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## The contribution of strategic environmental assessment to transport policy governance

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# *The Contribution of Strategic Environmental Assessment to Transport Policy Governance*

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## 1 INTRODUCTION

Strategic Environmental Assessment (SEA), understood as a practice that aims to incorporate the environmental dimension into strategic decisions such as policies, plans and programmes, already has a substantial tradition. According to Dalal-Clayton and Sadler, the formalization phase of this instrument began in the early 1990s, and its international dissemination can be said to have started in 2001 (Dalal-Clayton, Sadler, 2005).

The first books and special editions of international journals devoted to this topic date from the first half of the 1990s. European Directive 2001/42/EC on the Assessment of the Effects of Certain Plans and Programmes on the Environment, better known as the Strategic Environmental Assessment Directive, is clearly a milestone, because, since 2004, it has required the 27 members of the European Union to submit a long list of plans and programmes to an SEA procedure (EU, 2001).

In keeping with that general trend, SEA has been increasingly applied to policies, plans and programmes in the transport sector. Over 10 years ago in 1998, the European Conference of Transport Ministers (ECTM) published an initial volume on the topic of SEA and the transport sector (ECTM, 1998).

In 1999, the OECD and the ECTM organized a joint conference on SEA, which produced a publication entitled *Strategic Environmental Assessment for Transport* (ECMT 2000), partly revising the earlier volume and adding the conclusions of the conference. In those years the European Environment Agency also published results of what it called the "Spatial and Ecological Assessment of the European Transport Network (ETN)" (EEA 1998) an exercise carried out just at the right moment to understand the contribution that SEA could make towards a strategic European effort such as ETN. In 2000, the European Commission published the results of the study on the application of SEA specifically in the transport sector (EC, 2000), and in 2001 it published another on the use of SEA in transport corridors (EC, 2001).

Consequently, and to follow up work in this area, in 2001 a major workshop was held in Finland, sponsored by that country's Environment Ministry. The conference emblem of "Transport Planning: Does the influence of Strategic Environmental Assessment/Integrated Assessment Reach Decision Making?" betrayed the SEA community's early concerns about the instrument's effectiveness (Furman, Hildén, 2001).

The literature also contains many and varied reports of SEAs applied to specific transport plans and initiatives such as transport corridors (EC, 2001; Finnish Ministry of the Environment, 2001); and the first volume devoted specifically to the topic of SEA and transport planning and land use was published in 2002 (Fischer, 2002).

Since then, it can be said that the use of SEA in the transport sector has become widespread, not only in Europe, but also among OECD countries and in Asia, and to some extent in Latin America too (World Bank, 2006). This process has been accompanied by an expansion of practical applications of SEA in the transport sector (Dalal-Clayton and Sadler 2005), and the publication of various specific guides to SEA the transport sector (EC, 2005; Department of Transport, 2004).

At the turn of the new millennium, therefore, the initial work on SEA and transport are eliciting work to evaluate the interest, specifics and feasibility of applying this new tool when formulating transport policy; and a positive appreciation is consolidating of its use and relevance as a tool to support decision-making in this sector.

This initial positive assessment is responsible for increasing use of SEA in the design of transport plans and programmes, and a wide ranging analytical toolkit has been developed to adapt to the specifics of the relation between transport planning and the environment — in terms of its main environmental effects, the scales of planning work, the diversity of planning models and the typology of strategic transport decisions. Rather than considering the singularity or specific nature of SEA as applied to decision-making on transport policy, subsequent developments have sought to facilitate and promote the use of this tool by disseminating specific cases or producing guides.

This relatively strong development of SEA in the transport sector does not, however, mean that it is free from controversy and ambiguities, because, as shown in the literature (Dalal-Clayton and Sadler, 2005) and by the international SEA community (Wallington et al, 2007, 2008), there is still an ongoing debate on key aspects of SEA, including the definition of its basic objectives.

Accordingly, its application to the transport sector is also not free from sometimes substantive problems, since the issues under discussion in land-use planning are the same as in a transport plan. Past practical experience of SEA in the transport sector, together with that to be gained in the coming years, will likely be judged in the light of the solutions they provide to the conceptual problems that are still unresolved in SEA; and it is perhaps too early to classify them as good or less good practices.

In this context, it probably does not make much sense to perform a more in-depth analysis of the various methodologies proposed for the SEA of transport decisions, with their respective phases and steps, or in the analytical tools used in numerous specific SEAs, such as geographic information systems (GIS), expert panels, linkages with land use planning and transport system modelling, among others, because it has already been clearly demonstrated in practice that an SEA procedure can be applied to a transport plan or programme.

What might be more interesting is to consider the result of those exercises, i.e. SEA's contribution to effectively improving transport policies. This raises two very closely related issues, the first of which is the instrument's effectiveness, already discussed at the aforementioned workshop in Finland in 2001, i.e. its supposed capacity to affect the decision-making process. The second issue involves clarifying basic conceptual issues relating to SEA's nature and ultimate objectives, because the type of contribution that SEA can be expected to make to better strategic decision-making, the effectiveness of which is being questioned, is heavily dependent on this. In other words, it is idle to question the effectiveness of SEA in improving or influencing strategic decisions, if the ultimate direction of such influence, which is defined by the nature and objectives of the instrument, is still a matter for discussion.

Practical experience of SEA clearly suggests, and several studies show (Finnish Ministry of the Environment, 2001; EC, 2009), that SEA always influences the decision-making process. It is almost inconceivable that it could be otherwise, because

by implementing an evaluation process that interacts with the central decision-making process, the mere formal act of evaluation alters it.

That does not mean that SEA is efficient, however. To identify whether or not the influence obtained is what was being sought requires clarity of aims, and these are still under debate. So much so, that one frequently reads in the literature statements like "SEA is best described as an evolving family of tools" (World Bank, 2005, p. 1), or "SEA can be described as a family of approaches which use a variety of tools, rather than a single, fixed and prescriptive approach" (OECD, 2007, p. 15), or a longer quote from Sadler, "SEA is understood to be a generic process or approach that encompasses a family of instruments, which may have different names and features but are functionally related by common aim of integrating environmental considerations into the higher levels of decision-making" (Sadler, 2008, p. 14). All of this shows that it is hard to know nowadays what SEA really is and what its precise aims are, and hence whether it is effective in achieving them.

In any event, the ultimate aim of SEA is to contribute to environmental improvement, and in many cases also to the sustainability (Partidário, 2007; Wallington et al, 2007), of strategic decisions, including those in the transport sector. This requires ongoing research, through practice and beyond, to establish a theoretical and conceptual framework that provides a solid underpinning for SEA intervention in the development of public policies. This will make it possible to say rather more about its contribution to improving public policies than that it involves a "variety of tools applied to those public policies."

Accordingly, this article proposes a frame of reference for SEA to clarify the real contribution this tool can make to the effectiveness of public policy generally and transport policies in particular. This obviously means better incorporation of their environmental and sustainability dimensions, as well stronger public policy governance, particularly in the transport sector.

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## **2 SEA: AN EVOLVING WORK IN PROGRESS**

The SEA literature has insistently drawn attention to the lack of a precise definition for SEA and its objectives (Brown, Therivel, 2000; World Bank, 2005; Dalal-Clayton and Sadler, 2005; Wallington et al, 2007). In practice this has meant that SEA appears in a very wide range of forms, causing it to be viewed as "an evolving family of tools".

This situation has also spawned various schemes for classifying the SEAs undertaken in practice, depending either on the objectives, approaches and techniques used (Partidário, 2000; Dalal-Clayton and Sadler 2005; Sadler 2008, Bina 2008), or else on the conceptual frameworks used to classify the different varieties of SEA (Wallington et al, 2008).

The interesting thing is that this process of conceptual evolution, which began in the second half of the 1990s, is still continuing. In other words, both the conceptual evolution of SEA and the schemes or models that aim to classify the varieties of applications are changing through time, and continue to evolve. In some cases scholars have put forward certain definitions and schemes, only later to suggest different ones.

See, for example, the change of SEA types suggested by Dalal-Clayton and Sadler in 2005, and modified by Sadler in 2008 (Dalal-Clayton and Sadler 2005; Sadler 2008)

This suggests, firstly, that it is hard to conceptually summarize the complex practice of SEA; and secondly that there is an urgent need for conceptualization to give direction to that practice. Having said that, it is worth noting that in addition to evolution and diversification there has also been progress; in other words its evolution shows a line of development, a direction.

The earliest definitions of SEA were strongly rooted in the concepts of project environmental impact assessment (EIA) (Dalal-Clayton and Sadler 2005; Bina 2007). As been noted elsewhere (Jiliberto, 2007) many of the early definitions of SEA (Therivel et al, 1992; Therivel and Partidário, 1996), including that of Sadler and Verheem, often cited in the literature, put analysis of the environmental consequences of decisions at the heart of SEA. "The strategic environmental assessment is the systemic process of studying and anticipating the environmental consequences of proposed initiatives at high level decision-making. The purpose of the process is to incorporate the environmental criteria from the beginning, as an element of decision in all the sectors and degrees of planning, placing it at the same level as the economical and social criteria." (Sadler and Verheem, 1996).

As time has passed, the positivist consequentialism of SEA has been eroded.<sup>1</sup> For example, it is interesting to observe the evolution shown by specific authors, such as Verheem, who in 1996 initially argued that SEA had the aim of anticipating the environmental consequences of decisions, but in 2000 claimed that the role of SEA was to " ... strengthen the role of environmental issues in the strategic decision." (Verheem and Yonk, 2000), and then in 2005 argued that "SEA is a tool for including environmental consideration into policies, plans and programmes at the earliest stages of decision making." (Ahmed, Mercier, Verheem, 2005).

