



Theorising strategic environmental assessment: Fresh perspectives and future challenges

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Available online 3 July 2007

1. Introduction

Our interest in putting together a special issue on SEA theory arises from what we observe as increasing confusion amongst practitioners, policy-makers and scholars alike as to the particular role of SEA. This confusion has its origins in the recent proliferation of new assessment methods and processes (e.g. Sustainability Appraisal, Sustainability Impact Assessment, Integrated Assessment and Territorial Impact Assessment), all of which aim to influence strategic-level planning. At the same time, whilst scholars have emphasised that SEA should ‘add value’ to existing planning and policy-making activities (cf. [Partidário, 1999](#)), evidence that planners and policy analysts already incorporate environmental considerations in their assessment of strategic initiatives ([Boothroyd, 1995](#); [Bailey and Dixon, 1999](#)) would imply that a separate SEA process is not required. These developments represent a very real challenge to the future of SEA, at least if it is to be more than a bureaucratic hurdle met with ‘bureaucratic and political incomprehension and resentment’ ([Caldwell, 2000](#), cited in Bina, this issue).

With the ever-increasing commitment to institutionalising SEA across the globe—something already achieved in a number of countries ([Dalal-Clayton and Sadler, 2005](#)), as well as in the European Union and the United Nations ([UNECE, 2003](#))—there is significant motivation for SEA scholars and practitioners to make a clear case for the distinctive purpose and role of this assessment process. Indeed, a promotional tone clearly permeates much of the SEA literature to date, as scholars have striven to articulate its objectives, role, benefits, and practical achievements ([Fischer, 1999](#); [Partidário and Clark, 2000](#); [Jones et al., 2005](#)). For these scholars, the importance

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of implementing SEA has been considered paramount. With claims that the philosophy and principles of project-level environmental impact assessment (EIA) could be effectively translated ‘upstream’ (Clark, 2000), and early resolutions that the tools and techniques of EIA could be applied at higher levels of decision-making (Thérivel and Partidário, 1996), it was concluded that ‘there is no fundamental methodological reason why SEA should not be introduced in any country... utilising a form of SEA basically similar in its basic nature to that employed for projects’ (Wood and Djeddour, 1992: 10–11). Considerable attention has therefore been devoted to developing techniques, documenting practical experiences with case studies, establishing so-called ‘best practice’ guidelines, and making comparisons of SEA implementation rules across different nations.

In contrast, and despite regular calls to that end, very little attention has been paid to the conceptual development of SEA (cf. Cashmore et al., 2004; Thissen, 2000). Whilst the SEA community has drawn significant lessons from experience with EIA, it has also inherited the ‘technical–rational’ model of decision-making (Owens et al., 2004) that has dominated EIA since its beginnings (cf. Weston, 2000). The problems associated with this model of EIA are increasingly evident, particularly its focus on procedural requirements at the expense of achieving more substantive environmental gains (cf. Jay et al., 2007). The problems for SEA are arguably similar, if not greater, because the emphasis of this model on the contribution of scientific and technical information to objectively ‘rational’ decision-making cannot address the fundamentally different challenges posed by strategic initiatives. In particular, the challenges of uncertainty and value conflict thrown up by developments ranging from transport planning to energy policy indicate that the knowledges and techniques traditionally relied upon to ‘solve’ environmental problems have rarely been adequate to the task (Wallington, 2002). These challenges suggest that SEA must move beyond the ‘impact assessment mindset’ (Bina, 2003) which is, in turn, a call to revisit the conceptual foundations of SEA. If SEA is to achieve its celebrated purpose as a contribution to sustainable development, and fulfil its role in improving policy-making processes, the implicit and explicit assumptions of existing models of SEA (both normative and operational) must be examined, and conventional wisdom about its *raison d’être* must be questioned.¹

That was the challenge posed to participants in a series of workshops devoted to ‘SEA Theory and Research’ organised by Olivia Bina, Tabatha Wallington and Wil Thissen. The occasion was a special conference on ‘International Experience and Perspectives in SEA’ hosted by the International Association for Impact Assessment, and held in Prague in September 2005. An account of the richness of the debates, key observations and conclusions arising from the lively workshop discussions is given elsewhere (Bina et al., 2007). The contributions to this special issue arise either directly or indirectly from the Prague workshops.² Each paper brings something of a fresh perspective to the task of theorising SEA. Collectively, the papers contribute to a deeper understanding of SEA’s conceptual foundations.

Before briefly introducing each of the papers in this special issue, this editorial elaborates on some of the key issues and arguments that make up the discourse on SEA theorising in order to provide a context to the individual contributions. We conclude by sketching an outlook for further debate and research.

¹ Here, we follow Bartlett and Kurian’s (1999) rationale, which they applied to EIA theorising.

