



Natural Capital and Biodiversity: A Briefing Note for Policy-Makers

CIEEM England Policy Group
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THE CHARTERED INSTITUTE OF ECOLOGY AND ENVIRONMENTAL MANAGEMENT (CIEEM) IS THE PROFESSIONAL BODY FOR ECOLOGISTS AND ENVIRONMENTAL MANAGERS WORKING TO MANAGE AND ENHANCE THE NATURAL ENVIRONMENT IN THE UK AND IRELAND. THIS BRIEFING NOTE HAS BEEN COMPILED BY MEMBERS OF THE CIEEM ENGLAND POLICY GROUP.



1. Introduction

Natural capital refers to the Stock of natural resources, such as water, air, soil and biodiversity, from which people can or do benefit. This concept gained increased attention following its prominent inclusion in important policies such as the Clean Growth Strategy (2017)[1] and the Government's 25-Year Environment Plan (2018)[2]. It is increasingly used in policy, practice and in discussions about how to manage and enhance the environment.

There remain challenges with the natural capital approach, namely that the term remains a broad concept, best practice in how it is applied is at an early stage of development, and there are a wealth of benefits from nature that cannot be valued in monetary terms.

The purpose of the briefing note is to provide a quick and easy introduction for policy-makers on how biodiversity fits into the concept of natural capital, its benefits and disadvantages, but overall, the value of protecting and enhancing biodiversity through a broader natural capital approach.

2. Recent Policy Changes Towards a Natural Capital Approach

The UK's approach to nature conservation has historically been based on protecting sites and species that are considered of high value, either within a protected area network, or as stand-alone entities outside the protected area network, that are divorced from social, cultural and economic considerations within the wider landscape.

For nearly eight years, Defra and the Office for National Statistics (ONS) has been working on how to embed natural capital into the UK Environmental Accounts by 2020[3].

Natural capital is the cornerstone of the 25 Year Environment Plan for England[4]. For practitioners working in an environmental planning context, Paragraphs 170b and 171 of the 2018 National Planning Policy Framework requires that both plan-making and decision-taking by Local Planning Authorities must recognise and enhance natural capital[5].

Outside of Government, both public and private organisations, such as Forestry England[6] and Strutt and Parker[7], are realising the opportunities that arise from a natural capital accounting approach to land management which benefits people, the environment and the economy.

These recent policy changes have begun to recognise the shortfall of past approaches, and the broader merits of a holistic natural capital approach, with biodiversity at its core.

3. Definition of Natural Capital and its Advantages

Natural capital refers to the biological, physical and chemical resources/assets, known as 'Stock'. According to agreed convention, this Stock broadly includes biodiversity (ecological communities), soils, freshwater, land, minerals, atmosphere (air), subsoil assets, and oceans.

The benefits to people that flow directly from this Stock are known commonly as 'ecosystem services' or 'Flows' (hereafter referred to as 'Services and Benefits'). A financial analogy is that services are the 'income and expenditure' accounts of a natural capital balance sheet. With varying degrees of time and input (often human input), Services and Benefits can be turned into/traded and/or monetised goods for society (hereafter referred to as 'Value').

This relationship can therefore be summarised as:
Stock > Services = Benefits = Value (Goods)

The natural capital approach starts with an audit of the Stock, an assessment of its condition, and the recognition/qualification of the Services and Benefits. These Services and Benefits can be mapped to different stakeholders. The next step is

to quantify the Services and Benefits. The final step in the process is the monetisation of these Services and Benefits into goods. In simplistic terms, natural capital accounting is the final step; the process of placing a monetary value on the Services or Benefits provided by Stocks of natural assets.

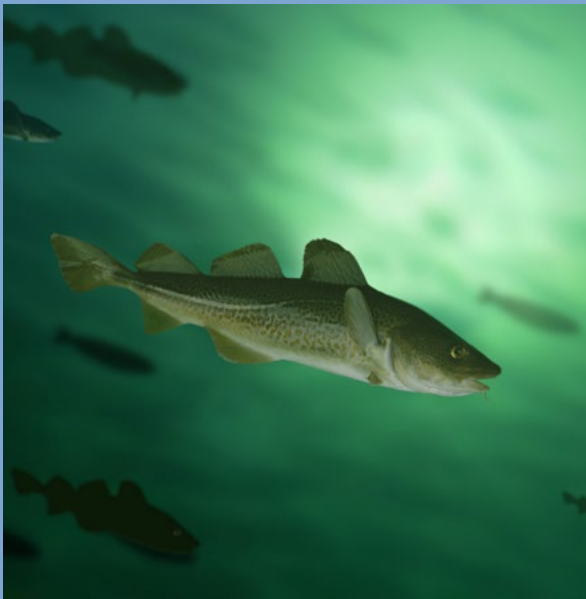
The natural capital approach offers six key advantages, including:

1. Qualification and quantification of Services and Benefits mapped to stakeholders can provide a more holistic view of the real dependencies and impacts around any plan, project or strategy to inform more transparent, more equitable decision-making.
2. It can be a useful design tool to ensure that ecosystem services are maximised.
3. In a modern world where there are limited budgets for new projects, it is useful to understand where money can be best spent to achieve net gains for the economy, society and the environment.
4. It is possible to track changes to Stock and Services/Benefits and take timely and appropriate action to regulate the changes in efforts to curtail the irreversible depletion or damage of the Stock and Services/Benefits.
5. It allows a wide range of technical specialists and non-technical executives to converse using a language of common currency; i.e. monetary value.
6. It ensures decision-making affecting natural Stock and Services/Benefits is mainstreamed into core budgeting and accounting, not an after-thought or outside core decision-making.

Natural capital can directly provide opportunities to business, developers and land-mangers, for example, by eliminating the need for new water treatment infrastructure through building an on-site wetland[8]. One such example was shown by Hammerson PLC, a British property development and investment company that developed a Strategic Biodiversity Action Programme to improve biodiversity across their land holdings. Benefits



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of the project included: expedited regulatory processes, increased operator satisfaction, lower operational costs and increased footfall for retail outlets[8].

A natural capital approach can also help towards achieving corporate or policy-driven environmental goals, such as the Sustainable Development Goal to ‘Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss’.

4. Limitations of the Natural Capital Approach

Despite its increasing use and advantages, there are a number of challenges associated with the natural capital approach:

- Natural capital and Services/Benefits are not just about ‘nature’, it encompasses the wider natural environment (including air, water and soil). By focusing on the wider environment, there is a challenge for ecologists and environmental managers to ensure that biodiversity remains a focus for action and a policy priority.
- While it is widely acknowledged that “biodiversity has key roles at all levels of the ecosystem service hierarchy: as a regulator of underpinning ecosystem processes, as a final ecosystem service and as a good that is subject to valuation, whether economic or otherwise”[9] there is still a debate in the natural capital community as to whether biodiversity is a Stock in itself, is an indication of condition of Stock, is a Benefit, or is a Good[10]. Biodiversity is, therefore, difficult to Value.
- Placing a price on wildlife is uncomfortable philosophical territory. Nature has an intrinsic value in its actual existence, not because of any human Value.
- Breaking down a complex ecosystem into arbitrary, generalised categories, or a single number, detracts from its value as a whole, and can be seen as an arbitrary classification.
- Many biotic (i.e. living) components, often involving significant resources, cannot be readily measured, and therefore more simplistic proxies or surrogates are used instead (e.g. habitat type, condition/quality and extent) with the presumptions this brings regarding how well

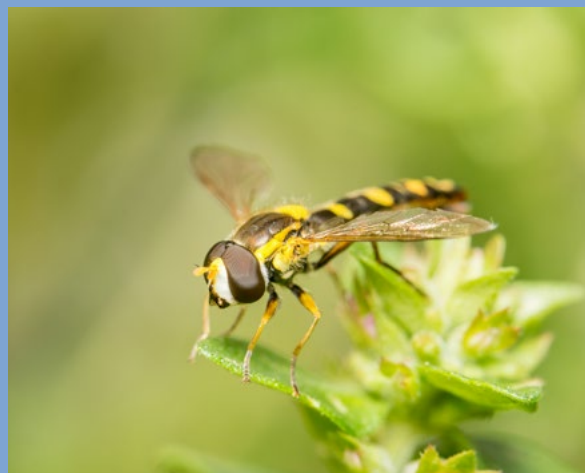
it can be applied to species or species groups. This can mean that the full value of the ecosystem is difficult to quantify.