This same evolution can be detected in other widely published authors from the SEA community, such as Partidário, who as early as 1996 argued with Therivel that the aim of SEA was to incorporate the environmental effects in policies, plans and programmes (Partidário and Therivel, 1996), but now says that "Strategic Environmental Assessment (SEA) is an impact assessment tool that is strategic in nature and has the objective of facilitating environmental integration and the assessment of the opportunities and risks of strategic actions in a sustainable development framework." (Partidário, 2007, p. 12), positing the need to develop what she refers to a strategic SEA.

At heart, this evolution involves a weakening of the environmental impact concept as the core of SEA, as much more bland or vague concepts take centre stage, such as environmental effects, environmental issues, environmental aspects, and so forth. This firstly shows how difficult it is to make operational use of a positivist-consequentialist concept in the environmental assessment of policies, plans and programmes. It also confirms the difficulty, demonstrated in SEA practice, of gaining a

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<sup>1</sup> In this article, positivist consequentialism is understood as the analysis that understands that the consequences of decisions or acts can only sensibly be valued in terms of their positive (i.e. materially discernible) consequences.

reasonable understanding of the consequences of decisions and making those consequences the focus of improving decision design. Highly illuminating in this regard is Bina's appraisal of the model changes operating in SEA. "An important aspect of this change is the demotion of prediction and evaluation [...] in favour of a wider range of activities." (Bina 2008, p. 114)

This entails a sharp change of direction in the rationale on which the assessment is founded, since it is now impossible to base it strictly on a substantive, objective rationale, founded on knowledge of the likely material consequences of decisions.

Later definitions have gradually stressed that the aim of SEA is neither exclusively nor primarily to incorporate the consequences of decisions into decision-making processes, but to improve those processes themselves, clearly from an environmental perspective (Brown and Therivel, 2000; Jiliberto, 2002 and 2004; Caratti et al, 2004, Bina, 2007; UNDP, 2004). The World Bank definition of SEA as "a participative approach to place the environmental and social aspects in the centre of the decision-making process and to influence in the development planning, the decision-making and the implementation processes at a strategic level" (Mercier, 2004; World Bank 2005) is relevant in this regard.

This conceptual evolution shows that SEA is no longer primarily seen as a tool whose main function is to provide technically based information on the material environmental consequences of a decision (Bina, 2007). Obviously this has not occurred by chance, but reflects the dysfunctionality involved in turning the effective, albeit simple, technical and procedural baggage of project environmental impact assessment, towards evaluating complex sociopolitical-technical entities, such as policies, plans and programmes.

One consequence of this initial break has been the emergence of a strong methodological trend that believes SEA should focus on the decision-making process (Caratti et al, 2004; Partidário 2007; Kornov, Thissen 2000). This envisages SEA more as a tool of strategic and proactive interaction with the decision-making process, rather than being used to report on its generally negative environmental consequences (Bina, 2007, 2008).

The break with the substantive-positivist-consequentialist rationale of SEA gave rise to a proposal for an evaluation based on a procedural rationale. If it is impossible to improve the decision on the basis of its positively identified consequences, then it can be done by improving the procedure through which the decision is reached. The substantive rationale underlying the assessment is thus replaced by a procedural rationale. This was essentially the very conscious proposal of the European ANSEA research project (Caratti et al, 2004, Dalkmann et al, 2004).

Despite the conceptual rigour and abundant empirical material provided by the proposal for an SEA centred on the decision-making process, and the fact that it has not been consistently contested or criticized in the literature (Nilsson et al, 2009), in practice this has not prevented the conventional environmental-impact-centred view of SEA from continuing to represent mainstream practice. This is largely explained by the ambivalent message emitted by most recent legislation on the subject, the evolution of which has failed to keep pace with the conceptual debate. Other influences include methodological inertia and cultural practices, both in terms of environmental assessment

and planning, which change slowly, and because new approaches need to be tested in practice.

None of this means, however, that the evolution of SEA is haphazard or directionless, and merely a proliferation of possible content alternatives. The first step in SEA evolution involves overcoming the consequentialist evaluation paradigm focused on the positive effects and outcome of the decision, to move towards an evaluation focusing on the decision-making process and improving its quality from an environmental standpoint.

But the process has not stopped there. SEA centred on the decision-making process, with decision-making at its centre, is forced to delve into the complex world of decision theory and policy analysis, since it must show the extent to which strategic decision-making can be consistent with environmental assessment methodology, founded ultimately on objective or procedural rationality criteria. This is particularly critical bearing in mind that decision theory and policy analysis generally posit the opposite, namely the absence of a rational decision-making model in public policies, which tend to be dominated by models or rationales that are outside the archetypal substantive rational model (Kornov, Thissen, 2000; Dalkmann, Nilssen, 2001).

The results of this theoretical research, and SEA practice itself, have led to another change of course in the conceptualization of SEA. At the heart of this turning point is a growing conviction that the strategic environmental assessment model, even when centred on decision-making, is based on a technical rationality paradigm (objective or procedural) that is inconsistent with the decision-making nature of strategic decision processes.

The basic line of argument is that both the SEA model based on environmental impacts, and that centred on the decision-making process, assume that the decision process being evaluated has a number of properties that in fact it lacks: substantive rationality, in the sense of adapting ends and means; procedural rationality, in the sense of following a rationally grounded set of steps; and a rational subject, in the sense of an identifiable entity that assumes those rationalities (Wallington et al, 2008; World Bank, 2005). Both extensive proven experience in policy analysis, and much of SEA practice, would confirm that those assumptions are not valid (Kornov and Thissen, 2000).

Both SEA models are ultimately based on the assumption that the mere contribution of technical-rational information would have a positive influence on the decision-making process, environmentally speaking (Bina 2008). This view simplifies the real nature of strategic decision-making processes, which are sometimes affected not only by complex settings, but also significant levels of uncertainty, value conflicts, power relations that are mostly asymmetric, negotiations, networks, political culture, not forgetting the interplay of political forces that occurs between stakeholders in the evaluation framework.

Alongside this conceptual evolution, SEA practice has identified the important role played by context in the quality of the results obtained from an SEA process. As early as 2001 the workshop in Finland on SEA in the transport sector systemized a number of contextual factors that were decisive for the effectiveness of SEA in influencing decision processes; i.e. the success of SEA depends heavily on the setting in which it occurs. There have since been more elaborate studies on this point (Hilding-



Rydevik and Bjarnadóttir, 2007; Wallington et al, 2008; Fischer, 2005); and it is also present in the insistent warnings made in SEA guides regarding the supposed uniqueness of each SEA, determined by a supposedly unique context (Jiliberto and Bonilla, 2009; Wallington et al, 2007; Ahmed, Mercier, Verheem, 2005; Verheem, 2000) calling for flexible design.

"Context" is understood here in a broad sense, ranging from the type, scale, and function of the evaluated decision, through the political-institutional setting and its priorities, the power structure and its rules, and the planning culture, to the deliberative or more technocratic tradition of planning itself.

Concern for context reflects the singular fact that in SEA, unlike many other public policy formulation support tools, contextual factors are so important that in practice they determine what each SEA can become as a tool supporting the formulation of a strategic decision. In fact, therefore, contextual factors cease to be a backdrop but become elements of SEA itself.

A very reasonable explanation of the importance of context in applying SEA is that the dysfunctionality of using technical-rational evaluation models in decision-making contexts that do not behave according to those rationales, appears as an over-determination of context, simply because the medium in which the tool is being applied is not consistent with it.

For the assessor who thinks his tool is appropriate, this dysfunctionality does not appear as shortcoming of the tool itself, but as a "confused" feature of the setting which makes its application complex. What happens in fact is that the non-rational decision-making rationales of the setting are imposed over the desired rationalization of the technical-rational evaluation model, thereby preventing it from adopting a standard universal model.

These two considerations, which have emerged in the most recent SEA literature, need to be taken seriously, because it would be a big mistake to believe that SEA can change the decision-making rationales that dominate public policy-making processes. Instead the tool needs to be thought and rethought to adapt it creatively to its application setting and reinterpret it in its function.

The new twist in the discussion on SEA suggests, therefore, that SEA models based on the impact concept, and those focused on the decision, are founded on a technical-rational evaluation paradigm (substantive or procedural rationality) which would have to be overcome to be functional and effective. This involves not only moving from evaluating a product to assessing a process, but also overcoming the technical rational evaluation model aimed basically at providing rationally grounded information for decision-making. And, if it is consistent with the analysis undertaken, to propose a tool that is consistent with the decision-making rationales of the setting in which it is being applied.

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### **3 GOVERNANCE AND SEA**

At this point, one can consider the relation between SEA and governance, and what this tool can contribute to the governance of transport policies.

Governance is a relatively new concept that tends to be understood in various ways, so at least a minimum reference is needed to be able to use it. The United Nations offers the following definition: "Governance is the system of values, policies and institutions by which a society manages its economic, political and social affairs through interactions within and among the state, civil society and private sector. It is the way a society organizes itself to make and implement decisions—achieving mutual understanding, agreement and action. It comprises the mechanisms and processes for citizens and groups to articulate their interests, mediate their differences and exercise their legal rights and obligations. It is the rules, institutions and practices that set limits and provide incentives for individuals, organizations and firms. Governance, including its social, political and economic dimensions, operates at every level of human enterprise, be it the household, village, municipality, nation, region or globe." (UNDP, 2000)

A more concise definition that relates directly to the topic we are dealing with is the following: Governance "...is about how governments and other social organizations interact, how they relate to citizens, and how decisions are taken in a complex world. Thus governance is a process whereby societies or organizations make their important decisions, determine whom they involve in the process and how they render account" (Graham, Amos and Plumptre, 2003).

At the heart of governance is the way human groups take strategic decisions about the direction of development and each individual's roles in it, and how these are implemented and held accountable. The central component of governance is clearly decision-making on strategic aspects of development of the human group.

