

20 March 2014

## Natural Capital and Ecosystem Services

### 1. Purpose

To advise Commissioners of work in Corporate and Forestry Support on natural capital accounting and ecosystem service markets, including carbon markets.

### 2. Background/Introduction

Natural capital refers to the stock of natural assets, such as woodlands, moorlands and marine areas, and ecosystem services are the benefits which flow from it. This paper uses the term 'nature' to cover both concepts where possible.

Economic and business accounting<sup>1</sup> and markets currently fail in large part to account for the value of nature. In the forest sector, for example, timber is valued but the role of woodlands in CO<sub>2</sub> emissions abatement (despite a limited carbon market), flood alleviation, water quality, biodiversity and others remains largely unvalued. This offers little incentive (financial reward) for forest owners, businesses or individuals to invest in these important services provided by woodlands.

New practices are being advocated to address this problem; for example, through modified forms of accounting, and through payments for ecosystem services (see Annex 1). These have been supported by government-backed initiatives such as the Natural Capital Committee, the Ecosystem Markets Task Force and, in the forest sector, the Independent Panel on Forestry Report (and the Government response). Drivers for businesses to engage in new practices include corporate social responsibility, compliance with regulations (e.g. carbon markets) and growing awareness of the importance of ecosystems to business operations.

From an FC perspective, the intention is to add to – not replace – the current mechanisms of grant incentives and regulatory controls which underpin policy objectives on sustainable forest management.

### 3. Contribution of forestry

The forest sector has an important contribution to make to this agenda, both in developing thinking and applying it in practice.

- Woodlands are a major provider of natural capital and of ecosystem services.

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<sup>1</sup> e.g. Gross Domestic Product accounts and company financial accounts

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- The FC has wide-ranging data and expertise to support such work, through its work on economic valuation, statistics and forest inventory.
  - The forest sector is well placed, working with bodies with skills in accounting and markets, to apply 'proof on concept' projects which support sustainable forest management.

#### 4. Aims and objectives

Integrating nature into accounting and markets offers opportunities for new revenue streams for woodland owners, and potential for forestry to play a mainstream role in services such as carbon sequestration, flood alleviation and water quality protection. It also recognises the multi-functional role of sustainable forest management, and the wide-ranging contribution of woodlands to rural and urban development.

More detail on our current work in this area is set out below. Much of this has been done on a cross-border basis, including procuring research, and developing and implementing of the Woodland Carbon Code (see below). This has enabled the Forestry Commission to pool its resources, share knowledge and experience, and ensure consistency.

The measures which we are taking on natural capital accounting and ecosystem service markets focus on:

- A. improving and disseminating the evidence base to support forestry's contribution;
- B. building capacity in the forest sector to engage in this area; and,
- C. helping to implement this approach in practice.

#### 5. Details

##### *A. Improving the evidence base*

As part of the delivery of the Science and Innovation Strategy, we are funding and supporting research and analysis activities in Forest Research and with external providers, and in partnership with other bodies such as DEFRA.

Over the past 20 years, the FC has developed a strong evidence base on the values of forest ecosystem services. Initially used as a rationale for public funding, the focus has switched to underpinning payments to forest owners for providing these services, including through the development of new markets. However, further evidence is needed on the scale of the market opportunities, the costs and benefits of delivering them, the motivations of those involved, suitable delivery mechanisms and further data needs for natural capital accounting.

We are supporting research on the scale and viability (including barriers) of forest ecosystem service markets, the cost-effectiveness of forestry in providing ecosystem services (e.g. CO<sub>2</sub> emissions abatement), innovative finance mechanisms to encourage

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investment, and future options for operating forest carbon markets. Further studies are scoping how values for flood alleviation and water quality improvements can be estimated, and reviewing how risk assessments of forestry investments are carried out. Forest Research is examining behavioural ('nudge') techniques in encouraging woodland owners to plant and manage woodlands.

We are determining the conceptual and data needs of natural capital accounting. These can differ greatly, depending on whether they are applied at national or local (e.g. corporate) levels. DEFRA-funded work is examining how natural capital accounts could be developed at a national level, using forestry as a case study. At a corporate level, we have also funded a new tool for use in businesses reporting which assesses the social and environmental returns from woodland creation and management.

More detail on current research in which we are involved is given in Annex 2.

### *B. Developing capacity*

Natural capital accounting and ecosystem services markets require knowledge and skills which are often new to the forestry sector, as well as connections to sources of demand for any new markets. An outward-looking approach by the forestry sector is required.

