Natural Capital | August 2018

A guide to the evolving world of natural capital

AT A GLANCE

Natural capital is at the heart of the 25-year Environment Plan and will be one of the cornerstones of the new British Agricultural Policy.

The government says it wants to incentivise methods of farming and land management that protect and enhance natural capital. The biggest challenge at that many of the services that flow from natural capital (often called ecosystem services) do not yet have a market value.

The most likely ways landowners can make money from natural capital in the short-term are through agri-environment schemes (which are nationwide) and water management (which is catchment specific and in most cases landowners will have to be proactive). Other markets will develop later.

Natural capital is becoming an increasingly important term for UK landowners.

The government has made it clear, by including it in its Industrial Strategy, 25-year Environment Plan and the Health and Harmony consultation on the Future for Food, Farming and the Environment, that it wants the principle of protecting and enhancing natural capital to be at the heart of future policy.

Natural capital is being viewed as an essential basis for economic growth and productivity over the long-term.

WHAT IS NATURAL CAPITAL?

Natural capital is one of five capitals that are talked about: **natural, financial, social, manufactured and human**.

A simple definition is that it is the overall name for all the pieces of the natural environment which provide goods and services to people.

Most human activity uses or affects natural resources. For example, rural businesses use land, water, plants, trees and minerals. Energy and infrastructure businesses harness wind, solar and sea power in often environmentally-valuable places. We use sand, aggregates, wood and stone in building projects.

Natural capital pieces provide a large number of services to mankind, such as habitats that support pollinators on farmland, which land managers already think about. Others are relatively new to our thinking, such as air purification by trees, or climate regulation by storing carbon, or flood protection by storing water or slowing its path through a landscape to reduce flooding.

Natural capital or resources that rural businesses own or control are:

Wind and solar energy	Rights over exploitation of wind and solar resources, on and offshore.
Freshwaters	Rivers, streams, lakes, springs and aquifers.
Saline water	Rights over the marine water column.
Natural habitats (land)	Terrestrial semi-natural habitats, including all designated sites, peatbogs, moors, trees, woods, hay meadows. Also wild species.
Natural habitats (marine)	Species and habitats found within and associated with marine waters.
Soils	The mixture of organic and mineral components existing immediately below the surface of productive land; a medium for crops, water, gases, and nutrients.
Land	Benefits and functions derived from rights controlling access to the land surface.
Minerals / Aggregates	Sands, gravels, crushed and cut stone, potash, other minerals and precious metals (tin, copper, gold).
Substrata	Porous formation deep underground material, less as a result of the extraction of hydrocarbons.

THE NATURAL CAPITAL COMMITTEE

Much of the thinking around the concept of natural capital has come from the independent Natural Capital Committee, which is chaired by Dieter Helm, an environmental economist from Oxford University.

The Committee gave its advice on what should be in the 25-year Environment Plan[1] in September 2017 and it is summarised below. The vision, ambition and goals for the next 25 years should include (which will need to be reviewed on at least a 5 yearly basis):

1. Everyone breathes **air that meets international health-based standards**.
2. Everyone is **protected against a 0.5% annual probability flood event** and everyone is able to return to their homes and businesses within a maximum of five days of a flood event.
3. All surface and ground **waters at least meet good status requirements** in line with existing international commitments. Bathing waters meet international standards for excellence.

[1] National Capital Committee Advice to Government on the 25 Year Environment Plan, 0917