Viewed in this way, it can be said that SEA is at the heart of the governance of our current societies; in particular the governance of public policies, and naturally the governance of transport policies. This is because SEA is simply a tool to support strategic decision-making, whose ultimate purpose is to adequately incorporate the environmental values that society holds at a given time into strategic decision-making (Jiliberto, 2002).

In other words, SEA occupies the same space as governance (i.e. strategic decision-making), and its purpose is fully consistent with the principles of good governance. SEA helps to improve the legitimacy of strategic decisions and broadens the range of actors participating in them; it promotes a strategic view in recognizing society's environmental values; and it helps to improve the quality and accountability of their decisions, while respecting the current legal framework and equality for all parties in disputes — all of which are recognized principles of good governance (UNDP, 2000). As noted in the European White Paper on Governance, "Five principles underpin good governance and the changes proposed in this White Paper: Openness, participation, accountability, effectiveness and coherence" (EC, 2001). SEA can make a specific contribution to each of these.

Clearly, SEA does not encompass the whole of governance, because, while nowadays it tends to incorporate more values than just environmental ones, assuming a sustainability perspective, in principle it is limited to these; and in particular, because its contribution to best governance practices is made chiefly at the time of evaluating the decision, and makes that evaluation much more thorough.

SEA has potential to improve governance because it systematically questions the environmental quality of strategic decisions. By analysing the consistency of a decision's strategic choices, transport decisions can be questioned in terms of their effective contribution to a sustainable transport model; or strategic transport alternatives can be examined, such as demand management, incentives for public transport, non-motorized forms of transport; or how the decision favours intermodality, or the capacity to coordinate transport planning with urban development and land management.

SEA favours opening up strategic decision-making to a number of social stakeholders who were traditionally excluded from such processes, by systematically building civil society participation mechanisms into the evaluation process.

This is no different in the case of transport policies, although the special complexity of transport policy governance needs to be recognized, since it is permeated by a dense network of interests, institutions, sectoral policies and processes.

This potential of SEA to help strengthen public policy governance depends on how SEA is understood and applied, as commented on in previous chapters.

Experience in this regard is ambiguous or ambivalent, since no specific evaluation has been made on the subject. Nonetheless, the excessive importance of the setting in which SEA is applied, as noted above, suggests the difficulty that SEA has faced in adequately adapting to the processes through which sector policy governance takes place.

The technical-rational SEA models applied mostly thus far, each with its own specific features, do not make it easy to develop their governance potential. This is basically because they force the central actors of the procedure — e.g. the promoter of the policy, plan or programme being evaluated, on the one hand, and the environmental authority on the other — to adopt opposing strategic positions on SEA from the outset, which obviously makes it hard to generate a dialogue that would favour the sector governance process.

Moreover, it is precisely the supposedly technical-rational basis of the evaluation that is responsible for this, since by taking for granted that the evaluation has an "objective" foundation and that its role is only to reveal, the parties adopt entrenched positions based on a principle, in response to the threat that such "revealed objective information" may be against their interests.

Thus, each party feels *a priori* threatened by the supposed technical-objective, and hence irrefutable, arguments that the other party may raise. Before the process begins, this generates a strategic positioning that is clearly contrary to the rationales of good governance.

This phenomenon is greater precisely because of the absence of a grounded technical-rational basis for the evaluation, since it clearly leaves a lot of room for discretion. A good example of this is the outcome of the application of the European SEA Directive, which has placed an environmental report at the centre of a procedure whose key objective is to generate supposedly "objective and technically based" information on the potential environmental impacts of the plans and programmes evaluated (EC, 2001)

Experience of SEA shows that real technical difficulties have meant that the potential environmental impacts of plans and programmes evaluated have gradually ceased to hold the centre ground in SEA (Bina 2007). On this point, it is worth paying special attention to the conclusion reached by the European Commission's evaluation of the application of the European SEA Directive in terms of predicting impacts: "The lack of methodology to predict impacts has been mentioned as a key problem" (EC, 2009). Thus the regulation's demand to focus the procedure on an assumption that is hard to fulfil objectively, heightens the risk for each party that the other will raise arbitrary arguments in the SEA process that will be difficult to refute in a "reasoned" debate. This favours strategic positioning and mistrust rather than dialogue and cooperation.

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#### **4 A REINTERPRETATION OF SEA IN THE INSTITUTIONAL AND GOVERNANCE SETTING**

Just as the criticism of the environmental-impact-centred SEA model put the decision-making process at the core of the evaluation, improvement of which became the goal of SEA, the critique of the technical-rational models of SEA again changes the locus of the evaluation; and the new locus is none other than dialogue and negotiation (Wallington et al, 2007).

The conceptual shift of SEA has followed an almost scholarly logic. The initial SEA models were based on a rationality that decision theory would classify as substantive, and pertaining to the economic concept of rational choice (Dalkmann, Nilsson, 2001). The goal of SEA is to provide information on the environmental consequences of alternative choices, which will then be used to optimally adjust means to ends.

Given that this is "technically" impossible, then a decision-based SEA model is proposed with an essentially procedural rationale (Simon, 1987). If it is not feasible to find an optimal solution, then what needs to be improved is the process that generates the solution, whatever that may be (Dalkmann et al, 2004).

As the limits of both approaches were clearly revealed through the antibodies generated by technical-rational approaches in the decision-making setting that are inconsistent with those rationality models, alternative approaches to SEA are put forward that show that the contribution of this instrument to better decision-making requires a focus on aspects such as deliberation, dialogue, negotiation, cooperation, institutionality and governance (Wallington et al, 2007; Bina, 2007; World Bank, 2005). In other words, it is proposed to move from an SEA based on a substantive or procedural rationale to one based on a deliberative rationale (Habermas, 1997). The significance of this rationality proposal is that the decision is good because it is the outcome of a deliberation process, given that it was impossible to improve it based on objective information and/or procedural prescriptions.

The logics of deliberation, dialogue and negotiation are much closer to the rationality models that actually govern the strategic decision-making process. In this way, SEA would be able to more smoothly match the process or object being evaluated, by creating the real possibility of influencing strategic decision-making processes.

Nonetheless, when SEA is deprived of substantive or procedural content, a vacuum is created in terms of what it is intended to achieve, either specifically or

substantively. If SEA is no longer a matter of incorporating data on the consequences of policy choices, or improving the process through which such choices are generated and selected, then what is its purpose? Clearly one cannot claim that setting up a dialogue mechanism will produce nothing very specific, except for the dialogue *per se*. So, is the aim of SEA to talk about incorporating the environmental dimension into strategic decisions, without worrying about the outcome of the dialogue process?

Those who have called for SEA to move in a deliberative direction (Wallington et al, 2007) answer this question by arguing that the ultimate purpose of SEA would instead be to induce a learning process that enables decision-making processes to be gradually permeated by an ecological rationale (Bina, 2007).

In other words, individual SEAs would not have specific instrumental objectives, but the SEA process as a whole would aim to catalyze learning, the subject of which is the broad socio-institutional governance space in which a society's strategic decisions are taken. Each unique SEA has one meta-objective, at most.

This solution to the dilemma of the purpose of SEA in a deliberative model raises two clear problems. The first is having to show that no other instrument is better at achieving the meta-objective, by directly addressing the supposed under-representation of the ecological rationale in the strategic decision-making process. In terms of public policy efficiency it is hard to argue that, to achieve the objective of introducing ecological rationale logics in strategic decision-making processes, one does not use an instrument that acts directly on the desired objective, e.g. the process of providing training for entities responsible for the decisions in question.

The second problem with this solution to the dilemma of the purpose of a deliberative SEA model is having to show the effectiveness of the deliberative activity as such in increasing the level of ecological rationality in the strategic decision-making process. Moreover, backing an instrument whose effectiveness in achieving the meta-objective is practically indeterminate is also debatable in public policy terms.

All of this suggests that, while it is reasonable to argue that a deliberative SEA model, and also one of a technical-rational nature, whether substantive or procedural, helps to introduce an ecological rationality assumption into the strategic decision-making process, this should be seen as a by-product — a positive externality created by the process that tends towards a substantive achievement that should be direct and perfectly verifiable whenever the SEA tool is applied.

A move towards identifying the purpose of SEA in a deliberative model requires returning simply to the original purposes of the instrument, i.e. to incorporate the environmental dimension into strategic decisions. The substantive or procedural rationality approaches to SEA directly identify the supposedly incremental dimension of strategic decisions, and thus clearly specify the substantive direct objective of each SEA, namely to ensure that what is identified as the strategic environmental dimension is incorporated into the decision.

What SEA practice has precisely shown is its relative ineffectiveness in achieving those objectives; and for that reason it has evolved towards a deliberative model. But what the need for a deliberative model calls into question is not the substantive content of incorporating the environmental dimension into strategic

decisions, but how to do so. In principle, a technical-rational approach would not be consistent with the rationales of the political settings in which these decisions are made.

Nonetheless, this does not mean *a priori* that what technical-rational models put on the table as the environmental dimension of strategic decisions is not in fact the environmental dimension of those decisions. Moreover, it is entirely reasonable to believe that the environmental dimension of strategic decisions may only be expressible in technical-rational terms.

The problem lies exclusively in the fact that, given the rationale that dominates strategic decision-making, a procedure for incorporating that environmental dimension through an evaluation process that prioritizes technical-rational aspects over and above deliberative ones is unthinkable, since the logic of that setting is precisely to negotiate between many and varied discourses and interests, all of which have some technical-rational foundation.

