Maria do Rosário Partidário

Strategic Environmental Assessment Better Practice Guide

- methodological guidance for strategic thinking in SEA

REN Redes Energéticas Nacionais

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Strategic Environmental Assessment
Better Practice Guide

Methodological guidance for strategic thinking in SEA

prepared by
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for the
Portuguese Environment Agency
and Redes Energéticas Nacionais (REN), SA

Lisbon, 2012

Forward

Message from the Board of the Agência Portuguesa do Ambiente

It is with great pleasure that the Agência Portuguesa do Ambiente (APA) (Portuguese Environment Agency) resumes its partnership with REN - Redes Energéticas Nacionais and Professor Maria do Rosário Partidário to update the Good Practice Guide on SEA.

Strategic Environmental Assessment is a decision support instrument that can contribute to strengthen society commitments to sustainable development, efficient management of resources and green economy. According to national and European community legal requirements SEA aims to integrate environmental issues in the development of plans, programs and policies.

SEA is, however, a relatively recent instrument in Europe and Portugal, still in its infancy. This good practice guide intends to update recommendations in light of national experience with the application of SEA in plans and programs such as municipal master plans, national strategic reference framework or the water basin management plans.

The main national orientation on SEA was already included in the SEA Good Practice Guide that APA published in 2007. The strategic-based methodology then presented has been successfully used in many countries and its merit is internationally recognized. SEA potential is becoming increasingly visible in Portugal, but there is still a long way to run before the Portuguese society takes the best advantage of this instrument, by actively engaging in the choice of alternatives for the future.

Taking advantage of the experience with the first years of application of the SEA legal framework, and with the firm belief that it is of the utmost importance the dissemination of good examples, we consider it pertinent to review and update the previous guide, improving its methodology and investing on the presentation of practical aspects that can stimulate the replication of good practices.

We are confident on the result of this initiative that we hope will contribute to the continuous quality improvement of Strategic Environmental Assessment. We are once more grateful to the author for her availability for this new edition and evidently also to REN for the support given to this project from the very first moment.

Nuno Lacasta
Manuel Lacerda
Inês Diogo
Paulo Lemos
Board of the Agência Portuguesa do Ambiente

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To all participants in the International Association for Impact Assessment (IAIA) SEA courses that I have run, as well as in capacity-building programmes in different parts of the world, and to colleagues in projects developed in Brazil, Chile and El Salvador, where the practical application of the methodology has also provided the empirical support to its improvement in a non-European context. In particular I would like to acknowledge Izabella Teixeira, Minister of the Environment in the Brazilan Federal Government and Herman Rosa Chávez, Minister of the Environment in the Republic of El Salvador, for their personal interest and confidence and for being promoters of this methodology in their countries.

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Structure of this Guide

Purpose of this Guide

- defines a strategic thinking model in SEA, methodological approach and CDF assessment framework as the object of the Guide
- clarifies the scope of application and the intended users of the Guide

Part I – What is SEA

- provides a definition and objectives for SEA, coherent with recent collaborative approaches to SEA and gives reasons for why SEA is important
- refers to the evolution of SEA and to the multiple forms and understandings of SEA that consequently developed
- clarifies who needs to be involved, what is an SEA team, who should undertake SEA and when should SEA take place
- addresses the relationship, and the differences, between SEA and EIA

Part II – What are mechanisms for SEA in Portugal

- identifies the most fundamental legal and regulatory requirements for SEA in Portugal
- refers to the planning and policy-making features in Portugal relevant for SEA

Part III – Strategic thinking model in SEA and CDF assessment framework

- clarifies the strategic thinking model in SEA, the CDF assessment framework and methodological approach in the three stages cyclic process
- identifies a new lexicon for SEA to express strategic-thinking
- clarifies the components and functions of the strategic thinking model in SEA
- identifies the key structural elements of the strategic thinking model in SEA

Part IV – Doing the SEA

- proposes a building block approach for doing SEA, following an integrated process approach, that is decision-centred and sustainability driven. Practical directions and examples are given
- provides a simple checklist for the development of a successful SEA

Additional information

- Bibliography
- Glossary
- List of suggested methods and techniques
- Suggested templates for use during SEA
- Suggested templates for reports

Purpose of this Guide

The purpose of the Strategic Environmental Assessment (SEA) Guide is to offer practical guidance on how to do SEA in an innovative and sustainability oriented way, using strategic thinking. The guidance applies to all actions that are driven by long-term strategic objectives. SEA can help decision-making set trajectories for sustainability by facilitating the integration of broad environmental (biophysical, social, institutional and economic) issues to create enabling development conditions. The SEA approach follows a strategic thinking model with an integrative, holistic and transversal (cross-sectorial and interdisciplinary) nature, illustrated by case-examples from Portugal and elsewhere.

This Guide is a revised and updated version of the methodological guidance adopted and published in 2007 by the Portuguese Environment Agency (APA - Agência Portuguesa do Ambiente) (Partidário, 2007). Based on past and current practices of SEA, and also on inquiries in relation to the practical implementation of the 2007 guidance, this Guide, commissioned by APA and REN – Redes Energéticas Nacionais, S.A., clarifies concepts, the actual doing of the SEA as a strategic-oriented assessment, most frequently used techniques and examples of how SEA can be an instrument of strategic nature and ensure compliance with European and Portuguese legislation.

The European Directive 2011/42/EC lays down the minimum requirements, which are transposed in the Decree-Law 232/2007, of 15 June. Such requirements are not a methodology for SEA and do not represent an obstacle to the use of better practices in performing SEA, as long as legal compliance is ensured.

Scope of application of this Guide

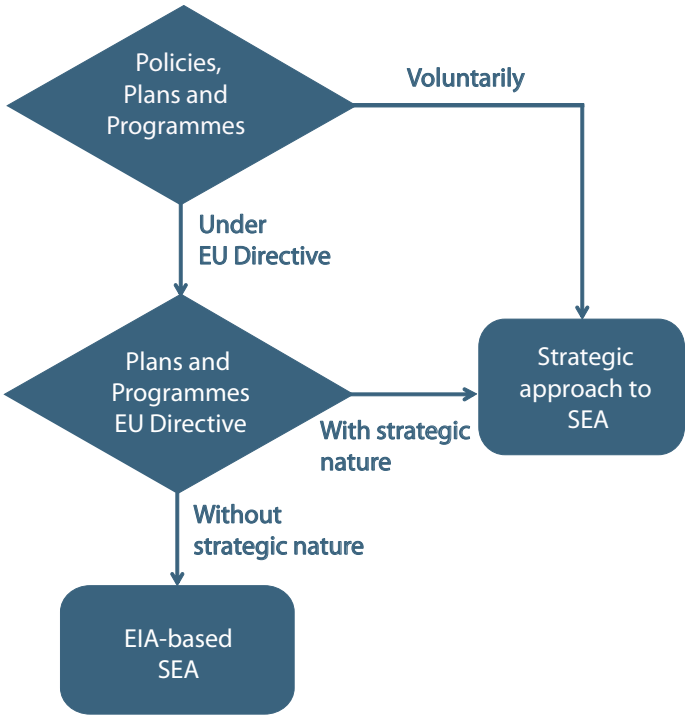
Strategic initiatives are strongly linked to policy formulation and take place in the context of planning and programme development processes that have a long-term vision and objectives. Once conceptualized, strategic initiatives are usually implemented through a policy, a plan or a programme document as an indicative or regulatory instrument.

> **Examples of strategic initiatives include a coastal development strategy to address increasing pressures on coastal natural resources, a river basin development strategy to enhance water resources sustainable use, a regional strategy for adaptation to climate change, a city energy strategy to encourage sustainable building, mobility, energy efficiency and climate change mitigation.**

This Guide is primarily directed at strategic initiatives within planning and programme development processes in Portugal for the sectors and in the situations set forth in Article 3 of Decree-Law 232/2007, of 15 June, modified by Decree-Law 58/2011, of 4 May, following the European Directive 2001/42. In relation to land management instruments (LMI), environmental assessment regulations were subsequently introduced through the Decree-Law 316/2007, of 19 September (which modified Decree-Law 380/99, of 22 September, and was subsequently modified by Decree-Law 46/2009, of 20 February) on the drawing up, approval, execution and assessment of LMI.

The SEA approach and methodology in this Guide is not appropriate for immediate, short-term actions, such as plans and programmes that want to solve the problems of today without a strategic discussion. For example a punctual change to a master plan to accommodate a new hospital or other infrastructure not initially planned at a specific location, a new detailed plan to enable planning coherence for the implementation of a project already decided are situations that do not necessarily engage a strategic decision and will be more adequately assessed with an Environmental Impact Assessment (EIA) type of SEA.

The Guide can also be used to assess any development intentions with long-term strategic objectives, including all policy-making, planning and programming situations that do not come under the scope of Decree-Law 232/2007, of 15 June, including public policies. The use of SEA can add value to decision-making by preventing conflicts, avoiding delays and enabling planning and programming to improve the context for development projects through the integration of biophysical, social and economic issues. Figure 1 clarifies the scope of application of this guidance.



Plans and programmes with a strategic nature, for example national water plan, river basin management plan, regional development plan, electricity transmission grid,
- are driven by a vision for a desirable future
- have long term strategic objectives consistent with that vision
- define strategies, or policies, associated to pathways to reach the intended objectives
- set broad and integrated conditions for future development
- are flexible in both formulation and implementation, provide a direction for development

Plans and programmes without a strategic nature, for example project's planning, urban detailed area plans, small-scale changes to municipal master plans
- have immediate, short to medium term objectives
- are bounded by concrete development parameters
- are driven by the need to set the context for the approval and execution of development projects
- are specific, deterministic and punctual
- are driven by actions that want to solve immediate tangible problems.

Figure 1 – Scope of application of this Guide

The methodology is established to ensure an integrated perspective, including biophysical, social, economic and institutional issues. However the substantive scope of SEA can be limited to include only biophysical issues if that is the political option. In that case the methodology can be easily adaptable, however the SEA will be less effective.

Intended Users of this Guide

The Guide is primarily intended to be used by public institutions that formulate, develop and implement actions with long-term strategic objectives through planning and programme development, in accordance with the above mentioned legislation, and for their consultants that conduct associated studies.

The Guide is also intended for private and other public organizations that do not fall in the above group, including decision-makers and technical professionals, that wish to use SEA to facilitate integrated approaches in planning and investment strategies, with the objective of generating more sustainable processes and solutions.

Lastly, the Guide can also provide useful assistance to non-governmental organizations and all those seeking to broaden their capacities, with a view to increase learning processes and build knowledge through stakeholder engagement and public participation.

Part I - What is SEA

Part I of the Guide is an introductory section. It sets out the definition of SEA used in this guidance, the objectives of SEA, when SEA should be conducted and who has a duty or obligation to undertake SEA. The section illustrates SEA benefits and why it can add value to decision-making when properly applied at the earliest possible stage.

1. What is SEA? – definition and objectives of SEA for strategic thinking

In 1989 SEA was introduced as a concept, and a term, in the context of a European research project as "the environmental assessments appropriate to policies, plans and programs [...] of a **more strategic nature** than those applicable to individual projects [...] likely to differ from them in several important respects" (Wood and Djeddour, 1989).

Strategic is an attribute that qualifies ways of thinking, attitudes, actions related to strategies. Many definitions and understandings of strategy exist, but they all relate to long-term objectives. This guidance follows a strategic thinking model (see Part III of this Guide) which is understood as having a **vision** over long-term objectives (the distant points we want to reach), **flexibility** to work with **complex systems** (understanding systems, the links and lock-ins, and accepting uncertainty), **adapting to changing contexts** and circumstances (changing pathways as needed) and be strongly **focused** on what matters in a wider context (time, space and points of view).

In line with the above, an understanding of SEA has been argued over the last decade which takes SEA as an environmental assessment instrument with a strategic nature, conceived as a flexible framework of key elements, acting strategically in a decision process to enable a facilitating role, ensuring an added-value to decision-making (following Partidário, 1999 and 2000).

> **SEA acts strategically by:**
>
> **Positioning itself flexibly in relation to the decision-making process, ensuring strong interaction and frequent iteration from earliest decision moments, and following decision cycles;**
>
> **Integrating relevant biophysical, social, institutional and economic issues, keeping a strategic focus in very few but critical themes;**
>
> **Assessing environmental and sustainability opportunities and risks of strategic options to help drive development into sustainability pathways;**
>
> **Ensuring active stakeholders engagement through dialogues and collaborative processes towards conflict reduction and win-win achievements.**

In this guidance **SEA is defined** as a strategic framework instrument that helps to create a development context towards sustainability, by integrating environment and sustainability issues in decision-making, assessing strategic development options and issuing guidelines to assist implementation.

The purpose of SEA is therefore to help understand the development context of the strategy being assessed, to appropriately identify problems and potentials, address key trends, and to assess environmental and sustainable viable options (i.e. that act cautiously or prevent risks and stimulate opportunities) that will achieve strategic objectives.

