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Natural capital accounting

Revisiting the elephant in the boardroom

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Key conclusions

Examining how natural capital accounting (NCA) is used in business practice suggests that:

- Trying to represent the complexity, messiness and interconnectedness of the natural world in a simple and monetised calculation requires in-depth knowledge and skills, which are not always readily available within an organisation.
- The benefits derived from natural capital accounting may reside more in the learning that develops because of undertaking the process than producing a completed set of accounts.
- Natural capital accounting will be useful in opening debates about the ecological context within which an organisation operates, but this requires active and democratic participation.
- Considerations of ecological context require an organisation to focus on issues and challenges that may be beyond its traditional remit and comfort zone.
- Competing concerns, motivations and interests may result in natural capital accounting being used in a variety of ways other than delivering greater stewardship of ecological resources.

Contents

2 Abstract

3 Introduction

4 Objectives

5 Research methodology

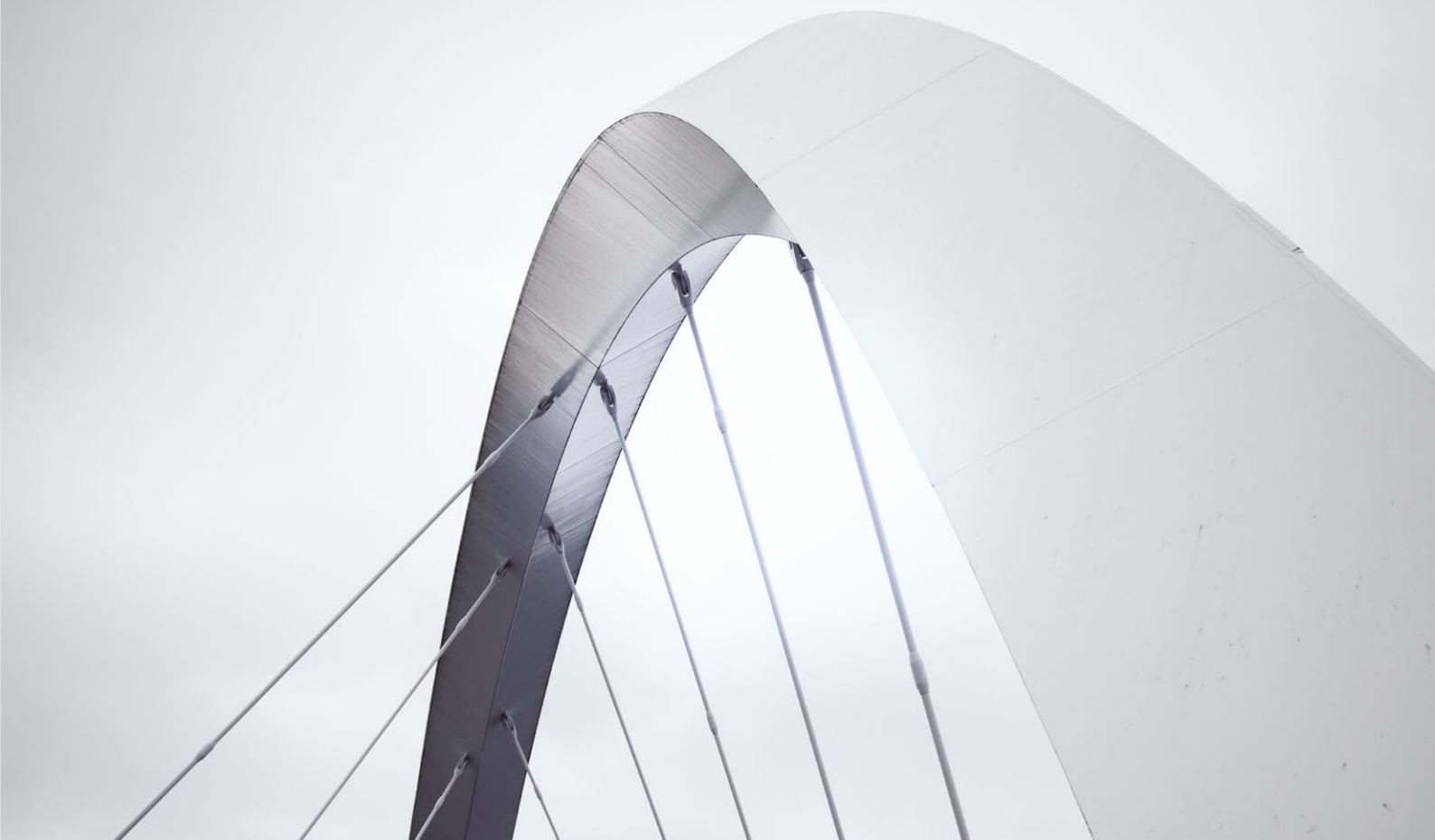
6 Main findings and their implications for practice

