

Valuation of ecosystem benefits: policy needs in the UK

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Current situation

UK Treasury 'Green Book (2003): Sets out basic principle of project and policy assessment and evaluation



HM TREASURY

THE GREEN BOOK

Appraisal and Evaluation in Central Government

Note explaining changes made to the Green Book in July 2011:

This is the 2003 edition of the Green Book. However, pages 37-38, which deal with the valuation of non-market goods, have been updated alongside the release of a Green Book discussion paper on this subject - Fupwara and Campbell (2011), Valuation Techniques for Social Cost Benefit Analysis: Stated Preference Revealed Preference and Subjective Well-Being Approaches.

The changed text on pages 37-38 has been highlighted in red within this updated document. Because of the changes there is some duplication of paragraph numbers, and there is some change to the sequence of footnotes in this section.

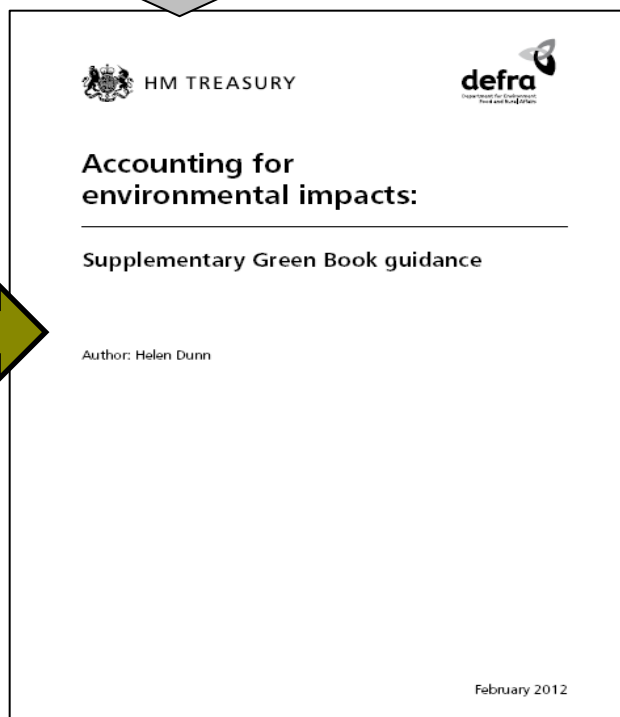
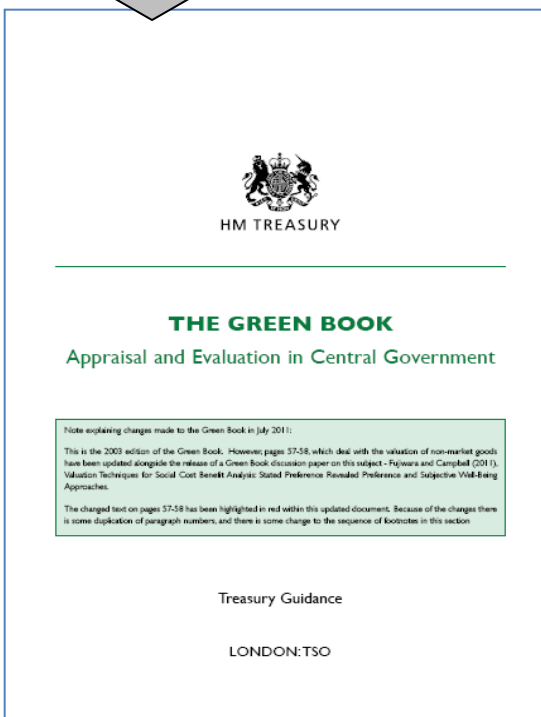
Treasury Guidance

LONDON: TSO

Current situation

UK Treasury 'Green Book (2003): Sets out basic principle of project and policy assessment and evaluation

Supplementary guidance on accounting for environmental impacts (2012): High level guidance on identifying and valuing impacts

