

Ecosystems accounting in the UK

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UK Government commitment

“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 In 2012 we will publish a roadmap for further improvements up to 2020. Over time , we will move from measuring the value of the physical stocks to systematically valuing the services they provide. Further research will be undertaken to do this, building on the results of the National Ecosystem Assessment.”

Natural Environment White Paper, 2011

Institutional arrangements

- Project management in Office for National Statistics as part of 'Measuring National Well-Being' Programme
- Formal reporting to Defra Management Board and Defra Ministers on monthly basis
- Natural Capital Committee, reporting to the Chancellor of the Exchequer, is taking close interest in progress

Remit of Natural Capital Committee

- Provide advice on when, where and how natural assets are being used unsustainably
- Advise the Government, using sound economic analysis, on how it should prioritise action to protect and improve natural capital
- Advise the Government on research priorities to improve future advice and decisions on protecting and enhancing natural capital, reflecting consultations with the Research Councils and the academic community

Roles of ONS and Defra in implementing ecosystem accounts

ONS

- Main compiler
- Expertise in National and Environmental Accounts
- Experimental statistics, potentially official statistics

Defra

- Potentially the main user
- Expertise in ecosystems science
- Funding of new research and data collection

Current position

- Consultation on Roadmap just completed
- Pilot study (woodlands) already started
- First thoughts on a quick and dirty 'top-down' account included in consultation paper
- Discussion paper on enclosed farmland also in hand

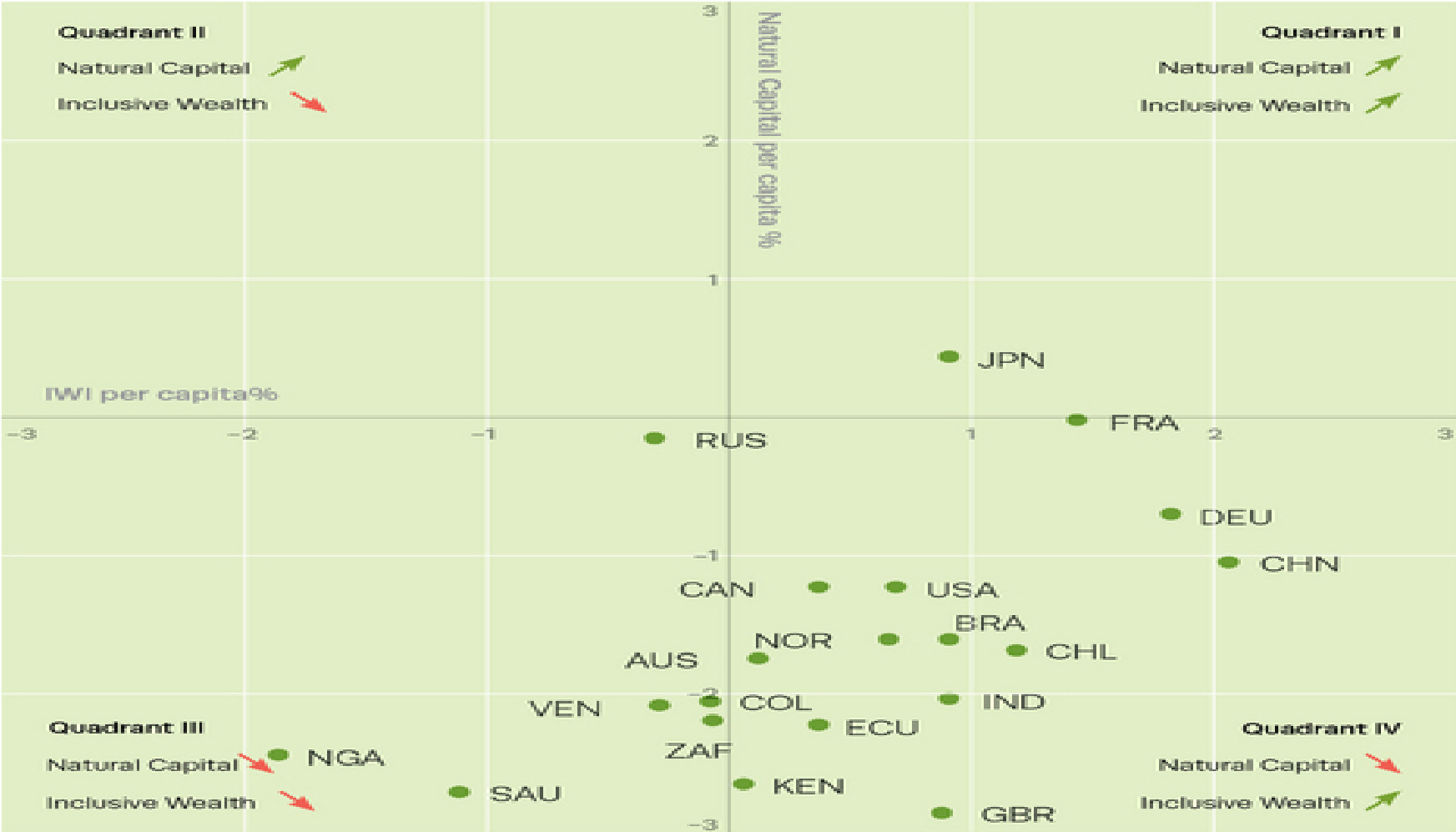
Illustrative ecosystem services account for woodlands