8 Conclusions

9 References and further reading

10 Acknowledgements

10 Researchers' names and contact details



Abstract

This research is motivated by a growing belief that natural capital accounting (NCA) can assist organisations in increasing their stewardship over the ecological elements they effect and in some cases control. However, these beliefs are largely based on conceptual developments about the use of NCA. It has been argued that by monetising these effects and elements, there is increased likelihood that managers will integrate these representations into decision making processes. This perspective is not without its critique, with issues raised over potential unintended consequences.

The research examines practices of one of the first major organisations to implement and utilise NCA. It aims to better understand how NCA assists with increasing stewardship, what other roles NCA assumes, the difficulties experienced in its use, and who constitute the wider influencers. Our findings suggest that, as with many new accounting frameworks, tools, and techniques, the implementation, calculation and use of NCA is far from straightforward.

Introduction

Current data (e.g., WWF, 2018) suggests that human impact on ecological systems worldwide is devastating and limits their ability to provide the things that humans require to sustain themselves in the longer term. Many organisations are entrusted with the stewardship of such systems and/or their operations significantly impact them in mainly negative ways. As such, they have a significant role in addressing the stresses placed upon ecological systems. This would seem to require new tools that provide greater understanding of the core functions such systems provide, and the impacts on them.

This research focuses on the implementation and practice of NCA, and its potential to aid organisations in understanding the ecological systems affected by and maintained under their control. It contributes to the knowledge and understanding of whether and how NCA can contribute to sustainable development through improving an organisation's interaction with local ecological systems. This is based on NCA being proposed as a means to enable organisations to consider the implications for natural capital (comprising climate, land, soil, water, energy, biodiversity and waste) within decision-making processes (Helm, 2016; Natural capital Coalition, 2016). It is argued by some that the (monetary) quantification of ecological resources and services can significantly alter the information used in organisational decision-making, thereby allowing better decisions to be made in relation to the stewardship and maintenance of natural capital. By making ecology 'visible' in the conventional accounts of business operations, managers will better understand the effects of their behaviours and respond accordingly. This is the essence of the conventional belief in the value of NCA.

Further, our investigation engages with prior CIMA research in this important area, specifically Accounting for Natural Capital: The elephant in the boardroom (Rapacioli et al, 2014). Rapacioli et al. present an overview of potential benefits from using NCA and argue that such use is essential for organisations to be able to adapt to the increasing challenges from the over-consumption and despoliation of ecological systems. Moreover, they claim that accountants have important roles as advocates for the use of NCA within organisations. They suggest that, while some organisations have started to experiment with NCA, too few were accounting for their stewardship and maintenance of the ecological systems under their control. As such, they argue for the development and implementation of a uniform approach, as offered by the NCA tool.

Use of tools, such as NCA, however, are subject to considerable critique, something that proponents dismiss as misconceptions of the intention and conception of NCA. Nonetheless, one concern is that the monetary quantification of ecology and the economic language of 'natural capital' creates a form of commodification, thereby allowing it to be viewed as yet another resource that markets will trade, value and preserve. Worse still, the critics argue, such monetary quantification will accelerate exploitation (Sandel, 2013; Monbiot, 2017). This concern is illustrated by Adam Smith's 'diamond water paradox', which states that the total value of the latter (water) is greater than the former (diamonds) but due to their greater marginal value, diamonds generally exert more influence upon decision-making (Spash, 2008). The assumption of substitution of ecological resources by other forms of capital with greater marginal value (particularly man-made) is not only acceptable but deemed desirable in certain situations. Such concerns have led to debates over weak and strong forms of sustainability, and notions such as 'critical natural capital' have emerged to rescue the seemingly absurd and intractable notion of infinite substitutability. Given the complexity and interconnectedness of ecological systems, these substitutions are not only premised on contestable assumptions but can result in increases in negative impacts caused by human activity (Sullivan, 2017). One needs to be wary that, to the extent that NCA is premised on the economic rationale of maximising utility, its practical use may well clash with ecological boundaries articulated based on scientific and other value perspectives. These boundaries, often articulated based on ecology, need to be protected under all circumstances.

