



Re-evaluating Sustainability Assessment: Aligning the vision and the practice

Alan J. Bond ^{a,*}, Angus Morrison-Saunders ^b

^a School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, UK

^b School of Environmental Science, Murdoch University, South St, Murdoch WA 6150, Australia

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ABSTRACT

Sustainable Development is the core goal of the expanding field of Sustainability Assessment (SA). However, we find that three key areas of debate in relation to SA practice in England and Western Australia can be classified as policy controversies. Through literature review and analysis of documentary evidence we consider the problem of reductionism (breaking down complex processes to simple terms or component parts) as opposed to holism (considering systems as wholes); the issue of contested understandings of the meaning of sustainability (and of the purpose of SA); and the definition of 'inter-generational' in the context of sustainable development and how this is reflected in the timescales considered in SA. We argue that SA practice is based on particular framings of the policy controversies and that the critical role of SA in facilitating deliberation over these controversies needs to be recognised if there is to be a move towards a new deliberative sustainability discourse which can accommodate these different framings.

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1. Introduction

Sustainable Development has become a principle which all governments seemingly aspire to abide by. Its roots at international policy level are commonly believed to lie in the Brundtland Report (World Commission on Environment and Development, 1987) which itself was a culmination of public attention being directed towards public concerns over poorly planned resource use, popularised by reports such as that produced by the Club of Rome (Meadows et al., 1972) and Rachel Carson's Silent Spring (Carson, 1963). The Brundtland Report coined a definition of sustainable development which is often quoted (but which is by no means the only definition (Bell and Morse, 2008)):

"...development that meets the needs of current generations without compromising the ability of future generations to meet their needs" (World Commission on Environment and Development, 1987, p.9).

The main political driver internationally was originally the Rio Earth Summit which took place in 1992 and set out a series of action points for achieving sustainability, called Agenda 21 (Bell and Morse, 2008). Since that time, governments have developed their own policies on sustainable development, for example, the European Union has recently renewed its Sustainable Development Strategy (Council of the European Union, 2006), as has the UK (HM Government, 2005), and Western Australia (Government of Western Australia, 2003).

In this context of high level political commitment to the principle of Sustainable Development, it is not surprising that Sustainability Assessment (SA) is becoming more common as a decision-making tool intended to anticipate the sustainability implications of proposed actions (policies, plans, programmes or projects) (Pope et al., 2004). A generic definition of SA that can be interpolated from Hacking and Guthrie (2008) is simply "a process that directs decision-making towards sustainability". Gibson (2006) refers to examples of SA being conducted in Canada, South Africa, Hong Kong and Namibia, and Pope and Grace (2006) refer to SAs undertaken in Western Australia. Sustainability Appraisal of spatial (land use) plans became a legal requirement in England in 2004 through the Planning and Compulsory Purchase Act (United Kingdom Parliament, 2004) with the term 'Appraisal' being used instead of 'Assessment' as a development (to encompass socio-economic issues) of an earlier form of 'environmental appraisal' of development plans. The term 'appraisal' was originally used as it was considered less rigorous than Strategic Environmental Assessment (SEA) (Dalal-Clayton and Sadler, 2005) although there is no suggestion that this is still the case as SEA (in the UK) has been subsumed within Sustainability Appraisal.

Whilst the above examples are far from representing universal adoption of Sustainability Assessment, the use of SEA is globally widespread (Dalal-Clayton and Sadler, 2005) and is often interpreted as having sustainability goals. The authors of the European Union Directive on SEA, for example, argue that one of its key goals is to achieve sustainable development (Feldmann et al., 2001), and many authors make the assumption that this is appropriate (for example, Lawrence, 1997; Nooteboom, 2007; Nykvist and Nilsson, 2009; Partidário, 1999; Sinclair et al., 2009). The Rio Earth Summit pre-dates widespread

* Corresponding author. InteREAM, School of Environmental Sciences, University of East Anglia, Norwich, NR4 7TJ, UK. Tel.: +44 1603 593402.

E-mail addresses: alan.bond@uea.ac.uk (A.J. Bond), a.morrison-saunders@murdoch.edu.au (A. Morrison-Saunders).

adoption of SEA practice and use of impact assessment tools to address sustainable development was advocated via Environmental Impact Assessment (EIA). Specifically, Rio's Principle 17 called for Environmental Impact Assessment to be undertaken for proposed activities that are likely to have a significant adverse impact (George, 1999).

Pope et al. (2004) review the conceptual roots of SA and find that they are embedded in environmental assessment tools which have a history stretching back to 1970. One of the authors of the original text of the world's first EIA legislation (the National Environmental Policy Act in the USA), Lynton Caldwell, indicated that its objective was "to enhance the rationality ...of the ultimate decision" (Caldwell, 1991, p.81) which firmly embeds the process as following positivist principles whereby the presentation of better information to decision makers automatically facilitates better decision making.

Thus, a rational approach to EIA was intended to lead to more sustainable decision making. However, a wealth of literature has identified that this rational role for environmental assessment is not a true reflection of the nature of decision making (see, for example, Bekker et al., 2004; Bond, 2003; Cashmore, 2004; Flyvbjerg, 1998; Lawrence, 2000; Leknes, 2001; Owens et al., 2004; Richardson, 2005), although it has continued to provide the basis for methodological development of the tool, and by extension the forms of assessment (such as SEA and SA) that have evolved from it.