2010	Type of forest and other wooded land (various units)			
	Forests		Other wooded land	Total
	Other naturally regenerated forest	Planted forest		
Provisioning services Timber (mt) Other ecosystem goods Water supply Wild species diversity				
Regulating services Climate (carbon dioxide additions and removals) Hazard Disease and pests Pollination Noise Water quality Soil quality Air quality (additions and removals)				
Cultural services Local places (number of visits) Landscapes				

Top-down approach – what and why

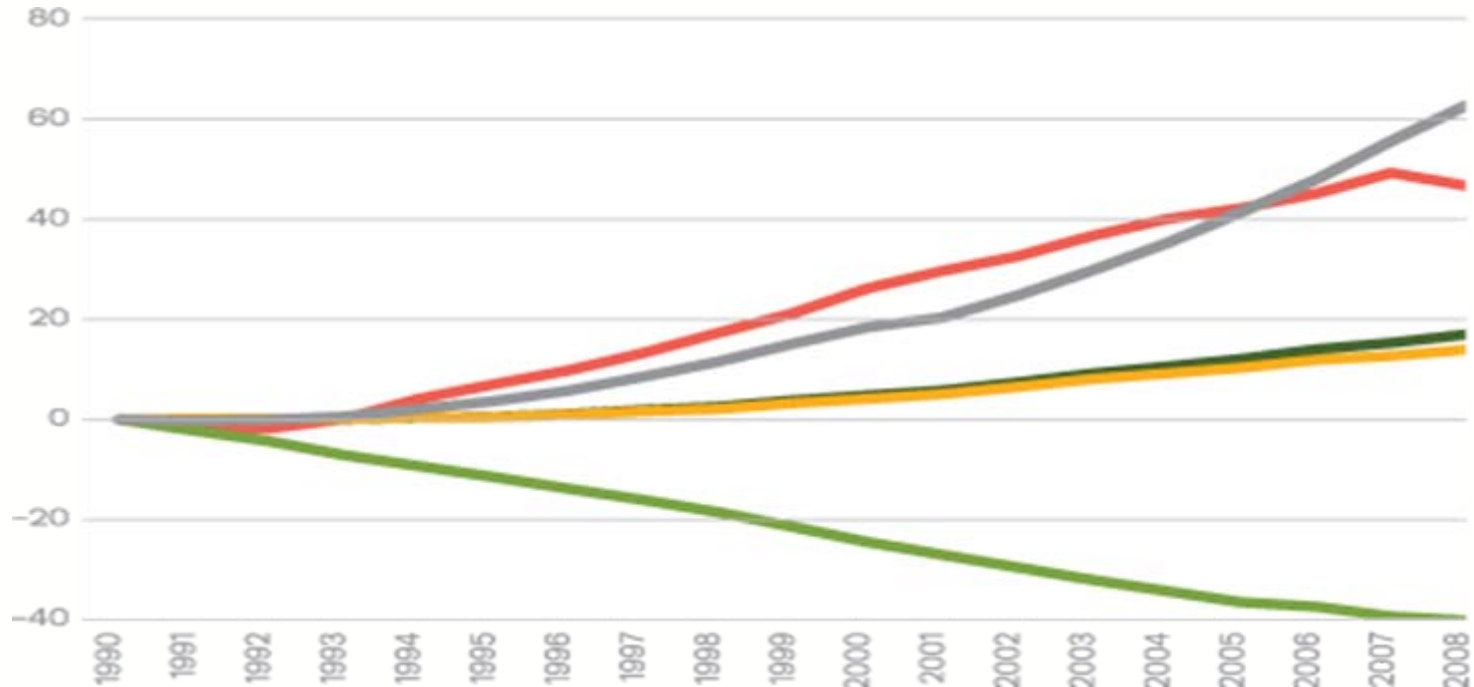
- Top-Down Approach (Wealth Accounting)
- Gives overall view of value of natural capital
- Can be completed within a reasonable time-frame
- Links in with the valuation of other forms of capital already researched by ONS
- Broad estimated or ranges are acceptable
- Can be systematically improved over time