² Fourteen contributions were submitted to the Prague workshops, and at least 50 participants contributed to the lively discussions. The selection of papers was based on timeliness, quality of the elaboration of the workshop contributions to a full paper, and personal decisions of participants to publish their contributions elsewhere.

2. Structuring the discourse

The recent and ongoing discourse on SEA's theoretical frameworks and assumptions is structured here in terms of three vital elements, which together constitute a conceptual framework for SEA: the substantive purpose and values associated with SEA, the strategies chosen to achieve that purpose, and the mechanisms for operationalising SEA. By *purpose*, we mean the ultimate end of SEA (its *raison d'être*), which relates to the ultimate implications—the intended effect—of societal decision processes. The substantive purpose of SEA is distinct from the long-term *strategy*³ proposed to achieve it. The final element of the framework relates to the *mechanisms* (the methods, techniques and tools) chosen at the operational level.

The papers in this special issue, whilst drawing on a range of theoretical perspectives, all engage with one or more of the three elements outlined above. With the notion of 'strategy' being at the analytical heart of 'strategic' environmental assessment, we will focus more extensively on this particular element of SEA theorising here. An extended discussion of historical developments and underlying theoretical debates in relation to all three elements is given by Bina (this issue; see also Bina et al., 2007).

2.1. Purpose

Originally, SEA was conceived to identify and communicate the potential environmental consequences of higher-order planning and policy decisions to decision-makers (for example, EC, 2001; Sheate et al., 2001; Thérivel et al., 1992). It was hoped that SEA would be able to address some of the perceived shortcomings of project-level EIA, such as the late timing of analysis, which had constrained its capacity to deal proactively with environmental problems. It was also anticipated that attention to the environmental consequences of programmes, plans and policies (PPPs) would enable SEA to more effectively contribute to the international environmental policy agenda of sustainable development (Sadler and Verheem, 1996; Partidário, 1999). It is this attention to sustainability, rather than a narrower focus on the biophysical environment, which has animated debates about SEA's substantive purpose. These debates have therefore oscillated between the primacy of protecting and enhancing the natural environment, versus the need for SEA to simultaneously address social, economic and environmental values (i.e. the 'triple bottom line' interpretation of sustainable development).

There are arguments both for and against the sustainability shift. On the one hand, a sustainability mantle promises to be politically advantageous, and may extend the influence of environmental assessment more broadly. On the other hand, renouncing the 'environment' and the institutionalisation of 'ecological rationality' (Bartlett, 1997: 57) as the core values of SEA could equate to a radical departure from the original *raison d'être* of SEA, and threaten to undermine the future of the natural environment as a focus of political attention (see, for example, Wood, 2003). Importantly, actively embracing its environmental purpose would help to distinguish SEA from all other forms of strategic assessment whose scope often tends to overlap, giving SEA a clear purpose and role in modern governance: *environmental sustainability* (cf. Sadler, 1999).

³ This distinction is necessary because what we regard as strategies—such as the provision of environmental information to decision-makers—have often been considered to represent the ultimate purpose of SEA (see also Jay et al., 2007, who discuss this distinction in relation to EIA).

Discussions at the Prague workshops revealed a general agreement amongst participants that the substantive purpose of SEA should be *environmental* sustainability, rather than a ‘triple bottom line’ interpretation of sustainable development (Bina et al., 2007). As the papers by Olivia Bina (this issue), and Tony Jackson and Barbara Illsley (this issue) illustrate, jurisdictions beyond the SEA community (e.g. the Scottish government, the EC and the OECD) are recognising the benefits of maintaining a clear focus on environmental considerations. The challenge ensuing from this refreshing clarity of conviction is now to articulate a constructive relationship between SEA and other processes (particularly Sustainability Assessment) which aim to influence strategic-level decisions. A first step, however, is to be clear about SEA’s distinctive role in this important alliance.

2.2. Strategy

A lesson in the history of ‘strategy’ by Aleh Cherp, Alan Watt and Vadim Vinichenko (this issue) reminds us that the term was coined in relation to military operations to distinguish the *art* of conducting a war from the task of directing individual battles. Drawing on this analogy for SEA, we can distinguish between the *art* of promoting strategic change towards environmental sustainability (i.e. the *strategy of SEA*), and the task of influencing particular PPPs. It is not very controversial to say that a focus on the latter has dominated the discussion on SEA to date, where the adjective ‘strategic’ is taken to mean that SEA is intended to influence the strategies (PPP) that constitute higher levels of decision-making (see Bina, and Cherp et al., this issue). It follows that efforts have been devoted to the procedures and techniques required for conducting SEAs. What a long-term *strategy of SEA* might entail, on the other hand, has received significantly less attention.