It is therefore not true to say that the technical-rational discourse has no place in SEA. What cannot happen is that the incorporation of the environmental dimension becomes confused with the presumptive existence of a uniquely valid rational technical discourse. Hence the importance of deliberation as the hub, not of the content of SEA, but of its rationale. In the deliberative SEA model, one can claim that it is rational, and therefore good practice, to incorporate an environmental dimension into a strategic decision, as the outcome of open dialogue between different technical-rational discourses on the strategic environmental dimension of the decision in question.

Accordingly, each SEA based on a deliberative model does not have a meta-objective, but a highly practical and verifiable one, namely, reaching consensus on what, technically and rationally, the decision's key stakeholders understand by incorporating the environmental dimension into it.

This raises the possibility that the environmental dimension of a strategic decision is indeterminate, although the possibility of defining it in a rule-governed dialogue and negotiation process is not.

SEA would in practice become an institutional mechanism for clarifying the responsibility pertaining to strategic public decisions on what tends to be the institutional mandate of environmental conservation and protection and the promotion of sustainable development.

That responsibility is clearly complex and diffuse, and, above all, ultimately has an institutional scope since its identification assigns specific institutional responsibilities. Moreover, the mechanism through which it is clarified and established as another piece of the institutional machinery of environmental management is equally complex, and governed first and foremost by a deliberative logic that forms the basis of our societies' institutional arrangements, and secondly, by a technical and rationally grounded deliberation, which is the another of the pillars on which the modern institutional framework is based (Faludi, 1987).

SEA would thus have an institutional objective of defining, on a case-by-case basis, the responsibility of each evaluated strategic decision in upholding the constitutional principle of protecting the environment and promoting sustainable

development. This is a clear goal that can be verified for each case. To achieve it, a rule-based institutional mechanism is defined, founded on dialogue and negotiation, which must provide a technically and rationally grounded (i.e. not arbitrary) result, giving the decision maker guidance on what it means, in the specific case, to incorporate the environmental dimension into the decision, and thus fulfil its institutional responsibility.

This view of SEA speaks more than any other to the concept of governance, and becomes a mechanism for promoting the principles of good governance, since it encourages practices of dialogue, transparency, consensus, mutual respect, by genuinely fostering the development of shared visions of the sustainability of key sector decisions.

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## 5 THE ENVIRONMENTAL DIMENSION OF STRATEGIC DECISIONS

Nonetheless, the environmental dimension of strategic decisions remains at the heart of SEA. As noted above, this cannot necessarily be captured by a single technical-rational representation that could therefore be classified as objective; and this situation gives rise to a deliberative SEA model.

That does not prevent a proposal being made on the specific nature of the environmental dimension, however; although, in the context of the discourse developed thus far, it can only be seen as an approximation whose sole virtue is to structure a definition of the environmental dimension of strategic decisions for the purpose of debate.

Firstly, it is worth clarifying that the concept of the environmental dimension of a decision at the time of its environmental assessment is understood as any aspect that is environmentally relevant at the time the decision is taken.

These do not have to be substantive environmental aspects only. For example, it is environmentally relevant to consider alternatives, even though that aspect may not be considered environmentally substantive. Secondly, not all the environmental aspects of a decision have to be relevant at the time of its environmental assessment, but only those that form part of the decision at that time. For example, a project's environmental management systems do not form part of its environmental assessment.

In other words, the environmental dimension of a decision being evaluated is not one of its universally objective characteristics, but aspects pertaining to it that are functional at the phase of the decision in question, in this case its evaluation.

Moreover, SEA needs to be targeted on the strategic environmental dimension of strategic decisions (Bina, 2007; Partidário, 2007). What makes SEA strategic is not that it evaluates strategic decisions, but that it focuses on the strategic aspects of the evaluated decision (Jiliberto, 2007).

This is consistent with the strategic nature of the decision being evaluated; but it is also consistent with the phase of the decision in which the evaluation is made. This generally occurs at an early stage in a long decision process, which ranges from strategic phases until what is strategically decided upon becomes an effective intervention that could have a material effect on the environment.

As this is an early phase, the decision handles aggregate information at a low level of detail, so it is inappropriate for SEA to target the "non-strategic" environmental dimension of the decision. Not doing so is a leading cause of the shortcomings in impact prediction displayed by SEA (EC, 2009).

Lastly, this is consistent with the ex-ante nature of SEA, which should begin before the decision starts to take shape, as it were; this makes it impossible to focus on operational and design aspects, or its ultimate environmental effects.

The environmental dimension of strategic decisions, like their environmental assessment process, is unique and complex, and necessarily differs from project environmental assessment.

This uniqueness and complexity reflects the fact that the environmental dimension of strategic decisions is three-dimensional, because their evaluation process, as we have been explaining, also is. It has a substantive dimension, as well as a procedural one and a deliberative one.

The first dimension is the substantive one. This dimension of the evaluation concerns how it takes account of the consequence of the decision for the "environmental state of things" that the decision is intended to affect. The substantive dimension thus relates to how one expects the evaluation to cause an improvement in that environmental state of things. In SEA, this dimension has traditionally been seen in a positivist-consequentialist way, i.e. using the concept of environmental impact or effect, similarly to how it was treated in project environmental impact assessments (EU 2001).

Secondly there is a procedural dimension. This is a new evaluation dimension arising in the case of SEA as an ex ante or process evaluation; SEA does not have a product to evaluate, but a process to contribute to. That makes the procedural aspects of the decision-making process important elements of the evaluation, given its environmental reach (Caratti et al, 2004). SEA now not only considers the substantive consequential aspects of the decision, but also its construction and its environmental scope. Merely instrumental aspects such as the information used, the alternatives considered, definition of objectives, etc., now become part of the environmental dimension of the decision being evaluated.

The third dimension is the deliberative one. This new dimension of environmental assessment stems from the structural indeterminacy of the two previous dimensions and the institutional political setting in which the evaluation takes place. As the evaluation has an institutional function in a context of diverse technical-rational discourses on the substantive and procedural dimensions of the decision being evaluated, its ultimate environmental dimension will be the outcome of the unrestricted deliberation process that SEA facilitates. Its contribution to the environmental governance and sustainability of policies will thus depend on the quality of the deliberative processes.

According to the latest SEA developments, any SEA should include these three dimensions and consider how to take each one into account.



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## 5.1 THE SUBSTANTIVE ENVIRONMENTAL DIMENSION OF STRATEGIC DECISIONS

Clearly the most conflictive of these three dimensions is the substantive one, since it engages deeply held beliefs about the contribution that SEA can make to ensuring the decision improves the "environmental state of things" that it is intended to affect. For that reason it warrants a more in-depth treatment. Obviously, there is no formal consensus in referring to this dimension as substantive, since it is an ad hoc classification.

In the European SEA Directive it is clear that the substantive dimension of SEA relates to the concept of impact, since the aim is to ensure that the decision's environmental impact improves/conserves the "environmental state of things" that it is intended to affect (EU, 2001). As noted above, this approach can be classified as positive consequentialism. If the decision has known positive material effects on the environment, then the decision improves the "environmental state of things" that it affects.

In the case of the "strategic SEA" proposal put forward by Partidário, what is substantive is the contribution of SEA to the construction of the decision, i.e. the definition of policy strategies that give rise to SEA's contribution to ensuring that the decision improves the "environmental state of things" that it is intended to affect (Partidário, 2007). By helping to identify new and more sustainable decision strategies, a decision is generated that improves the "environmental state of things" affected by it. In this case, the contribution made by SEA is not based on any type of consequentialism.

In the implicit proposal contained in an SEA guide developed by the South African Environmental Affairs and Tourism Department, SEA is expected to help the decision improve the "environmental state of things" that it affects, by helping to identify opportunities and constraints on sustainability at a strategic level, and verifying whether those constraints and opportunities, along with other recommendations, are taken into account in the policy options considered (Audouin, Lochner, 2000). Here again, the contribution of SEA is not based on any type of consequentialism.

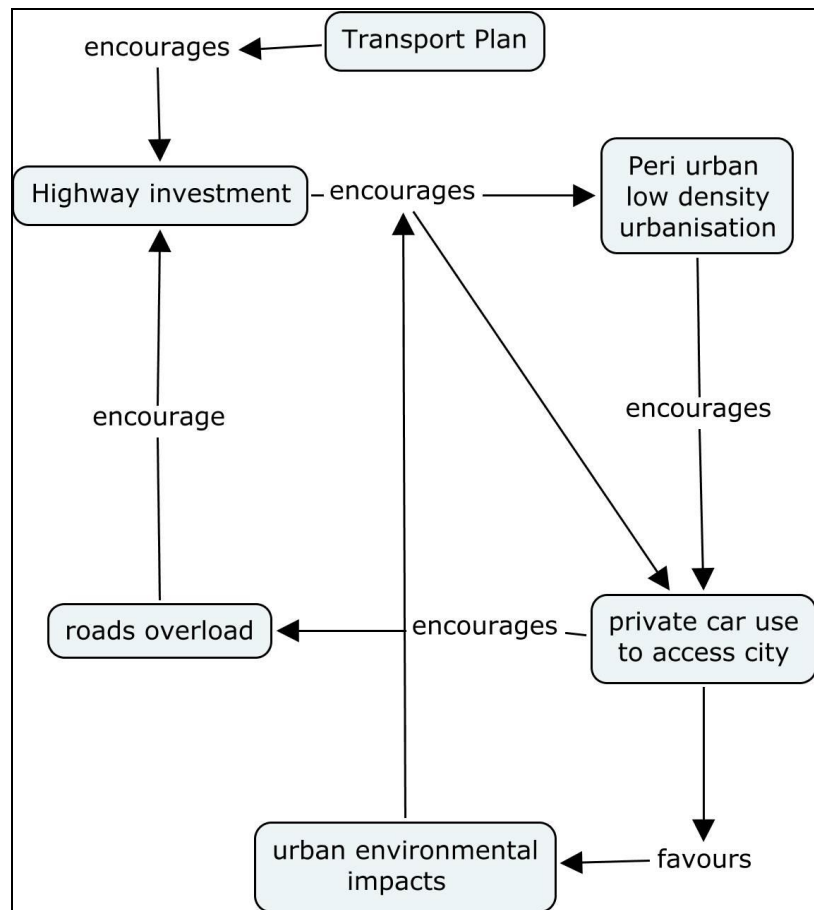
The European research project ANSEA developed a proposal for a procedural SEA model, based on a radical critique of the belief that the impact concept could become the hub of the substantive environmental dimension of strategic decisions (Caratti et al, 2004; Dalkman et al, 2004). That procedural proposal did not explicitly consider how an SEA developed under those assumptions would improve the environmental state of things that the evaluated decision aims to affect. But this did not mean that that dimension was absent, because the implication was that the application of environmentally relevant procedural criteria would lead the decision, by itself, to generate an option that improved or conserved that "environmental state of things". Here too, the contribution of SEA is not based on any type of consequentialism.