We have collaborated with organisations and initiatives outside the sector, both to access the information, innovation and expertise required, and to promote what forestry has to offer. These include experts in environmental finance, and business organisations who are taking a lead in this area; for example, the Aldersgate Group and the Institute of Environmental Management and Assessment (IEMA), and bodies such as the Crown Estates, Markit Environmental (the premier carbon registry globally), the Gold Standard (the premier carbon standard globally), the Edinburgh Centre for Carbon Innovation and the TEEB<sup>2</sup> for Business Coalition.

Internal co-ordination within the FC is equally important and we are supporting collective understanding and awareness of this new work area with colleagues across the FC. For example, a cross-border group on forest carbon data has for several years shared information on forest carbon modelling and developments affecting forest carbon markets. We are also supporting the work of the national offices in programmes such as Grown in Britain (which is promoting corporate involvement in ecosystem service markets) and the Scottish Biodiversity Strategy Natural Capital Group.

Internationally, we have sought to enhance the FC's – and UK's - reputation and profile, and learn from good practice overseas. We liaise with the Ecosystem Marketplace (based in Washington) who have helped to raise the profile of the Woodland Carbon Code. We are also leading a workstream for Forest Europe on implementing the

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<sup>2</sup> The Economics of Ecosystems and Biodiversity

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valuation of forest ecosystem services – this will feed into the next pan-European Ministerial conference in 2015.

### *c. Implementation*

A range of mechanisms can be used to implement new markets, including innovations in financial instruments to provide finance, and improvements in standards to support investor confidence (e.g. the Woodland Carbon Code). Standards are particularly important in avoiding unwanted or perverse effects from new markets.

The Woodland Carbon Code has been a major part of our work to date. The Code is a voluntary carbon standard for woodland creation projects in the UK. It has contributed nearly 10% of all new woodland planting since 2011. The Code has been designed to meet the criteria required of high quality carbon standards globally, and was one of four finalists in the 2014 UK Climate Week Awards (under Best Initiative from Government or Public Services). Its development has been supported by an *advisory* group which includes representatives of the forest sector, academia, forest carbon agents and business groups. We will continue to develop the Code through the *steering* group which includes colleagues from the FC England and Scotland and the Welsh Assembly.

The UK's forest carbon market remains at an early stage. It is constrained by low carbon prices (as elsewhere) and continuing barriers to international and 'compliance' carbon markets, although a number of companies have expressed a preference for investing in UK-based carbon projects, particularly where wider social and environmental benefits are also delivered. Annex 3 provides more detail on steps we are taking to encourage the UK forest carbon market.

Innovative financial instruments, including bonds which rely on the delivery of ecosystem services, are being advocated, and we are continuing to liaise with organisations which may be able to apply these in markets. This is based on evidence of a 'greening' of some investment products and a need to adopt a more long-term and sustainable perspective in investment markets.

Within the FC, we are supporting a team in England which is developing an ecosystem services accounting framework for the Public Forest Estate (PFE) - and any successor body - in England. The intention is to establish a 'payments for ecosystem services' contract between the PFE and DEFRA on behalf of society (the beneficiary of the services).

## 6. Communications Issues

Progress on the Woodland Carbon Code is being promoted through periodic press releases, leaflets, media articles and presentations at seminars and conferences. We are also using networks provided by business organisations (notably IEMA and Markit Environmental), and are seeking networking and collaborating opportunities, as described above under Section 3 "Developing capacity".

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## 7. Next steps

We are drafting a roadmap for supporting market-based approaches to delivering both carbon and other forest ecosystem services. Further improvements to the evidence base will enable us to set out forestry's 'offer' as the economic role of nature becomes more apparent. We will support further work to implement approaches to natural capital accounting, and support pilot initiatives to develop new markets.

We are also considering producing a compendium or manual on the role of forestry in natural capital and ecosystem services. This would provide more clarity about what is involved and help to disseminate the contribution that forestry has to make.

## 8. Recommendation

Commissioners are invited to note the work taking place, and provide comment on future priorities.

**Pat Snowdon**  
**Corporate and Forestry Support**  
**Forestry Commission**  
**10 March 2014**

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## ANNEX 1 Payments for Ecosystem Services

Payments for ecosystem services (PES) is often used as an umbrella term for a range of economic arrangements to reward services from nature. A more technical definition is that PES refers to schemes in which the beneficiaries, or users, of ecosystem services provide payment to the stewards, or providers, of ecosystem services.

