Rationale behind the current practice in Strategic Environmental Assessment (SEA)

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Abstract. Over the last few decades, SEA has experienced a significant evolution in its theoretical and conceptual development. We have seen a gradual process of change in the SEA discourse, shifting from a notoriously technocratic and rationalist approach in the early 90s, to a much more strategic and integrated approaches and concepts in recent years. The analysis of international experience of SEA shows however, that current practice is still strongly bound to the logic of environmental impact assessment (EIA) of projects. It seems therefore, that there is a weak relationship between the theoretical development of SEA and its practice reflecting problems of communication or inertia in the adoption of new concepts. Why is this happening? Which factors explain the practice in SEA? This paper examines the perceptions of decision makers and SEA practitioners on the use of SEA and contribution to decision-making. Results will demonstrate the influence of assumptions, understandings, values and beliefs on the use of SEA.

Introduction

Strategic Environmental Assessment (SEA) evolved significantly over the past 15 years. SEA started-off to extend the concepts and practice of environmental impact assessment (EIA), as applied to projects, to the assessment of higher levels of decision-making. However, progressively SEA evolved based on the recognition that there was a need for more proactive and strategic approaches (Bina, 2007). Such approaches suggest that SEA must act directly upon the formulation and development processes of policies, plans and programmes (PPP), to increase the capacity of influencing decision priorities and facilitate environmental and sustainability integration in decision-making (Partidario, 1999; Sheate, *et al.*, 2001; Partidario, 2004; Caratti *et al.*, 2004). Such evolution in the SEA discourse is determining the extension of the spectrum of potential SEA activities, establishing new challenges which go far beyond the simple analysis and information on the environmental consequences of decisions being taken.

Despite this growing effort towards a distinct conceptual approach in understanding and applying SEA, evidence so far available suggests that SEA is still being largely applied according to ideological assumptions and practices similar to those used in project's EIA (Dalal-Clayton & Sadler, 2005). This situation suggests almost a non-linear relationship between the conceptual evolution of SEA and its practice! Question is, why is this happening? What factors can justify why SEA practice keeps following EIA? And what may be the prevailing paradigms in the application of SEA that impede its practice to become more adjusted to its theory?

The purpose of this paper is to undertake a discussion that contributes to empirically validate the observed gap between the practice of SEA and its theoretical development, attempting to identify reasons that can help explain this situation. The research strategy followed a triangulation of three different components:

1. A trend analysis of the conceptual evolution of SEA, emphasizing the role given to SEA in decision processes. For that purpose an analysis of the scientific articles published in the last 15 years was conducted and will be addressed in the next section.
2. An analysis of the recent practice of SEA. For this purpose 26 SEA cases conducted over the last 10 years were reviewed, including cases in the European Union (10), Canada (5), South Africa (3), Latin America and the Caribbean (5) and Asia (3).[1]
3. Interviews to consultants and decision-makers conducted electronically (by e-mail) through a questionnaire that included both open and closed questions. Themes addressed by the questionnaire included the contribution of SEA to policy, plan and programme formation, the influence of SEA in the decision-making process, the object of evaluation in SEA and the methodological approach in SEA.

The conceptual evolution of SEA

The origin of EIA was strongly influenced by the rationalist school of planning, which considerably dominated the last century (Nelson & Serafin, 1995; Weston, 2000). Consequently, environmental assessment followed a series of assumptions which, rather than being explicitly explored and formulated, were implicitly assumed. Table 1 summarizes assumptions that can generally be deducted from the literature. EIA was generated as an instrument oriented to develop a technical-scientific analysis to inform objectively the decision processes, through prediction and analysis of the environmental impacts of different development alternatives. This model was widely accepted during the 1970s and 80s.

Table 1. Assumptions underlining the original conceptualization of environmental assessment

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[1] Every case was analysed according to a pattern of analysis modified from the standard developed by Partidario *et al.* (2009).