Since then, part of the ANSEA project team has developed a proposal for re-interpreting the substantive environmental dimension of strategic decisions, by providing a systemic description of it (Jiliberto, 2007). In this approach to the substantive environmental dimension, the relevant issue is not whether the sector activities involved in a strategic decision, such as roadbuilding or the transportation of

passengers and freight, will generate greater or lesser environmental impact in the future, but whether the policy, plan or programme has taken account of the structural pattern that explains how the environmental profile of the sector as a whole is produced and reproduced.

At the centre of this pattern, which is referred to as systemic because it is recursive, are "sector environmental dynamics". An example of a sector environmental dynamic in the hypothetical domain of transport planning might be the so-called "vicious circle of infrastructures". This can be described schematically as follows: investment in roads to provide better access to the outlying areas of metropolitan cities encourages low-density urban development; this stimulates private car use which impacts on the urban environment by increasing traffic flows in the city, and also causes vehicle congestion and overloads highway infrastructures, which again generates the need to build new roads or to increase the capacities of existing ones, thereby producing a new incentive for urban development of the outlying urban area, thus giving rise to a new cycle. This is shown graphically in Figure 1. Sectoral Environmental Dynamic 1

Figure 1. Sectoral Environmental Dynamic 1

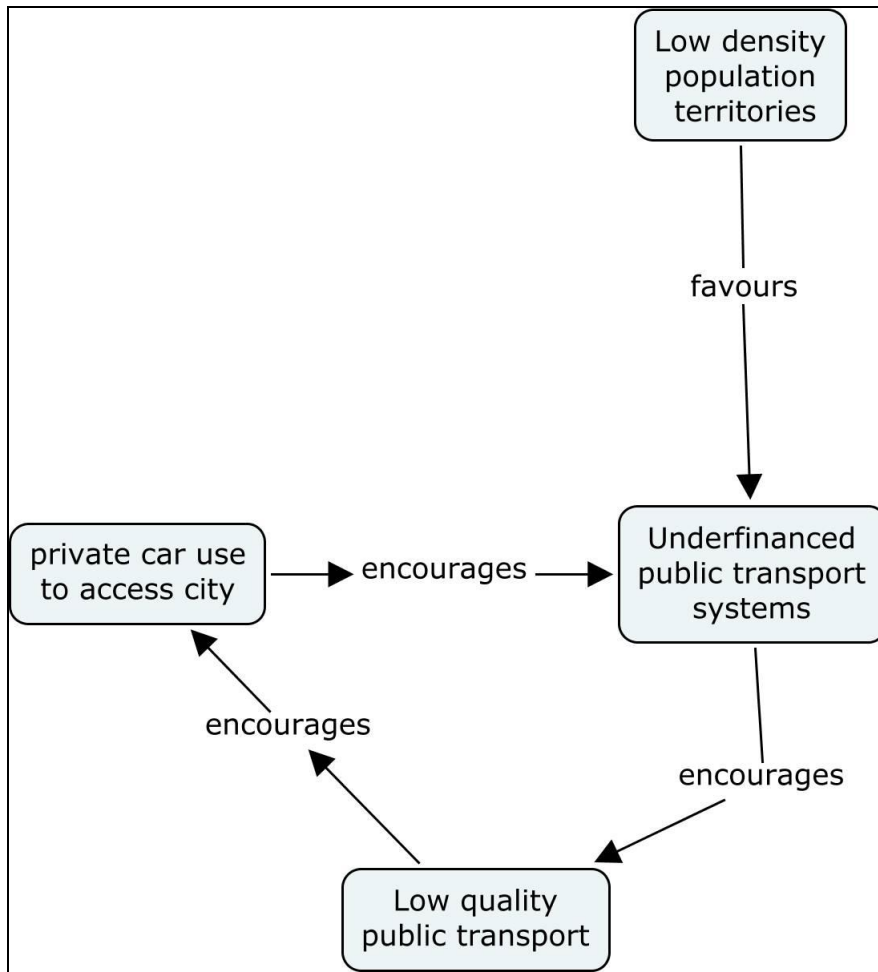


Source: Jiliberto and Bonilla, 2009.

This diagram shows that the strategic effect of a strategic transport decision is systemic, irrespective of the scale of the decision or its setting, or the information available, etc.

A sector environmental dynamic is not detached from the other elements of sector policy; on the contrary, it interacts with a large number of them. A second dynamic in the same policy setting, which can be defined as the weakness of public transport, helps to clarify this aspect. This dynamic can be described illustratively and schematically as follows: low-density outlying districts favour poorly financed public transport systems; this results in the provision of low-quality public transport services, which encourages private car use and leads to under-financing of public transport. This dynamic is illustrated in Figure 2. Sectoral Environmental Dynamic 2.

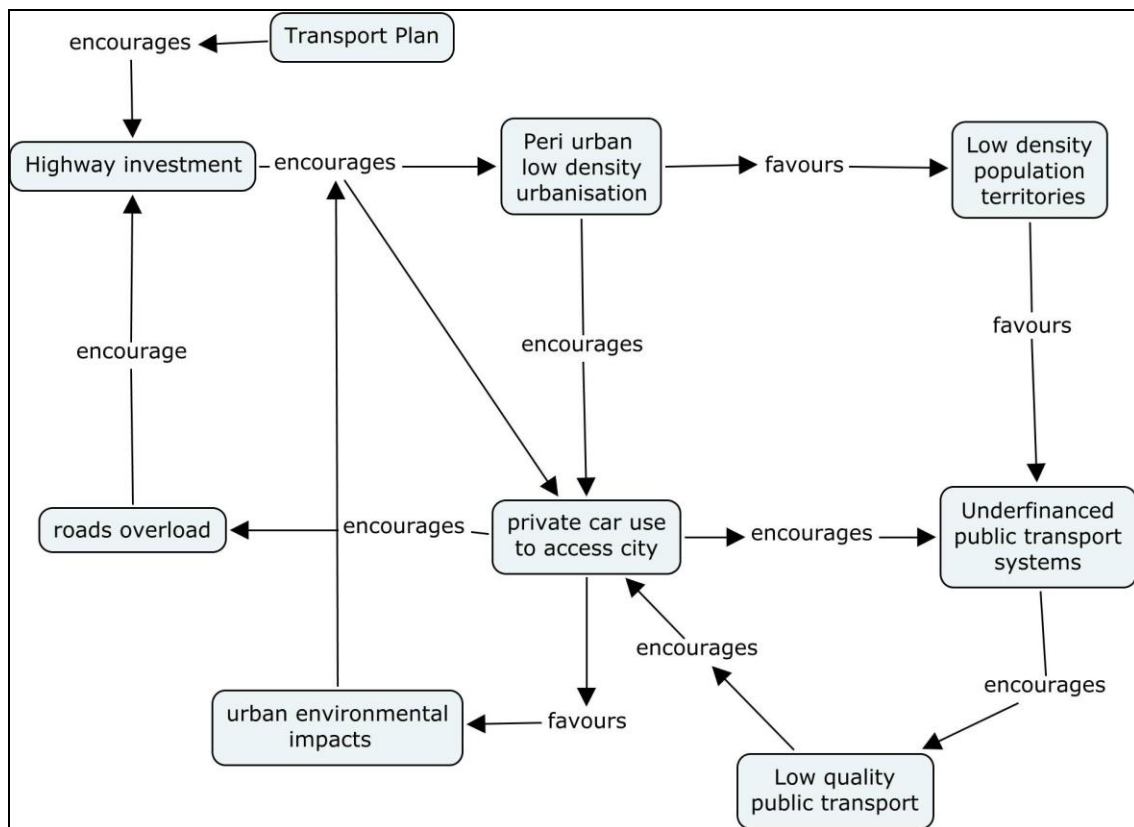
Figure 2. Sectoral Environmental Dynamic 2



Source: Jiliberto and Bonilla, 2009.

The two sector environmental dynamics interact with each other, giving rise to a more complex entity that we refer to as the sector environmental system. A simplified version of the sector environmental system that is relevant to a planning process, transport in this case, is shown in Figure 3. Sector Environmental System, which unifies sector environmental dynamics 1 and 2.

Figure 3. Sector Environmental System



Source: Jiliberto and Bonilla, 2009.

Figure 3 shows what should be understood as the substantive environmental dimension of the plan or programme being evaluated, which, initially constituted by sector environmental dynamics, can be described as a more complex system. Consequently, the substantive environmental dimension of strategic decisions is systemic by nature, and understanding it is fundamental for assessing the environmental scope of the strategic aspects that the decision is attempting to promote. In this case, the substantive environmental dimension of strategic decisions is based on a consequentialism, since the contribution that SEA is supposed to make to the decision stems from understanding and taking account of the decision's consequences for the behaviour of the systemic pattern described. It is not a matter of referring to the ultimate material consequences of the decision for the environment, but its strategic reproduction pattern. This could be described as a strategic consequentialism.