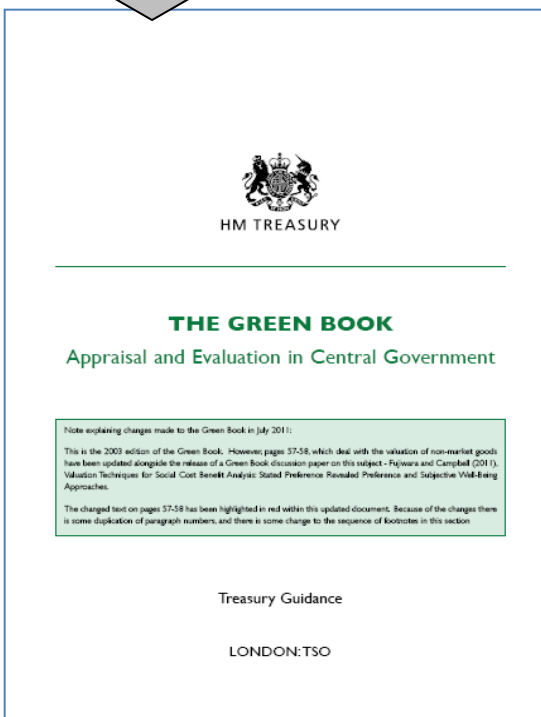


ESA in the UK

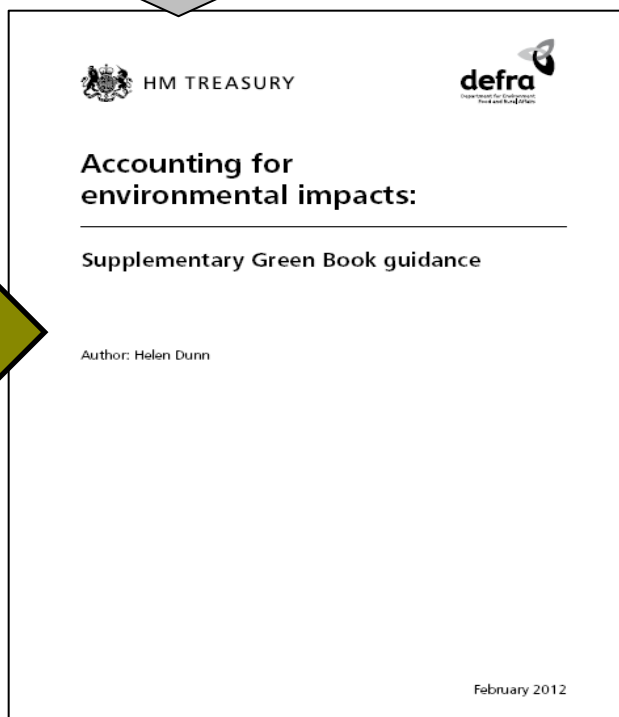
- Our definition is:
“A generic framework for incorporating the holistic consideration of ecosystem services and their value into policy, plan and decision making”
- Essentially about:
 - Looking for **opportunities** to work with natural systems to deliver your objectives while increasing private AND public benefit
 - Doing a thorough **impact assessment** that considers the positive and negative impacts of your policy options on the whole system and services we get from nature.