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- *The decisions are made by a unitary decision maker through an explicit, organized and structured sequence of stages. There is a clearly defined decision process.*
- *It is possible to predict the consequences of decisions with a reasonable degree of certainty and therefore to decide on the best course of actions on the basis of those predictions.*
- *Decision issues are reduced to the analysis of the consequence; providing information about consequences of a decision is enough to make "better" decisions.*
- *The only useful (legitimate) knowledge to inform the decision is that which has been scientifically produced.*

This was the context within which SEA started-off. This is why it is not unusual to find the same concepts and terminologies in the early literature on SEA, adopting terms and approaches that did not change much compared to that used by EIA, expressing the rationalist logic and model of thinking, which is still broadly visible in current SEA reports. SEA was thus conceived as a technical instrument whose purpose was to provide decision-makers with "reliable information" (i.e. scientifically legitimate) to formulate decisions in a rational and objective way (Nilsson & Dalkmann, 2001). This would be accomplished mainly through an analysis of the environmental consequences of a proposed action and the communication of its results through "passive" participatory mechanisms (Bartlett & Kurian, 1999; Glasson *et al.*, 2005, McDonald & Brown, 1995; Weston, 2000).

However, it appears that EIA is being "forced" to carry out an extensive amount of activities appropriate to its strategic nature; raising new challenges that go beyond the simple analysis of the environmental consequences of a decision. During the last 10 years we have witnessed a crucial evolution in the theoretical construction of SEA, as a result of a constant debate around the scope of the *strategic evaluation* and the need to influence the decision processes (see, Wallington *et al.*, 2007; Bina, 2007; Partidario, 2007)[2].

Although there are still major controversies surrounding the assumptions and understandings that underlie the "how SEA should work", it is possible to take an historical perspective and recognize various signs that allow an observation on the evolution of the SEA pathway.

A vital element in the scientific debate has been the recognition on the need to incorporate policy analysis, planning theory and political sciences into the theoretical development of SEA (e.g. Kørnøv & Thissen, 2000; Lawrence, 2000; Nitz & Brown, 2001; Richardson, 2005; Cherp *et al.*, 2007). Consequently, there has been a growing acceptance of the *political nature* of decision-making, in parallel with the difficulty to describe the planning processes as established by the procedural rationality paradigm (Feldman & Khademian, 2008). The idealized vision of the planning processes as an intellectual design activity, structured and carried out in a direct way by a central actor, has been progressively replaced by the idea of interactive, dynamic and complex processes (March & Olsen, 1976; Lindblom & Cohen, 1979; Pressman & Wildavsky, 1983; Kingdom, 1984). Processes in which multiple actors usually converge with varying values, preferences and purposes, generating "decision arenas" of high uncertainty and ambiguity (Kickert *et. al.*, 1997; Sabatier & Jenkins-Smith, 1993; Flyvbjerg, 1998). This has reinforced the idea that the planning processes would eventually be nearer de-structuring, conflict, instability and uncertainty, rather than structured, straightforward and foreseeable as assumed in the rational paradigm.

The recognition of the complex nature of the PPP formulation processes, as well as the inherent problems, have seriously risked the pertinence of the "informative" model of SEA and, conversely, has valued its transformative potentialities (Cashmore *et al.*, 2008). In the last few years we have witnessed a slow but gradual agreement on the need to allow SEA to exploit its capacity to operate as a positive constructive force in policy formation, contributing to efficiency, legitimacy and general quality in decision-making (Partidario, 2000). The need to re-direct SEA towards an evaluation centered in the decision process, instead of centred in the results, has become evident. Subsequently various scholars called on the need to change focus in SEA, moving from environmental impact evaluation to direct attention into the decision process as the object of analysis and reflection (e.g. McDonald & Brown 1995; Bina, 2003; Dalkmann et al., 2004; Jiliberto, 2004).

Different researchers have underlined the importance of addressing the *context* within which SEA takes place (e.g. Partidario, 1999; Bina, 2003; Hilding-Rydevik, 2003; Hildén *et al.*, 2004; Hilding-Rydevik & Bjarnadóttir, 2007) and, consequently, the need to adopt flexible and adaptable processes as fundamental conditions for an effective integration and influence in the "*real decision-making*". It was suggested that the administrative and institutional dimension of the planning processes (in the context of the cultural and political characteristics of the setting), should significantly influence the purpose, the method and the effectiveness of every SEA. According to Bina (2008), those who want to propose an SEA must develop the ability to adapt the components of an SEA to the planning, formulation and decision activities that

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[2] Wallington et al., (2007) suggest three levels to understand the discussion in SEA, which has triggered the variety of present discourses: (1) the substantive purpose and values associated with SEA, (2) the strategies chosen to achieve that purpose, and (3) the mechanisms for operationalizing SEA.

already exist, being important requirements to understand the dynamics, tools and the protocol of each planning process.