Inclusive Wealth Index & Natural Capital

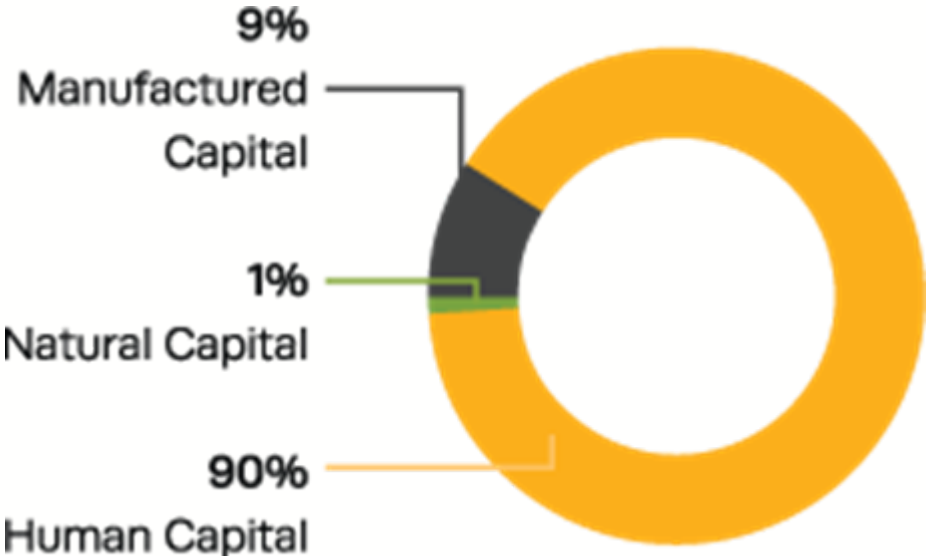


UK - Total changes 1990-2008

- IWI ↑ 17%
- GDP ↑ 47%
- Natural Capital ↓ 41%
- Produced capital ↑ 63%
- Human Capital ↑ 14%



Composition of UK's Natural Capital



Issues

- Capture only limited aspects of natural capital
 - Agricultural Land
 - Fisheries, as applicable
 - Forest resources
 - Fossil fuels
 - Mineral, as applicable
- Ecosystem as natural capital
- Ecosystem and ecosystem services
- Valuation of ecosystem services

Valuation

- Welfare economics vs. National Accounts
- Economics - valuation is human welfare and measured in terms of each individual's own assessment of his/her well-being (consumer surplus)
- National accounting – valuation is producer surplus plus cost of production

Non-market valuation methods applied to ecosystem services

- Travel cost
- Averting behaviour
- Hedonic price
- Production function
- Replacement cost
- Stated preference

Future plans for top-down approach

- Develop natural capital estimates based on Inclusive Wealth Index and extend the coverage to include other natural capital and ecosystems and ecosystem services
- Develop UK's balance sheet based on social, physical, natural and human capital

Pilot accounts – first thoughts

Although we have an ecosystems services perspective

- We still want to start by describing the characteristics of the ecosystems which give rise to particular services
- Difficult to show a single ecosystem in isolation, there are important interactions with and inter-dependencies between ecosystems
- Overlap with SNA is of interest but is something to address later

Characteristics of ecosystems

The influence that a parcel of land (the basic area on which a habitat sits) exerts on the delivery of an ecosystem service depends on four main factors:

- **What it is** – the land cover or habitat type and its condition
- **What it is on** – the geology and soil type underlying the land
- **Where it is** – the landscape context of the land (e.g. on a steep slope or valley bottom or proximity to an urban area)
- **How it is managed** – the management regime, protected area status, position re grant schemes etc