4. We continue to **meet or exceed greenhouse gas emission reduction targets**, including the contributions from land use and land use change.
5. Everyone has **access to local greenspace and recreation** and can benefit from the physical and mental health benefits it provides. Specific targets should be set, for example, one hectare of local nature reserve per 1000 people, two hectares of natural greenspace within 300 metres of where they live, and a 20 hectare site within two kilometres.
6. Everyone, especially children, is better connected with their environment.
7. **Wild species and habitats are enhanced to levels that are sustainable into the future** despite the challenges from climate change and increasing pressures from built infrastructure.
8. Seas are clean, productive and biologically diverse. **Fish populations are restored to sustainable levels**, and new pollutants, such as plastics, and existing contamination is addressed.
9. **Soils are healthy, productive and managed sustainably**. All historic contaminated land is cleaned up.
10. **The country makes a net positive contribution to the global environment**, including being a leading nation in terms of contribution to global environmental commitments.
11. Discharges and emissions of polluting substances to air, land and water are prevented or are managed at levels where they do not have an adverse effect on people, wildlife and habitats.
12. All development and the use of renewable and non-renewable resources are managed in ways that result in **an overall net increase in natural capital**.

WHAT IS THE GOVERNMENT PROPOSING IN RELATION TO NATURAL CAPITAL?

The government wants to introduce natural capital accounting methods as a tool to improve decision-making. It says the value of natural capital is currently understated which can result in poor choices.

For example, the 25-year Environment Plan suggests that if you look at England's woods and forests the value of the services they deliver is an estimated £2.3bn, but only 10% of this relates to timber values.

The rest derives from other benefits provided to society, such as human recreation and carbon sequestration – the process by which trees lock-up and store carbon from the atmosphere.

The aim in future is to use natural capital accounting to improve decision-making at every level – including deciding how public money should be targeted – and to secure greater outside investment in natural capital assets.

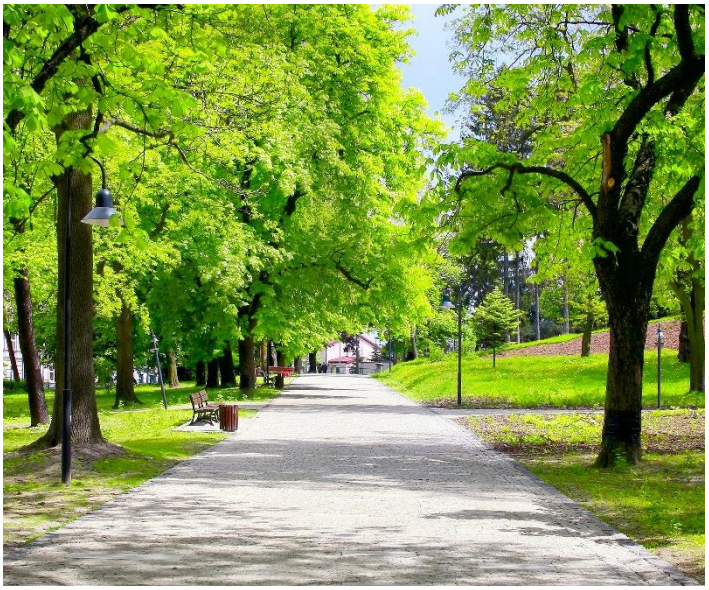
The key goals set out in the 25-year Environment Plan, which are largely based on the Natural Capital Committee's advice, are:

1. Clean air
2. Clean and plentiful water
3. Thriving plants and wildlife
4. A reduced risk of harm from environmental hazards such as flooding and drought
5. Using resources from nature more sustainably and efficiently
6. Enhanced beauty, heritage and engagement with the natural environment
7. Mitigating and adapting to climate change
8. Minimising waste
9. Managing exposure to chemicals
10. Enhancing biosecurity

The Health and Harmony consultation paper on the Future for Food, Farming and the Environment says the new British Agricultural Policy should be underpinned by payment of public money for the provision of public goods, with the principal public good being environmental protection and enhancement.

The following are mentioned as areas where government could play a role in supporting farmers and land managers in the future:

- Improved soil health
- Improved water quality and quantity
- Reducing flood risk
- Improved air quality, by quality reducing agricultural emissions
- Wildlife diversity
- Climate change mitigation
- Protection of the historic landscape
- Improved public access
- Safer, cheaper food
- Better animal and plant health, through control of diseases
- Animal welfare
- Agricultural productivity
- Rural and upland resilience, which is linked to connectivity



CHALLENGES FOR NATURAL CAPITAL

Many of the services that flow from natural capital (often called ecosystem services) do not have a market value. This means that there are no private sector buyers for the services that land managers can provide.