DEFRA identifies three broad types of PES:

- public payment schemes through which government pays land or resource managers to enhance ecosystem services on behalf of the public;
- private payment schemes, self-organised private deals in which beneficiaries of ecosystem services contract directly with service providers; and,
- public-private payment schemes that draw on both government and private funds to pay land or other resource managers for the delivery of ecosystem services

(DEFRA (2013) *Payments for Ecosystem Services: a Best Practice Guide*)

## ANNEX 2 Current research on natural capital and ecosystem service markets

*Research funded by Corporate and Forestry Support (C&FS)*

Forest Research is undertaking a range of research activities through its programmes on "*Realising the Ecosystem Service Values of Ecosystem Services*" and "*Land-Use and Ecosystem Services*". Recent work has studied the valuation and cost-effectiveness of ecosystem services, spatial analyses of such services, their impacts on forestry economics (e.g. rotation lengths) and insights from behavioural economics (e.g. 'nudge' techniques) in encouraging woodland owners to plant and manage woodlands.

C&FS-funded research by external bodies and consultancies include the following:

- *Assessing the potential scale and viability of markets in forest ecosystem services*. This is a first attempt to develop a better understanding of future opportunities for the forest sector, and will be completed in April 2014.
- *The cost effectiveness of woodland creation in abating CO<sub>2</sub> emissions*. This will enable cost comparisons with other emissions abatement technologies (e.g. wind, solar), and will be ready in summer 2014.
- *Valuation of woodlands' contribution to water regulation* (flood control, water quality). This is a scoping exercise and will recommend priorities for further analysis. It will be completed in April 2014.
- *Piloting the measurement of social and environmental returns from woodland creation*. This work provides a tool to facilitate natural capital accounting among businesses by helping them assess the benefits of investing in woodlands. It will

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be released in March 2014, and is being used to support work under the Grown in Britain Initiative.

- *Catalysing Impact Investment in Woodland Creation: Measurement, Reporting and Rating*. This report explores the opportunity that impact investment<sup>3</sup> offers for woodland creation, looking at measurement reporting and rating of social and environmental impacts associated with woodland and forestry. It identifies the drivers, principals and requirements of impact investing, places impact investing in wider context of corporate reporting initiatives, and provides a summary of key sources of environmental and social data on woodland creation.
- *Assessing risk in forest investment projects*. This research, in partnership with Edinburgh University, is examining how plant health and other risks affecting woodlands should be assessed and how the findings should be applied.

#### *Research funded by DEFRA*

We are supporting a study funded by DEFRA which is examining how natural capital accounts could be developed at a national level, using forestry as a case study. This work will contribute to the Office for National Statistics objective to devise a set of national natural capital accounts by 2020.

DEFRA is releasing a major study into the characteristics and motivations of different types of woodland owners, and has begun work to develop a better understanding of beneficiaries in Payments for Ecosystem Services schemes. DEFRA is also funding work to examine how a market in water rights might be developed

### **ANNEX 3 The Woodland Carbon Code and the UK forest carbon market**

Almost 200 projects have registered under the Code since its launch in 2011. These projects cover over 15,000 hectares and are projected to sequester nearly 6 million tonnes of CO<sub>2</sub>. Over 60 projects have now achieved certification.

Recent and ongoing developments to the Code include the following.

- A carbon registry for the Code (operated by Markit Environmental) was launched in July 2013. This is essential to boosting market confidence, by avoiding double-counting and ensuring transparency in the use of carbon credits.
- A group scheme was also launched in 2013, in order to allow projects to share certification costs.
- Work is underway to develop monitoring procedures for the Code to allow future verifications to take place (these will be required from 2016).
- We are exploring whether it is feasible or desirable to expand the scope of the Code in future to enable reporting of other social and environmental benefits.

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<sup>3</sup> Impact investors seek positive social and environmental returns as well as financial returns.

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We are also working on a number of fronts to encourage the development of the forest carbon market in the UK.

- As a member of the steering group for a current revision to PAS 2060 (the British Standards Institute standard for carbon neutrality), we are pushing for woodland creation (under the Woodland Carbon Code) to be recognised as a legitimate mechanism for businesses to achieve carbon neutrality.
- We submitted a response to a Government consultation in which we proposed that woodland creation be accepted as an “Allowable Solution” under plans for all new homes from 2016 to be carbon neutral. We have not heard the outcome yet.
- We have been working with CONFOR and others to explore whether carbon credits from woodland creation projects could be recognised as Kyoto credits in future. Discussions with DECC and DEFRA indicate that this is possible, although legislative changes under the Climate Change Act would be required.
- We have also explored with CONFOR and the advisory group for the Woodland Carbon Code whether it is possible for carbon stored in wood products to be recognised (currently the Code covers only carbon within woodlands).