SEA, in a strategic thinking approach, has three very concrete objectives:

1. Encourage environmental and sustainability integration (including biophysical, social, institutional and economic aspects), setting enabling conditions to nest future development proposals;

2. Add-value to decision-making, discussing opportunities and risks of development options and turning problems into opportunities;

3. Change minds and create a strategic culture in decision-making, promoting institutional cooperation and dialogues, avoiding conflicts.

Through these objectives, SEA can contribute to:

- Ensure a strategic, systemic and broad perspective in relation to environmental issues within a sustainability framework;

- Contribute to identify, select and discuss major development options towards more sustainable decisions (intertwining biophysical, social, institutional and economic issues);

- Detect strategic opportunities and risks in the options under analysis and facilitate the consideration of cumulative processes;

- Suggest follow-up programmes, through strategic management and monitoring;

- Ensure participative and transparent processes that engage all relevant stakeholders through dialogues, and foster more integrated decisions in relation to the array of relevant points of view.

International experience and the literature on SEA have agreed to IAIA (International Association for Impact Assessment) 2002 SEA performance criteria, deemed to be axiomatic of SEA good practices (Table 1).

The strategic-thinking model in SEA developed in this guidance fully acknowledges all of these performance criteria. Part III in this guidance provide full recognition on how these performance criteria can be expressed in practical terms.

Table 1 - SEA performance criteria (IAIA, 2002)

The SEA must be:
• Integrated
• Sustainability-led
• Focused
• Accountable
• Participative
• Iterative

2. Evolution and forms of SEA

SEA relates to highly complex issues, at multiple spatial and temporal scales, engaging a variety of stakeholders and consequently, multiple perspectives and expectations. Like in the famous tale of the blind men and the elephant (see Figure 2), SEA has multiple interpretations depending on how it is seen. Consequently a number of methodological approaches currently exist, reflecting the learning process inherent to its evolution. Much debate is still needed with respect to SEA objectives, processes and outcomes, i.e. what is the role of SEA, what it should do in practice and what can we expect from it.

THE ELEPHANT AND THE BLIND MEN

Many interpretations exist of this famous tale originated in India. It is always about a group of blind man that had never seen an elephant and had no idea what it looked like. But even though they could not see it, they decided to touch and feel it, but each of them touched the elephant in different parts.

"Hey, the elephant is a pillar," said the first man who touched its leg.
"Oh, no! It is like a rope," said the second man who touched the tail.
"Oh, no! It is like a thick branch of a tree," said the third man who touched the trunk of the elephant.
"It is like a big hand fan" said the fourth man who touched the ear of the elephant.
"It is like a huge wall," said the fifth man who touched the belly of the elephant.
"It is like a solid pipe," Said the sixth man who touched the tusk of the elephant.

They argued for hours, each one was sure his view was correct. They were obviously all correct from their own point of view but no one was willing to listen to the others. A wise man passing by tried to help and said "Each one of you is correct; and each one of you is wrong. Because each one of you only touched a part of the elephant's body. So you only have a partial view of the animal. If you put your partial views together, you will get an idea of what an elephant looks like".
The moral of the story is that each of us sees things exclusively within one's point of view. We should also try to understand other people's point of view.

Figure 2 - The elephant and the blind men

SEA originated after environmental impact assessment (EIA), with inputs from biophysical planning and policy analysis. The overall purpose of SEA was to ensure that environmental issues would be adequately considered at early stages of development policy-making and planning (broadly considered) (Dalal-Clayton and Sadler, 2005). Despite Wood and Djeddour (1989) call for an environmental assessment of strategic nature, nearly twenty five years later dominant concepts and practices of SEA still reflect the knowledge and experience with project's EIA.

The enactment of the European Directive 2001/42 created additional pressure towards the understanding of SEA has a legal procedure following EIA, and restricted SEA to the assessment of plans and programmes that set conditions for projects development (Dalal-Clayton and Sadler, 2005).

EIA-based SEA approaches share three main common characteristics:

- **They are related to the preparation of an approvable document, whether a plan or a programme (or also a policy in the scope of the Kiev Protocol to the Espoo Convention, concerning SEA in a transboundary context);**
- **Their main aim is to provide information on the environmental effects, or consequences of proposed plans, programmes (or policies);**
- **Their standard methodological approach follow the typical EIA process steps of screening, scoping, assessment, mitigation, decision and monitoring.**

Other approaches to SEA developed more based on concepts of planning and policy making, reinforcing the strategic nature of SEA raised by Wood and Djeddour (1989) (Boothroyd, 1995; Partidário, 1999; Kornov and Thissen, 2000; Nilsson and Dalkmann, 2000; Bina, 2003; Cherp et al., 2007). The new SEA concept is not about (reactively) assessing the environmental impacts of proposed plans, policies and programmes (PPP) but it is about:

- Evaluating **alternative visions and development intentions** incorporated in policy, planning or programme initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations (Partidário, 1999)
- A **decision-centred approach** that gives more attention to the **institutional context** and attempts to integrate the environmental considerations into all stages of the decision-making process (Nilsson and Dalkmann, 2001)
- Facilitating strategic transformation by influencing selected “strategic decisions” (Cherp et al., 2007)

These and other authors are encouraging a policy, institutional, integrated, strategic-oriented approach to SEA, promoting a shift in SEA understanding. A strategic thinking model in SEA was earlier proposed by Partidário (2006) and was further adopted as guidance in 2007. This guidance persists in that concept and intends to improve the methodological approach.

3. Why is SEA important?

There are several reasons why SEA is important (based on Partidario, 1999; CSIR, 2000; IAIA, 2002):

1. Promotes and helps to understand sustainability challenges, incorporating an integrated perspective earlier in policy-making and planning processes;

2. Supports strategic decision-making, setting enabling development conditions;

3. Facilitates identification and discussion of development options and provides guidelines to help development to follow sustainability trajectories;

4. Informs planners, decision makers and affected public on the sustainability of strategic decisions, ensuring a democratic decision making process, enhancing the credibility of decisions;

5. Encourages political willingness, stimulates changes to mentalities and create a culture of strategic decision-making.

In its understanding as a strategic thinking model, SEA applies to the strategic component of decision-making processes in (i) public policies, (ii) sectorial development plans and programmes, (iii) territorial development plans and programmes (iv) and also to major structural investment projects that have long-term strategic objectives (such as new international airports, new forms of energy production (ethanol, wind-based, water-based) in relation to their strategic concept).

SEA has been widely promoted by international development agencies (World Bank, 2011; UNEP, 2009; OECD, 2006). However more than the assessment of development proposals, SEA is an important instrument to help face development challenges generated by:

a) Adaptation and mitigation to climate changes;

b) Poverty eradication and overcome of social and regional inequalities;

c) Enhancement and maintenance of biodiversity values, ecosystem services and human well-being;

d) Social and territorial cohesion;

e) Promotion of regional development potential;

f) Innovation and cultural diversity of the population;

g) Promotion of environmental quality, landscape and cultural heritage and sustainable use of natural resources.

4. Who gets involved and who should undertake SEA?

Various agents are involved in SEA. First we have the policy-making, planning or programme authorities responsible for promoting, getting approved and implementing intended strategies. The responsibility of undertaking the SEA, and taking decision on SEA, lies with these authorities. Of course if we have a private initiative, the responsibility of undertaking the SEA rests with the private organization.

Then we have the policy-making, planning or programme development teams, who are responsible for developing the strategies in policies, plans and programmes that will be assessed with SEA.

We also have the SEA team, either an internal team to the same organization or an external team. An SEA team may include:

a. The coordination team, responsible for the methodological guidance, linkage to the strategic planning processes, pulling together the experts reports, dealing with authorities, communication strategy, and various other coordinating functions;

b. The expert teams who are asked to develop specific studies on the key themes in the SEA (Critical Decision Factors)

c. The stakeholders engagement expert - Depending on the type of engagement envisaged as well as the relationship with the strategic planning.

Next the public institutions that are part of environmental responsible authorities in charge of advising the SEA review process, which together with other public and private organizations, including non-governmental organizations, have a particular role in contributing, at various moments to the development, communication and delivery of SEA.

Finally the public as a whole or, preferably as selected target groups, must also be part of the selected stakeholders that contribute to the SEA process, often through indirect forms of participation (for example through opinion leaders).

5. When should SEA take place and what triggers an SEA?

SEA should of course take place whenever it is required by law. In Portugal, the legal framework set by the Decree-Law 232/2007, of 15 June, determines that SEA must take place with the preparation of all plans and programmes for the sectors and in the situations set forth in Article 3.

When taking place SEA entry point should be as early as possible in the decision process, ideally with visioning and establishment of strategic objectives, before strategic options are identified, and long before proposals are put forward. Figure 3 exemplifies the starting point for SEA in three regional plans in Portugal (North Region Territorial Plan (NRTP), Lisbon Metropolitan Area Territorial Plan (LMATP) and the West and Tagus Valley Territorial Plan (WTVTP)).

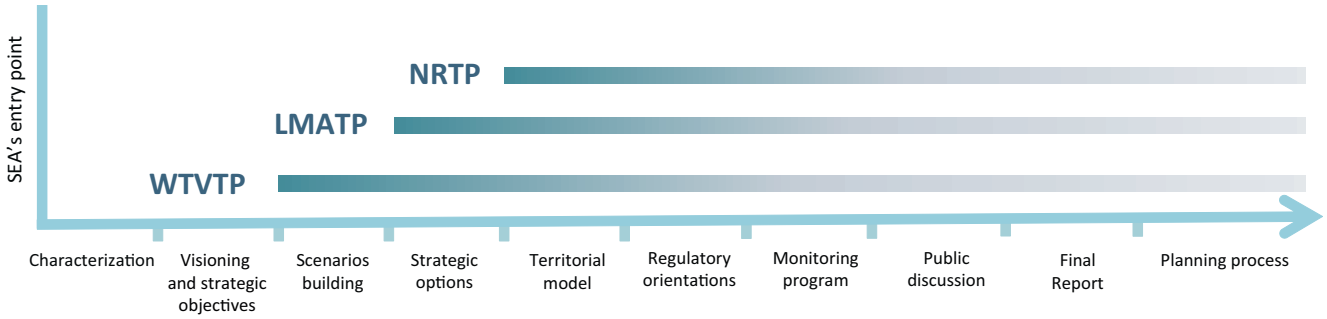


Figure 3 – SEA should start as soon as possible in a planning process.

For example in face of an accelerated loss of a given resource, such as water, or soil, or in face of equity problems, SEA can help to address the main driving forces, problems and limitations and find a distinctive strategy that may change the course of trends. When private investment needs to face up to climate change, or to look for strategies that will value and enhance the ecosystem services that are central to an organization core business, SEA can add value to strategic decision-making. SEA has been used to help conciliate different activities when multiple conflicting interests need to be made compatible in one region (for example fisheries, tourism, nature conservation and oil and gas exploration and production).

Which situations can **trigger an SEA?** Inspired by Slootweg et al. (2006) classification of triggers for SEA, four situations serve as examples:

1. **The territorial area for action is known but not the proposals / sectorial intentions.** Based on existing and potential natural and social assets, suitability factors and contextual social and economic conditions, SEA can help sectorial and spatial planning elect sustainable development strategies for example in a coastal (for example the Portuguese ICZM – Integrated Coastal Zone Management) or rural area (for example the Portuguese Rural Development Plan), as in the photos below (Images 1 and 2), for which no concrete intention exists yet.

Image 1

Image 2

Fhotos: Maria Rosário Partidário

2. **There are known proposals / sectorial intentions but no territorial area for action is identified.** For example let us assume that there are intentions to develop offshore wind power production (for example the Portuguese Offshore Energy) or look for an ideal energy matching between sources of energy and existing demands in a given region. SEA can help explore strategic options with the best technology, location or level of investment that will bring sustainable benefits.

3. **The territorial area for action and the proposals / sectorial intentions are known,** however there may be strategic dimensions that can influence decision. SEA can explore these strategic dimensions and support decision with the necessary risk and opportunity arguments. That was the case for example with the SEA of the expansion of the Port of Cape Town, South Africa (Image 3).

Image 3

Source: Port of Cape Town SEA and sustainability framework, CSIR, 2004

4. **Sectorial policy is known but it does not have a territorial materialization.** Such cases are not triggered by the European Directive or the national legislation and include strategies related, for example, to health, international trading (for example the North American Free Trade Agreement) or emigration policies. Even though legislation does not require, there may be several environmental and sustainability implications as a consequence of such policies, namely in relation to social stress or the overuse of physical infrastructures and services, with significant environmental consequences.

Examples can also be given of what should not be considered an SEA for the purpose of this Guidance.

Detailed plans (Image 4) as well as sets of projects, or mega-projects (Image 5), that have no strategic context or components are situations that do not engage a strategic discussion but that frequently use EIA-based approaches in SEA. In these cases it is recommended that, instead of this guidance, an EIA - type methodology should be adopted, being much more appropriate to the type action and the detail involved.