- Measuring natural capital can be resource intensive, particularly due to the scales at which to measure it and the need for follow-up measurements.
- Data used to build natural capital accounts need to be kept up-to-date to provide ongoing accuracy. Reliability of sampling can sometimes be a concern. Also, double counting of benefits may occur, which can create inaccuracies in accounts.
- There are a variety of guides on definitions/ methodologies, creating confusion for policy-makers and practitioners.

5. A Decrease in Biodiversity is Detrimental to Natural Capital

Given that biodiversity is an indicator of the quality of various natural Stock and is crucial to the provision of many Services and Benefits, the drastic declines in nature – such as those outlined in the State of Nature report[11], the Living Planet Index[12] and the 6th National Report to the Convention of Biological Diversity[13] – are a grave concern and present a challenge to maintaining and enhancing the UK's natural capital. Crucial to the halting and reversing of biodiversity declines is a strategic, large-scale approach to habitat and ecosystem restoration, replacement and creation, and sustainable land management.

Climate and social resilience are dependent upon good-quality natural capital Stock. The deterioration in the quantity and quality of natural Stocks and our dissociation from the Services and Benefits that they provide are now understood to be exacerbating the effects of the climate crisis. The climate crisis and ecological degradation have been strongly indicated as key causes of a reduction in resilience of habitats to degradation[14] and a deterioration in our educational, physical and mental wellbeing particularly amongst economically disadvantaged and black, Asian and minority ethnic (BAME) communities[15].



6. Strategic and Policy Opportunities to Increase Natural Capital

Biodiversity Net Gain

For land use changes that fall under the development planning process, there are existing controls and planning policies that enable responsible authorities to require mitigation of losses to biodiversity and habitat resulting from a development. 'No-net-loss'/net gain and formal offsetting schemes are commonly imposed through planning conditions for developments. Metrics have been developed to assist this process[16], such that no-net-loss/net gain does not necessarily mean like-for-like; in theory a small area of high biodiversity interest can be replaced with a larger area of less biodiversity but of equivalent (hypothetical) value.

There are several concerns with this, which need to be addressed in future developments of the planning system:

- No-net-loss/net gain and offsetting do not necessarily involve any great gain in habitats of high ecological value or biodiversity, may not replace ecosystem services lost and do not always recognise that offset areas will take time to develop to their full potential. In addition, baselines often do not provide a credible reference point due to error, age ('datedness') of data or partial survey.
- There is concern that the metrics used to determine equivalent value do not fully recognise that some habitats are effectively irreplaceable and only have value in their existing state and location and cannot be traded.
- The capacity of local authorities (in an age where local authority budgets and resources are increasingly stretched) to guide developers at pre-application stage, to monitor during execution, and to take enforcement action if necessary, is very limited. Not all authorities employ ecologists at all, or a sufficient number of them, to do this effectively.

Recent proposals by the Department of Environment, Food and Rural Affairs (Defra) seek

to address some of these issues, by proposing a mandatory requirement for 'Biodiversity Net Gain' in England, albeit the tariff system for offsetting features prominently in the consultation[17].

Biodiversity Net Gain is an approach which aims to leave the natural environment in a measurably better state than beforehand, by for example, enhancing habitats for wildlife. This is then used to guide mitigation and compensation measures. It is essential that a co-ordinated approach is taken to Biodiversity Net Gain and natural capital to secure maximum benefits from these initiatives.

Green Infrastructure

Integrated Green Infrastructure (GI) offers potentially greater opportunities to increase and improve urban biodiversity, if this becomes fully embedded within local plans and policies. However, we need to improve the ecological input into GI, so that there are areas primarily designed for biodiversity, but the functionality of amenity, drainage, and landscaping areas are also maximised to deliver other ecosystem service functions. GI should follow biodiversity-led development rather than amenity-led development. The relationship between the quality of the ecosystem and the ability of the ecosystem to provide ecosystem services, including those for public health, is clear[18]. The Building With Nature framework is leading the way on a GI standard for developments[19].

Agriculture

Although objectives for increasing biodiversity and natural capital within development are crucial and welcomed, the majority of the UK land area is used for agriculture. There is a need for the natural capital approach to be incorporated into policies for this wider land management. The way this land is managed has, in recent years, been determined by a system of agricultural policies based on food production and subsidy support through the Common Agricultural Policy, and has resulted in a decrease in soil fertility resulting in an economic loss of between £0.9bn and £1.4bn per year eventually resulting in a complete loss of functionality[20]. Whilst the Government has announced a shift from this approach towards paying landowners for

public goods as announced through the emerging Agriculture Bill[21], which includes biodiversity and increase in natural capital, there is little detail on how this will be implemented.

