Natural Capital in Policy-Making: workshop report

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This short briefing summarises the main points raised during our discussion to share experiences and recommendations on embedding natural capital (NC) into policy processes, held in December 2024.

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Contents

Why did we hold a meeting?

It is widely accepted that the values of nature need to be better reflected in decision-making by all sectors. This includes the development and implementation of public policies, where significant changes are typically needed to reflect nature's values in policy-making (Vatn et al., 2024).

Working with the concept of Natural Capital promises to help influence decision-making (Bateman & Mace, 2020). However, whilst there are already some recommendations available about how policy makers can work with Natural Capital, many are based on ideas rather than experiences, and there is not clear authoritative guidance on this subject. There is a need to share more experiences of working with NC (NZIER, 2017).

The Scottish Government has therefore commissioned research to better understand this subject. The aim of this meeting was to connect and synthesise the experiences of some of those who already have experience of attempting to work with NC in and for policy making.

What do we mean by Natural Capital (NC)?

Natural Capital (NC) is a way of representing nature in terms of how natural assets produce goods and ecosystem services that underpin human well-being (Ozdemiroglu, 2019). This framing is expected to make nature salient to economic analyses that dominate most professional decision-making processes. It is often intended to influence decisions by private sectors actors – see for example the Capitals Coalition and its Natural Capital Protocol[1], but also including the policy development by states and governments (Bateman et al., 2020).

NC cannot be equated with a single specific tool: there are potentially a diversity of ways to represent and work with NC. That said, for national-level policy-making, there is a usually a focus on accounting in line with the guidance of the UN System of Environmental-Economic Accounting (SEEA)[2]. SEAA uses both economic and environmental data to provide an overview of interrelationships between the economy and the environment, focusing on how 'stocks' of environmental 'assets' support flows of benefits to humans (Edens et al., 2022).

[1] https://capitalscoalition.org/capitals-approach/natural-capital-protocol/
[2] https://seea.un.org/

What is already known about getting NC into policy-making?

Ideas are already available in reports and academic papers – some of which involve authors of this report – about how to work with NC in and for policy-making.

Most important are prior analyses of how to work with NC, which build on diagnoses of past progress with attempts to work with the concept, and challenges encountered (Guerry et al., 2015; NZIER, 2017; Vardon & Bass, 2020). Also relevant are analyses of the influences and (non)uses in policy of related concepts such as ecosystem services (e.g. Barton et al., 2024; Russel & Turnpenny, 2020) and biodiversity mainstreaming (e.g. CISL, 2017). Additionally, there is a related literature on how to embed environmental topics into policy processes (e.g. CBD, 2016) and across policy domains (e.g. Jordan & Lenschow, 2010), also considering the ordering of interventions as pathways over time (Scott et al., 2018) and interactions across levels (Russel & Turnpenny, 2020). Additionally, a literature on the (non) uses of science and environment-related knowledges (e.g. Arnott & Lemos, 2021) which provides insights about multiple processes leading to knowledge uses (Cash et al., 2003) and recommendations about fostering use that are framed around coproduction (Cash et al., 2006).

Key insights from these studies and recommendations include the need to provide clear chains of evidence showing how decisions will create impacts on natural capital, ecosystem services and human well-being; and developing tools and metrics on costs and benefits that highlight both long-term consequences and distributional effects. It is also clear that the 'mere existence' of NC data cannot be relied upon to achieve change (Vardon & Bass, 2020). The process by which NC data is created, presented and communicated must be planned so it is seen as relevant, credible and legitimate, often entailing collaboration across science-policy silos. Thus, active change management across multiple levels is required to build institutional capacity and willingness to work with NC, including specifying a clear legal basis to work with NC, and leadership to guide institutional coordination and individual collaboration.

Who was involved in the meeting?

The meeting was chaired by Kerry Waylen, together with Diana Valero, Simone Martino and Rebecca Gray at the James Hutton Institute, who work on the 'Galvanising Change via Natural Capital' project, project JHI-D5-3 in the 2022-27 Scottish Government's Strategic Research Programme.

They were joined by 11 experts, academics and professionals working on natural capital from relevant organisations and natural capital initiatives sharing experiences from England, Scotland, the Republic of Ireland, The Netherlands, Spain, Finland, New Zealand, China, and from work at the level of the EU and the OECD. These participants had professional backgrounds and expertise that was most often grounded in the ecological and environmental sciences, but participants also brought expertise in economics, accounting; and many had acquired interdisciplinary expertise e.g. in social sciences as well as ecology, or geography as well as economics.