Image 4

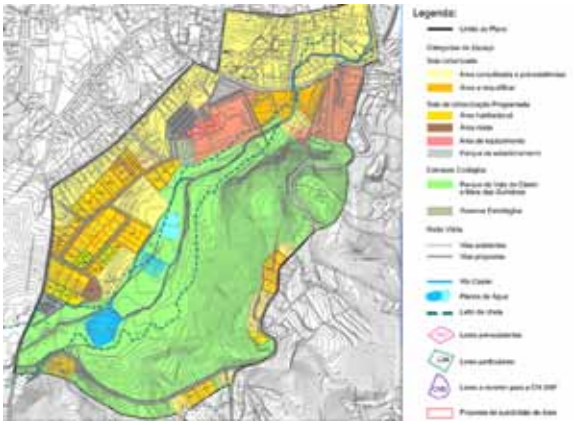


Image 5

(c) iStockphoto.com/Ron Thomas

6. Link SEA and the decision process

Several aspects need to be considered when deciding on how to link SEA and the planning process. Having a separate but well articulated coordination may be better than a totally separate or totally integrated coordination, because the interconnectedness of the SEA and planning processes is crucial for their overall success. Totally separated coordination would make such connection more difficult. Full integration may risk making SEA, or planning, dominant in relation to each other. The same happens to reporting and teams. It is important to separate functions and responsibilities, should this separation be enabled by the availability of technical and financial resources.

But it is very important that SEA and policy-making/planning processes share several activities, such as fact-finding, information, stakeholder's engagement and public participation.

Different models on how SEA and the policy-making/planning processes may link were identified some years ago (Partidário, 2004) (Figure 4) and serve as an illustration of possible linkages.

The first two models (1 and 2) relate more closely to the EIA-based SEA approaches, the parallel model (2) being the most frequently used. Models 3 and 4 relate to more integrated and strategic approaches in SEA.

While the integrated model (3) may eventually represent the best SEA model in the long-term, the decision-centred model (4) seems to be the most flexible and adaptable. The decision-centred model (model 4 in Figure 4) is followed in this guidance.

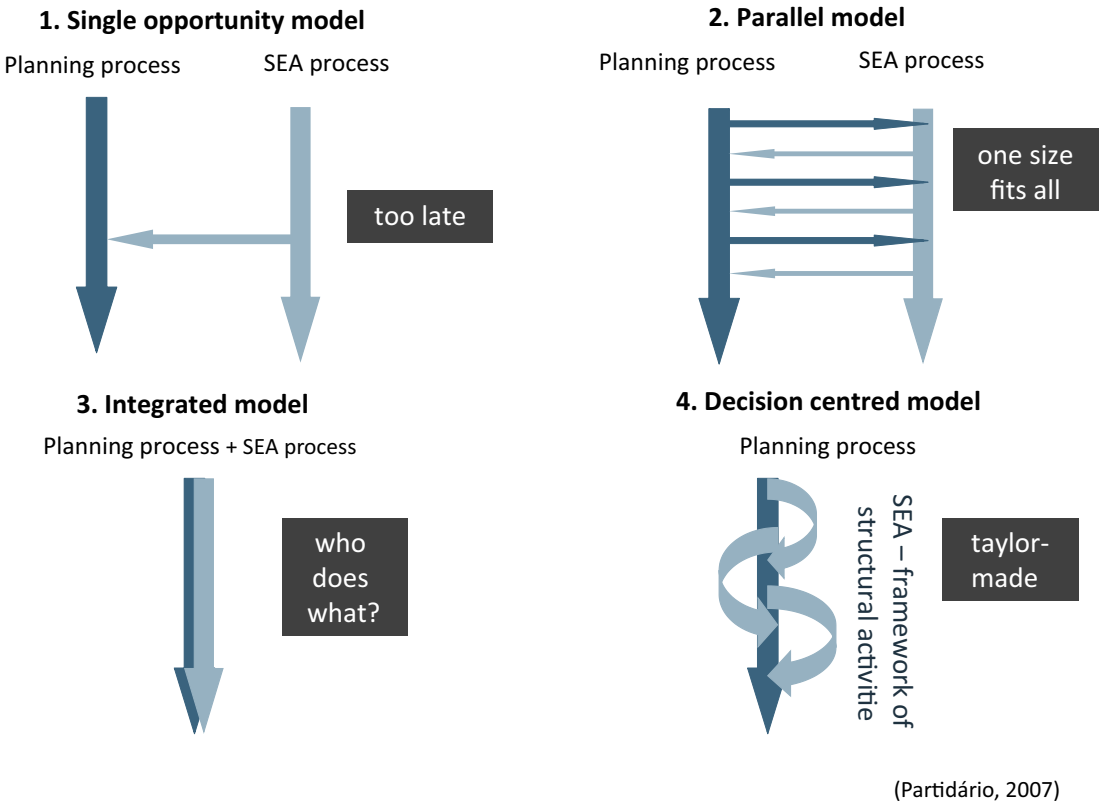


Figure 4 - Models for linking SEA and the decision process

7. SEA and EIA relationship

The relationship between SEA and EIA is important for two main reasons. The first reason relates to the need to clarify its differences since SEA often behaves methodologically as an EIA, becoming what is often known as EIA-based SEA. The second reason relates to the need to consider how they connect and can relate to each other.

To distinguish SEA and EIA only because SEA applies to policies, plans and programmes, and EIA applies to projects in not enough any more. The differences go far beyond the scope of application, which do not differentiate anyway. There are multiple examples of SEA applied to major projects, as well as there are multiple examples of EIA applied to plans and programmes (even though many may sometimes be called SEA).

In 1996 the CSIR (Council for Scientific and Industrial Research) in South Africa published the diagram represented in Figure 5 to show the difference between SEA and EIA. What it means is that while EIA focus on the effects of development on the environment, SEA focus on assessing the effects of the environment on development. This means that strategically the environment helps to set conditions for development, and SEA should assess whether these conditions are being considered in development processes. This has established an important vision towards the understanding of the role of SEA, and supports the concept that SEA is about the integration of environmental issues into development processes.

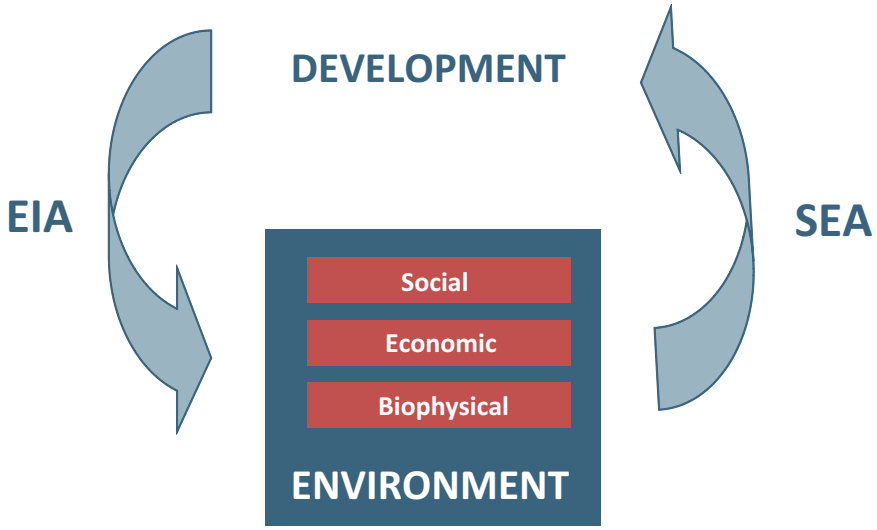


Figure 5 – Difference between SEA and EIA (source: CSIR, 1996)

Accordingly, as in the SEA methodological approach in this guidance, through integration **SEA works to establish enabling physical, social and economic (broad environmental) conditions for development** to be able to proceed in a sustainable way. And that is the strategic form of assessment, instead of, as in EIA, attempting to directly assess the environmental effects of policy, planning and programme proposals.

In practice what this means is that SEA should not be about the direct assessment of environmental effects of proposals (on water, air, soil, etc.) as in projects assessment, but instead it should be about the assessment of development conditions (institutional, policy, economic, social issues, etc.) towards the creation of better environmental and sustainability decision contexts and outcomes. This will improve development decision capacity to avoid future negative environmental effects of development projects. Thus fulfilling the requirements of the European Directive.

Table 2 exemplifies the differences and relationships between SEA and EIA, especially if we consider the EIA-based SEA. Questions in Table 2 simulate the questions that professionals involved in concrete cases may ask. The way questions are asked may help to choose between SEA and EIA based SEA. Often it is difficult to decide what may be more appropriate to each case. We will call these the “grey” cases where it seems any of the SEA approaches could be used.

Using Table 2 questions can help with the answer: if you want to assess a solution, such as a good plan or program design, and control environmental effects, go for EIA-based SEA. But if you want to assess a good strategy and help to improve development conditions go for a strategic-based SEA, for which this guidance provide you with a methodology.

Table 2 – How do you ask questions in SEA and in EIA?

SEA aiming at good strategy	EIA aiming at good design
What are your objectives? What are key drivers? What are your strategic options? What are key restrictions? What are major interests? What are the most important policies to be met?	What are the main characteristics of your project? Where is it located? What are project alternatives? What are its main physical, social and economic effects? What are its major impacts? What are its mitigation measures?

How to address the causes of problems also enables understanding differences and relating SEA and EIA. Figure 6 is an illustration of the problem tree to represent the hierarchy of problems, from causes to effects.

There is much misunderstanding between symptoms and problems. What people sense, perceive or observe are most often the symptoms of problems, the observable or expected effects (depletion of natural resources, equity imbalances, degradation of environmental quality, climate change effects, etc). Often called problems, these are after all the effects of problems.

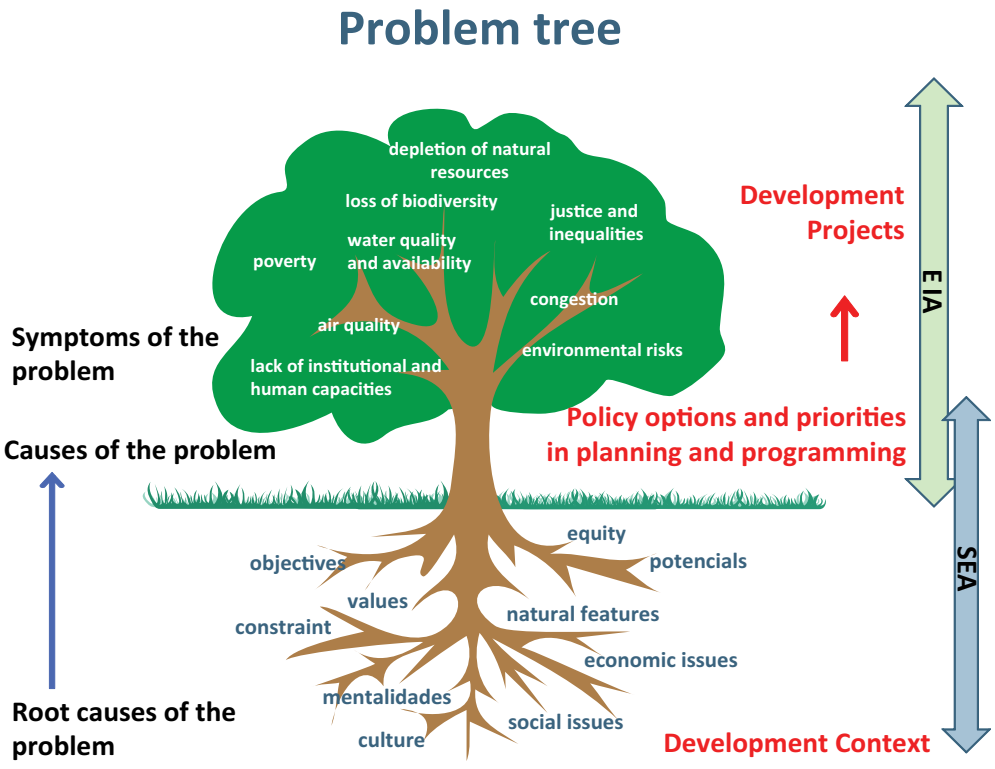


Figure 6 – SEA contribution in complex decision-making – looking for priorities

But if we really want to assess the problems then we need to look deeper and recognize the complexity involved. For example if what is at stake are traffic congestions, with problems (symptoms) related to noise or air pollution then the actual problem may well be in how and what sectorial decisions on land-use are taken, the urban structure, new infrastructure, type of energy sources and supply, etc. These policy options and decisions are priority choices which, implemented through planning and programme instruments and development projects, are the causes of problems, which we have to assess strategically. The problems are therefore what determine priorities for choice.

What strategic thinking in SEA establishes is that SEA need to address the actual root causes of problems, related to the policy priorities and choices, and not what is tangible and observable, the physical and territorial effects that are the symptoms of commonly called environmental problems. The root causes relate to what influences decisions: society values, cultural contexts, mind-sets, sustainability values, as illustrated in Figure 6.

SEA with a strategic approach addresses the root-causes in terms of environment and sustainability priorities (for example need for adequate institutional capacities and decision settings, spatial planning criteria that express norms and values, etc.). This way SEA can anticipate policy priorities, establishing ex-ante dialogues and communicate what might be risks and opportunities for the long-term, setting conditions for development, including projects licensing conditions, through positive guidance and clarifying restrictions earlier on.