Notwithstanding a shared history, it would be inappropriate to suggest that the goals of SA are identical to those of EIA. Gibson et al. (2005, p.62) identify the purpose of SA as having "the double role of vehicles for the general pursuit of sustainability and contributors to defining the specifics of sustainability in particular circumstances". As such, in order to meet this dual role, the expectation for SA would be that it could operate as the vehicle for deliberation that can define sustainability in its context. This is not consistent with a positivist perspective which would ignore any constructed framings of sustainability and aim to identify the triple bottom line (that is social, economic and environmental implications), expecting decision makers to make sense of the information.

The contested nature of 'sustainable development' was indicated by O'Riordan (2000, p.30) "there is no clear agreement as to what sustainable development is, every pathway begins and ends at different points ..." and, whilst there may now be broad agreement on the underlying principles of the concept set out in the Brundtland definition, we would argue that important debates still continue which we aim to set out in this paper. We take a position that the use of a decision-making tool like SA is inherently a good thing, but recognise that it is in the formative years of development when practice will be affected by a lack of familiarity amongst practitioners and a lack of capacity which is common when new tools are applied (see for example, Lee (1988) in relation to EIA). To ensure that SA evolves and develops as an effective tool, we believe it is important to identify and summarise the key debates so that they can inform capacity development.

Our objective is thus to demonstrate that if current SA practice is to achieve sustainable outcomes, it needs to acknowledge the fact that different stakeholders have different framings of what the outcomes should be. We take three key areas of debate in relation to SA (although we acknowledge there are many more) which we categorise, following the definitions of Rein and Schön (1993, p.148), as either 'policy disagreements' which "arise within a common frame and can be settled in principle by appeal to established rules" or 'policy controversies' which "cannot be settled by recourse to facts ...Because they derive from conflicting frames, the same body of evidence can be used to support quite different policy positions". We recognise that many debates may not fall neatly into such categories but may, instead, fall somewhere on a spectrum between them. Nevertheless, such a categorisation will help to highlight particular debates which need to be accommodated by the SA process. We provide examples from both England and Western Australia to place current practice in relation to the areas of debate identified. Whilst many other examples could be used, we argue that

this comparison is sufficient to suggest whether certain framings prevail as it includes a system applying SA on a regular basis to plans and programmes (England), and one which applies it to projects (Western Australia). Based on the analysis, we suggest how SA might be conducted in order to recognise and accommodate different framings, thereby improving on current practice.

2. Reductionism or holism

The first debate we consider is the extent to which SA tends towards reductionism or holism. Sustainability Assessment is commonly associated with the derivation of indicators which can be used as measures of the state of the socio-economic and biophysical environment and therefore used as the basis for predictions where there is a development intervention (Bockstaller and Girardin, 2003; Donnelly et al., 2007). This approach is consistent with the rationalist approach to impact assessment discussed previously whereby complicated systems are broken down into smaller units of analysis for ease of evaluation and decision-making. There is an extensive literature on the development of indicators, some of which examines the best approach for producing complete sets to be used in the assessment (e.g., Donnelly et al., 2006; McCool and Stankey, 2004), whilst other literature focuses on the derivation of indicators specific to particular impacts, for example biodiversity (e.g., Department for Environment Food and Rural Affairs, 2007; Haughton et al., 2009), or social impacts (e.g., Cloquell-Ballester et al., 2006; Valentin and Spangenberg, 2000). However, Bell and Morse (2008) point to a debate over the degree to which an SA should be reductionist, in that it attempts to break down a very complicated natural and anthropogenic system into a few component parts, and the degree to which it should be holistic. Reductionism we define as breaking down complex processes to simple terms or component parts. In the context of SA, this can be illustrated by the approach taken of using a few selected sustainability indicators to represent the sustainability of a whole system. We base our definition of holism on Bell and Morse (2008) in terms of systems which need to be considered as wholes rather than broken down. Holism understands systems as having complex interactions which can't (currently) be fully understood in terms of the sub-components which make up the full system. Cashmore (2004) recognises the problems created in trying to analyse effectiveness of impact assessment processes and he calls for more holistic research as reductionist research does not analyse the relationship between important variables contributing to effectiveness. As such, we regard this as a policy controversy because holism frames systems in terms of inherent interactions which cannot be analysed through sub-components, whereas reductionism frames systems as being understood by breaking it down into sub-components.

Steinemann (2000, p.640) defines a holistic approach as one which facilitates "moving away from analyses of isolated risks and toward a broader understanding". Most of the efforts made towards developing such approaches have come from the application of Health Impact Assessment or Social Impact Assessment, precisely because the reductionist approach requires existing knowledge and understanding amongst affected communities which is often lacking (see, for example, Arquette et al., 2002; Kemm, 2000; Mindell et al., 2001). Both Bell and Morse (2008) and Lawrence (1997) call for a more systems-based approach in order to implement holistic assessment, and this requires a process where communities are systematically involved in defining visions of sustainability and also the means to achieve the vision.

There are different degrees of reductionism whereby complex systems are reduced to ever fewer measures, with the extreme being a single value (e.g., Barrera-Roldán and Saldívar-Valdés, 2002; O'Regan et al., 2009). Advice in both England (Office of the Deputy Prime Minister, 2005) and Western Australia (Government of Western Australia, 2003) suggests that a number of disaggregated indicators should be used; whilst not reductionism to the extreme of using single indices, this is still a form of reductionism. In England, an Institute of Environmental Management and Assessment forum on SEA met in

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