The discussion was captured in accordance with GDPR and had received prior approval from the James Hutton Institute Research Ethics Committee.

What did we discuss?

The meeting was held online in Teams on 5th December 2024. We also used the virtual whiteboard software Miro to support some discussions, though we recognise that this was not equally and easily accessible to all participants. Before the meeting, all participants had completed a short form, answering 8 questions to articulate and share their background, experiences and recommendations for working with NC. From these forms, the 'top' challenges and recommendations were extracted and shared, informing the meeting discussion.

The meeting started with personal introductions, introduction to the research project, and presenting preliminary findings from research searching for evidence of how NC has been used in policy making across the world. After this, a series of plenary and breakout group discussions were held to discuss (i) what type of activities have been tried (ii) what has achieved influence and why; and (iii) identify implications for future research and policy.

What experiences were shared?

For several participants, working with NC entails a strong focus on developing and improving accounting practices in line with the SEEA. Such approaches can, in turn, be integrated into other practices such as spatial planning (e.g. Binner et al., 2025; Sunderland et al., 2022) and to inform national-level performance metrics, notably the Gross Ecosystem Product developed in China (Day et al., 2024; Ouyang et al., 2020).

Some experiences of working with NC e.g. the work of Natural Capital Ireland[3] - could mean a broader and more varied portfolio of approaches. These are not necessarily inconsistent with the SEEA, but emphasise a diversity of approaches to lobby for the general importance of nature in decision-making. Several participants already knew each other, reflecting that many of these practices are linked to each other; not only due the influence of the SEEA, but also other past and present initiatives, such as The Economics of Biodiversity[4].

What can enable and constrain use of NC in policy-making?

We discussed what does and does not help get NC used; since these points often mirrored each other, they are shown side by side below in table 1. Many of these points are interconnected. We have grouped them by broad themes, but many specific points (such as challenges arising from policy staff turnover) could relate to more than one theme; whilst the themes themselves are interrelated.

Overall, the ideas emphasise people and processes as much as the attributes of NC data and tools. Terms such as 'co-production', 'collaboration' and 'co-design' were mentioned several times during discussion. The 'right' way to embed NC in one setting will always depend on interaction between experts in NC data and experts in policy - we can never assume that the fine details of 'what works' in one setting can be directly transferred to another (Nutley et al., 2010).

Table 1 A summary of our views on what does and does not help enable use of NC in policy-making, based on a brainstorming session in Miro and subsequent verbal discussion. The thematic groupings were added after the workshop.

Themes	What helps?	What doesn't help?
Public sector leadership	✓ Champions for NC – ideally based in non-environmental policy departments and ministries, such finance or planning. ✓ Top-down mandates and requirements to work with NC. ✓ Designate structures to support coordination.	× Weak or inconsistent political leadership for restoring and working nature. × Focus on traditional economic statistics such as GDP.
Existing policy processes and structures	✓ Policy staff sharing narratives & experiences of working with NC in policy development. ✓ Cross-departmental work placements, e.g. ecologists in non-environmental departments.	× Silo-ed working & sectoral separation. × Resistance to institutional change, including fixed regulation. × An expectation of demonstrating benefits (or reducing costs) in the short-term.

[3] https://www.naturalcapitalireland.com/
[4] https://www.unep.org/topics/teeb

	✓ Explicitly approach working with NC as a change management process. ✓ Considering NC in all parts of policy cycle. ✓ Specific feedback if regulations need to change to support nature positive	× Costs of inaction often less prominent than costs of new changes. × Uncertainty over future budget allocations. × Lack of time to build capacity on new topics & tools.
Science-Policy relationships	✓ Formal & informal networking to build relationships between those in science and policy roles. ✓ Communicating narratives of how NC benefits different sectors – and policy's dependencies on nature. ✓ Communicating uncertainties transparently. ✓ Co-creation of NC data & tools (below).	× Staff turn-over within policy departments. × Un-explained or differing terminology and approaches. × Delaying choices e.g. on indicators, until perfect data are available. × Researchers trying to 'impose' tools on policy-makers. × Relying solely on reports for communication.
NC Data & tools	✓ Using standardised processes that are comparable & trusted. ✓ Tools that are easily accessible. ✓ Agreements & platforms for data-sharing. ✓ Decision-support tools that represent drivers of change on many aspects of NC, & the range of consequences. ✓ Spatially-explicit data. ✓ Data on distributional implications. ✓ Increasing computing & AI capacity. ✓ Monitoring of NC and interventions.	× Out of date or insufficient data on NC × High costs of improving or updating datasets. × Inconsistent or even conflicting methodologies. × Initial costs of implementation & capacity building for working with NC. × Using specific tools or data without an overall framing of how and why to work with NC.
Societal views and values	✓ Citizen & societal pressure for change in support of sustainability. ✓ Citizen scientists building local-level understanding of NC. ✓ An education system building societal awareness of the values of NC assets. ✓ Private sector companies acting as forerunners & demonstrators of prioritising NC.	× Societal focus on material consumption. × Restoring and safeguarding nature seen as a 'nice to have' rather than essential to healthy societies and economies.