Issues also arise in the attempt to represent complex, messy, interconnected and poorly understood systems through simple and monetised calculations. Many argue that such calculations fail to represent the many competing values that may exist in relation to ecological systems. They may, for example, closedown or 'crowd-out' other decision-making processes, such as moral deliberation. Many types of values, for example cultural and ethical, cannot be adequately represented within or captured utilising techniques such as NCA that are based on economic-focused values and assumptions (Sullivan, 2017). Within conventional (neo-classical) economic thought, utilitarianism dominates. From the neo-classical perspective, value is derived when people have a 'willingness-to-pay' for the benefits they perceive. NCA calculations often draw on such willingness-to-pay assumptions.

Given that willingness-to-pay is based upon the preferences of the people involved, such assumptions, may result in iconic species or specific aspects of ecological systems being disproportionately valued at the expense of a more holistic understanding of the ecosystem and the services it provides (Spash, 2008). A great difficulty is that many people are too unaware of how ecology works, including in relation to the numerous and essential ecosystem services it provides. However, this complex clash of economic, scientific, moral and cultural values may limit contests, disputes and decisions over human use and impacts on ecological systems. As a result, some are concerned that techniques such as NCA may actually worsen human impacts on ecology rather than assisting with enhanced stewardship and maintenance.

Conceptual debates over 'non-market' monetised techniques have existed for decades. Likewise, experiments and the practical use of such techniques, drawing on cost-benefit economics, have occurred and developed within a wide range of public decision arenas such as health, transport and environmental amenities. NCA, however, seeks to promote the adoption and adaptation of such approaches within conventional enterprise organisations. How this might work in such organisations is the focus of this research. Here we examine how NCA is being implemented and used within an organisation that has significant impacts on the local ecological systems under its stewardship. We observe and analyse both the intended and unintended consequences of NCA use over time, and within the greater context of the tool's development. We undertake an in-depth investigation of NCA as it is used in practice. To provide context, we also investigate the wider network of external factors that influence these organisational practices.

Objectives

The objectives of our study are to:

- Investigate the role of NCA in the stewardship of ecological systems that an organisation has under its control;
- Understand other uses and roles of NCA (e.g., the creation of accountability over financial resources within its control);
- Improve our knowledge of the benefits, successes, trials, potential pitfalls, and unexpected outcomes from the implementation and development of NCA practices;
- Begin to map the influential actors and professional context that shapes and is shaped by the domain of NCA.

Research methodology

A case study approach was undertaken of Forest Enterprise England (FEE). FEE is an agency of The Forestry Commission with responsibility for the management of the public forest estate within England. This equates to 18% of England's woodland cover and is about 2% of England's land area, which, if all joined together, would equate to the size of the county of Dorset. In terms of their income, they receive roughly £67 million per annum from commercial activities and a further £20 million per annum from the government. Income received from the government is a payment fee for the management of the public forest estate. FEE has a financial net book value of approximately £1.6 billion, and estimates that the net asset value of the natural capital under their control is vastly greater. Namely, net asset value amounted to £17.82 billion in the baseline year of 2013/14, and increasing to £22.99 billion in 2017/18.

Several methods were used to collect the data including interviews, document analysis and observation of NCA-related practices. Data collection began in April 2016, at an NCA-themed workshop where the CFO of FEE was presenting his initial experiences. Interviews began in November 2016, and focused on understanding why and how the use of NCA developed at FEE, including the aims and objectives of its use. Subsequent and regular data collection has been conducted since this initial round of interviews. This has included initial and follow-up interviews with FEE employees at multiple levels of the organisation, and with people working for the broader organisations that come under the umbrella of the Forestry Commission. Also, people external to the Forestry Commission have been interviewed where their expertise has enabled us to better understand the wider development of NCA practices. These included people from the government's Natural Capital Committee, the Natural Capital Coalition, consultants with experience in forestry, and various NGOs. These interviews assisted us significantly in building our knowledge of the context and use of NCA, which, in turn, helped us to build further nuance into our analysis and understanding. In this sense the approach taken to data collection is iterative and designed to gain a comprehensive level of understanding.

