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Survey

The accounting push and the policy pull: balancing environment and economic decisions

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ABSTRACT

The use of information in environmental and economic policy has been a theme for over 100 years but standards for integrating environmental and economic information were not adopted until 2012, through the System of Environmental-Economic Accounting (SEEA). For 20 years the technical 'push' to develop accounts proceeded largely independently of the 'pull' from the intended or likely end-users of accounts. Consequently governments have little knowledge of the accounting or how it might be used. We examine why public policy imperatives have not yet pulled environmental accounting into the mainstream and explain how accounting can help reshape government decision-making. As part of this a model showing the place of accounts in the information system and the policy cycle is presented along with a research agenda and principles for the decision-centred design of accounts. We conclude that a phased implementation of the accounts as well as additional research into their applications will be needed to build practical understanding and political acceptance of the accounts.

1. Introduction

Environmental policy is subject to large swings in both the amount of resources allocated and the focus of expenditures. With some exceptions, is not known if the current expenditures are enough to maintain a healthy environment or human wellbeing, nor, despite monitoring and audits, if the money expended has been well directed and efficiently used. Environmental accounting provides integrated information on the environment and the economy that can address these questions.

Agreement to establish integrated environmental and economic accounting was part of *Agenda 21*, the programme of action agreed at the Earth Summit (Rio de Janiero in 1992[1]). Consequently the United Nations led a technical programme of development, culminating in the System of Environmental-Economic Accounts (SEEA) being adopted as an international statistical standard in 2012 (UN et al., 2014a). The importance of environmental accounting continues to be recognised in, for example, Aichi Biodiversity Target 2 (CBD, 2010) and the proposed indicator 55 for the recently established Sustainable Development Goals (SDSN, 2015).

While the potential of environmental accounting has been acknowledged for some time (e.g. Hamilton et al., 1993), its actual use in policy has been little explored. That is, accountants from national statistical offices have done the technical work but policy advisers and decision-makers are mostly unaware of advances in environmental accounting. Little has been done to identify how account-derived information can be presented to and used by decision-makers. It appears that, during the two decades it has taken to get internationally agreed environmental accounting standards, the benefits of having it have largely been forgotten by those who commissioned the work. In short, the "accounting push" has not been matched by a "policy pull".

It is not specifically acknowledged, although possibly understood intuitively by policy-makers who have considered the question, that environmental accounting could be hard to promote to governments. This is because of its technical nature and the many policy and political implications of its use. These implications mean that implementation is unlikely to be left solely in the hands of technical experts.

This paper surveys the development of environmental policy and accounting and outlines how the divergent technical and policy paths followed since 1992 can be re-joined to improve government decision-making processes. As part of this, we introduce a model of the information and policy system showing the place of accounts as well as a research agenda.

The research agenda is intended for a broad audience and is based on identifying specific opportunities for clearly defined uses and users of accounts. It will require a collaborative and iterative approach to implementation, involving both researchers and policy advisers to renew the "policy pull" needed for the continued development, implementation and use of environmental accounting. Implicit in the agenda is the assumption that better information will enable better decision-making, although it is acknowledged that a rationalist approach such as this provides only a necessary, rather than a sufficient, basis for good policy. For an exposition of the political, participatory and other factors that also contribute to good environmental policy, please see Dovers and Hussey (2013.)

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[1] See Agenda 21, UN (1992), paragraphs 8.41 to 8.54.

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1.1. Note on Terminology for Environmental Accounting

The terminology surrounding the environmental accounting varies between agencies and over time. For example, the terms natural capital, natural resources and environmental assets are often used interchangeably and while very similar in concept may not be exactly the same thing in particular contexts. Similarly, ecosystem services are defined in several places (e.g. MEA, 2005, TEEB, 2010 and UN et al., 2014b) and again the concepts covered are not identical. The purpose of this paper is not to compare the terminology or definitions used in different places but to examine and improve the links between environmental accounting and policy. We have used terms in general use — such as natural capital and ecosystem services. In this article natural capital can be broadly equated with the environmental and ecosystem assets of the SEEA (UN et al., 2014a; UN et al., 2014b), while ecosystem services are also as defined in the SEEA (UN et al., 2014b).

2. Environmental Policy and Information

Environmental information and policy are seldom linked in the ideal manner of the virtuous "policy cycle" of the public policy literature (e.g. Howlett et al., 2009) or its more technical cousin, the adaptive management paradigm (e.g. Dovers and Hussey, 2013).[2] This is despite the importance of environmental information for policy being recognised for more than 100 years: the National Conservation Commission established in the USA by President Theodore Roosevelt produced an inventory of natural resources and policy recommendations (NCC, 1909), although Congress refused to appropriate funds and this initiative went no further (McCormick, 1989).

The important relationship between information and environmental policy received general recognition at the *Stockholm Conference on the Human Environment* convened by the United Nations in 1972. In particular, the *Stockholm Declaration* (UN, 1972) gave prominence to data collection, research and planning (see Chapter I, and in particular Principles 13, 14, 17, 18 and 20) and placed data at the heart of its recommended Action Plan for the Human Environment (Chapter II).

