economics and Statistics
Forestry Group

Objectives:
The main objective of Action E45 is to develop new schemas for valuation of forest externalities, providing decision makers with a better tool to assess the impact of policies on forest ecosystems.

Working Group 1
The main aim of WG1 is to produce a manual of good practice for the revealed preference methods (hedonic pricing and travel cost) when applied to forest related goods and services.

Working Group 2
The main aim of WG2 is to write a protocol of good practice for the stated preference methods (contingent valuation and choice modelling) applied to forests.

Working Group 3
The main aim of WG3 is to develop the best practice protocol for the benefit transfer, both in the classical way and in new ways.
Mapping

Woodland for water
National EWGS
Targeting Map 2012-13
Forestry can affect flood flows:
• Reducing the volume of run-off
• Slowing down run-off
• Holding back flood waters in floodplains

2007 floods in England and Wales
⇒ Review: called for greater working with natural processes

⇒ ‘Slowing the Flow’ – to demonstrate how integrated application of land management practices can reduce flood risk at catchment scale, while providing multiple benefits for local communities
• Evaluation
  • Some constraints: landscape and biodiversity, finance (landowners)
  • Modelling underway: flood storage bunds predicted to protect c50 properties in Pickering affected by low level flood events (1 in 25 yrs)
  • Key ecosystem services: flood regulation, erosion regulation, habitat provision, social relations, education and knowledge, climate regulation
  • Mean annual gain of £0.2m; central NPV of £4.3m
  • Lessons include: secure full implementation & take opportunities to extend, continue monitoring, communicate and promote success
  • Recommendations: develop & trial a PES to secure wider implementation
Valuation - ways forward?

- Workable quality criteria
- Improve access to existing valuations
- Better use of existing data (mapping, VT)
- Filling knowledge gaps
- Enabling knowledge transfer
Capturing FES values
Unlocking values from land assets

- Ecosystem services support our economy & society
- New opportunities – emerging markets?
- Cost-effective solutions
- Green growth in rural areas
• Incorporating ES *externalities & public goods* into markets brings risks
  • poor design & implementation
  • ‘green wash’ reputation
  • lack of confidence
  • cynicism

• Requirements for success?
  • Evidence (science, economic/financial)
  • Appropriate knowledge & expertise
  • Appropriate infrastructure
    • clear property rights, information, standards, liquidity
  • Practical examples - *demonstration* initiatives
Encouraging behaviour through market signals

Examples include:

Payments for ecosystem services (PES)
  direct payments, easements, concessions, regulatory
Direct markets
Tradable permits
Reverse auctions
Eco-labelling & certification
Green bonds
Where users (or beneficiaries) of ecosystem service pay the stewards (or providers) of ecosystem services.
Payments for ecosystem services

- a voluntary transaction where
- a well-defined ES (or a land-use likely to secure that service)
- is being ‘bought’ by an (minimum one) ES buyer
- from a (minimum one) ES seller
- if and only if the ES provider secures ES provision (conditionality)

- Also, additionality, permanence, avoiding leakage
PES – in theory

Business-as-usual - Land managed primarily for agricultural production

Payments for ecosystem services - Land managed to provide multiple ecosystem services through wetland restoration

Ecosystem service benefits
(e.g. flood risk management, water quality regulation, habitat for wildlife)

Private returns from agriculture

Additional external benefits

Payment range (£)

maximum theoretical payment

minimum payment required to cover private returns foregone
how to design & implement PES

- Phase 1: identify a saleable ecosystem service & prospective buyers & sellers
- Phase 2: establish PES scheme principles & resolve technical issues
- Phase 3: negotiate & implement agreement
- Phase 4: Monitor, evaluate & review implementation
- Phase 5: Consider opportunities for multiple-benefit PES
• Fostering demand & supply
• Improved metrics
• Monitoring and evaluation
• Financing mechanisms
• Pilot projects
• Business cases
• Natural capital accounting
“Develop a woodland ecosystem market roadmap ... to bring together actions by Government and our partners” (UK Govt 2013)
(a) Understand the opportunities

- Review research & experience to date
- New research & analysis
  - Forest ES market analysis
  - Costs and benefits, and investment returns
    - Marginal abatement costs (CO₂ emissions)
    - Water regulation
  - Metrics for natural capital accounting
    - reporting and impact assessment/ rating

*Stronger evidence base needed*
(b) Develop capacity

COLLABORATION

Government

Local convenors & advocates

Implementers/brokers

Mainstreamers

Suppliers (landowners)

Academia (science)

Investors & beneficiaries

Forest sector - e.g. “Grown in Britain”

Tools (e.g. registries)

Outward focus needed
Practical examples needed
Conclusions

Economic valuation
- A powerful tool but one approach among others
- Its purposes need careful communication
- Major advances but major challenges remain
- Guidance and standards needed

Market-based approaches
- At an early stage
- Guidance and standards needed
- Evidence essential
- Lack of systematic knowledge on new finance mechanisms
- Knowledge exchange
- Pilot projects

National Forest Programmes have significant potential to support means to implement the valuation of forest ecosystem services
Forestry has an important contribution to make

- major provider of natural capital & ecosystem services
- wide-ranging data and expertise
- capacity, in partnership, to apply in practice

Forest sector has potential gains

- revenue streams
- mainstreaming
Thank you

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