Markets could yet develop for some services, but for the services where there is not a market value, such as recreation, air quality or pollution reduction, and which are considered worth having by society (which will probably be decided by government), the public sector will have to be involved.

This can happen through it 'buying services' from owners and land managers. It could also be done through regulation and legislation (so compulsion) or by providing grants (so incentives).

Although there are a number of good examples of functioning natural capital markets worldwide (see Annex 1), this type of market has not yet developed significantly in the UK.

WHAT MARKETS COULD DEVELOP THAT FARMERS AND LANDOWNERS CAN PROFIT FROM?

The most obvious markets are:

Water quality: Some water companies are already working with land managers to reduce the use of certain chemicals, such as metaldehyde, or make much broader changes in the way that land is managed in their catchments, such as United Utilities' Sustainable Catchment Management Programme (SCaMP).

The land managers are paid to make changes to their agricultural practices, usually on the basis of £/ha, additional costs incurred or income foregone. However, a point to note is that few of these schemes seem to split the costs saved by the water companies, for example by having to clear water filters less often, which could significantly increase the payments to land managers in future.

Water quantity: Land managers could be paid to store water on their land, using pools and berms, or slow the flow of flood water across their land. Insurance and utility firms may be willing to enter into contracts with land managers to reduce flood risk, and so reduce the likelihood and / or size of making payments to the people they insure or provide electricity to. This feels like one of the easier markets for services to be developed as it is relatively easy to measure the amount of water stored (or flow slowed).

At present, the Environment Agency uses flood easements to do this, which have the threat of compulsion behind them. Most areas in the UK are expected to be increasingly short of water in the future[2] and it is unlikely that the Environment Agency's current approach will be enough to resolve the problem. Therefore, we hope that new markets will develop for land managers to install reservoirs to collect water in the winter, for use in the summer on the land, and also to sell it into the public water supply.

Air quality / pollution reduction: Trees, and conifers more than deciduous species, can absorb pollutants from industry and vehicles, and therefore contribute to improving local air quality. Therefore, we could see greater incentives for tree planting in places where they will improve the local environment, such as by a motorway if it is near to housing[3]. This may be done through grants schemes, possibly similar to the targeting already done for woodland grants, or through the planning system, particularly when a new development is proposed.

OTHER OPPORTUNITIES FOR BUSINESS LINKED TO THE NATURAL ENVIRONMENT

Payments for ecosystem services (PES): This is moving towards 'contracts for services'. Schemes, such as agri-environment schemes, have great potential if payments are linked to outputs, such as producing habitats efficiently. Leaving the EU also creates the opportunity to (re)link farming and forestry.

Creating a market that pays a premium for crops produced to a 'conservation grade': Some small markets already exist, such as brewers only using barley produced to LEAF standards.

Capturing the true value of outdoor recreation: Outdoor recreation in England in 2012 was estimated to be 2.8bn visits with direct expenditure of £20bn. The true value of these visits will be significantly higher, once non-market costs and benefits are included. Analysis for the National Ecosystem Assessment (NEA) produced some illustrative estimates in 2050 of an additional £24bn pa in real terms. Models that link the characteristics of recreational sites values with visitor values could be an important enabler of a range of business opportunities.

Pollination: Pollination services could be worth around £430m pa to UK agriculture but the service providers are currently not paid for maintaining this service, or making it resilient.

Biodiversity offsetting: Biodiversity offsets are conservation activities designed to deliver biodiversity benefits in compensation for losses caused by development, in a measurable way. The Natural Capital Initiative concluded that current methodologies, tools and evidence are sufficient to begin encouraging greater use of biodiversity offsetting[4]. Offsetting schemes could bring together offsets required for small developments into larger, more beneficial habitat blocks.