The approach taken aimed to be as collaborative as possible in order to co-construct new knowledge. This knowledge does not seek generalisations about NCA. Rather, our intention was to produce detailed understanding of the experiences of one of the first major organisations to implement and use NCA practices. As such, our findings also highlight issues for others to consider as they begin to assess the applicability of using NCA within their own organisations.

Main findings and their implications for practice

Examining the development and implementation of NCA at FEE over several years suggests that its use is far from a straightforward proposition. Our findings provide much that can be reflected upon, especially when comparing FEE's experiences to the conceptual perspectives, both promoting and critiquing NCA, presented in the existing literature (as outlined in the introduction). What follows is a summary of FEE's experiences, and these suggest other accountants need to consider them when embarking on their own use of NCA.

Rapacioli et al (2014) argue that accountants will play a vital role in assisting organisations to use NCA, particularly as their skill sets make them ideal people to interpret and draw conclusions from NCA calculations. FEE's experiences demonstrate the importance of support for NCA from the finance function. Specifically, the CFO has been an important advocate for its use and the Management Accountant has been crucial in collating data into the spreadsheets, to allow the calculations to be performed.

However, what is also clear is that it takes a lot of specialised knowledge of the local impacted ecology to be able to assess what should be included in the calculations, what data (if any) exists in relation to these items, and how best this data can be captured.

For data to be collated within the spreadsheets first requires comprehensive understanding of ecological processes and the 'natural capital' that gives rise to them. FEE employs several specialists, including ecologists, with this type of knowledge, constituting part of its normal operations. Hence, this knowledge was readily available to assist with the production of FEE's NCA. Where gaps existed, the specialists could use their networks, including across other areas of the Forestry Commission, to see if the required knowledge could be obtained. Even so FEE's NCA still has gaps within it, about which they are transparent. This is usually where a method for collecting the data has not been found or the common understanding is that such data, in practical terms, does not exist. Given these challenges faced by an organisation that has expertise readily at hand suggests that the vast majority of organisations, who likely do not have such in-house expertise, face an uphill struggle with the use of this framework.

Such difficulties are reflected in Rapacioli et al's (2014) comments that most organisations lack a thorough understanding of their interdependencies with the ecology. **This suggests that one of the benefits derived from the use of NCA may relate to the learning that it requires organisation members to undertake.** This learning was evident at FEE, where people that normally do not have ecological training were proficient in discussing such matters within the interviews and when observed in various meetings. While they would typically defer to colleagues with the specialist knowledge, they were at least able to be part of the conversation. What is important to note is that these conversations were not about numbers/calculations but were more concerned about the ecological systems under the organisation's stewardship and the services that these provided. This aligns with the comments of one interviewee, a prominent academic ecologist who has held several influential positions within the broader NCA context. **They note that what is important is not quantifying natural capital into monetised amounts but rather understanding the stock of natural capital, the flow of ecosystem services and the maintenance related to these.**

Deriving benefits from the experiences of implementing new accounting techniques has been observed in other contexts. For example, some of the research into the uptake and use of activity-based costing (ABC) notes that it was not the final calculation that was important but rather the learning and experience derived from the process of doing the calculation. For instance, Gosselin's (1997) examination of ABC implementation concludes that the main organisational benefits resulted from examining which activities consumed most resources. Hence, most companies studied in Gosselin's (1997) research, which began the process of implementing ABC, stopped once this knowledge had been gained. This suggests that NCA can be a prompt for organisations to better understand the health of the ecological systems of which they have stewardship and the services that flow from this. Further it may provide a common language to discuss and debate these issues across the organisation. In so doing, it is critical to remember that the numbers from the NCA calculation are not necessarily important. Rather, it is the underlying ecological systems that require key decisions over how they can best be maintained. When reflecting this finding back on the literature previously outlined that both promotes and critiques its use, it highlights how undertaking the process of using the NCA framework may prompt discussion around these very debates within the organisation.

FEE's experiences demonstrate how NCA may be used to prompt discussions which extend beyond the normal boundaries of the organisation, an unexpected use which is not covered in the existing literature.