The report of the World Commission on Environment and Development (WCED, 1987), articulated the overarching goal of *sustainable development*, providing a concept well suited to a comprehensive approach to environmental policy. This is because sustainable development provides a clear objective and integrates key dimensions of the policy challenge: the short and long term (inter-generational equity), the concerns of north and south (intra-generational equity) and local and global (scalability).

Following WCED, the *Rio Declaration on Environment and Development* (UN, 1992) gave international endorsement to the goal of sustainable development. This was supported by a call for "[a] program to develop national systems of integrated environmental and economic accounting in all countries" and for the UN both to further develop the necessary accounting standards and to "… promot[e] the use of such techniques as natural resource accounting and environmental economics…" (UN, 1992).[3]

In parallel with this, the Organisation for Economic Cooperation and Development (OECD) has been leading policy development on the relationships between environment and economy since the early 1970s (OECD, 1972). Its work is taken here to be broadly representative of the environmental policy-development concerns of its member states. Table 1 lists key OECD environmental policy and information and accounting decisions and publications. While recognising the importance of environmental accounting from an early stage, and participating in the development of SEEA, the OECD's work on the role of information in environmental policy has focused on environmental indicators rather than on environmental accounting. Possible reasons for this are examined in Section 6 (below).

3. Environmental Accounting

Environmental accounting emerged from the *System of National Accounts* (SNA) (UN et al., 2014a) as a response to the recognised shortcomings of traditional accounting (e.g. Daly, 1973; Nordhaus and Tobin, 1972) and was accelerated by the call for accounting in Agenda 21. The first version of the UN System of Economic-Environmental Accounts (SEEA) (UN, 1993) followed shortly after the 1992 Rio Conference and was standardised via the SEEA in 2012 (UN et al., 2014a). There are ongoing extensions of the framework (UN et al., 2014b). The long gap between the initial work (1993) and adoption (2012) of the SEEA reflects the hesitancy of the international statistical community to accept the notion of integrated environmental and economic accounting, and especially the notion of adjusting GDP (Gross Domestic Product) (Smith, 2007). Agreement by the international statistical community that environmental accounting should be elevated to an international statistical standard was not achieved until 2007 (UNSC, 2007)[4] and an editorial board was not established until 2010 (UN et al., 2014a, p. xi).

Literature relevant to environmental accounting continued to develop alongside the SEEA, mostly on the technical concepts and methods, including: ecosystem services (e.g. Bartelmus, 2015, Boyd and Banzhoff, 2007, Daily, 1997, Edens and Hein, 2013); "footprinting" (e.g. Chen and Chen, 2007, 2013 Wackernagel and Rees, 1996) and; valuation (e.g. Nordhaus and Kokkelenberg, 1999, Obst et al., 2015). In these the focus was on the technical aspects or production of accounts rather than on prospective policy applications, such as going beyond measurement to active management of levels of natural capital and the services it provides.

SEEA adoption means that the accounting discussion can move on from the technical details of "what" and "how", so countries can proceed with the development of accounts with confidence. This is important for national statistics agencies charged with producing "official" statistics that can be reluctant to embark on new areas of information. The 20 year gap between the call for an international system of integrated environmental and accounting in 1992 and its delivery in 2012, highlights this issue.

We characterise the development of the SEEA as an "information push", in which experts collaborated to solve the technical issues of environmental accounting. This work was not fully matched by any complementary "policy pull"; work by environmental policy experts to identify how best to interpret and apply the output from environmental accounts and integrate them into environmental policy-making. While the accounts may be seen as an end in themselves, without the "pull" of decision-making and policy they are unlikely to be adequately resourced or utilised.

Countries have developed and used accounts for specific analyses and applications (e.g. Åkerman and Peltola, 2012, Hamilton et al., 1993, Smith, 2014, EC et al., 2014, Van Dijk et al., 2014, Vardon et al., 2007) and statistical agencies have also linked accounts to particular policy issues (e.g. ABS, 2012, Statistics Netherlands, 2012). Generally, this is the producers of accounts pushing the applications with uptake primarily by researchers rather than by analysts that inform government decision-making.

Policy pull has not been completely lacking. More recent work examining the *economic* impacts of environmental problems has given fresh recognition to the need for environmental accounts and led to further developmental work: the UK Government's Stern Review (Stern,

[2] See Fig. 1 for a common version of the policy cycle, to which the authors have added the "Information System". The adaptive management paradigm is based on the principle of "learning by doing", and so describes a cycle in which experience with managing a natural asset or other entity informs decisions to adjust the management technique or approach.

[3] See Agenda 21 Chapter 8, section D, "Establishing systems for integrated environmental and economic accounting", especially paragraph 8.41, and Chapter 38, paragraph 38.22 (c). Note that Agenda 21 also calls for the development of indicators and both national and international levels, especially at paragraph 40.6.

[4] Report of the thirty-eight session. Decision 38/107 see http://unstats.un.org/unsd/statcom/doc07/Report-English.pdf.