Green space amenity value: Urban green space provides multiple ecosystem-related goods such as recreation, physical and mental health, visual aesthetics, and reductions of air and noise pollution. Work on longer-term scenarios for the NEA provided illustrative estimates ranging from losses of £1.9 billion per annum to gains of £2.3 billion per annum in real terms compared to 2000.

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[2] By the 2050s England is expected to face a water deficit of 8-22% of total water demand, due to population and economic growth, and climate change. Consultation on National Policy Statement on Water Resources, 13 November 2017.
[3] For example, in a study of ecosystem accounts for protected areas in England and Scotland, the service with the highest value, by far, was regulation of air quality. In Aberdeenshire, which was one of the areas studied, the value of regulation of air quality was estimated at £322m in 2013, out of £403m total value of ecosystem services. Most of absorption of particulates, which improves air quality, is done by coniferous planting, particularly along roads.
[4] "Addressing practical challenges for biodiversity offsetting in the UK, June 2010, http://www.naturalcapitalinitiative.org.uk/sites/default/files/docs/100622/NCI_Offsetting_Workshop_Report_FINAL1(3).pdf

ANNEX 1

Case studies: some examples of payment for ecosystem services schemes[5]

The following are case studies, which show the types of issues and solutions that payment for ecosystem services (or PES) schemes have tried to address nationally and globally:

Bonneville Environmental Foundation (BEF) Water Certificates (USA)	Enables private sector urban water users to invest in critically and chronically dewatered ecosystems. Water users purchase Water Restoration Certificates (administered by the BEF) which compensate landowners for transferring their water abstraction rights to serve environmental purposes; and importantly, to 'leave the water in the stream'.
Bush Tender (Australia)	Landholders competitively tender for contracts with Victoria State Government to be paid for protecting and improving the native vegetation on their land. The scheme uses a reverse auction-based approach, in which landowners propose conservation activities and their cost. The scheme aims to facilitate better management of native vegetation on private land.
Catskills (USA)	The New York City Department for Environmental Protection funds a Watershed Protection Program to provide high quality drinking water for nine million water consumers. Landowners in the Catskills supply catchment are paid to implement measures which reduce diffuse pollution.
Lysekil Nutrient Trading Scheme (Norway)	Trial scheme whereby payments were made to mussel farmers to encourage the cultivation of Blue Mussels which filter excess nutrients and reduce eutrophication, thereby improving water quality. However, a lack of demand for the mussels meant that revenue could not be guaranteed and the trial scheme was unsuccessful.
SCaMP I (North West England)	The Sustainable Catchment Management Programme (SCaMP) takes a partnership approach to improving raw water quality and the condition of Sites of Special Scientific Interest (SSSI) within United Utilities' (UU) water supply catchments. UU incentivises tenant farmers to improve land management to deliver ecosystem services.
Upstream thinking (South West England)	Co-developed between South West Water and a broker (the Westcountry Rivers Trust) to encourage and/or incentivise farmers to implement land management actions to improve raw water quality, with many management measures locked into 10 or 25 year covenants.
Vittel - PES for water quality (France)	To address problems relating to the aquifer from which Vittel's bottled water is drawn, principally rising nitrate concentrations from agricultural intensification in the area, Vittel paid above-market prices to purchase land around its water springs and signed contracts with other farmers to use more sustainable dairy farming techniques and to improve farm facilities. The net result of these initiatives has been a reduction in non-point source groundwater pollution.
Wessex Water (South West England)	Wessex Water invests in catchment management for the benefit of improved raw water quality. An action plan aims to protect water quality in catchments serving Wessex Water abstraction points and to mitigate the impacts of low flows in rivers. Payments are made to farmers to implement improvements to farming operations which can contribute to improved water quality by reducing nitrates, phosphates, agrochemicals and sediment in surface runoff.

[5] Smith, S., Rowcroft, P., Everard, M., Couldrick, L., Reed, M., Rogers, H., Quick, T., Eves, C. and White, C. (2015). Payments for Ecosystem Services: A Best Practice Guide. Updated edition. Defra, London.

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