Similarly, there seems to be some agreement as to the relationship between SEA and context factors (such as institutional, administrative, cultural and political) being "bi-directional". SEA must not only adapt itself to its context but also affect the way decisions are made, contributing to long-term changes in values, worldviews, conducts and behaviors of actors and institutions (Partidário, 1999; Jiliberto, 2002; Caratti et al., 2004; Partidário 2007; Stoeglehner *et al.*, 2009). In that sense, there has recently been a significant recognition of the potential of SEA in strengthening the institutional and government capacities that support PPP processes, emphasizing the learning and continuous improvement in the design and implementation of public policies (Bina, 2003; World Bank, 2005; OECD, 2006; Ahamed & Sánchez-Triana, 2008). This means that the object of assessment in SEA moves beyond policies, plans and programmes with the purpose of including the government's environmental capacities of institutions and organizations.

The recognition that planning processes are socially interactive processes, dealing with decision problems of high uncertainty and conflict in relation to content, causes, effects and solutions (Teisman *et al.*, 2009), has gradually pushed SEA potential to contribute to collaborative dialogues in planning processes (Connelly & Richardson, 2005; Fitzpatrick, 2006; Sinclair *et al.*, 2009; van Buuren & Noteboom, 2009). As such, in the context of the usual fragmentation of planning responsibilities and lack of communication across different sectors, it is believed that the dialogues enabled by SEA could contribute to improve the quality of decision processes, leading *stakeholders* to work together collaboratively to make decisions. From this point of view, SEA can be seen as an instrument with the capacity of promoting dialogues among actors that are participating in decision processes, enabling not only information sharing, but also the convergence of multiple perspectives and wisdoms. This has also been experimented and observed in several cases in the Portuguese experience (Partidário *et. al.*, 2009).

Current practice in SEA

The 26 cases reviewed broadly represent several SEA regulatory systems (or the lack of, in some cases), as well as different levels of strategic decisions (policies, plans and programmes) and ways to operate SEA. It is not possible to report here on all the details observed in the review, but the following points act as a summary of the main outcomes of the research conducted:

1. In most cases reviewed, the main activity (the 'core' of the assessment) was the prediction and evaluation of the environmental effects of planning, preferably looking into the consequences of planning alternatives, planning measures or proposed actions. The SEA rarely participates in the formulation of the planning objectives, or of either strategies or strategic options. Probably, this result from the late integration of SEA into the planning process, once the planning objectives and strategic options have already been defined. We can infer from this that there has been lack of capacity in SEA to strategically influence the content of plans and programs, as much as the decision process itself.

2. The uncertainty associated to the prediction of consequences is barely considered or clarified. Even when impact prediction and evaluation are a central aspect in the reviewed SEAs, often its importance is seconded by a range of preparatory tasks (usually under the heading of "scoping") that seek to drive planning and decision-making towards an environmental sustainability framework. The cases where integration of environmental, social and economic dimensions actually exist are few (according to the "triple bottom line" interpretation of sustainable development). In general, both the objectives and the indicators of sustainability are constructed in a non-integrated way.

3. Proposals for monitoring the results of SEA largely refer only to monitoring of expected impacts and performance of mitigation measures, and to a lesser extent to the achievement of environmental objectives and sustainability. In few cases are there clear signs that monitoring activities are integrated in the planning or programme development cycle. In most cases, there is no identified institutional framework to help planning or programming activities continue in the post decision stage.

4. Public participation remains a weak link, in general restricted to accomplish established legal requirements. In most cases opportunities to participate and influence the decision process are strongly narrowed to a few actors. However, there are certain cases that show greater inclusiveness of stakeholders, not only in terms of participation of representatives of the civil society, but also in seeking greater cooperation and coordination among government agencies, development sectors and different sources of knowledge.

Perception of decision makers and SEA practitioners on the use of SEA

The number of interviews conducted was relatively limited, there was great difficulty in obtaining responses to the 58 questionnaires that were e-mailed. This fact limits the possibility to withdraw sufficiently solid conclusions (or statistically acceptable). The analysis in this section is therefore influenced by the experience of the authors.

Apparently one of the reasons that may explain the gap between the observed practice in SEA and its theoretical development is related to the perception of those that "work in SEA", i.e. the professionals (environmental consultants) and the public authorities (decision-makers). Most respondents stated that SEA should contribute to more sustainable and environmentally "friendly" planning decisions. But from an

operational point of view they emphasized that SEA must provide relevant environmental information on time, evaluate both alternatives as proposed actions and establish measures to mitigate expected environmental impacts (when necessary). These reasons can be interpreted in light of the assumptions presented in Table 1.