Finally Table 3 provides some more usual criteria to distinguish between SEA and EIA. These may also help to understand the methodological approaches that differentiate the two instruments.

Table 3 – Some fundamental differences between SEA and EIA

SEA	**EIA**
The perspective is strategic and long-term	The perspective is of execution in the short and medium-term
The process is cyclical and continuous	The process is discrete, motivated by concrete intervention proposals
The purpose is to help build a desirable future, it is not an attempt to know the future	The purpose is to know what the future will be, forecast potential impacts, based on predictions of past events.
The definition of what is intended is vague, there is a large amount of uncertainty and the data are always quite insufficient	The definition of what intends to be done is relatively precise and data are reasonably available or can be collected through fieldwork
Follow-up in SEA is performed through the preparation and development of policies, plans, programmes and projects	Follow-up in EIA is performed through the construction and implementation of the project or detailed plans
The strategy may never be put into practice given that the actions established in plans and programmes may never be implemented	Projects requiring an EIA are executed, once their feasibility is guaranteed.

The connection between SEA and EIA will be enhanced if the respective objectives and differences will also be clear. Box 1 provides an example on how SEA and EIA can be connected.

Box 1 – Connection between SEA and EIA

SEA - Parque Alqueva is a private tourism initiative, with a total area of 2100 ha, in Alentejo region in Portugal, next to the reservoir of the Alqueva dam. In 2003 an SEA started together with the development of the tourism investment strategy. SEA helped to define the tourism concept in order to guarantee the integration of environmental conditions, with its sustainability based upon the enhancement of environmental and social assets. SEA further overviewed the preparation of the investment *master plan* and prepared guidelines for the following EIA.

EIA – In the aftermath of the *master plan* a formal Detailed Plan was prepared and approved to formalize the submission of the investment proposal (before legal requirements for SEA were established in Portugal with Decree-Law 232/2007). The content of this Detailed Plan was subjected to EIA, at a Previous Study stage, and was the object of a favourable Environmental Impact Statement in 2008 (the decision document). The licensing of projects included in the Detailed Plan, and which were listed in the positive lists of the EIA legislation were then the object of a RECAPE (Conformity Report of the Execution Project with the Environmental Impact Statement) which is in Portugal a phase of the EIA process that assesses more detailed aspects of development projects before construction or implementation phases. The Detailed Plan was therefore sufficient to initiate projects EIA procedures and the issuing of the respective Environmental Impact Statement.

Usually SEA should formulate guidelines for planning (anticipation of the necessary actions in processes for a sustainable future), for management (administration of processes driven by objectives) and for monitoring (periodical follow-up of processes). EIA is one of the instruments appropriate to implement SEA guidelines. SEA must conduct the assessment bearing in mind that EIA will be acting as part of its follow-up.

On the other hand the practice accumulated with EIA may generate new and useful knowledge to improve the strategic assessments developed with SEA. For example the development of dozens of EIA on a same category of projects, when assessed altogether regarding its performance, may generate useful knowledge on the role of those projects for development processes and environmental enhancement (for example whether dams, or major touristic projects, actually enable local development in a way that the sustainability of local communities is enhanced). Usually this useful knowledge for SEA results from a systematic monitoring and post-evaluation studies in sectorial EIA.

Part II - What are the mechanisms for SEA in Portugal

1. Legal and regulatory requirements for SEA

Environmental assessment of plans and programmes has been a compulsory requirement in Portugal since the publication of Decree-Law 232/2007, of 15 June. This Decree-Law transposed European legal requirements of Directive 2001/42/EC, of 27 June. Decree-Law 232/2007, of 15 June, modified by Decree-Law 58/2011, of 4 May, further ensures the application of the Aarhus Convention, of 25 June 1998, transposing Directive 2003/35/EC, of 26 May, which provides for the participation of the general public in the preparation of environmental plans and programmes. The Aarhus Convention was approved in Portugal, for ratification, by Parliament Resolution nr. 11/2003, 25 February. It also takes the Kiev Protocol to the Espoo Convention into account, which was approved, and ratified by Portugal in 2012 (Decree 13/2012, of 25 June).

The Decree-Law 232/2007, of 15 June, which article 10 was modified by Decree-Law 58/2011, of 4 May, clarifies that the environmental assessment of plans and programmes and the EIA of projects have distinct functions. As written in the legal document, the environmental assessment of plans and programmes aims at a strategic analysis of major options while EIA purpose is to assess concrete and detailed assessment of projects environmental impacts. It further establishes in the preamble that the environmental assessment of plans and programmes is:

- a continuous and systematic process that is integrated in the decision process, to incorporate environmental values in decision-making (...)

- about the assessment of alternative visions and development perspectives, ensuring the global integration of biophysical, economic and social considerations and relevant policies (...)

In relation to responsibility, the legislation establishes that it is the initiator's responsibility:

1. to determine the scope of the environmental assessment and the detail of the information to include in the environmental report;

2. the preparation of the environmental report;

3. consultation of public authorities with environmental responsibility on the scope of the environmental assessment and on the level of detail of the information to include in the environmental report;

4. consultation of public authorities with environmental responsibility and interested public, as well as other countries potentially affected, on the environmental report;

5. the information on decision, through the Environmental Declaration;

6. the monitoring of the environmental effects resulting from the plan or programme implementation; and

7. the verification of the environmental report's quality.

The procedure for the environmental assessment of plans and programmes, as legally established, can be implemented through different forms of SEA as previously discussed (see Figure 1). Strategic thinking SEA approaches are innovative forms of SEA that have been encouraged in Portugal since 2007, with the publication of the Portuguese Environment Agency (APA) guidance for good practice SEA. Even though much of the practice of SEA in Portugal adopts the terminology laid out in this guidance, recent reviews (APA, 2010) reveal that the logic and rationale of SEA in Portugal is still very similar to EIA, especially in urban and detailed spatial planning.

2. SEA in planning and policy-making in Portugal

Most SEA in Portugal refer to spatial planning. The Portuguese Spatial Planning Act of 1998 (Law n. 48/98 of 11th August) sets the grounds for spatial planning and urban development policy, further elaborated by the National Policy Plan for Spatial Planning, and defines the land management system and land management instruments (LMI).

Following the Decree-Law 232/2007, of 15 June, environmental assessment regulations were subsequently introduced through the Decree-Law 316/2007, of 19 September (which modified Decree-Law 380/99, of 22 September, and was subsequently modified by Decree-Law 46/2009, of 20 February), establishing reporting requirements as well as institutional and public consultation during formulation and before approval, execution and assessment of LMI.

A Guide published in 2010 by the Portuguese General Directorate for Spatial Planning and Urban Development (DGOTDU, 2010) for SEA in spatial planning mainly addresses the legal formalities relative to LMI.

The LMI system develops across national, regional and municipal planning levels and uses five types of instruments: instruments of strategic nature, instruments of planning, instruments of regulatory nature, instruments of sector policy that have a spatial expression and instruments of special nature. Table 4 identifies these instruments, their purpose and scale.

Despite the mentioned legal requirements and guidance, the methodology used to conceive and formulate the plans before approval is not standardized. Planning documents have standard minimum contents to be delivered, but the methodology used to design the plans is not always the same. Current spatial planning methodologies depend much on the practice and experience of the planning team. Consequently plans can be either problem-solving or more objectives-led, and can adopt a more deterministic, baseline or diagnostic-oriented approach, or a more strategic, long-term, dynamic approach driven by priority choices.

This is very important for the linkage with SEA. The more strategic-oriented the planning methodology the easier to link up with SEA. But where spatial or sectoral planning are designed to propose a collection of projects, usually the strategic dimension is absent, and EIA would be a more effective instrument of assessment. This is often the case with more spatial or sectoral detailed plans, urban plans and whenever small modifications, which have no strategic effects, most often the reason for changing a spatial plan.

Table 4 – Characteristics of spatial plans in Portugal

Type of plans	**Purpose**	**Scale**
Sector plans	Programmatic plans of **sector policies** with a spatial expression	National/Regional
Special nature plans	Protection of **natural resources**	National/Regional
Regional land-use plans	**Strategic** direction for regional planning based on a territorial model, transports and services regional networks, setting a framework for municipal plans	Regional
Inter-municipal plans	Non-binding, **strategic** articulation between different territorial areas	Sub-Regional/ Municipal
Municipal master plans	Based on a local development **strategy**, sets the spatial structure and classification of land use	Municipal
Urban development plans	Urban space organization of parts of the municipal area	Municipal
Urban design plans	Proposals for the detail use of part of the municipal area	Sub-Municipal

The processes and procedures for spatial planning monitoring, quality control and follow-up in plan implementation, as well as stakeholder engagement, can well be simultaneous with SEA. The State of Territory Reports that all municipalities need to prepare and deliver every two years is not only a fundamental source of information for SEA trend analysis, but it is also a fundamental mechanism to integrate SEA monitoring. Public participation and institutional consultation should also be conducted at the same time for both planning and SEA.

SEA does not formally apply to public policy decision level, even though, according to the literature, this can be the most adequate level to address strategic decision-making through SEA (Clark, 2000). There is already some experience in Portugal with application of SEA to policy-making (for example the SEA for the National Coastal Development Strategy), however on a voluntary basis. The methodology laid out in the following sections is also adequate for both sector plans without a spatial expression and public policies.

Part III - Strategic thinking model in SEA and CDF framework

This section provides a brief description of the strategic thinking SEA model, and the Critical Decision Factors (CDF) methodological framework. It starts by addressing the principles that underline this model, and the new lexicon required to help shifting the way of thinking. It proceeds to address the SEA functions, components and structural elements that define the model. It then introduces the CDF framework for assessment.

1. Principles

In a strategic thinking model the purpose of SEA is to help understand a development context, to appropriately identify and address problems and to help find environmental and sustainable viable options to achieve strategic objectives. It is based on systems thinking, policy processes, multiplication of knowledge, networks of actors, dialogues, inter-sectoral cooperation and governance. The scientific background will not be developed in this guidance, but the main scientific principles of this model are:

1. Strategic actions are generated through decision cycles, strongly associated to policy formulation and are developed in the context of planning and programme development processes.

2. Strategy is characterized by a strong conscience of uncertainty and modifies its action as a function of emerging unexpected events in its pathway.

3. The complexity of both natural and social systems demand a whole-system perspective, recognizing that the behaviour of a system can not be known just by knowing the elements of which the system is made.

This strategic thinking model in SEA is also based upon the principle of parcimony, or simplicity, also known as the Occam's razor, according to which "one should not increase, beyond what is necessary, the number of entities required to explain anything". This principle is particularly important in selecting the relevant issues and keeping focus in the strategic assessment.

Based on these principles the SEA strategic-thinking model establishes the following key propositions for good practice SEA:

SEA is a strategic facilitator of sustainability processes

SEA should ensure focus on the few relevant issues that really matter

SEA works primarily with conceptual processes (policy formation and formulation in planning) and not with results.

SEA applies to decisions of strategic nature and is used strategically in relation to decision-making.

2. A new lexicon

A new lexicon is important to help change mental maps towards a strategic culture in impact assessment. Most of the traditional terms associated with EIA, including "impact", "baseline" and "mitigation" are strongly associated to projects thinking, physical dimensions and descriptive approaches usual in EIA. Strategic thinking involve values, not physical structures, is more focused and collaborative, based on dialogues and futures-thinking. Therefore the terminology to be used in SEA must reflect this difference.

Table 5 indicates the new terms that have been proposed for strategic thinking in SEA (Partidário, 2007a). Most of these terms are not new and come from other schools of strategic thinking. These terms will be used throughout this guidance.

Table 5 – Proposed new lexicon to create strategic thinking in SEA

In traditional EIA terminology:	***In strategic model in SEA:***	***Why the new term***
Scoping	Critical decision factors	Ensure a strong focus on decision issues rather than on a vague environmental broadband
Planning phases	Decision windows	The key moments for SEA action rather than normative stages
Baseline	Context and Trends	More dynamic analysis rather than characterizing current state
Alternatives	Strategic Options	Optional strategic pathways to meet objectives rather than an either…or operational selection
Impacts	Opportunities and risks	More dynamic assessment, admits trade-offs and choices rather than unavoidable and mitigable effects
Mitigation measures	Guidelines (planning, management)	Assumes future change and improvement rather than reduction of harm

3. Components of the strategic thinking model in SEA

SEA is not only about technical studies. SEA is also about setting a plataform for stakeholders dialogue and acting as a facilitator of a decision problem. Four components contribute to the SEA strategic thinking model:

(1) A **technical** component considers expert knowledge and specialized studies to reduce uncertainty and increase knowledge on priority and strategic issues. Priority setting, trend analysis, assessment, guidelines and follow-up are technical activities that need to run together along with the process, the institutional and communication components. Specific tasks in the technical component include choice of team expertise, sources of available information, techniques and methods (see annex I) and conducting analysis and assessment. The technical component must also select the appropriate assessment techniques for communicating so that the relevant stakeholders can be engaged, at critical decision moments during the planning process.