These discussions did not relate to the stewardship of ecological systems but rather to the nature of the broader value added by FEE. Specifically, examining the years leading up to FEE's decision to use NCA provides this additional insight. When the Conservative coalition government came to power in 2010, one area proposed for privatisation was the public forest estate. After a public backlash, this idea was shelved and an independent panel was established to examine the need for and role of the estate. One key recommendation this panel made was that the government should start to use wider valuation techniques, under the guidance of the Natural Capital Committee, for the estate (Jones et al, 2012). Since the adoption of NCA, FEE has had a means to demonstrate the broader and significant benefits they generate from the government's ongoing investment in the estate. While this shows the origins of NCA at FEE, it also demonstrates, given the public backlash at the prospect of privatisation, the potential for it to provide a basis for broader debates. For example, this could include a discussion over what the boundaries should be in relation to the public forest estate. Some of these boundaries already exist in relation to, for example, Sites of Special Scientific Interest already being protected. The question also becomes what other issues (such as biodiversity, carbon sequestration, or flood protection) do the public wish the Forestry Commission and its agencies to concentrate on. Acting on the results of such a debate would require the government to make further investments into the public forest estates. However, this would be done with some knowledge of the magnitude of the wider benefits that could be derived. For such debates to be effective requires active and democratic participation from society. Given that (at the time of writing) such participation is focused elsewhere in the UK, specifically Brexit, this suggests that such debates only typically happen within a crisis.

For wider debates to occur, an organisation must be open to actively discussing issues in public that in the past have been deemed 'off limit' by senior management. This may require the organisation to engage in debates raised in the public arena that in the past they would have avoided or sought to shut down. Hence, for such debates to flourish requires that the use of NCA prompts, rather than suppresses, debates that acknowledge the plurality of values that may exist in relation to the ecological resources an organisation has stewardship over.

Also of importance is that these debates, whether internal or external to the organisation, do not become an excuse for not improving the stewardship of ecological resources under the organisation's control. In the case of FEE, as discussed above, NCA has been used to justify government funding and, thereby, as a defence against privatisation. This can be seen as a beneficial use, particularly if it assists with public debate over issues of ecological stewardship. However, now that this purpose has been served, and continues to be served, what else can NCA offer the organisation in further managing the stewardship of the ecological systems under its control?

It has been more difficult for FEE to use NCA within the organisation to assist their operations in a way that improves their stewardship over ecological resources.

There are many people at FEE who are exploring opportunities of using NCA within the organisation. However, many of these uses relate to things that are already instinctively known. As such the use of NCA may then just become the tool that provides the ammunition for a decision or, in other words, quantifying things for the sake of it. Therefore, a particular challenge for FEE, and all organisations starting to use NCA, is to better understand ways that NCA can provide knowledge that is both surprising and unexpected about the ecological resources and services under their control. It is through gaining such surprising and unexpected knowledge that the best chance of improving stewardship over ecological resources resides.

Conclusions

This research aimed to examine how NCA is used in practice. The current conceptual understanding concerning this tool is split between that which supports its use for increasing ecological stewardship and that which states its use will undermine such goals. Our research did not set out to directly support either side of this debate. Rather, it aimed to examine the practices of one of the first major organisations to implement and use NCA. In this way, the present work seeks to better understand: how and whether NCA assisted this organisation to increase stewardship over its ecological resources; what other roles NCA has within the organisation; difficulties experienced; and who, in the wider context, was influencing its use.

Our findings suggest that, as with many new accounting tools, the implementation, calculation and use of NCA in practice is not as straightforward as the two sides to this debate suggest. The main implication from our investigation is that accountants who are presently or soon to be seeking to employ the NCA tool within their organisations will likely face numerous significant challenges and issues, which will need to be carefully thought through before they even begin to understand how it can be used.

Understanding its ecological context requires an organisation to focus on issues and challenges that may be beyond its traditional remit and comfort zone.

There also is the need for specialised knowledge of the local ecology in which the organisation operates. FEE employs several ecologists but not all organisations will have this internal resource.

Similarly, understanding which data are relevant and how it can be collected and analysed requires in-depth knowledge and skills, which are not always readily available within an organisation.

There are also issues arising in attempts to represent complex, messy, interconnected and poorly understood systems through simple and monetised calculations.

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