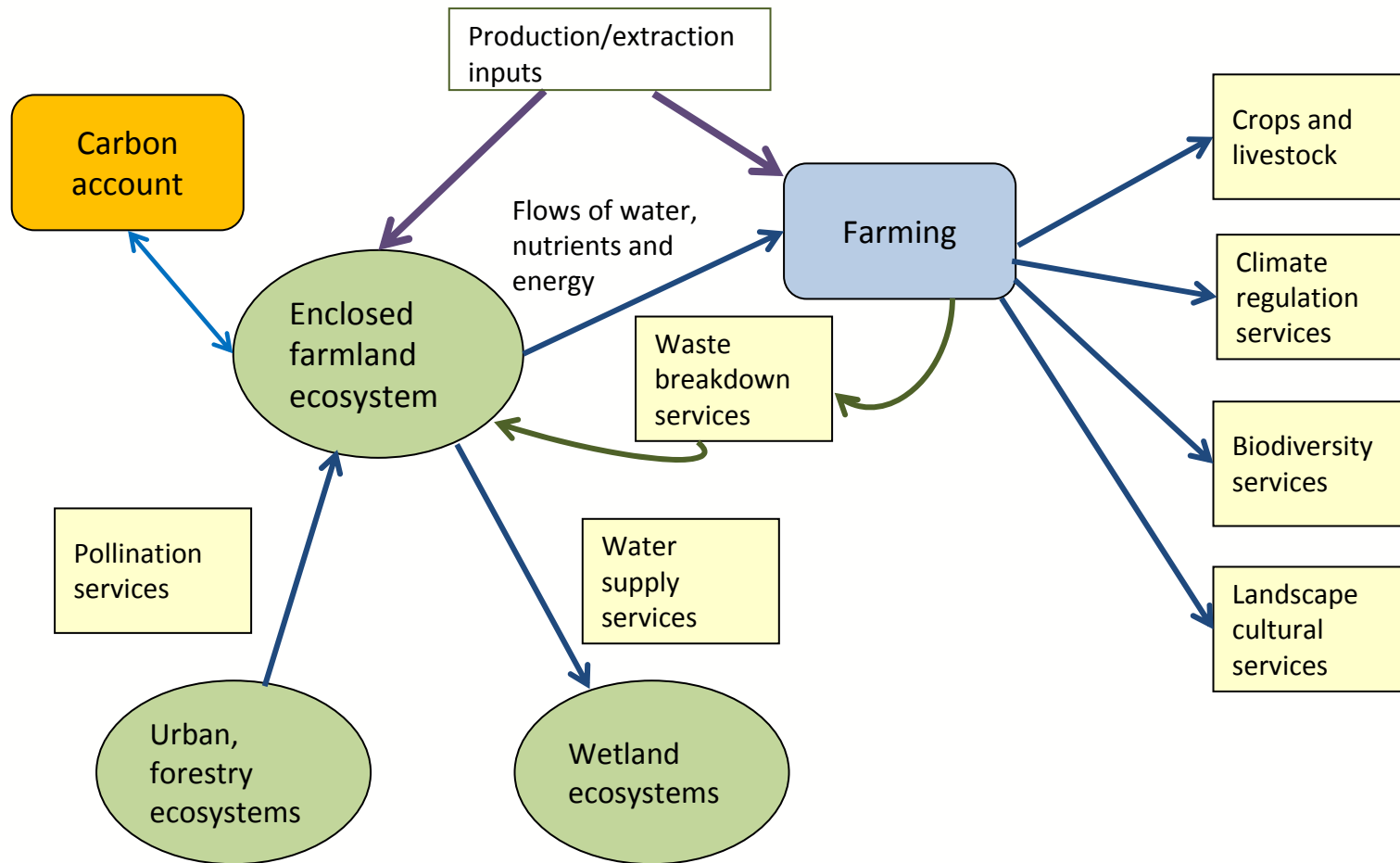




Farmland account – first thoughts

- Pollinating services are provided by urban ecosystems (gardens)
- Farmland run-off affects other ecosystems (wetlands)
- The National Ecosystems Assessment identifies the following cultural services: recreation, aesthetic values, cultural heritage, education and ‘sense of place’
- Accounts should distinguish between arable, improved grassland, horticultural, orchards?
Organic?
- Carbon and water quality perspectives?

Enclosed farmland – possible framework



Next steps

- Stakeholder group meeting arranged for 22nd October to review consultation responses
- Identify resources to take the work forwards - National Ecosystems Assessment follow-up study; Natural Capital Committee commissioning studies on specific services and ecosystems; further studies planned
- Publish Roadmap in December setting out priorities and timetable – likely to include completion of a number of priority accounts by 2014