(2) A **process** component is vital in establishing a permanent dialogue between SEA and the decision process throughout the decision cycle, and to ensure SEA flexibility and adaptability to each case. The linkage between the SEA process and the planning and programming processes must be ensured through decision windows and governance rules, adopted to enable the integration of the processes. SEA process needs to be designed each time to fit the contextual conditions. Specific tasks includes aliging decision timings and inputs needed from SEA and stakeholders engagement.

(3) An **institutiona**l component is fundamental to understand the institutional context for decision-making. It relates to institutional analysis and change, as needed or simply as a result of policy dynamics, and the extent it influences decision capacity over time, and consequently the success of SEA. In the institutional component distinction is important between formal and informal rules. Formal rules relate to established levels of responsibilities, decision capacity, the governance rules to be used in decision windows but also legal and regulatory frameworks, implementation norms. Institutional analysis should look at responsibility overlaps, and gaps, conflicting positions or synergies, joint initiatives and complementarities. Very important, and often determinant, are the informal rules, how things normally happen, and the extent of informal cooperation and voluntary initiatives.

(4) A **communication and engagement** component is vital to ensure knowledge-brokerage, networking, stakeholders engagement and public participation. This will enable exchange and cross-referencing of multiple perspectives, creating opinion, an integrated vision and participative processes suited to the problem and to the critical decision moments. There is therefore an important governance component expressed through process linkages and the communication capacity. The communication component is adjusted to the characteristics of the target groups. Tasks include defining deliberative or representative processes, identifying stakeholders, finding engaging practices that are appropriate, ensure learning processes, knowledge sharing and the understanding of stakeholders about what is happening, what is a collective vision for the future, promoting collaborative practices.

4. Functions of SEA in a strategic-thinking model

In strategic thinking SEA plays three fundamental functions in relation to the decision-making process (Table 6): **integration, assessment and validation.**

Table 6 – Three functions of SEA in a strategic thinking model

1.	**Integration** of environmental and sustainability issues into the cyclical strategic decision processes;
2.	**Assessment** of strategic options relative to the opportunities and risks to the environment and to the sustainability of decisions;
3.	**Validation** of SEA contributions to strategic processes and expected outcomes.

Integration is vital to the success of SEA. Integration must be present:

1) in the identification of Critical Decision Factors (CDF),

2) in relating CDF to key problems and challenges,

3) in establishing the linkages of SEA and planning or programming processes,

4) in linking teams and ensuring contributions are made mutually available in an interactive, useful, iterative and timely manners,

5) in sharing techniques and approaches,

6) in the identification and discussion of strategic options,

7) in aligning procedures,

8) in integrating perspectives, involving stakeholders and organisations in a two-way participation process, with adequate timing, modes and proper communication, sharing knowledge and enabling learning processes.

It is very important that involving stakeholders is seen as an activity in SEA using different techniques, and not just as a mere procedural obligation of public and institutional consultation to comply with legal requirements. Consideration should be given to intra as well as intergenerational stakeholders.

Assessment in a strategic context corresponds to the assessment of possible choices on strategic pathways, and what may be opportunities and risks of following different pathways, considering evolving trends, specificity of context, views and expectations of stakeholders (intra and intergenerational) and uncertainties. The assessment must be made in relation to a strategic reference framework (SRF) of environmental and sustainability policies, which is specific of each case setting the benchmark for strategic assessment. It is important that the SRF is organized in a way that easily relates to the CDF framework. Stakeholder engagement is also vital to ensure values judgement according to different perspectives. It should follow principles of collaborative planning, following from earlier engagement opportunities.

Validation corresponds to transparency and legitimacy, the society sign-off, through their legitimate representatives. It includes looking at SEA outcomes in relation to evolving trends, uncertainties, strategic options, risks and opportunities during the preparation of plans and programmes, and its follow-up for verification of uncertainties during implementation. The varied involvement of key stakeholders, and the general public, is equally fundamental in validation, in a participative context appropriate to the nature of a strategic approach.

Following the above, and based on experience so far, it is suggested that cc 65% of the effort and investment in SEA must be applied in the integration function, which should be dominant in the whole SEA. Assessment would then represent 25-30% of the SEA effort. If integration and assessment are successful, and dialogues well conducted in both integration and assessment, validation should then be simple and rapid and no more than 5 to 10% of effort will be needed.

5. Strategic thinking model in SEA

The strategic thinking model in SEA is structured in three fundamental stages in a cyclical process (Figure 7):

1) SEA Context and strategic focus,

2) Pathways for sustainability and guidelines, and

3) A continuous stage of follow-up, process linkages and engagement

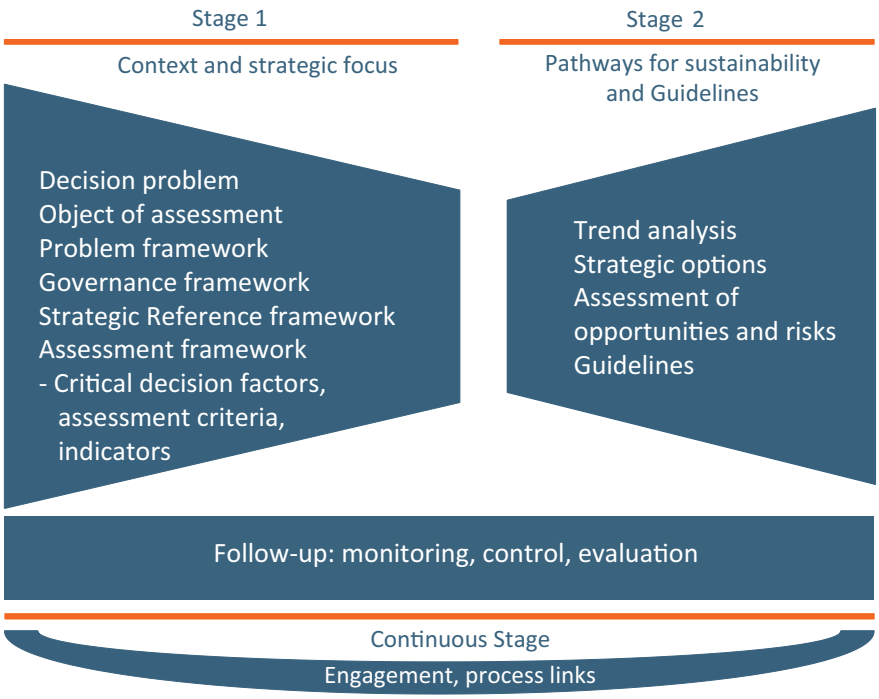


Figure 7 – Three stages of the strategic thinking model in SEA

Stage 1

Setting the context and strategic focus is a priority of an SEA cycle. The purpose is to ensure that SEA concentrates only on what is important (Occam's razor, or principle of parsimony), that it understands and gets adapted to the natural, cultural, political and economic context of the object of assessment.

The **decision problem** must be understood, being vital to identify the object of the assessment, which may, or may not, be the same. An integrative approach is required. SEA needs to look for the root of the problems, and not to its symptoms (see Figure 6). Understanding the **decision problem** and **context** will help focus. Four key frameworks contribute to setting the context and the strategic focus of the assessment:

1. **problem framework**: includes problems, potentials and driving forces. This is a first and rapid diagnosis to enable a quick look into what really matters. The specific purpose is to contribute to find out what are the root causes of problems. It also helps to explore environmental benefits to strategy development.

2. **governance framework**: includes the identification of the web of relevant stakeholders for the SEA.

3. **strategic reference framework (SRF**): Represents the macro-policies that determine the referential for assessment, provided by the policy orientations and targets established. It also links to other relevant plans and programmes, which is also a legal requirement.

4. **assessment framework:** includes the CDF, the assessment criteria that set the scope of CDF and indicators that act as the metrics of the assessment. The CDF provides the structure and focus of the strategic analysis and assessment.

It is useful to report on the results of stage 1 through a critical decision factors report. Such report will remain as a reference for subsequent assessment work. In the context of the european directive and national legislation, this report will satisfy requirements to report on scoping of the assessment and detail of the information to include in the environmental report.

Stage 2

Stage 2 is about **establishing pathways for sustainability, and guidelines.** Pathways for sustainability is the term used to express strategic options for development, that help us to move from where we are to where we want to get, our vision of the future (Figure 11). Trends inform the dynamic contexts regarding strengths and weaknesses, conflicts and development potentials. The future is an ideal image associated to a vision and strategic objectives, possibly considering policy targets and different scenarios. Strategic options are pathways that may enable us to reach our vision. But there are different ways to bridge that gap, as the image in Figure 11 attempts to illustrate. And most often the most strategic pathways are not necessarily a straight line.

This needs to be conducted in strong inter-linkage with the policy-making or planning teams. SEA role is to help search for the most environmental and sustainability oriented development options. Engaging stakeholders is fundamental through adequate communication processes and techniques.

Assessment of opportunities and risks may need to be conducted several times, and at different times. Usually scenarios set the framework for the identification of strategic options. But depending on how scenarios are used in the policy-making or planning decision process it may be useful to assess scenarios in terms of the opportunities and risks that different possible futures represent. SEA needs to be prepared to contribute to this strategic discussion by inputing relevant advice in key decision windows.

Strategic assessment should look into **strategic options** as possible pathways (Figure 11) to help choose a strategic direction. This is a key moment when strategic decision-making most likely needs the help of SEA. In contexts that are not binded by the European directive, the outcome of options assessment is sufficient for strategic assessment, together with guidelines, and enables moving on to strategic implementation. Other subsequent instruments, such as EIA, can be used at later stages to look deeper into concrete effects.

Guidelines may include recommendations for institutional adaptation or new regulations, for subsequent levels of planning, for project's EIA, or for any other type of measures or policy choices that eventually may be relevant. Further strategic development may then be checked, or validated, in terms of policy coherence with the established objectives, opportunities and risks. Guidelines should include planning, management and monitoring guidelines, as well as a programme of indicators for monitoring, thus responding to the legal requirement for control measures.

A final report to register the assessment results should then be prepared and collectively discussed, through appropriate communication approaches.

Continuous stage

A third stage is a continuous stage, connecting SEA to strategic decision-making during implementation, but also connecting to the first stage in a subsequent policy-making or planning cycle. **Follow-up, with monitoring, evaluation, communication** should be an on-going routine in strategic environmental and sustainability assessment, systematically linked to the policy-making or planning processes and engaging with the relevant stakeholders. This concept is fundamentally different from what happens in current practice, but it is totally coherent with the theory of SEA.

6. Key structural elements in the strategic thinking model in SEA

The strategic thinking model in SEA is based on a framework of key structural elements that can be combined in multiple ways according to the contextual needs. The intention is to avoid "one-size fits all" standard SEA recipes, and to enable flexibility and adaptation of SEA to different decision-making (for example spatial planning and sectorial planning). Nine structural elements are considered (Table 7):

Table 7 – Nine structural elements in the strategic thinking model for SEA

1.	**Object of assessment**
2.	**Driving forces**
3.	**Environmental and sustainability issues (ESI)**
4.	**Strategic Reference Framework (SRF)**
5.	**Critical Decision Factors (CDF)**
6.	**Governance Framework**
7.	**Strategic Options**
8.	**Opportunities and Risks**
9.	**Follow-up**

1. Object of assessment - This is what is going to be assessed in the SEA. It is vital to define and agree clearly what is the object of assessment before concluding stage 1. Initially it may materialize in a combination of strategic objectives (what is aimed) and issues, indicating development priorities.

Strategic issues (SI) are the fundamental policy questions or critical challenges that affect mandates, values, services, costs and that must be addressed to achieve a long-term vision. Strategic issues are key in setting CDF. But once strategies become more clear, the object of assessment should preferably be the strategy, and the options (the pathways) that will enable meeting strategic objectives, whether in public policies, sectorial and spatial planning, and investment programmes.

Examples of Object of assessment

Strategy for water management in a region for multi-purposes (in a river basin plan)
Strategy for change of land use, from use A to use B, or from single use to multi-use (in a spatial plan)
Strategy to enhance renewable energy uses (in an energy plan)

2. Driving forces - Driving forces are forces that "push" (drive) or restrain development (see Figure 8). Driving forces are key internal forces (such as knowledge and competence) and external forces (such as economy, population, technology) that shape the future of the society, of a territory, of development.

Driving forces help gain a strategic perspective into the root of problems. They are used to identify problems and priorities. When looking for driving forces we will find web of interrelated driving forces. This web will not be static. It might be difficult to identify direct chains of causality.

Driving forces can be distinguished as enablers and inhibitors. Population growth, economic and political instability, and land use changes account for the most relevant direct drivers of change (MEA, 2005).