Current situation

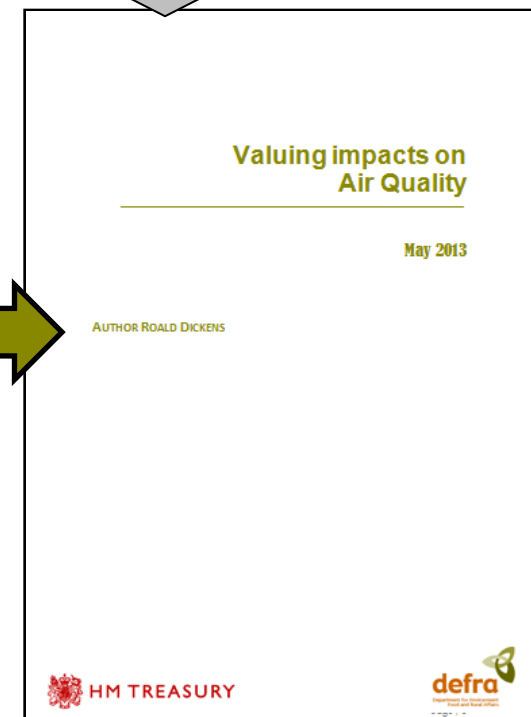
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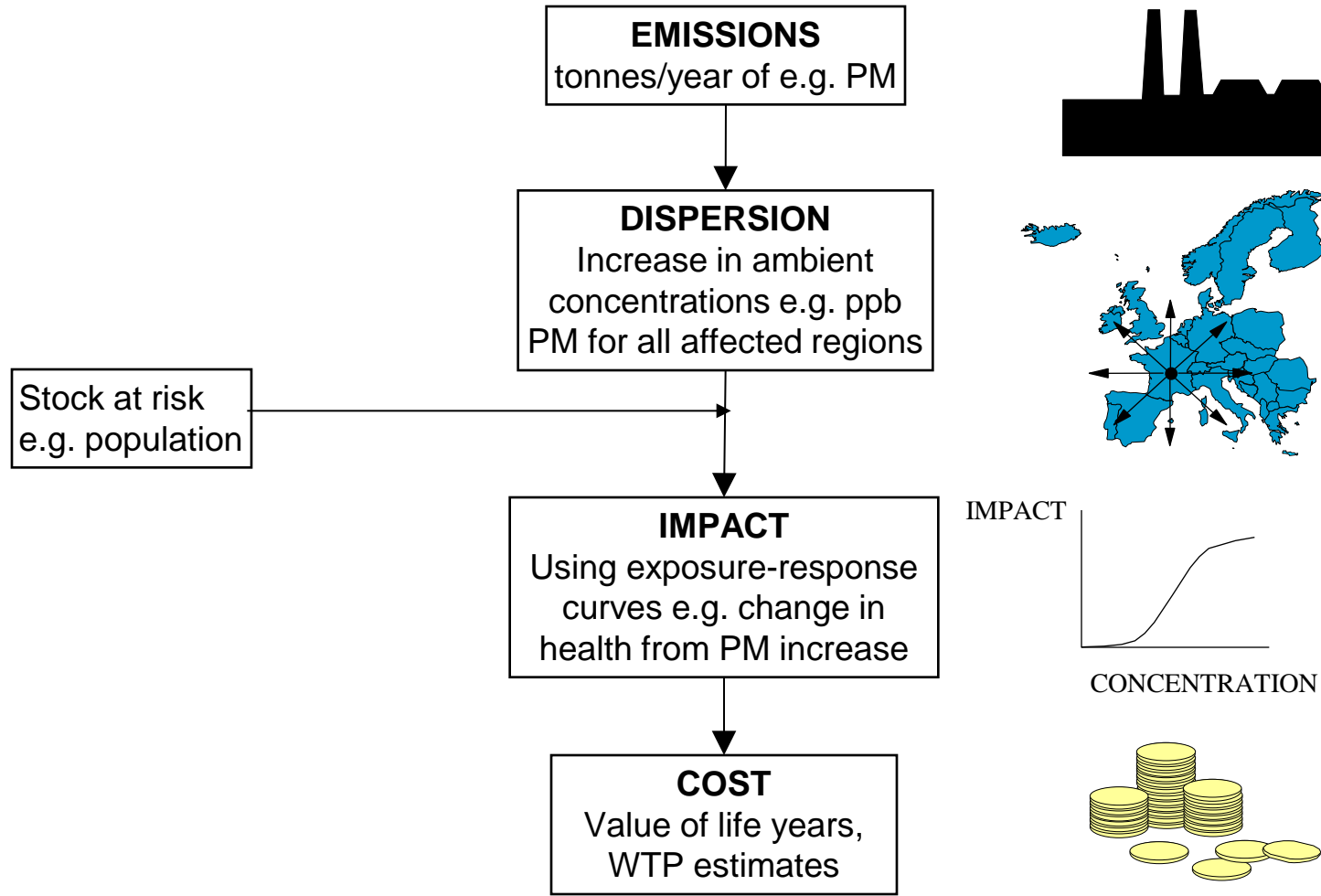