The significance of a focus on the strategy of environmental assessment was noted by Bartlett and Baber (1989) almost two decades ago. Based on evidence generated through the pioneering work of Caldwell (1982) and Taylor (1984), these authors argued that ‘more than methodology or substantive focus, what determines the success of [impact assessment] is the appropriateness and effectiveness in particular circumstances of its implicit policy strategy’ (Bartlett and Baber, 1989: 143). This statement not only highlights the importance of strategy *per se*, but also points to the relationship between strategy and ‘context’, or the circumstances in which SEA is to be implemented (see the papers by Bina, and Hilding–Rydevik and Bjarnadóttir, this issue). The contributions to this issue, together with the animated debates at the Prague workshops, attest to a revival of attention to these important issues.

The lessons provided by the drafters of NEPA and its action-forcing mechanism provide a starting point for analysis. According to Robert Bartlett, the central concern of these architects was with ‘policy and decision *structures* and the development of *values* as guides for policy choices’ (Bartlett, 1997: 51, emphasis added). Moreover, it was not the intent of SEA to foster ‘a narrowly instrumental intelligence, but an integrated political and ecological *rationality*, directed as much at the *ends* embraced as a society and a polity as at the means adopted in policy processes’ (Bartlett, 1997: 51, emphasis added). We can therefore surmise that, for these scholars, a deliberate strategy for SEA must attend to the rationalities and values informing both SEA and policy processes, as well as to the structural characteristics of the policy and decision context.

Contemporary debates about SEA strategy suggest that a continuum of SEA strategies is possible. For analytical purposes, we suggest that an ‘ideal type’ strategy may be identified at each extreme of this continuum, each of which is based on different assumptions and understandings regarding the elements of SEA noted above; i.e., assumptions made about the values and rationalities informing both decision processes and SEA itself. At one extreme are

‘procedural’ strategies, which depict SEA as a systematically ‘rational’ process which seeks to influence the formulation of a specific PPP. At the opposite extreme are ‘transformative’ strategies, which depict SEA as an intentionally ‘political’ process intended to change the way decisions are made, and to induce learning about environmental values in institutions, organisations and civil society.

Importantly, these two ‘ideal types’ are for illustration purposes only. In practice they are neither mutually exclusive, nor do they tend to occur in their ‘pure’ state. Instead, practitioners have tended to combine elements of these strategies, case by case. We believe a detailed description of these two extreme cases is useful, nonetheless, because it helps to make explicit the often implicit assumptions made about how SEA works, or ought to work. Assumptions about the decision context are equally important, as this caution by James Boggs makes clear: ‘Congress designed NEPA to help reform institutional realities with deeply embedded [development-oriented] values and world views. Paradoxically, these same entrenched views and perspectives often govern how agencies implement NEPA’ (Boggs, 1993: 29).

2.2.1. Procedural strategy

Procedural SEA echoes the description of impact assessment as ‘a strategy of influencing decision and action by a priori analysis of predictable impacts’ (Bartlett and Baber, 1989: 143). Based on what has been called a ‘technical–rational’ model of planning and policy-making processes (Owens et al., 2004), SEA activities seek to influence the formulation of a specific PPP, so that effectiveness is sought or measured at the level of the individual PPP process. A procedural strategy thus assumes that PPP formation is ‘deliberate’ (i.e. first formulated and then implemented; see Cherp et al., this issue). This model of SEA practice (implicitly) assumes: a) *substantive* rationality in decision-making (in the sense of looking for the ‘best’ means to achieve a given set of objectives); b) *procedural* rationality, in the sense that decisions are improved by following a ‘rational’ step-wise approach (formulate problem, identify alternatives, assess impacts, etc.); and c) a clearly identifiable single decision-maker or decision-making body, who makes a one-time key decision.

Each of these assumptions may be questioned in the light of empirical studies of ‘real world’ policy practices, and of alternatives to the ‘rational-comprehensive’ theory of decision-making. The procedural rationality central to prescriptive accounts of SEA is challenged by the observation that decision-making processes do not proceed in a linear, step-wise manner. As Wallington (2002) argues, policy implementation is not merely technical rule-following; nor will conflicts necessarily be ironed out prior to ‘the decision’. Rather, objectives are established and policy is more often *made* in the process of negotiation and compromise that characterises plan making and continues during implementation. Moreover, the logic of substantive rationality, which assumes that the provision of better ‘objective’ information (the best means) will automatically lead to a better, more environmentally sustainable PPP (cf. Bailey, 1997; Caratti et al., 2004), is questionable given burgeoning evidence that the practice of environmental assessment rarely lives up to this ideal⁴—a conclusion supported by virtually all empirical research in policy analysis (Kørnø and Thissen, 2000). The case study reported by Kolkman and his colleagues (this issue), where technical factors had little effect on the decision, is further testament to the weakness of this assumption.