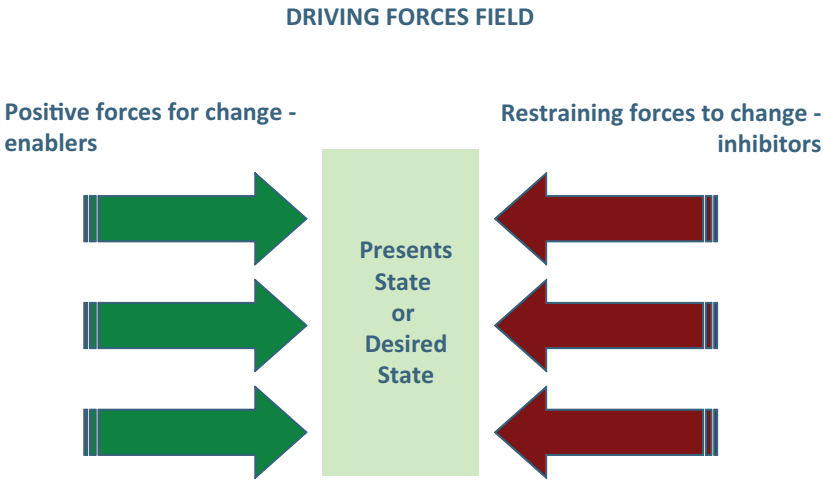


Figure 8 – Driving forces can be enablers or inhibitors

3. Environmental and sustainability issues – Includes the priority environmental and sustainability issues that are determinants in the assessment, adjusted to the geographical and decision scale, as well as to the identified development priorities. These environmental and sustainability issues contribute to the identification of problems and potentials, and through that they contribute to the identification of CDF, but should never be confused with CDF. The legislation sets a number of environmental issues to be analysed depending on their relevance.

4. Strategic reference framework (SRF) – It is the strategic macro policies framework of the SEA, setting a referential for assessment. It gathers under its umbrella sustainability and environmental macro-policy objectives established in an international, European and national context that are relevant for the assessment. The SRF should provide the policy orientations and targets that provide strategic direction. The SRF should also recognize and consider other relevant planning and programmatic orientations that may have synergies and conflicts with the object of assessment, which is a legal requirement.

It is not the objective of the SRF to list legal requirements. A legal requirement must be considered in the SEA as a condition, or restriction, but it does not set a strategic direction. SRF policies should ideally be limited to around fifteen, particularly in sectorial contexts. In spatial planning where multiple policies converge, it may be necessary to increase this number (but less than thirty), while overlaps and repetitions should be avoided. The analysis of overlaps and gaps can be very useful to identify conflicting policy directions from different policy instruments, which may represent a governance risk.

5. Critical decision factors (CDF) – These are the windows of observation to focus attention on what matters for assessment, following the Occam's razor. CDF are key integrated themes, are seen as environmental and sustainability success factors of a strategic decision. CDF establish the focus of SEA, the structure of the assessment and the technical studies for trend analysis.

CDF are determined by priority setting involving technical interpretation but especially dialogues with relevant stakeholders, to consider multiple points of view and issues of concern. The recommended method for CDF identification follows the diamond approach as in Figure 9: start a collective dialogue on a vision, linked to future goals and strategic objectives, consider major problems and potentials and identify priorities to determine success factors, then establish the CDF. Figure 9 shows this process schematically.

A synthesis effort must be done when identifying CDF in order to be only a few, but holistic, integrated and focused. A number of CDF between three and five, and never more than seven, is recommended to ensure strategic focus. CDF must be easy to communicate, simple keywords easy to capture, enough to express its integrated meaning.

Figure 9 – The diamond: identification of Critical Decision Factors (CDF), through dialogues

The CDF establish the **assessment framework**, together with the assessment criteria and the indicators. Figure 10 illustrates the hierarchy between CDF, assessment criteria and indicators. The entry point is a selection of environmental and sustainability issues, relates to the identified priorities, which are decision-making sensitive issues (the multiple arrows in Figure 10).

Assessment criteria define the scope of CDF, provide details on what is meant by the CDF, the relevant issues that are considered priority and included in the CDF. Effective assessment criteria should be constructively aligned with learning and strategy performance outcomes.

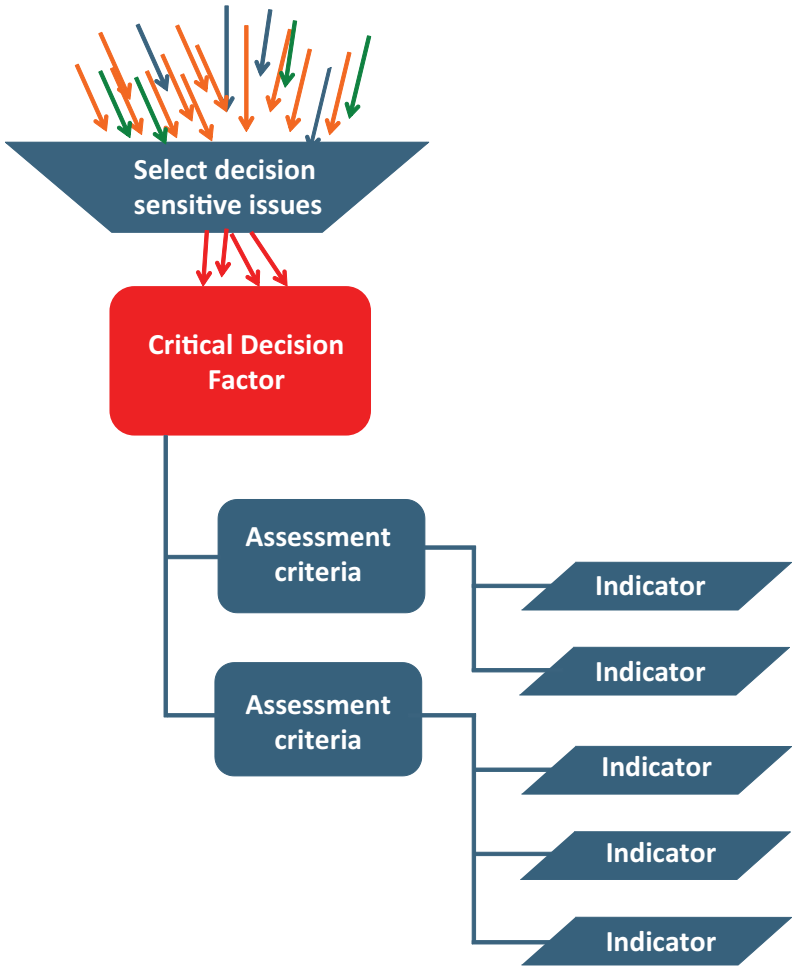


Figure 10 – The CDF framework

Indicators are the metrics of the assessment, may be quantitative or qualitative. Indicators should not be descriptive but indicative. Multiple indicators may exist in statistical offices, sustainable development information systems, Local Agenda 21, state of environment reports, which can be useful as a source of secondary data. But trend analysis in SEA should be based only on those indicators that actually reveal a significant trend.

It is useful to have very specific indicators to each case considered, even where information is not yet available. In these cases it may be relevant to initiate an indicator if it proves useful in the future. And include it in the monitoring programme. When relevant specific information is not available, proxy indicators should be used.

Ideally, in order not to lose strategic focus, assessment criteria should be limited to two per CDF, and indicators should also be limited to two or three per assessment criteria. But of course each case is a case and the general rule is: do not overload with criteria or indicators, keep it focused.

The CDF materialize the concept of scoping at strategic levels and satisfy the European legal requirements concerning the details of information to be considered in the environmental report.

6. Governance framework - Governance framework relates to the establishment of a network of inter-related government and non-governmental organizations and institutions, including citizen panels or other forms of citizen deliberative organizations. Through principles of accountability, transparency, integrity, efficiency and leadership it will contribute to the effective and efficient performance of SEA throughout its cyclical processes.

The role of the governance framework is vital for setting priorities and ensuring focus in SEA, as well as to validate assessment and perform follow-up through learning processes. Governance includes at least three dimensions: 1) institutional (decision) responsibility, and its overlaps and gaps, 2) institutional cooperation (including governance instruments), and 3) stakeholders engagement (including public participation).

The identification of stakeholders should be consistent with the orientations of the Aarhus convention. Who are the stakeholders, how they relate to each other and what are their responsibilities in relation to environmental and sustainability issues should be identified. At a minimum the involvement of relevant stakeholders as established in legislation, namely the authorities with environmental responsibility, must be ensured.

7. Strategic options -The strategic options are policy or planning options, that help us to move from where we are to where we want to get (Figure 11). Strategic options are optional pathways that help us reach our intended long-term objectives, associated with our vision.

Strongly driven by the intended long-term purpose, strategic options need to consider major principles and policies, as in the SRF, as well as driving forces and trends. One possible option may even be to try to change a trend. As Figure 11 attempts to illustrate, there can be many possible ways to fill the gap and, most often the most strategic pathways are not necessarily a straight line. Once again, to keep the focus, strategic options should be limited and realistic, no need to multiply theoretical options.

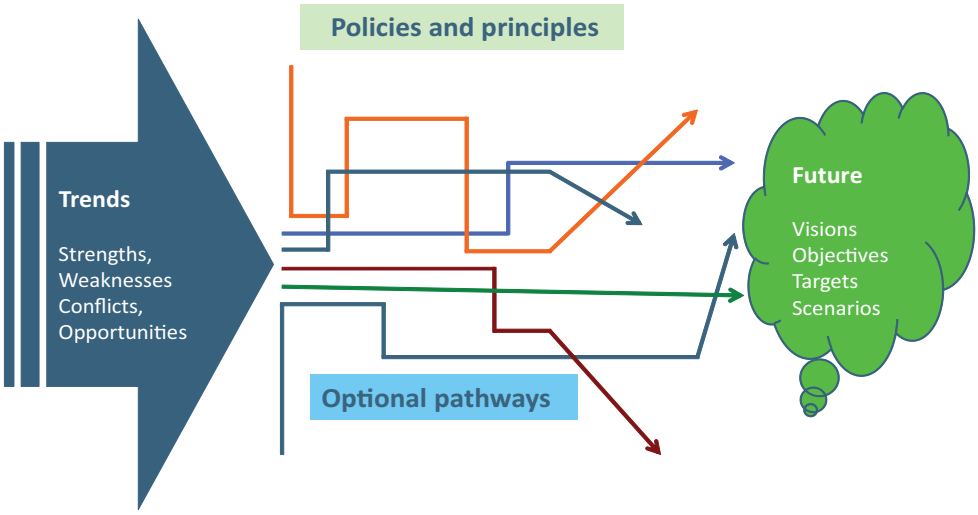


Figure 11 – Strategic options and optional pathways

8. Opportunities and risks - Through assessment of opportunities and risks SEA can help to find better directions, or pathways, to follow. SEA aims to "judge" (assessment of value) the merits (opportunity) or the drawbacks (risks, or what may go wrong) of pursuing sectorial or spatial development strategies. The opportunities and the risks express the assessment in relation to possible futures regarding desired biophysical, social and cultural values, while altogether in a sustainability context. Previous contributions from stakeholders are considered through the governance framework. The strategic reference framework (SRF) provides the key referential for assessment, representing desirables future objectives and targets, as agreed by the society.

9. Follow-up - Continuity is fundamental in cyclic processes. In contexts of great uncertainty empirical observations have a very important role in verifying assumptions. Equally important is to follow-up a strategy and detect contextual changes that may occur during the implementation of the strategy, along with the follow-up of its effective implementation. This includes changes in strategy, as well as in the context (values, norms, priorities) of implementation of the strategy. Early detection of contextual changes enables adjustments to strategic pathways, thus ensuring the continuing facilitating role of SEA. Follow-up in SEA is strongly supported upon monitoring, governance analysis and specific studies that enable a strategic assessment of how development is happening.

7. What can a strategic thinking model in SEA give us?

What can we expect with the application of the strategic thinking model in SEA and the described methodology?

1. A strongly focused strategic assessment approach, following the Occam's razor;
2. An assessment framework structured around critical decision factors;
3. A discussion of options and selection of critical ways to improve sustainability;
4. Identification of opportunities and risks;
5. Governance, policy learning and trust - institutional collaboration, shared responsibility, priority-setting;
6. Dialogues - open and transparent stakeholder engagement and public consultation;
7. Guidelines for planning and implementation;
8. Monitoring and evaluation programme.

This methodology meets legal requirements while simultaneously provides incentives for better practice in SEA.

The CDF framework and strategic thinking model in SEA have been successfully applied in non-european contexts, namely in Brazil, Chile and El Salvador, that are not bound by the 2001/42 european directive legal requirements. In this Guide the methodology is modified to specifically address the european requirements for the environmental assessment of plans and programmes that have a strategic dimension.

Part - IV Doing the SEA

The fundamental concepts for acting strategically in SEA have been presented in previous sections. We will now look at the application of the strategic-thinking model and CDF framework in a practical oriented way.

SEA must be flexible and adaptable to specific contexts. In doing SEA the four components must be ensured (see section 3 in Part III): technical, process, institutional and communication/engagement, as well as its three functions (see section 4 in Part III): integration, assessment and validation.

Figure 12 identifies building blocks representing different activities and steps in doing SEA throughout the three stages (see section 5 in Part III) (stage 1 in grey, stage 2 in light green and continuous stage in light blue), in a road map with multiple itineraries to do SEA, to be chosen case by case.