It is worth noting that understanding this structural pattern is also a proactive tool for designing environmentally sustainable policy alternatives; and in this respect it is consistent with other SEA proposals such as the one promoted by Partidário (2007).

In fact, the substantive environmental dimension of strategic decisions assumes that any SEA implicitly or explicitly incorporates a mental model of how SEA can materially imply an improvement in an "environmental state of things" that the evaluated decision is affecting. Even in purely deliberative models, the improvement that SEA can imply becomes a social learning process, which should foster environmentally sustainable decisions by helping to incorporate an ecological rationale in decision making (Bina, 2007, 2008).

A large part of any SEA process involves clarifying how this substantive environmental dimension of the evaluated decision is visualized. Clearly, there is no universal model, partly because what Bina calls the "impact assessment mindset" (Bina, 2007) still persists, which strongly affects the chances for open conceptual exchange. The wide variety of evaluation situations also share responsibility: a strategic transport plan is very different from a transport corridor, or a highway. Differences in content, scales of work, information available and many other factors make it very difficult to standardize an approach to the substantive environmental dimension of the decision.

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## 5.2 THE PROCEDURAL ENVIRONMENTAL DIMENSION OF STRATEGIC DECISIONS

The possibility of describing the substantive environmental dimension of strategic decisions, albeit in a less-than-universally valid way, does not obviate the need to identify its procedural environmental dimension. This is because, as noted above, SEA is dealing with a process, not a product, and therefore can and should help enhance the environmental quality of the decision, by improving its procedures.

In general, these improvements involve seeking to ensure that the decision-making process follows codes of good decision-making practice, at least in the sense established in the state-of-the-art. The European SEA Directive (EU, 2001) is a good example of procedural recommendations because it relates SEA to fulfilment by the evaluated plan or programme of the following requirements:

- That the potential significant environmental effects are evaluated;
- That the alternatives are identified, described, and evaluated using common and environmental criteria;
- That consultations are held with other administrations and with the social stakeholders involved;
- That appropriate environmental data is used;
- That environmental goals are identified;
- That mitigating measures are defined;
- That a monitoring system is defined.

Curiously, a recent evaluation of the application of the European SEA Directive, performed by the European Commission itself, gives the highest ratings to aspects such as procedural gains and improvements in planning processes (EU, 2009).

The European research project ANSEA makes a very detailed description of procedural criteria for decision-making, which involve an environmental improvement of the decision-making process (Caratti et al, 2004).

The procedural environmental dimension of strategic decisions attracts little debate or attention, although procedural criteria form part of many SEA approaches. This may partly be because there is a degree of consensus on the need to do strategic decision-making well, which fosters an assumption that SEA obviously promotes the incorporation of good decision-making practices in the processes being evaluated.

Another explanation for the lack of discussion and concern on this issue is the predominance of positivist consequentialism in environmental assessment, or of the substantive environmental dimension, which underlies the entire contribution that SEA can make to the decision-making process by incorporating information on its hypothetical environmental consequences. This means that SEA focuses on the substantive dimension of effects and ignores the procedural aspects of the decision-making process.

Unfortunately, this situation has prevented SEA from making an in-depth environmental analysis of strategic decision-making processes, by restricting its critical capacity to processes that generally display methodological and technical weaknesses that result in a distorted consideration of their environmental dimension.

The experience of many SEA practitioners, and that of the author of this article, is that a very high percentage of the environmental weaknesses in policies, plans and programmes do not stem from consideration or otherwise of the environmental consequences, nor even from environmental aspects of any type, but from poorly structured and low-quality decision-making processes that prevent a strategic view being taken of the environmental dimension of the policy domain being affected.

Strategic environmental assessment needs more than just a good description of the substantive environmental dimension of the evaluated decision; clarity is also required as to the procedures and methodologies used in the decision-making process to ensure that this substantive dimension is not only incorporated but also understood.

It can be argued that procedural criteria, which crystallize the procedural environmental dimension of SEA, favour inclusion of the substantive environmental dimension in decision-making. This idea is well articulated in the guide to SEA published by the United Nations Economic Commission for Latin America and the Caribbean (Jiliberto and Bonilla, 2009).

Any SEA must therefore ask which procedural considerations are relevant in this decision-making process to satisfactorily incorporate what is deemed substantively relevant.

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### 5.3 THE DELIBERATIVE ENVIRONMENTAL DIMENSION OF STRATEGIC DECISIONS

Lastly, the deliberative environmental dimension of strategic decisions involves recognizing the plurality and diversity of possible interpretations of the substantive and procedural dimensions, as well as recognizing a political-institutional environment that does not depend on technical-rational rationales and discourses. Accordingly, the deliberative dimension lays SEA open to indeterminacy and support for governance as the hub for incorporating environmental dimension into strategic decisions.

Very little work has been done in this area, particularly, as explained above, because this dimension arises from the currently emerging modality of SEA. As argued in this article, the function of SEA is to generate institutional consensus on the diffuse responsibility pertaining to strategic decisions for conserving and improving the environment. This basically involves reaching consensus on the substantive and

procedural environmental dimensions of the decision being evaluated, which should form the hub of the dialogue and negotiation process.

Any SEA needs to take progressive and flexible account of the triple environmental dimension of strategic decisions.

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## **6 GOVERNANCE AND THE ENVIRONMENTAL DIMENSION OF STRATEGIC DECISIONS IN THE TRANSPORT SECTOR**

This institutional, deliberative and strategic interpretation of SEA clearly has real potential to contribute to the environmental governance of transport policies; firstly, because of the deliberative nature conferred on the instrument, which places it at the centre of governance processes and rationales; and secondly, because it focuses the deliberation on the responsibility of strategic decisions to protect and conserve the environment in its strategic aspects — precisely where the nucleus of governance exists, in the structural aspects of collective life.

A deliberative interpretation of SEA thus favours this process. Nonetheless, the dialogue and negotiation to be undertaken need an environmental content that is understood and accepted by the parties. This is not yet the case with strategic transport decisions.

Strategic decisions in the transport sector are clearly highly varied. The SEA manual for the transport sector, produced by the European Union's BEACON project, classifies such decisions in several places to systemize their strategic evaluation to some extent. It defines policy decisions first of all, then classifiable decisions at the level of transport plans, corridors and networks, and lastly programming decisions (EC, 2005). Other classification exercises adopt similar schemes (Fischer, 2006), but they all contain a wide range of different situations.

The alternatives considered at each scale of decision-making differ significantly in the degree to which they are materialized. In policy decisions, for example, the relevant options concern the modal split, and the management of transport demand and pricing, among other issues. In decisions on transport corridors or networks, the options may have a higher level of materialization and be associated with alternative routes or design aspects.

In environmental-impact-based SEA models, this means that descriptions of the decision's effect on the environment as a concrete physical entity, differ considerably at each level. Alternatives at the level of policy, and sometimes plans, are hard to relate to the physical environment, whereas in programmes and in certain plans this is more plausible.

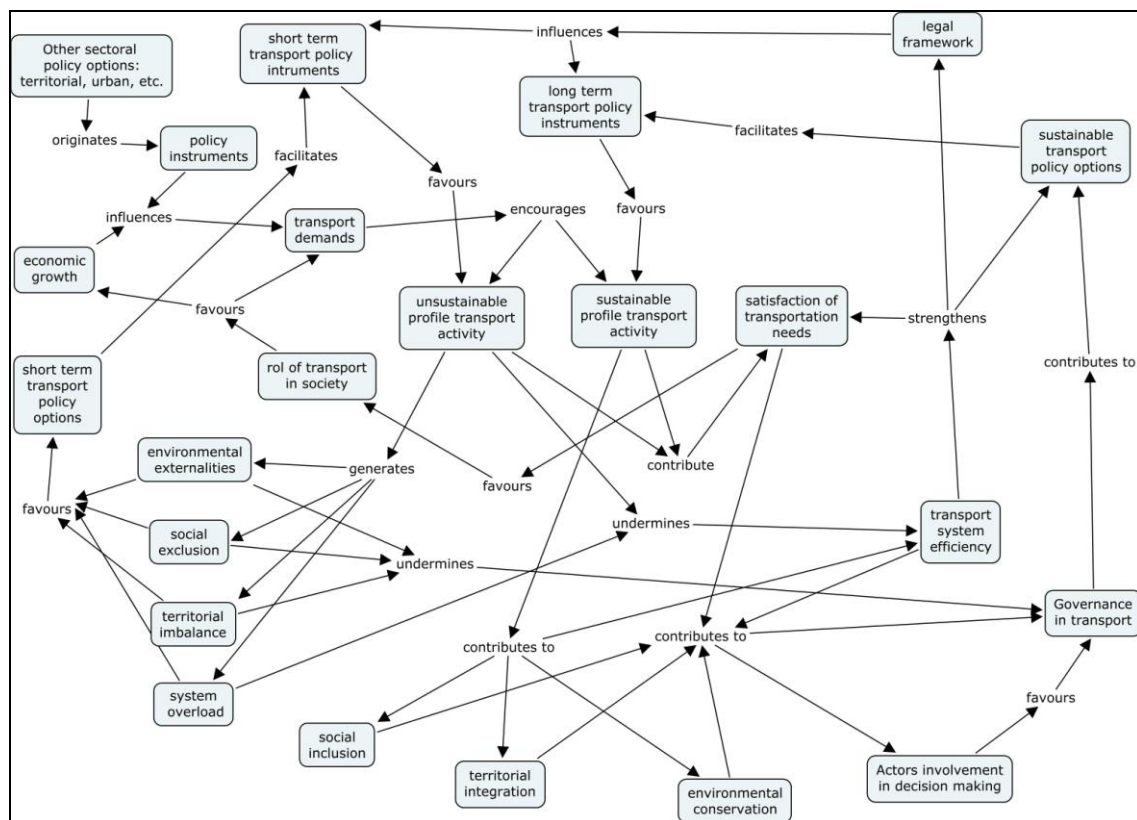
This has made it methodologically impossible to generate a single discourse to describe what the substantive environmental dimension of strategic transport decisions really is, because, ultimately, the nature of the effect is highly variable and impossible to standardize. Thus, the contribution of SEA guides applied to transport, in this respect goes no further than listing, casuistically but as comprehensively as possible, what was environmentally important in individual SEAs, whether as an objective or an environmental effect, the indicators used, methodologies applied (EC, 2005; Department of Transport, 2004).