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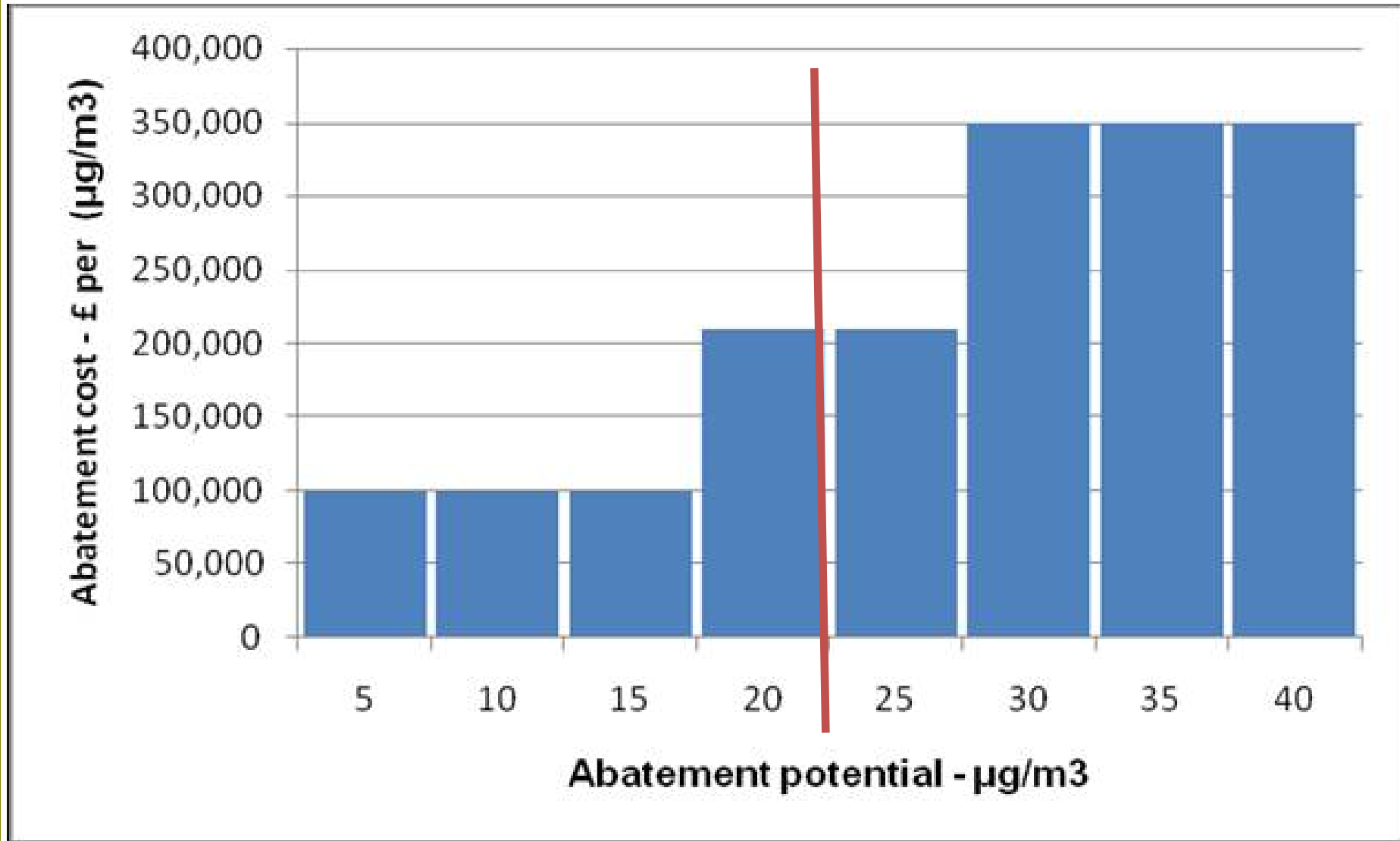
Specific guidance environmental impacts (2013): Specific tools to support the application of ESA