⁴ See, for example, Caldwell (1982), Taylor (1984), Culhane et al. (1987), Weston (2000), Nilsson and Dalkmann (2001), Lawrence (2000), Caratti et al. (2004).

A final issue of interest here is that the procedural strategy of SEA assumes the policy and institutional context to be given, and thus to provide boundary conditions for SEA—an assumption which has informed calls for SEA to adapt to the existing policy context. Hilding–Rydevik and Bjarnadóttir (this issue) critique the current ‘context free’ normative and procedural assumptions that have defined ‘best practice’ in SEA. They call for greater attention and adaptation of SEA procedures to the context as a critical condition for promoting the integration of environmental and sustainability concerns within mainstream planning.

As Jay et al. (2007) point out, however, whilst integrating environmental assessment more closely with development planning may ensure it has greater influence, this approach does not necessarily go beyond the proximate aim of effective influence. As such, it does not challenge the way decisions are made, or the way development is thought of in the first place. These latter concerns are central to a transformative strategy for SEA.

2.2.2. *Transformative strategy*

While a procedural strategy may be necessary, it does not appear to be sufficient, to meet the purpose and role of SEA. Paradoxically, there is overwhelming evidence that this strategy, with its preoccupation with effectiveness at the individual project or PPP level, is not effective (see Jay et al., 2007 for an overview). These concerns have motivated attempts to take SEA theorising beyond technical–rational concerns to recover the philosophy and principles originally articulated for environmental assessment (Bina, this issue; see also Wallington, 2002; Pischke and Cashmore, 2006; Jay et al., 2007). The more overtly political implications of this focus for SEA, which centrally involves attention to context, was summed up by Caldwell when he said that ‘environmental impact analysis in its broader context represents a fundamental change in perceptions... regarding how society’s environmental future should be evaluated and how political and economic decisions regarding the environment should be made’ (Caldwell, 1989: 7).

The intention to change the way decisions are made, which is a key characteristic of what we are calling ‘transformative’ SEA strategies, has prompted scholars to seek lessons from other policy-related disciplines to better understand alternatives to the ‘technical–rational’ model of decision-making. These theories—which variously emphasise power, negotiation, political relations, building advocacy coalitions, network structures, institutional habits and political dispositions, learning through communication, policy cultures, strategic decisions by policy entrepreneurs, and so on—draw attention to the structural conditions and social relations influencing decision-making.

Decision theories (e.g. powerplay, argumentative, garbage can, negotiation, etc.) suggest that means beyond purely information-based contributions and procedures/processes could be more effective. Models or theories about change in the attributes of social and institutional structures (e.g. organisational learning, innovation theories, socio-technical transformations, transitions, organisational change, etc.)—attributes of the context within which individual PPPs are evaluated—are thus likely to hold important lessons for a ‘transformative’ strategy to achieve the purpose of SEA. The particularities of context, in turn, suggest that the most appropriate approach, or combination of approaches, will depend on the ‘nature’ of the decision-making situation to hand (Leknes, 2001; Mayer et al., 2004).

Given the shift in focus emphasised above ‘from the idea of a single objective truth that informs the “right” strategy to a more complex interaction between various actors’ (Cherp et al., this issue), a transformative strategy for SEA is intentionally political, and aims to contribute to longer-term changes in the range of values, worldviews, behaviours and practices of actors and institutions (by raising environmental awareness at the political level, and by contributing to

organisational learning, for example). This more ‘indirect’ contextual change then affects the setting of policy agendas, the outcomes of policy processes, the implementation of their outcomes, and ultimately the state of the world. Transformative strategies broaden the target of SEA practice beyond the confines of PPPs in order to engage with relationships between SEA, decision processes and the ‘wider context’, notably institutional habits and values and the ‘environmental capacity’ of the organisations and actors involved (Bina et al., 2007). Hilding–Rydevik and Bjarnadóttir (this issue) discuss the relevance of ‘context consciousness’ and sensitivity as an essential element of any SEA that would aim to contribute to the ‘integration’ of environmental perspectives in planning processes. Progressive attempts to inform understandings of the ‘strategic’ dimension of SEA, described by Bina (this issue), signal (albeit implicitly) a recovery of the original intention of environmental assessment: to promote change by inducing ecological rationality into systems of governance.

2.2.3. *Toward a creative synthesis*

The diversity of SEA thinking touched upon here, and in the papers in this issue, suggests that no one theory or model of SEA will adequately explain how and why SEA works (or doesn’t work) to achieve its intended purpose. We need, rather, to explore how alternative explanations—extremes of which we have characterised in terms of ‘procedural’ and ‘transformative’ strategies—are complementary and interactive (see also Bartlett, 1997).