Were there any points of divergence or disagreement?

What is 'good enough' information about NC? During our discussion, several noted that information on NC needed to be not only relevant to the process or decision but also sufficiently convincing, i.e. in terms of topics represented, extent of quantification, scale, temporal and spatial resolution. However, it is the norm not to have perfect datasets and comprehensive models, and waiting to improve data can lead to delays. Several participants therefore emphasised the need to use what we know, to galvanise action despite evidence gaps and challenges in understanding NC. All those seeking to work with NC should expect to have to represent complexity, evidence gaps and uncertainties, but also highlight what we do know about the functions and benefits of the natural environment. Connecting diverse methods and information sources may help build an understanding of NC that is 'good enough' to demonstrate nature's values and so inform decisions.

Do we seek to work with or radically change existing systems? During our discussion, some comments noted the need to work with existing decision-making frameworks; yet other comments emphasise the need for institutional and cultural change within and outside of the public sector. This may relate to the timescales considered and also our individual roles; in the short-term no individual

has agency to solely effect radical changes, even if some of us believe that transformative changes are ultimately needed in how society values and works with nature.

Did different roles affect our views? Between us, we varied in our agency to commission, shape, communicate about NC and to act on its implications. Some of us were in academic institutions, others were in government agencies or statistical organisations. Thus, each person had different experiences, recommendations and views on their personal agency. However, there were no significant points of disagreement between us. Coordination across all such sectors is required in order to embed the use of NC.

Reflections and conclusions

The topics of our discussion are consistent with other reports. They highlight the following principles:

- Consider what counts as 'good enough' data on NC – focusing specifically on what is sufficient to be influential in the processes to be influenced. In many cases, it will be necessary to connect with established processes e.g. for cost-benefit analysis. Then, carefully frame how NC data are presented, not only in the detail of statistics and how uncertainties are presented, but also in how they are summarised and framed. A framing that highlights dependencies on nature – and thus risks posed from nature's degradation – can help draw attention to nature's value and the risk of inaction. This may complement more positive narratives e.g. about what nature can provide, and how change is feasible.
- Remember that data alone are not enough – in particular, institutional leadership that encourages and mandates consideration of NC is at least as important as providing data on NC. Without it, there can be little mandate to discuss NC, let alone use data that results from it. For example, it may be necessary to mandate changes to established cost-benefit analyses, to ensure a wide range of environmental harms and benefits are represented. Support to individuals is also important. Policy development is a complex process, and it is not reasonable to expect individuals to spontaneously go beyond what they are required to, or already understand.
- Work collaboratively across departments and sectors. The need to make connections and then work collaboratively applies equally to within the public sector (making connections across environmental and non-environmental policy areas), and also between those working in science and policy organisations (and related organisations, such as bodies in charge official statistics). For those who already produce data on NC, or who seek to further embed environmental issues, it is important to collaborate as early as possible with those who work in and for policy processes, to build mutual understanding about how NC data can be created and presented, and how it could or should be used.

Adapting these for any specific country or context will require an understanding of the current institutional context and past experiences of working with NC and related concepts. Later steps in the work of this project will consider more closely what the implications are for Scotland.

In any context, a great deal of interventions and activities may be entailed by efforts to embed NC. Some of these changes will be easier than others. It will therefore be important to carefully appraise the full range of changes: for example, using ideas of leverage points to diagnose opportunities for change, and to not only seeking the changes most easily made (Abson et al., 2017). It will also be important to encourage more reporting and learning about experiences in working with NC, to learn what does and does not work, to help understand opportunities to embed sustainability considerations in and for policy-making.

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