This has made it very difficult to agree on a common language to refer to the substantive environmental dimension of transport decisions, which would facilitate dialogue, negotiation and ultimately the environmental governance of key sector decisions. Instead, the environmental dimension of strategic transport decisions has become been dissolved in a sea of specifics such as indicators, the use of geographic information systems, and a series of supposed methodological and secondary technical aspects. Moreover, even efforts aimed at systemizing this casuistic, to anchor the environmental dimension of decisions in aspects that materially effect the environment, have been unable to avoid producing a matrix to rank the casuistic in which the environmental dimension of transport decisions is immersed (Fischer, 2006).

The potential contribution of SEA to the environmental governance of transport policies involves overcoming this paradigm, which submerges the substantive environmental dimension of transport decisions in a sea of singularities. Only a common and generalizable language describing the substantive content of that environmental dimension can enable a constructive dialogue capable of generating shared visions of the strategic challenges facing society in terms of transport system sustainability, and thus strengthen the sector's environmental governance. Otherwise, SEA will tend to be seen as a bureaucratic requirement, the boundaries of which lend themselves as attractors for pressure and dispute.

For that purpose, the following paragraphs make a contribution to designing a generic framework for interpreting the substantive environmental dimension of strategic transport decisions. This is put forward naturally as a meta-interpretation that needs to be specified for each decision.

Illustration 1. **Substantive environmental dimension of strategic transport decisions**



Source: the author



The map shown in Illustration 1 is a generic proposal for understanding the substantive environmental dimension of strategic transport decisions, on the understanding that it deals with its *strategic* substantive dimension. In other words, it assumes that SEA focuses on the strategic aspects of the decision, rather than on its operational aspects. This is not arbitrary, since what is being decided, permanently in the case of a strategic decision, is its strategic core. Operational aspects clearly play a functional role, but a much weaker one, and they may vary considerably in the future depending on the behaviour of the multiple contextual variables in which the policy is implemented.

This proposal postulates that any strategic decision in the transport domain has an environmental strategic content, which generically can be defined illustratively as shown in Illustration 1.

The illustration in fact represents an analytical approach to describing the policy situation facing any strategic transport decision in which its environmental aspects have been incorporated. It does so based on an interpretation that draws on several assumptions that need clarifying:

- The map is not a description of the physical relations generated by a transport system in providing services, but of the elements and relations of its policy situation from an environmental standpoint, i.e. the physical transport system confronted by policy alternatives, its institutional setting, stakeholders, environmental externalities, among other things — all of which form part of the policy reality that arises as a result of providing those transport services, and affect the way in which it is done.
- The map is not an "objective" description of what it aims to describe, but heuristic. There is probably no universal description of what it is trying to describe. In any event, its function is not to facilitate a more or less universal or general scheme, but to illustrate an approach or an analytical rationale.
- The map describes the current policy situation facing strategic transport decisions, because any policy scenario is always contingent. And it assumes that the current transport policy scenario is necessarily a transition from an unsustainable transport model to a sustainable one. If this is not valid in any context, it will be necessary to start from a policy assumption that is.
- The map tries to show how the environmental dimension of strategic decision stems from a systematic pattern of articulation between the elements of the system, not exclusively the efficient elements of the system, i.e. those that physically produce detectable effects.
- The map does not illustrate a specific situation, but a generic analytical structure that needs to be specified for each decision. It describes a logical order of analysis, an analytical structure, which can reveal the environmental dimension of a transport policy situation when applied to a specific case. Once this analytical structure has been specified in a given case, one can say that the map describes a situation.

*Illustration 1. Substantive environmental dimension of strategic transport decisions* aims to describe how the environmental profile of the policy domain framing a transport decision is the result of a structural feedback pattern. Accordingly, the substantive environmental question that underlies any strategic transport decision concerns the current status of this structural pattern and how it will alter the evaluated decision. In the specific context described in the illustration, the answer to this question will indicate whether the decision favours a pattern change in favour of transport sustainability, or not.

The map contained in *Illustration 1. Substantive environmental dimension of strategic transport decisions* is composed of several elements, each of which represents an aggregate that can be broken down into many components. The specific domain of each element needs to be determined when analysing each specific decision. The specific relations between the elements proposed in the map are also not universal, but respond to the generic discourse of how to systemically or structurally understand the environmental dimension in the transport policy domain. Accordingly, this needs to be contextualized according to the specific policy setting of each decision.

The meaning of each element is easy to understand since it is expressed in ordinary language. Perhaps two elements need explanation to understand the map better. One is the concept of transport activity with a sustainability or non-sustainability profile. This aggregate aims to abstractly identify the specific way in which a combination of transport activities provides services; and it includes all types of activities associated with transport, or its life cycle, from the building of infrastructures, to actual transport logistics, etc. The simple assumption underlying this element is that in each specific situation it is possible, based on the specific transport policy, international proposals, or state-of-the-art, to identify a combination of those activities that jointly constitute a sustainable model for that specific situation, and another combination that produces an unsustainable model, generally identified as the trend transport model.

The other group of elements to be explained consists of short- and long-term policies and instruments. These refer to the fact that in each specific case it is possible to identify a set of policies and instruments that are capable of generating structural changes that improve the sustainability of the transport activity (intermodality, demand management, traffic calming, incentives for public transport, internalization of the social cost of transport, among other things); and another, which by relating more to short-term situations, tends to strengthen the transport trend model (solution of traffic congestion, parking problems, unimodal investment, subsidy for private vehicle use, among others).

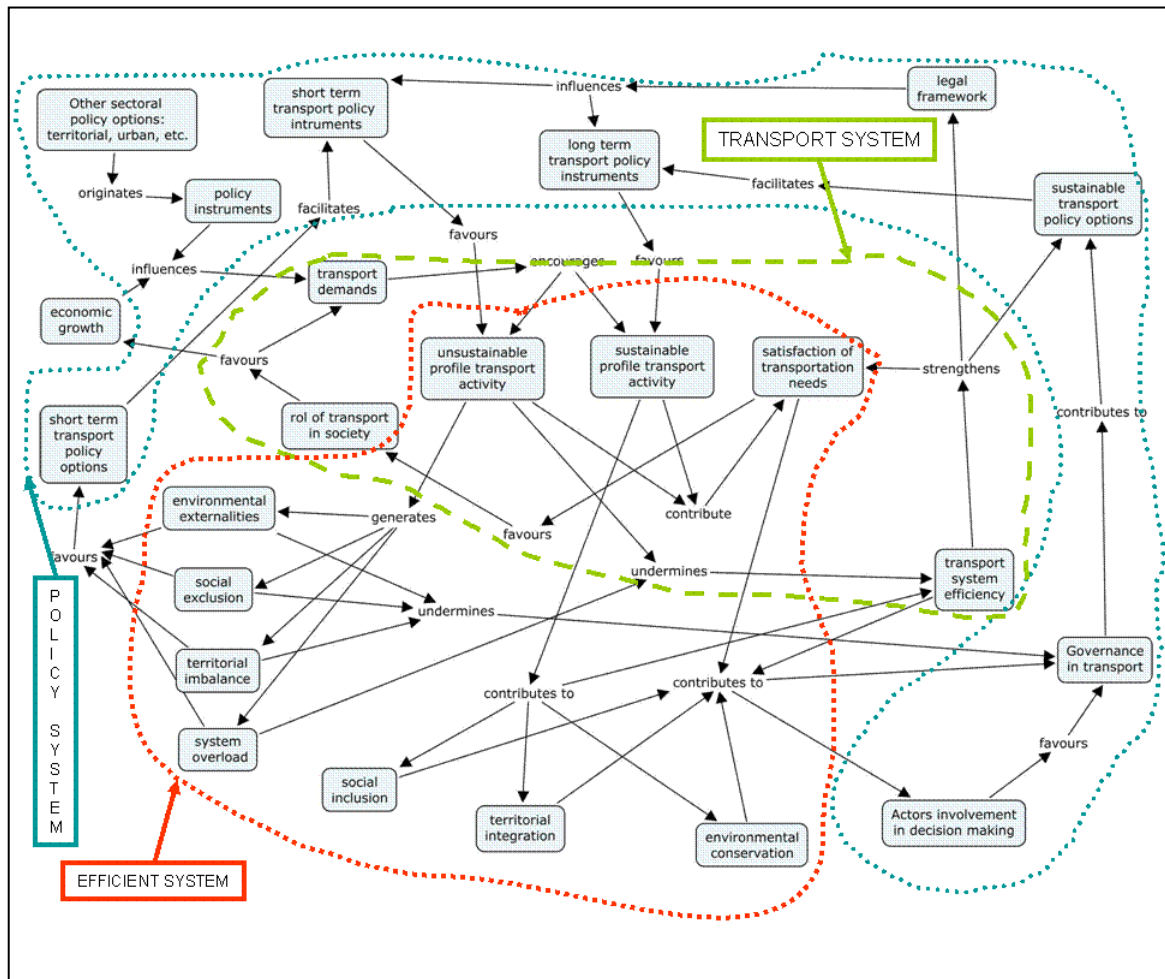
The basic description provided by the map is as follows:

- Transport activities, whether building a road or transporting passengers and goods, may have an environmental profile of sustainability or non-sustainability in any specific setting; and their material effects will diverge, depending on this, towards environmental conservation or the generation of externalities, territorial integration or disintegration, etc.
- Any of these modalities of carrying out transport activities generate the satisfaction of transportation needs, promoting the role of transport in society.