The complementary nature of procedural and transformative strategies may be explored by drawing on the notions of single-loop and double-loop learning, respectively. Single-loop learning is likened to traditional ‘problem-solving’, and occurs when errors are detected and corrected without fundamentally questioning or altering the underlying values or assumptions (Argyris, 1999: 68). A good analogy is the thermostat of a domestic central heating system (Argyris, 1977: 116). Its main task is to maintain a pre-selected temperature—the question of whether that temperature is the most appropriate is not addressed. Double-loop learning, in contrast, involves subjecting the governing frameworks and assumptions which underlie goals and strategies to critical scrutiny. It ‘connects the detection of error not only to strategies and assumptions for effective performance *but to the very norms which define effective performance*’ (Argyris and Schön, 1978: 22). Recalling the thermostat analogy, this could involve asking what the most optimal temperature is, whether there is a more efficient boiler, or if heating is needed at all.

Applying this learning metaphor to SEA, the procedural strategy of SEA resembles single-loop learning, where goals, values and frameworks are accepted as given. It is a method of learning that relies on dominant existing practices and norms in order to determine an appropriate course of action. A double-loop learning strategy for SEA would recover its transformative intent: to change the way decisions affecting the environment are made, to question the type of development proposed and, at a deeper level, to at least implicitly question the automatic equation of technological innovation and industrial progress with (sustainable) ‘development’.

Clearly, both single- and double-loop learning are complementary and mutually reinforcing. Political decision and action will be necessary, and the problem-solving qualities of procedural SEA will prove invaluable when goals and values are (at least temporarily) assumed to hold still. In contrast, when conditions of uncertainty and value conflict prevail, and where there is no clear consensus on the nature of ‘the problem’, the critical interrogation of values and goals facilitated by transformative SEA will be required to (re-)define the problem before ‘problem-solving’ can occur.

Importantly, by suggesting that the SEA community has a *choice* in the strategy of SEA, we are bringing home the point that it is a choice; i.e., it is a political affirmation of particular values and rationalities and knowledges at the expense of others. If SEA is to facilitate the ‘advocacy’ of

environmental values (cf. Fischer, 2005a), then it logically follows that a procedural strategy should be subordinate to the more overtly political, transformative strategy of SEA; critical questioning and problem framing should shape the questions for subsequent systematic, formal inquiry. In contrast, if the predominant strategy of SEA is procedural (which the prescriptive literature would indicate it has been to date), then the focus is on following the correct procedures. The latter effectively rules out any explicit attempt to influence the context and associated values in terms of SEA's capacity to address the environmental dimension of decisions, because the context is assumed to be 'given'. The far-reaching consequences of strategy choice alluded to here thus prompt us to urge SEA professionals to consciously reflect on the assumptions, values, goals and beliefs that are simultaneously affirmed when a particular strategy is adopted to guide the implementation of SEA.

2.3. Mechanisms

The third element of our conceptual framework, which concerns the mechanisms recommended to operationalise SEA, has also been the subject of some debate. Superficially, the debate appears polarized between advocates of 'political' versus 'technical' methods. Beyond this dichotomy, there has been an increasing recognition, even among staunch proponents of systematically structured SEA, of the need to 'reconcile and combine structured, rigorous and rational elements with more flexible, communicative and consensus oriented elements [depending on] the specific situation of application' (Fischer, 2005b: 1). This prescription was met with undiluted assent at the Prague workshops (Bina et al., 2007). Nonetheless, it needs to be tempered by a recognition that the influence of any chosen mechanism will depend on the prior commitment to a particular SEA strategy (whether such a choice is implicitly or explicitly made). For example, the introduction of both technical and communicative methods and techniques—or indeed communicative mechanisms alone—does not necessarily move beyond the procedural strategy of SEA. Participatory and communicative processes may be oriented to the provision of 'information' related to the proposal at hand, and may not stimulate any critical reflection on, or challenge to, the pre-given definition of the policy problem. The UK's sustainability appraisal process is offered by Jackson and Illsley (this issue) to illustrate the risk of uncritically adapting SEA to existing policy processes with previously defined values. If SEA is interpreted to be an instrumentally rational process of 'operationalising' sustainability (i.e., as a means to given ends), its task will be limited to 'translating a concept that is presumed to be agreed in principle into something workable on the ground' (Owens and Cowell, 2002: 49).