Current initiatives for integrating natural capital with agriculture, for example Upstream Thinking (South West Water)[22], involve improvements in catchments to reduce the costs of water treatment and capital-intensive flood protection works downstream. This is driven mainly by economics and cost-benefit, but results in increases in natural capital.

Policies and economic incentives for improvements to natural capital in our wider farmed landscapes need to focus on several aspects:

- More space for biodiversity within farmed landscapes, especially networks that join up larger habitat areas.
- Reducing the intensive pressure on certain areas of potentially higher biodiversity value, such as our uplands and wet lowlands, so that biodiversity can increase alongside, and as an integral part of, rural livelihoods.
- Buffer strips of permanent grassland that protect water courses and semi-natural habitats from runoff and provide food for pollinators.
- Rotational and low till cropping to halt soil erosion and the reduction in fertility.
- Monitoring of results for policy implementation.
- Long-term funding for the increase and improvement of natural capital.

In addition, we should consider a regime whereby some land – particularly marginal land – is set aside primarily for the provision of ecosystem services and not rely on subsidies that are intended to compensate for loss of farm incomes. This system lends itself well to the proposed public money for public goods scheme[23].

7. The Need for Long-Term Policies

We will only be successful in increasing and maintaining extensive good-quality natural Stocks,

and the natural capital Services and Benefits provided to society if there is a commitment to long-term policies underpinned by legislation. Policies are commonly produced on short timelines, change often between Government administrations, and lack power through an absence of underpinning legislation. This can have detrimental effects on natural capital when incentives do not support reaching and then maintaining (in perpetuity) a sustainable level of resource use and a sustainable level of Stock quality.

In order to successfully protect and improve natural capital Stock and Services and Benefits provided to society, incentives for sustainable land management should be locked into long-term policies across sectors including development planning policy and wider countryside land use management for the agriculture and forestry sectors.

8. What Should Happen Next?

To move the natural capital approach forward, a series of actions are needed:

- The Government has revised the Treasury's Green Book in collaboration with academics from the Land, Environment, Economics and Policy Institute (LEEP) to incorporate natural capital in identifying priorities and appraising policies, programmes and projects[24]. Going forward, a natural capital approach should be integrated throughout the decision-making processes at every level for public spending and land management, via the emerging Agriculture Bill and Environment Bill, and this includes the New Environmental Land Management Schemes (NELMS) which is due to replace the Basic Payment Scheme and Countryside Stewardship.
- Continued stakeholder engagement in the process of designing, testing and helping to deliver the emerging 'public money for public goods' reward scheme for landowners through NELMS and broadening its remit so that it includes a wider range of landowners (e.g. woodland owners, not just agricultural landowners).



- Aligned with public authorities' existing duty to conserve biodiversity, and to help Local Planning Authorities meet their duties to consider effects on natural capital under Paragraphs 170b and 171 of the National Planning Policy Framework, Local Planning Authorities should require an assessment of natural capital/ecosystem services impact (both positive and negative) for major developments, policies, plans or programmes, such as those which require Environmental Impact Assessment (EIA) or Strategic Environmental Assessment (SEA). Local Planning Authorities would need to be adequately resourced to deliver this scrutiny.
- Collaborative partnerships (such as Local Nature Partnerships, national infrastructure providers, AONBs and National Parks partnerships) should be required to assemble up-to-date evidence bases capable of auditing the spatial extent and financial contributions of the natural capital assets that they are responsible for.
- Local Partnerships should put in place Management Plans establishing a coherent vision, clear objectives, and measurable milestones and outcomes, to restore and grow local natural capital assets in line with the recommendations of the Lawton Report[25]. Wherever possible these Plans should cross-comply with existing initiatives (such as Nature Recovery Networks and Biodiversity Opportunity Areas).
- Standardisation of the various guides on definitions/ methodologies, bringing clarity for policy-makers and practitioners.

CIEEM welcomes further discussion and collaboration with all stakeholders on the topic of natural capital.

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