This interpretation on the role of SEA reflects the strong influence of the EIA practice amongst SEA consultants, their working ideas and protocols are strongly consolidated with respect to the importance of predicting environmental impacts and advancing mitigation measures. This perception strongly drives the use of methodologies and tools in SEA, similarly to those used in EIA.

On the other hand the objective of SEA for decision-makers is to provide a rigorous analysis of the environmental effects of planning. It is emphasized that the way in which the information is interpreted and used by them (the decision-makers) is beyond reach for technical analysis, and therefore it is not up to the environmental evaluation professionals. Consequently, the efficiency of the environmental evaluation is determined by factors such as: the meticulous and exhaustive arrangement of the key stages of the evaluation process; the emphasis in the quantification of data and, particularly, the prediction of the impacts; and the presentation of the results of the evaluation in a logical, coherent and understandable way.

Furthermore, decision-makers implicitly value the classical concept of objective and value-free knowledge. For them, knowledge and information used in SEA must be an objective representation of reality, so that one must be able to distinguish "facts" from the subjective aspects and rules of the decision process. As a result, they understand that developing a policy or a plan is a matter of being informed by science and, in a second step, establish the values and preferences ratings. This approach recognizes a process in which scientific guidance (based on positive epistemology) acts informing the decision process and producing supposedly objective, valid and reliable knowledge. Again, this aspect need to be related back to the assumptions stated in Table 1.

Conclusion

Despite the growing movement towards a different approach to understanding and conducting SEA, the analysis of recent experience seems to indicate a largely technocratic interpretation of environmental assessment in SEA practical application. Planners, just as much as SEA professionals still claim (either implicitly or explicitly) an "informative" role of SEA in relation to the environmental consequences of a decision. Which related back to the early objectives and first definitions of SEA advanced in the early to mid 1990s. This helps to explain why SEA has been broadly used to assist the control and validation of the "environmental constituent" of decisions, instead of a process oriented to improve the decision processes from an environmental perspective (Partidário, 2007).

Why is it that SEA still carries a strong EIA inheritance, despite all the criticism that can be found in the academic literature? From our point of view, one of the reasons that may explain this situation relates to the lack of consolidated discussion around a fundamental question: the adequacy of the theory and practice of the rational instrumental paradigm to the (environmental) assessment of decisions of strategic nature.

The importance given to impacts prediction and to the design of mitigation measures in SEA undoubtedly underlines the fundamental principles of instrumental rationality. As a consequence, the environmental assessment process is understood as a technical discipline through which science provides objective, value-free information to the decision-makers. The role of the environmental analyst consists of facilitating a better understanding of a problematic situation just as they do with living alternatives of decision and their consequences. This perspective, based on the technical-scientific guidance model, assumes the existence of two dimensions in the decision process: a technical dimension (environmental) and a decisional dimension (political). Some (technical consultants) have the responsibility of evaluating environmental matters in a meticulous and systematic way, and others (politicians) have to "respond" to that evaluation through their decisions. Using this model, the environmental assessment is summarized as a technical analysis of the possible environmental impacts and the establishment of measures of mitigation, monitoring, and so forth.

The initial adoption of the project's EIA model to SEA application proves to have created serious barriers to a clearer understanding and a smooth implementation of the objective and form that SEA should assume to act as a strategic instrument. SEA as a conceptual and technical extension of EIA limits the added value that SEA can bring to decision-making, leaving out its facilitator nature and reducing their influence in the decision.

In our view, one of SEA greatest challenges now is to overcome the paradigm that has dominated environmental assessment in recent decades, whereby any environmental assessment is about feeding information into decision-making, as objectively as possible, on the likely future relationship of, on the one hand, decision changing factors, and, on the other hand, environmental factors. Even where causal relationships can hardly be expected.

In contrast to the above mentioned perceptions, there is a growing acceptance of the need to use SEA as a catalyst in organizational-learning processes, generating positive long-term cultural effects and visions of world within organizations and sectors that apply SEA, strengthening the capacity of environmental management and planning. This perspective conveys the need to stimulate and develop a theoretical foundation for the development of appropriate methodologies for strategic-based SEA, and appropriate forms for carrying out effective applications. The key is to understand that what must drive SEA are issues of a different nature from what is currently performed in SEA practice, and that SEA must go much beyond the informative role on the hypothetical environmental effects of PPPs. The challenges ahead are quite high, and we are only starting to uncover the real meaning of SEA.

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