Information-based approaches, on the other hand (such as the incorporation of multiple disciplinary approaches to the tasks of gathering, discussing, and analysing information and perspectives) may effectively challenge the prevailing problem definition. But this will only occur if there is room within the strategy of SEA to facilitate the use of mechanisms that go beyond the traditional provision of scientific information on the impacts of given alternatives to decision makers, and thus to enable the critical interaction of perspectives (for a case study, see Brown, 2000). The issue of problem definition is also pertinent here. For example, asking a policy question about 'food and the countryside', rather than a more restrictive question about 'genetically modified agricultural technologies', opens up the forms of knowledge and interests that may legitimately contribute to the discussion (Rayner, 2003). This key task of problem framing, and of allowing for the interaction of different perspectives, is a central concern in the literature on discursive or argumentative approaches to policy development (Fischer and Forester, 1993; Schön and Rein, 1994). The challenges associated with operationalising a 'frame-

reflective' approach to SEA are discussed by Kolkman and his colleagues (this issue) as a means of better informing and influencing policy development and decision-making.

Returning to the 'war' analogy introduced earlier, the adoption of a particular strategy (the *art of SEA*) has significant implications for the methodology and methods to be adopted in particular instances of operationalising SEA (and thus the tasks associated with each individual 'battle'). As Nooteboom (this issue) argues, procedures are important. Nonetheless, we have suggested that a procedural approach alone fails to intentionally challenge the prevailing orthodoxy. As such, the adoption of a transformative strategy would incorporate (but subordinate) the procedural strategy of SEA. This combination of approaches to SEA would facilitate the interaction between the kind of critical reflection associated with a 'political' approach, and the systematic, disciplined form of inquiry that has always characterised the so-called 'technical' role of SEA (NRC, 1996; Owens et al., 2004; RCEP, 1998; Wallington, 2002). In this way, SEA would facilitate moments of learning throughout policy and planning processes, integrating its traditional analytic role, which leads to a corrective learning style, with one that promotes argumentative and dialogical moments, leading to cognitive and social learning (Van der Knaap, 1995: 203). It is a synthesis that relies on, and recognises the importance of, both single- and double-loop learning.

In many ways, the unique value of the Prague workshops was to provide a forum for double-loop learning amongst SEA scholars: a process of critical reflection on the norms and assumptions which inform SEA theory and practice. The papers in this special issue attest to the importance of this task, and to the inroads being made by opening up the discourse of SEA to a diversity of critical perspectives.

3. The papers

The first paper by Olivia Bina traces and critically evaluates the arguments which have underpinned the need for SEA over the past two decades. The overall impression of conceptual inertia exposed by this analysis prompts Bina to urge greater self-reflection amongst the SEA community on the simplistic and sometimes erroneous assumptions that continue to underpin the case for SEA. One persistent argument, for example, mistakenly holds that the main distinction between EIA and SEA relates to the strategic nature of the policy and planning initiatives that SEA would assess rather than to the 'strategy' of SEA itself. The resulting legacy is based on a 'technical-rational' model of decision-making which, Bina maintains, has hindered SEA's conceptual development. In more recent years, though, the relationship between assessment and the whole planning process has begun to inform understandings of the 'strategic' dimension of SEA. For Bina, this recognition recalls the original intention of EIA: to promote change by inducing ecological rationality into systems of governance. The consequences of this more overtly political role for SEA include the need for collaborative approaches to complement more traditional analytical means. At the same time, Bina contends that the most appropriate strategy for SEA will depend upon the choice of substantive purpose. She concludes the paper by urging the SEA community to resolve this important debate.

The link between the purpose and 'strategy' of SEA is central to the paper by Tony Jackson and Barbara Illsley, who show that the ongoing debate about purpose is reflected in the emergence of competing methodologies for SEA in the UK. The authors critically examine the attempt by UK governments to combine two dominant methodologies: baseline-led SEA and objectives-led sustainability appraisal. Jackson and Illsley's analysis shows that both of these expert-driven approaches are based on an instrumental rationality which effectively excludes debate about the value judgements inherent in policy choice, as well as in the assessment process itself. Where the

baseline-led approach is fraught with problems relating to uncertainties and unrealistic epistemic assumptions, the objectives-led approach enrolls SEA assessors in rationalising the current official conceptualisation of sustainability. A third methodology, recently introduced in Scotland, is presented by Jackson and Illsley as a more promising way to address the procedural and substantive elements of SEA. The model maintains a focus on the environmental and equity concerns of sustainability by making the principle of environmental justice central to SEA, providing a practical response to the call for ‘environmental sustainability’. The resulting ‘reflexive’ approach promises to open up policy goals to critical public scrutiny, and to provide the opportunity to evaluate the distributional impact of policy delivery via a database of assessments. Like Bina, Jackson and Illsley point to the importance of both technical and deliberative processes in this reflexive (transformative) strategy for SEA.