Air Quality Guidance



Air Quality Guidance



Environmental noise

		£ per household per dB change				
(L _{aeq} , 18hr, dB(A))		Amenity	Health			Total
Low	High		AMI	Stroke	Dementia	
55	56	£34.80	£0.00	£5.06	£7.71	£47.57
60	61	£48.00	£7.22	£5.18	£7.87	£68.27
65	66	£61.10	£15.71	£5.30	£8.04	£90.15
70	71	£74.30	£25.41	£5.43	£8.20	£113.34
75	76	£87.50	£36.13	£5.57	£8.37	£137.57
80	81	£98.00	£48.42	£5.70	£8.55	£160.67

What difference is this making to policy?

- Increasing use of values informing policy decisions (e.g. values for carbon, air quality and water quality)
- Design of policy instruments including environmental taxes and payments for ecosystem services
- Providing robust evidence in government spending decisions
- Investing in natural capital (e.g. managed realignment schemes)



Policy use of ESA valuation

- Demonstrating the benefits and informing design of Defra policies (e.g. Marine Bill, river basin management plans under WFD, design of new agri-environment schemes)
- Highlighting the economic scale of environmental degradation (e.g. TEEB, NEA)
- Informing policy choices on alternative uses of land and optimal mix of ecosystem services (e.g. peat bogs, flood risk management)
- Demonstrating economic benefits of green infrastructure (e.g. Natural England work with Local Enterprise Partnerships)

Role of Green Infrastructure

...saves environmental costs:

- Pollutants removed by trees in Mecklenburg County, North Carolina (USA) amounted to an economic welfare benefits of US\$4 million, based on the cost saving of preventing the pollutants from entering the atmosphere^g.
- Sheltering effects of trees could save 3-9% of energy bills^h.
- Unearthing of the Cheonggyecheon Stream in Seoul and related greening of the area reduced the temperatures by 3 - 6 °C compared to those on a parallel road four to seven blocks away. The same changes led to a 35% reduction in the small particle concentration in the air, leading to noticeable improvement in air quality in the areaⁱ.
- Increasing green cover by 10% in urban residential areas reduces run-off from a 28mm rainfall by almost 5%. This reduction is almost 6% if the tree cover is increased by 10%^j.

Source: Green infrastructure's contribution to growth, July 2013, report for Defra and Natural England