This Part IV explains how the key structural elements of SEA, described in the previous sections, are included in each building block (activities and steps) illustrated with examples. This implements the three stages cyclic methodology presented in Part III (Figure 7).

Part IV concludes with a checklist of the fundamental elements for a successful SEA, using strategic thinking.

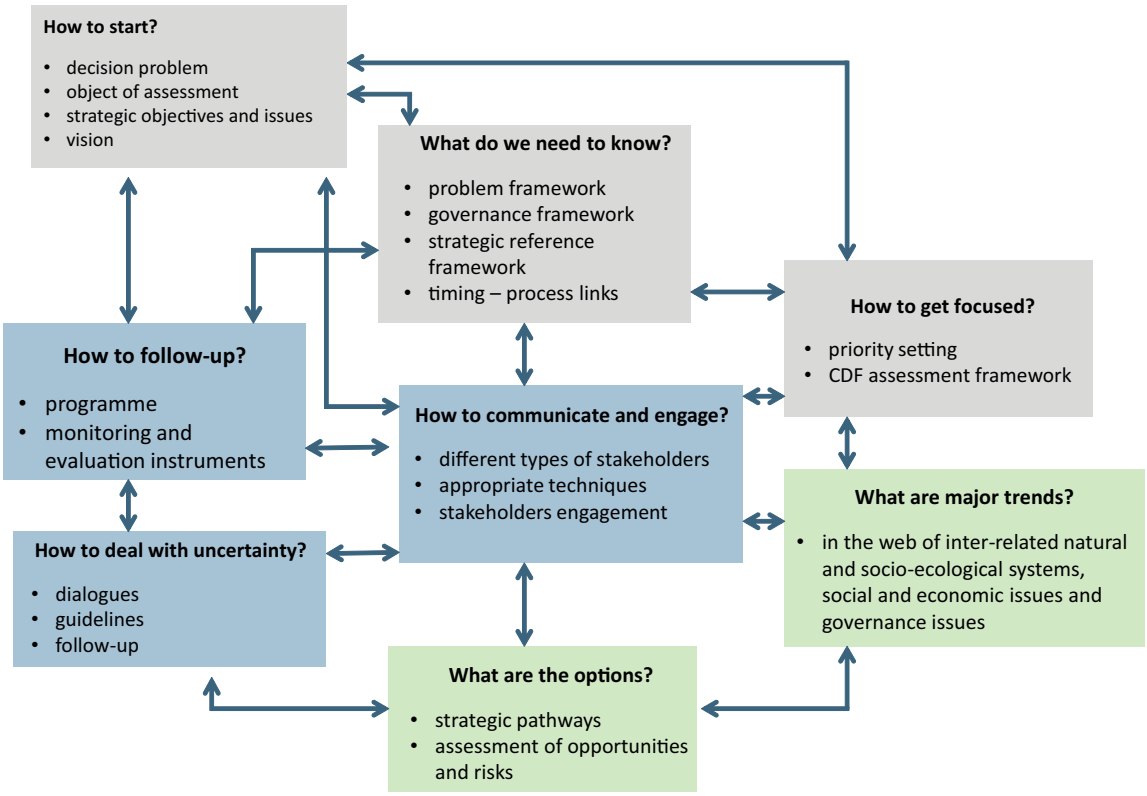


Figure 12 – Building blocks - Multiple itineraries for doing SEA

How to start?

How to start?
- **decision problem**
- **object of assessment**
- **strategic objectives and issues**
- **vision**

Once there is a trigger for an SEA (Figure 1 and section 5, Part I), SEA starts by asking the question: what are the key problems, what are the objectives and the priorities?

For SEA the **decision problem** must be understood in terms of environment, sustainability and development issues. An integrative approach is fundamental here to enable looking at the web of inter-twined biophysical, social and economic issues and how their connection explains perceived symptoms. SEA needs to act at the root of problems (see Figure 6). Initiators of a strategic initiative (in policy-making, planning or programme development) might indicate what the decision problem is, but it is important to clearly distinguish problems from symptoms.

Finding out the decision problem is vital to identify the **object of the assessment**. The strategic objectives and development intentions will be inherent to a decision problem. The problems, and priorities, are obviously case-dependent, and the strategy initiator is the person/organization to whom first ask the question.

Ideally initiators should state the **strategic objectives and issues,** as well as the **priorities** supported by a **vision for the future**. Table 8 provides an example of strategic objectives for the Lisbon municipal master plan, where the major decision problem was how to increase demographic and economic development dynamics, maintaining a high level of environmental quality and sustainability. When initiators know exactly what they want, this easily defines the objectives to be achieved

Table 8 – Strategic objectives of the Lisbon municipal master plan

Six strategic objectives for Lisbon city development:

i. Restore, rejuvenate and ensure a social balanced population of Lisbon;
ii. Make Lisbon a friendly, safe and inclusive city;
iii. Promote an environmentally sustainable and energy efficient city;
iv. Promote an innovative city, creative and competitive in a global context to generate wealth and employment
v. Strengthen Lisbon identity in a globalized world;
vi. Create an efficient governance model, participated and financially sustainable

But sometimes this process is not that simple. The decision problem from the initiator perspective may simply be to prepare and have the intended plan or programme approved. In which case the initiator may not be too cooperative to elaborate the vision, strategic objectives, priorities or strategic options, fundamental for good practice SEA. Which calls for strong persuasion from the SEA team to call attention for the added value that SEA can bring.
Second, the initiator may not be too aware of the actual driving forces leading change in the sectorial or territorial context, and SEA may need to help the initiator in understanding this dynamics by jointly exploring the context, identify driving forces and priorities.

To establish the decision problem, and the object of assessment, ideally SEA should start a dialogue with the planning or programme leaders (Box 3) and link tightly with the policy and planning process, communicate well, play the role of a facilitator, providing help in searching for the decision problem and the object of assessment, but also learn what are the concerns and perceptions of the initiator.

Box 3 - Starting a dialogue

In 2007 when REN SA wanted to initiate the SEA of the Portuguese Electricity Transport Network Development and Investment Plan (PDIRT) 2009 – 2014 a series of meetings took place between the coordination of the PDIRT and the coordination of the SEA mainly with a learning purpose. There was a need for both plan and SEA teams to understand each other, the respective systems, concepts, barriers, priorities, drivers, terminologies.

This dialogue took about six months and four sessions before any concrete proposal or technical work would start. Eventually it was clear the decision problem was how to plan smart investments on the national electricity grid that would meet environmental restrictions, enhance renewable energy use while satisfying energy provision and REN's electricity safety supply commitments. The object of assessment were the national grid investment options.

What do you need to know?

Three frameworks help to understand context and enable focus. If following from a previous decision cycle with SEA, and if the decision problem and object of assessment are maintained, these frameworks may need to be revised and updated. But if we are dealing with a new case, these frameworks need to be established.

What do you need to know?

- **problem framework**
- **governance framework**
- **strategic reference framework**
- **timing – process links**

The problem framework maps the main problems, potentials and driving forces that reflect sectorial, environmental and sustainability priorities. It is vital to identify these at early stages, but too much detail should be avoided. A quick mapping is enough, ideally should fit one page (see Table 9 for an example of a one page problem framework for the coastal management strategy of El Salvador). This enables a brief diagnosis on natural resources use, assets under a conservation status or needing conservation, cultural values, sensitive areas, social needs and natural and social assets with short, medium and long-term economic potential.

Table 9 – Problem framework in the SEA for the coastal development strategy in El Salvador (developed in 2012)

Key problems	Key sensitivenesses
ENVIRONMENTAL DEGRADATION	**NATURAL AND CULTURAL VALUES**
Sewage Solid waste management Wastewater Chemical contamination Erosion / Coastal sedimentation Salinization Siltation	Mangroves Coral reefs Beaches Unique resources Cultural heritage, archaeological remains Wetlands, Ramsar sites Biosphere reserves
SOCIO-ENVIRONMENTAL VULNERABILITY	**Key potentials**
Poverty Floods Fisheries low income Health (kidney diseases, gastrointestinal and dermal) Food safety Low levels of education Illiteracy High level of school abandonment Social exclusion and inequality	Tourism associated to natural assets (whales and dolphins watching) Coastal and oceans sports (snorkelling, surf, beach football, sport fishing, etc.) Fisheries Agriculture Connectivity to the world (airport, ports) “Salvadorenhos” abroad Potential investments in non-traditional species. Increase in national consumption of fish.
PRESSURES ON RESOURCES	
Major unplanned investments (tourism, sugar cane exploration, etc.) Housing and tourism development Disordered urban development Expansion of the agriculture borders over mangroves (sugar cane, tourism) Loss of free access to beaches Shrimps and salt production Expansion of sugar cane production Massive sand extraction and other materials Transboundary conflicts over the Golfo de Fonseca.	
SAFETY PROBLEMS	
Narcotraffic Organized gangs Extortion	

Having the right sources at hand is useful: for example state of the environment, or state of the territory reports. Such preliminary and rapid diagnosis is important to understand the context of the SEA and the priorities, including opportunities created by environmental benefits. Stakeholder engagement enables the consolidation and validation of priorities, and to maintain focus on the root causes of problems.

Trend analysis will later enable a more detailed analysis on relevant issues. In European and national contexts it is legally required to demonstrate how environmental issues (EI) are considered in the SEA. The concerns associated to certain EI are usually already covered by more integrated environmental and sustainability issues (ESI), ensuring a greater focus in the SEA. Table 10 shows an example of how legally identified EI and relevant adopted ESI relate to each other, and how these are covered by the CDF. In Annex II templates 1 and 2 are provided for this analysis.

Table 10 - SEA for the Local Municipal Plan of Lourinhã – CDF, relevant identified ESI and how they cover for the legally required EI

Critical Decision Factors	ESI relevant for the municipality	EI legally defined
Governance	Environmental resources management Population and health Climate changes	Soil Water Atmosphere Biodiversity Population Human health Climatic factors
Healthy municipality	Population and health Climate changes	Population Human health Landscape Water Fauna Flora Material assets Population
Consolidated rural space	Environmental resources management Energy Climate changes Environmental quality Cultural heritage	Soil Water Atmosphere Biodiversity Fauna Flora Climatic factors Material assets Cultural heritage Population
Development factors	Environmental resources management Energy Cultural heritage	Soil Water Atmosphere Biodiversity Cultural heritage Landscape Water

The **governance framework** identifies who is who in policy, plan or programme implementation, and what are respective responsibilities. Governance includes at least three dimensions. One is an institutional (decision) responsibility analysis and mapping, concerning competences and responsibilities. The purpose is to find possible responsibility gaps, or overlaps, across the various institutions, and possible conflicts and governance problems, considering priorities and strategic objectives. This analysis of conflicts and gaps will be fundamental when looking for governance risks, and opportunities for institutional improvement. Second dimension relates to institutional cooperation, and governance instruments (planning instruments, incentives, engagement, etc.). These should be mapped to contribute to understanding the governance context and the capacity in place. Third it is necessary to identify who are the organizations and groups that need to be engaged in a participative and collaborative process: key stakeholders groups (including public administration, private sector, NGOs, community leaders and general public), possible focal groups and opinion leaders, at appropriate geographical/administrative scales. The governance framework establishes rights and duties for shared responsibility, towards a collective learning process, from organizations to relevant citizens. Template 5 in Annex II is provided to help with the analysis of the governance framework.

The strategic reference framework (SRF) concerns the set of macro-policies that will establish the referential for assessment in the SEA. The SRF must reflect international, European, national and regional macro-policies. Policy documents provide the long-term orientations and targets for environmental and sustainability matters that should be met by the strategic initiative (see an example in Table 11). Where relevant, particularly in territorial contexts, plans and programmes that may be relevant should be considered. To ensure focus it is recommended that macro-policies should be limited to the top 10 or 15 more important. In spatial planning where multiple policies converge, it may be necessary to increase this number (but less than thirty), while overlaps and repetitions should be avoided

It is also important to establish how the two **processes** should **link** - the SEA and the decision (policy-making, planning, programme development). SEA main action, as input advice, takes place at critical decision windows. Mapping these decision windows in the decision process will clarify when exchange is expected, and will enhance SEA effectiveness. A time spread sheet identifying the respective stages and activities could be a helpful instrument. The purpose is to identify when and what input is necessary between the two processes, and when stakeholder engagement should happen, and how. This process linkage is indicative and must ensure flexibility.

Table 11 – Examples of policy orientations and targets in the SRF

CDF1 Valuation of natural systems	
Policy orientations: Preserve agriculture potential areas, rehabilitating, conserving and protecting soils with higher agriculture productivity while providing incentives for a competitive and sustainable agriculture	*Targets:* Reach 10% of useful agriculture area (SAU) by 2013 (ENDS) Increase useful agriculture area (SAU) in 30% up to 2015 of agro-forestry systems with environmental interest (ENDS)
CDF2 Human attraction and fixation	
Policy orientations: Promote the efficient use of water and ensure the reserve capacity of public systems for water provision, based on the long-term protection of available water resources	*Targets:* By 2011 reach 80% of water efficiency in terms of urban consumptions, 66% in agriculture consumption and 84% in industrial consumption (ENDS)

ENDS - Estratégia Nacional de Desenvolvimento Sustentável (National Strategy for Sustainable Development)

How do you get focused?