Aleh Cherp, Alan Watt and Vadim Vinichenko deal with the issue of strategy in SEA head-on by drawing on a broad range of contemporary organisational strategy theories. They examine the variety in interpretations of the strategy concept, and identify differences with regard to the focus of the different schools (prescriptive or descriptive), their views on the nature of strategy formulation (formal or informal), on the nature of strategy formation (deliberate or emergent), on who the central actors are, and on the role of knowledge in strategy formation. Next, they confront the SEA tradition with the variety strategy schools and the lessons learned there. A number of challenges for SEA theory and practice follow, including the importance of informal as well as formal aspects, the relevance of emergent strategies, the need to identify who the ‘real’ key players are, and the need to deal with the uncontrollable and unpredictable nature of many strategic contexts. In conclusion, these authors warn the SEA community against unjustified expectations, and suggest a pragmatic concentration of SEA efforts on situations where they may be most efficient; that is, on situations where strategies are more deliberate and strategy formulation is more formal. Furthermore, in order to deal with uncertainty and emergent changes, these authors recommend more attention to the implementation phase, including monitoring and adaptation in the broadest sense of the word.

In the next paper, Sibout Nooteboom argues that complexity theory may offer relevant insights to better understand (and influence) the complex changes needed for society to achieve sustainable development. Variety and the proper formation of actor networks are suggested as primary requirements for a system to be capable of envisaging future changes in its environment and of taking adaptive or proactive measures. Nooteboom describes the sequence of discourses on sustainability in the Netherlands since the 1970s to illustrate developments towards increased variety and awareness of the importance of networks comprising both public and private actors. The latest stage in these developments, named ‘transition management’, rests heavily on the formation of networks of actors across the public and private spheres, where informal communication and debate takes on an important role. In retrospect, the author concludes that formal impact assessment (IA) procedures have played an important role in stimulating the societal learning process over the years and building trust among the policy domains. Proper IA procedures, then, by creating mandatory checks and balances, create the interdependency between actors necessary to create enough tension to lead to complex, adaptive behaviour. But there is also the risk of stagnation, distrust and conflict, and more research and reflection is needed to find the right balance.

Tuija Hilding-Rydevik and Holmfridur Bjarnadóttir investigate the nature of the context in which SEA is applied. The authors define context as ‘the set of facts or circumstances that have an impact on the chosen approaches to SEA [and] on the outcomes of SEA implementation’. They argue that the success of SEA in integrating environmental perspectives in planning depends on the ability to be aware of, and responsive to, the context. Their analysis draws on case studies from Northern European countries, which reveal that the circumstances that have an impact on the

choice of approaches to, and outcomes of, SEAs include: national policy style, characteristics of the planning agency, planning style, and the extent of political commitment to sustainable development. Perhaps not surprisingly, the case studies indicate that contexts tend to be receptive to planning and assessment tools when the political will, the organisational commitment, the professional skill and the learning motivation already exist. Even when several tools are used to facilitate sustainable development integration, and are applied in favourable contexts for integration, the challenges remain significant and results are only partial. Hilding–Rydevik and Bjarnadóttir conclude that SEA can help, but the real effort needs to be focused on identifying what is needed in a specific planning context, and then on selecting a range of tools (of which SEA can be one) that will help to meet the needs of, and to overcome the obstacles to, integration. In many cases, such needs include changes: in planning practice; in organisational culture, norms, and values; in the way people in government and other agencies perceive their roles, responsibilities, and relationships; and in peoples' behaviour.

Rien Kolkman, Anne van der Veen and Peter Geurts, in the final paper in this issue, propose a method to analyse policy-making processes from the perspective of 'mental model' mapping and frame reflection. The purpose of this approach is to surface and juxtapose the different frames of participants in a given policy process. Because frames contain actors' assumptions, interests, values and beliefs, they influence the meaning of information and the positions actors take on problems and solutions. A process of frame reflection may, if applied during a policy process, help to clarify the sources of differences of opinions, and may thereby provide actors with resources to reflect on their own and others' frame commitments and to engage in a process of mutual learning. The method of analysis proposed by Kolkman and his colleagues is tested and illustrated in an *ex-post* case study in the field of water management. The analysis shows that, in the case studied, legal, socio-economic and institutional factors ultimately dominated the decision-making process. The authors therefore conclude that their method does help to explain the persistence of controversies. It also helps to make explicit the sources of frame conflicts, which are then available for discussion and mutual learning amongst participants. This latter step is not inevitable, however. While the process improved knowledge of the problem situation, breaking through institutional, political and social resistance to the use of this knowledge as decision arguments remains a key challenge. It is one that requires open communication, and hence integrity of and trust between participants—conditions not often satisfied in controversial decision situations.

4. Future challenges

The opportunities these papers open up for future research are as diverse as they are challenging for the SEA community, and beyond. We distil just a few of the issues raised in this concluding section.