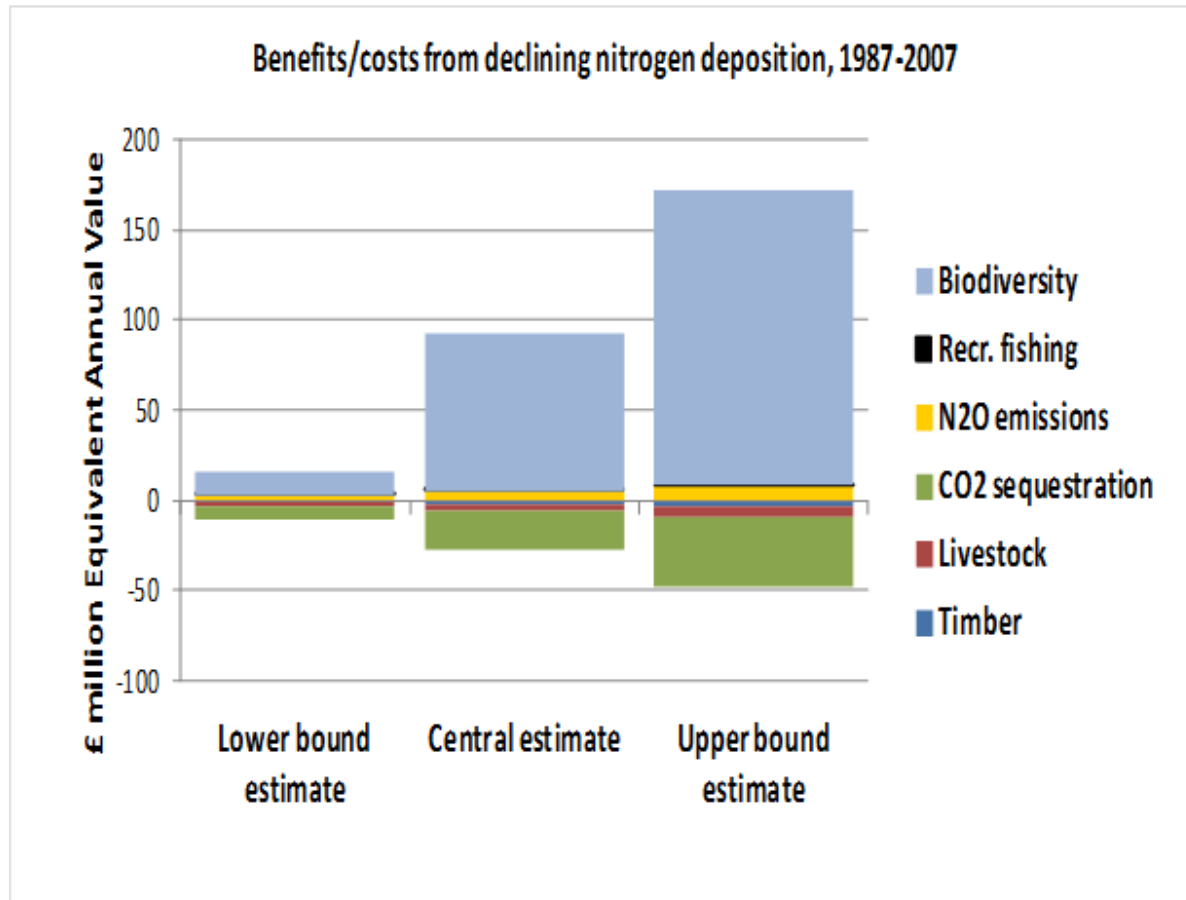


Some notable challenges

1. Significance



UK Impact Assessments



Jones et al. (2013). Ecosystem Services (online)



UK Impact Assessments

Summary: Analysis & Evidence

Policy Option 1

Description: More stringent obligations on households

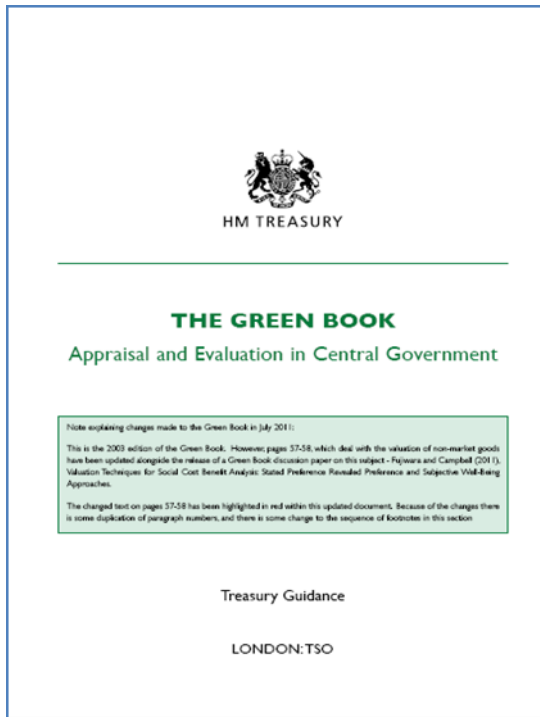
FULL ECONOMIC ASSESSMENT

Price Base Year	PV Base Year	Time Period Years	Net Benefit (Present Value (PV)) (£m)		
			Low:	High:	Best Estimate:
COSTS (£m)			Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Cost (Present Value)
Low					
High					
Best Estimate					
Description and scale of key monetised costs by 'main affected groups'					
Other key non-monetised costs by 'main affected groups'					
BENEFITS (£m)			Total Transition (Constant Price) Years	Average Annual (excl. Transition) (Constant Price)	Total Benefit (Present Value)
Low					
High					
Best Estimate					
Description and scale of key monetised benefits by 'main affected groups'					
Other key non-monetised benefits by 'main affected groups'					
Key assumptions/sensitivities/risks					Discount rate (%)

} 10 lines

Some notable challenges

1. Significance
2. Tools



“All new policies, programmes and projects, whether revenue, capital or regulatory, should be subject to comprehensive but proportionate assessment, wherever it is practicable, so as best to promote the public interest”





Figure 11 The eight Broad Habitats assessed in the UK NEA and examples of the goods and services derived from each. Items marked with an * denote goods, those with † denote services. Items in yellow are considered to be from provisioning services, purple from regulating and green from cultural. The supporting services, including amongst others primary production and nutrient cycling, are not listed against individual habitats as they are considered necessary for the production of all other ecosystem services. Source: adapted from the Millennium Ecosystem Assessment (MA 2005).

Some notable challenges

1. Significance
2. Tools
3. Addressing evidence gaps
 - Interdisciplinary working
 - Brave assumptions
 - Prioritisation of gaps



Conclusions

- Substantial progress has been made
- ESA is influencing policy decisions
- Evidence development through ESA



Conclusions

- Substantial progress has been made
- ESA is influencing policy decisions
- Evidence development through ESA

- But many gaps remain
- Way forward
 - Demonstrate significance
 - Develop new tools
 - Focus further research



Thank you

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