In contrast, the unsustainable model generates system overload which renders it less efficient.

- The pressures generated by the undesired effects of transport activities that have an unsustainable profile favour short-term transport policies to deal with urgencies of various types. This facilitates the use of short-term instruments and produces very quick results, feeding back into transport activities with a non-sustainability profile.
- In contrast, transport activities with a sustainable profile generate positive environmental, territorial and social externalities that favour transport policy governance and thus facilitate long-term transport policies. These lead to the use of long-term instruments, which once again provide incentives for activities with a sustainable profile. In addition, those positive effects encourage the involvement of sector stakeholders and thus strengthen sector governance.
- Apart from this, each transport modality has effects on the transport system as a whole. Firstly, transport activities with an unsustainable profile reduce systemic efficiency, which results in less satisfaction of transportation needs and diminishes the role of transport in society and its contribution to economic growth. This in turn affects the demand for transportation, which affects the two transport modalities, sustainable and unsustainable. In contrast, transport activities with a sustainability profile promote the efficiency of the transport system and ultimately increase the demand for transportation in a sustainable model.
- As noted above, policy alternatives can support one or other type of transport activity, the more sustainable or the less sustainable ones, through the type of instruments used, or the way in which a specific instrument is applied. Investment infrastructure is one such instrument. If it is used predominantly to build high-speed motorways, it will be favouring unsustainable transport activities; if it is used to balance the modal split of a system at a given point in time, it will be contributing to more sustainable activities. Policy tools are also constrained by the legal framework, which in turn is strengthened by the efficiency of the system. Each typology of instrument strengthens a different modality of transport activity, sustainable or unsustainable, and these feed back into the use of the instruments themselves. Long-term policy options are strengthened by sector governance, which in turn is strengthened by the positive externalities of the system and weakened by the negative ones, just as it is strengthened by the efficiency of the transport system. Governance thus favours long-term policy and also favoured by it at the end of the loop.
- Lastly, other sector policies use tools to materialize their strategic options, which affect transport demand and also transport activities more directly.

Illustration 2. Subsystems of the environmental dimension of strategic transport decisions



Source: the author

As shown in Illustration 2. Subsystems of the environmental dimension of strategic transport decisions, the system describing the policy situation that contains the substantive environmental dimension of strategic transport decisions can be broadly divided into three overlapping subsystems, such that a given element can be in two different subsystems.

One is the transport system as such, which is at the centre of the system. This is a simplified description of how these elements form a feedback loop, stemming from transport demand, as it were, which is the subject of feedback from the functioning of the system itself.

The second subsystem is the efficient one; i.e. comprising the elements that generate an effective physical action in the form of transport services, together with environmental, social and territorial ones.

Lastly, there is the policy subsystem, which encompasses all policy and institutional elements that are relevant to the system.

This classification aims to show that the description of a relevant policy situation to describe the substantive environmental dimension of any strategic transport decision openly combines elements from, in this case, three analytical domains, and that the combination makes it possible to understand the strategic environmental issues at stake in each substantive decision.

This description needs to be contextualized for each strategic transport decision. In every case, it will be necessary to identify the specific sub-elements of each of the elements contained here; and it will be necessary to determine the specific way in which they inter-relate, since nothing shown in the two illustrations is permanent. What is permanent, however, is the systemic and crosscutting way of understanding the substantive environmental dimension of strategic decisions — what this involves, ranging from an efficient system that explains the material effects of the policy situation, through to the policy system that determines how the other subsystem operates, i.e. transport, which is the engine of the efficient system, as it were.

The evaluated decision itself can affect one or more of these elements; so the description of the system as a whole needs to be adapted to be able to capture the new decision's influence on the system. That decision might be a national transport plan; and, naturally, Illustration 1. Substantive environmental dimension of strategic transport decisions, as such, could provide a basis for describing the policy situation of the plan as a whole, since a transport plan generally has a globalizing aim. But it could also involve a plan relating to transportation logistic services only, in which case each element needs to be adapted to the reality of the policy and the dimensions of a logistics plan for transportation services. The decision might concern a transport corridor, so the description should relate to the transport system containing the corridor, to understand its own policy situation and thus derive its substantive environmental dimension.

As noted above, this is not being claimed as the only possible description of the policy situation that elucidates the substantive environmental dimension of transport decisions. On the other hand, only a description similar to this one makes it possible to locate the substantive environmental dimension of transport decisions in the strategic setting of relevance to SEA.

It is also argued that the development of a specific strategic language to represent the substantive environmental dimension of transport decisions is a *sine qua non* for generating constructive dialogue and negotiation in the SEA framework that effectively strengthens the environmental governance of transport policy.

As noted above, the substantive environmental dimension is the most complex of the three dimensions of the environmental dimension of strategic decisions explained in the previous chapter, and for that reason has been further developed in this one. Clearly, the procedural dimension would require similar treatment, although, as noted, at first sight this is less conflictive and possibly not such a high priority. In the context of deliberative and governance strengthening processes, it is also important to generate common discourse on the scope and specific content of that procedural dimension. While progress has been made on this subject (Caratti et al, 2004), further reflection is clearly needed, particularly in relation to its application in a deliberative SEA model.

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## 7 CONCLUSIONS

SEA now has considerable experience, including as applied to transport policies, plans, and programmes. One of its most salient features is its theoretical, methodological, and practical diversity, which until now has been assumed merely as a characteristic of SEA. Nonetheless, this characteristic can also reveal dysfunctionality between the theoretical model of evaluation and the context in which it is applied: e.g. a model based on technical-rational premises, and an institutional political setting governed by political rationales that diverge widely from the substantive rationality paradigm.

This would explain the rapid evolution in the conceptualization of the instrument, from a highly technical one based on the concept of environmental impact, passing through an SEA proposal centred on the decision itself, to a more deliberative one based on dialogue in negotiation processes, which is currently emerging. In other words, that dysfunctionality generates a cognitive shift that has been opening up new horizons for SEA.

This conceptual reflection, however, has not translated mechanically into the practice of SEA, which remains tied to the 'impact assessment mindset', partly, given the form that SEA legislation has taken, because all new development requires time to move from conceptual reflection to practice.

SEA is at the centre of sector policy governance, particularly in the case of transport policies, since it concerns management of the community's strategic decisions, how to improve them, and how to make them more consistent with prevailing values and purposes.

Nonetheless, the technical-rational models of SEA do not encourage SEA to deploy all its governance potential. By assuming the existence of an "objective" foundation for a complex and diffuse entity, such as the environmental dimension of strategic decisions, technical-rational models encourage key actors to adopt strategic positions, thereby obstructing open and transparent dialogue.

Both to benefit environmental governance and to ensure the consistency of SEA itself, it is necessary to move towards more deliberative models, as the literature has been suggesting. A deliberative SEA model starts from the assumption that the institutional political settings in which SEA is implemented are spaces of dialogue and negotiation for a diversity of technical-rational discourses. This is particularly true in the case of SEA, where it is impossible to claim the existence of a uniquely possible technical-rational discourse on what the environmental dimension of a strategic decision really is.

Accordingly, while all SEA must have a technical-rational foundation, this needs to be determined in a process of negotiation and dialogue in which several possible discourses on the same topic are discussed.

Similarly, a deliberative model of SEA needs to understand the functional purpose of SEA at the institutional and governance levels. SEA would basically have an institutional function of determining a complex and confusing aspect of public policies: their responsibility in upholding the constitutional premise of protecting and conserving

environment and favouring sustainable development. Although the technical-rational scope of the environmental dimension of a strategic decision is indeterminate *a priori*, what is not is the fact that each SEA can define what that means in each case, thus becoming institutionalized.

A deliberative SEA model does not deny the need for a technical-rational description of the environmental dimension of strategic decisions; it merely recognizes that there is no unique and universal one. Accordingly, it is reasonable and necessary to continue thinking about what it means to incorporate the environmental dimension into strategic decisions. Accordingly, it is proposed to view this as a complex entity consisting of three dimensions, substantive, procedural and deliberative.

The substantive dimension is possibly the most complex of all, since it concerns how SEA is understood to improve the "environmental state of things" that the evaluated decision aims to affect. In simple terms, the substantive dimension answers the question why is SEA good for the environment? Some analysts will say because it minimizes impact, others because, by improving the decision process environmentally, an environmentally superior proposal is generated; still others will say because it helps in a diffuse way to incorporate an ecological rationale into decision-making processes, which at some point in time will result in more environmentally sustainable proposals.

Generating a common discourse on that substantive environmental dimension is necessary to enable SEA to be applied more consistently, and to make progress in environmental and sector governance processes.

In the case of transport policies and their strategic decisions, whether these involve policies, plans or programmes, the aim is to understand the substantive environmental dimension from the strategic and systemic standpoint. In this case what SEA brings to the "environmental state of things" is that it helps the evaluated decision to internalize the structural pattern explaining the environmental profile of the decision's specific policy situation. SEA places a systemic-structural description of the policy situation in which the evaluated decision is immersed at the centre of the evaluation; and it attempts to determine whether the decision favours a transport sustainability profile or not, assuming transport sustainability is a policy aim, obviously. It does this at a strategic level, provided by its systemic description, and not at the level of the material changes actually caused by the decision, which are not the focus of an SEA.

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