First, it seems particularly important that the SEA community make a clear choice regarding the ultimate aim of SEA efforts: are they intended to protect and enhance the natural environment, or are they intended to enhance the integration of social and economic alongside environmental qualities. If the Prague discussions are any indication, there is a reasonably clear consensus that the purpose of SEA should be environmental sustainability. The remaining challenge is to ensure that a constructive relationship is forged between SEA and sustainability-oriented processes.

A second point, then, concerns the need to clarify and articulate the implicit policy strategy of SEA. We have argued that the complement of procedural and transformative strategies appears to provide the best way for SEA to achieve its purpose. Again, a choice is to be made regarding the

scope of what is called ‘SEA’. Is it wise to include all deliberate activities directed at fostering (environmental) sustainability, including those directly targeting policy and decision-making processes as well as and the wider context of such processes, under the SEA umbrella? Or, should the term SEA be limited to those activities directly linked to specific, formal PPP decision processes (as in the European framework Directive 2001/42/EC, for example)? In this choice, it may be remembered that confining SEA to formal processes does not rule out its ‘catalytic’ character (Bartlett, 1997) and capacity to direct patterns of action and inaction in government and the wider community—actions with the potential to change policy outcomes.

Third, there is wide agreement that the approach and mechanisms chosen should be adapted to the specific situation. Again, the Prague workshops revealed a certain level of agreement on the need for a creative synthesis of systematic and critical approaches at both the strategic and the operational level. However, little if any guidance has been produced by the SEA community to aid in this process. Several key questions provide a starting point for the development of such guidance.

1. What are useful typologies for characterising policy situations? Earlier work in the policy sciences (Douglas and Wildavsky, 1983; Bobrow and Dryzek, 1987; Schön and Rein, 1994; Rommetvedt, 1995; Leknes, 2001; Dunn, 2003) suggests that relevant dimensions include:
 - the degree to which undisputed substantive knowledge is present
 - the level of agreement on values
 - the degree of conflict of interests
 - the power distribution
 - the degree of trust among participants in the process
 - the clarity and strictness of procedures
 - the character of the policy process (political contention or consensual dispute resolution)
2. Which methods and techniques would assist in understanding these contextual (political, institutional, legal, etc.) dimensions of policy situations? The investigation by Kolkman et al. (this issue), and earlier work on identification of ‘frames’ and ‘framing’ (Schön and Rein, 1994) provide contributions in this direction. Other interesting approaches may be found in the field of actor and network analysis (Hermans, 2005).
3. Can guidelines be developed with respect to the choice of (combinations of) SEA methods, given knowledge of context characteristics? This is perhaps the least developed field. An interesting approach is developed by Mayer et al. (2004) who develop a typology of different types of policy analysis methods and activities, each type being related to fostering a specific value, such as scientific validity, argumentative clarity, democratic character of the process, strategic advice, and so on. For these authors, the value of such a typology is that it enables policy analysts ‘to make a conscious choice for a certain policy analysis style and the policy analysis methods can be selected in a well-founded way for the contribution made... to the activities that must be carried out’ (Mayer et al., 2004: 188).

Clearly, comparative case studies would be a valuable empirical contribution toward illuminating the differences across contexts, along the lines followed by Hilding–Rydevik and Bjarnadóttir (this issue), for example. Much also remains to be learned about the practical implementation and effects of the theoretically informed methods and techniques discussed by contributing authors here, and in the SEA literature more generally.

At this point, enduring readers of the EIA/SEA literature would be excused for experiencing feelings of *déjà vu*, with the discussion here offering a resurgence of issues discussed intermittently

across the past 30 or so years. For example, 11 years ago at the IAIA conference in Estoril, several of these same conceptual and research issues—such as the need for attention to context, and the need to include ‘value’ discussions alongside scientific information in assessments—were prominently raised in a workshop on Impact Assessment research (Thissen, 1996). Relatively slow progress in this field (in both the SEA and related disciplines) may be explained by the inherent complexity of the societal decision processes and contexts which SEA seeks to influence, limiting the capacity of research to provide clear conclusions and practical recommendations. The practitioner-dominated tradition, and limited funds and capacity for the deeper evaluative kind of research called for here, are additional constraints.

In attempting to address these challenges, we would suggest that the enduring nature of the challenges facing human societies is cause for humility. It is perhaps fitting to end with a timely reminder of Sun Tzu’s counsel (6th century BC; Cherp et al., 21st century AD), which captures many of the enduring challenges facing the SEA community:

Know yourself (the values, goals and assumptions underpinning SEA).

Know the ‘enemy’ (the specific decision-making process of a PPP, the values held by the many actors involved, political dispositions and motivations, etc.).

Know the terrain (the biophysical environment, as well as the key characteristics of the wider context and how they affect decision-making processes).

Acknowledgement

As special issue editors we thank the many reviewers for their significant contributions to the evaluation and improvement of the papers submitted for this special issue.

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