How do you get focused?

- **Priority setting**
- **CDF assessment framework**

Getting focused is a fundamental condition in strategic assessment, and a priority in SEA. SEA deals with very complex systems and needs to manage complexity to ensure viable and effective outcomes. Complexity theory suggests that a strong focus and structure are needed, as well as flexibility, avoiding oceans of data and rigid mental-maps. That is why critical decision factors (CDF), that set a framework for strategic assessment, are so important in this SEA approach. In the identification of CDF it is essential to follow the Occam's razor.

The **CDF assessment framework** includes the CDF, assessment criteria and indicators (Figure 10). As mentioned, assessment criteria details the CDF, the indicators are the metrics of the assessment. The CDF ensure the technical focus in the SEA and provides the structure for the assessment. The CDF are clusters of relevant, sustainability-oriented and integrated themes.

A selection of priority issues (see Figures 9 and 10) is done based on decision sensitive issues. That means we work with those issues that really have a meaning for the decision and the context in which we are working. Priority setting techniques, through engagement processes, are important at this point.

Strategic issues (SI) related to the object of assessment, environmental and sustainability issues (ESI), as well as the key macro-policy directions in the strategic reference framework (SRF) are key ingredients when mapping priorities (Figure 13).

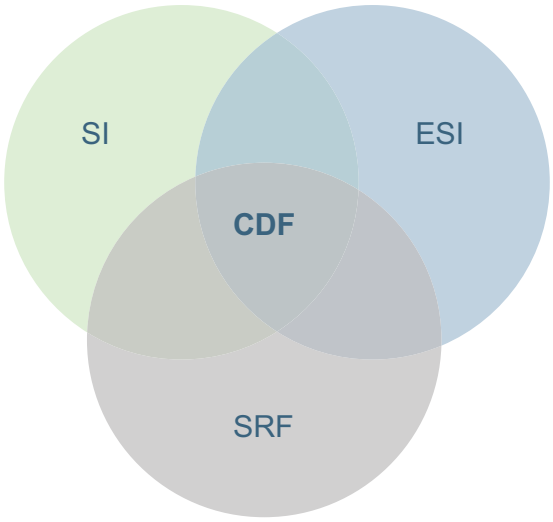


Figure 13 – CDF as an integration of SI, ESF and SRF

A **dialogue platform with stakeholders** at relevant geographical/ administrative levels is a key condition to enable a more robust SEA. This platform will enable discussion on strategic priorities and objectives and a shared vision, rules for a sustainable development, assumptions for integrated sectors planning and management, and finally to agree on the CDF, criteria and the indicators as the assessment framework. It will also serve to validate the identified problems.

Depending on the contextual conditions the adequate techniques need to put in place to identify the CDF. It may range from simple informal brainstorming sessions involving key actors, to highly interactive techniques for dynamic engagement, using dashboards or other tools.

Various examples of CDF are provided in Box 2 and Tables 12 to 17. Annex II provides templates 6 and 7 for organizing CDF, assessment criteria and indicators.

The CDF must reflect on relevant macro-policies, environmental and sustainability issues and strategic issues. Box 2 illustrates how CDF relate to national grid strategic issues.

Box 2 - Case-example of CDF application in the SEA of the PDIRT (REN and IST, 2008 and 2011)

In the SEA of the Portuguese Electricity Transport Network Development and Investment Plan (PDIRT) 2009 – 2014 three CDF were selected to support the analysis and assessment: Energy, Fauna and Spatial Planning. The three CDF proved to be far sufficient for a strategic focus, covering: the increased use of renewable energy sources and the efficiency in energy transportation; the potential conflict with major biodiversity and nature conservation areas, with a special focus on avifauna and its inherent habitats; the need to transport electricity to where it is needed, while avoiding conflicts to the maximum extent possible with high density populated areas and any other natural or human made obstacles

Table 12 specifies assessment criteria for each CDF in the case of the SEA of the national strategy for integrated coastal management in Portugal. Interestingly, in Table 13, a similar theme (strategy for coastal management in El Salvador) generated relatively different CDF and assessment criteria in El Salvador, provided its different context.

Table 12 - SEA of the National Strategy for Integrated Coastal Zone Management in Portugal, 2008 – CDF and assessment criteria

CDF	**Assessment criteria**
Ecological systems and coastal landscapes	Ecosystem approach Safeguard and valuation of natural and cultural heritage and biodiversity
Coastal resource and uses	Economy of the sea Integrated management of coastal and marine resources Territorial and maritime connectivity Local communities
Natural and technological risks	Environmental quality, health and safety Vulnerability to climate change Limits of acceptable change
Management and governance	Integrated policy for coastal zone planning and management Interdisciplinary knowledge, monitoring and information management Education, training and professional capacity-building Adaptive management Institutional cooperation and stakeholders engagement

Table 13 - SEA for the Coastal Development Strategy in El Salvador, 2012 – CDF and assessment criteria

CDF	**Assessment criteria**
Governance	Governance instruments Strengthening capacities and institutional coordination Stakeholders engagement
Ecosystems, development and local economy	Socio-ecological systems Capacity-building and entrepreneurship Vulnerability and adaptation to climate change
Water resources and Sewage	Contamination Water resources availability Access to water and to infrastructures network

Table 14 exemplifies CDF in two distinct sectorial programmes and, in the first case, how CDF can be different depending on the detail of analysis.

Table 14 – Examples of Critical Decision Factors

Different CDF are considered in the SEA of the Portugal Logístico Programme, to provide two assessment levels (IDAD, 2007):

- The following CDF were used for the logistics network strategy:
- Climate Change
- Land Use Planning
- Competitiveness
- Governance

- The following CDF were used for the national logistics Solution (intent relative to logistic network nodes):
- Governance
- Regional and local economic development
- Territorial Management
- Biodiversity

The following CDF were considered in the National Dams Programme (REN, 2007):

- Climate Change
- Biodiversity
- Natural and Cultural Resources
- Natural and Technological Risks
- Human development and Competitiveness

Table 15 illustrates what was the focus in the SEA of the expansion of the Port of Cape Town, in South Africa (CSIR, 2000). Even though this case preceeds the CDF framework, the logic that assisted the identification of the issues is similar.

Table 15 – SEA objectives and focus in the SEA of the expansion of the Port of Cape Town (CSIRO, 2000)

SEA driven by the need to ensure:

- Economic objectives of the Port
- Maximizing the benefits for the surrounding communities
- Minimizing the impacts on the biophysical environment

Scope of SEA – equivalent to CDF

- Marine ecology
- Marine archaeology
- Shoreline stability
- Port accessibility
- Port-city land-use planning
- Socio-economics / Corporate and Social Responsibility
- Economic Impact of the Port

Table 16 provide a more complete example of how a CDF, assessment criteria and indicators should be presented, using the case of Governance as a CDF. It is fundamental that CDF identify what is its objective and scope, which then is expressed into assessment criteria. Likewise objectives should be stated for assessment criteria.

Table 16 – CDF on Governance and assessment criteria for the SEA of a municipality

CDF #1 Governance	
Objective: Assess the web of competences and responsibilities of the municipality in relation to central government and neighbouring municipalities. Institutional adjustments are considered. Explores new organizational models that promote entrepreneurship and the inter-municipal organization and management	
Assessment Criteria	**Indicators**
Governance model Assessment of strategic management models, municipal structure and responsibilities and control over municipal policy and programmes regulations and finances	Municipal institutional framework
	Municipality services interconnections
	Human resources capacity
Institutional relationship with central government and at inter-municipal level Assessment of institutional mechanisms, of intermunicipal strategies for collaboration and for strengthening participation and cooperation, competences and resources involved.	Strategies of communication, articulation of competences and responsibility with the central government
	Strategies of communication and inter-municipal initiatives
	Use of Information Technologies in municipal administrative services
Public participation and stakeholders engagement Assessment of available mechanisms for citizens' engagement in decision making, through associations and on voluntary basis.	Intermunicipal associative capacity (variation of public associations, civic movements and voluntary programmes per number and type)
	Information and support networks
	Number, type and frequency of public engagement sessions
Entrepreneurship Assessment of the organizational model in promoting R&D initiatives as well as in human resources qualification for increasing the competitive capacity of the municipality.	Events and investments associated to R&D
	Available resources and training for core development activities
	Number of companies related to R&D

The CDF must result from collective wisdom and knowledge. CDF are social constructions that relate to priorities and success factors, and not blind analytic formulations that follow standard formats. Discussing proposed CDF and remaining assessment framework with stakeholders is vital to ensure broad acceptance of the adopted focus for the SEA. "What are the top three issues that really matter?" may be a good way to start the discussion. And then clarify meanings, expectations and outcomes, facilitating convergence.

Focus in SEA engages the four components of the model: technical (CDF, expertise, studies to develop), process (effective linkages at the right moments (decision windows)), institutional (get the leaders to speak and agree on the CDF framework) and communication (short informative news, engagement of relevant authorities and focus groups using adequate techniques).

Crucial for the assessment focus is not only the CDF but also the SRF. The key macro-policies that set the referential assessment framework need to be linked to the CDF and used later on in the assessment. Template 3 in Annex II provides an example of how the macro-policies in the SRF are indicated as relevant for each CDF. That table (template 3) needs to be complemented by the identification of the respective policy orientations and targets. For that purpose template 4 is provided in Annex II and an example is provided on Table 11.

Trend analysis - Where are we and what is pressing change

Trend analysis

Web of inter-related issues and events related to

- **Natural systems**
- **Socio-ecological systems**
- **Social issues**
- **Economic issues**

Trend analysis is a dynamic analysis and has two main objectives: to observe the main patterns of change in a given sector or spatial area, and to identify the respective driving forces that may eventually influence future trends. Generally trend analysis is the collection of facts, based on indicators, over a period of time, that enable to spot a pattern, or trend, that may explain evolution in a given situation. It helps to understand future pathways considering trends. Trend analysis enables exploring the relationship between changes in driving forces and the evolution of future trends, supporting scenario studies and policy analysis, as well as integrated economic, biophysical and social analysis. Trend analysis is therefore different from baseline studies, which are usually static, describing the existing situation in relation to biophysical and social factors.

Scenarios represent plausible desirable futures. Scenario development techniques are very useful to consider possible futures based on mapping of past and current trends, and on more or less probable uncertain events. The role of scenarios becomes more relevant to formulate, discuss and assess strategic options.

Backcasting is central to a strategic approach for sustainable development. It is a way of thinking the future in which a successful outcome is imagined. We have a shared picture of where we want to go and then we look for bridging the gap that enables us to get there (Figure 14). This will allow the assessment of opportunities and risks based on CDF.

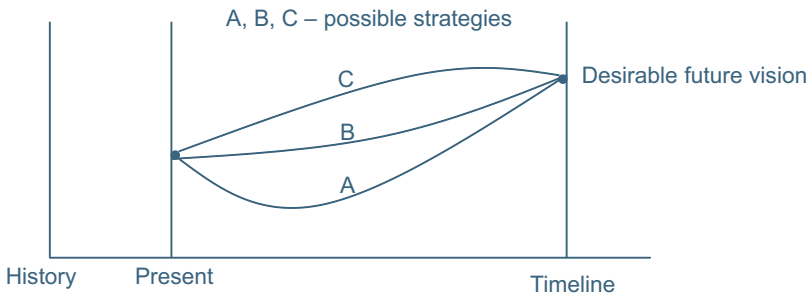


Figure 14 – Backcasting approach in scenarios development

Where more robust trends are available forecasting future trends based on past information through adequate modelling can be an option.

But scenarios are not predictions (Schwartz, 1991). In strategic-thinking prediction is incoherent. The complexity is so high, the pace of change so dynamic that prediction becomes unreliable. Uncertainty needs to be followed-up to enable adequate action when confirmed, or not. Monitoring and follow-up are crucial continuous activities in SEA.

Trend analysis may be based on documentary analysis but also on interviews, meetings and other forms or secondary data sources. Very rarely will an SEA be based or primary data sources. Analysis of interviews can provide a brief narrative on communities' expectations, perceptions on problems and valuation of natural and cultural resources. Trend analysis is developed for each CDF to find out where we are in relation to intended objectives, and how the system may evolve in the future. The purpose is to reach a sound understanding on dominant trend directions, and dynamics, bearing in mind that what we want is not to collect all available data on that topic and make a descriptive report to show how much we know about a given environmental factor. All we need to know is – what are the dominant issues and what are its expected trends?

A final SWOT analysis (see template 8 in Annex II) is useful for a synthesis of the trend analysis.

Identify and assess strategic pathways – what are the options?

What are the options?

- **Strategic pathways**
- **Assessment of opportunities and risks**

Strategies can help us move from where we are, in our problems framework, to where we want to get, as priorities, vision and strategic objectives. **Strategic options** are possible pathways that will enable us to make that move towards strategic objectives (Figure 11). Different pathways will have different environmental and sustainability implications. Such different pathways will be the different optional strategies that should be assessed, in terms of environmental and sustainability opportunities and risks, to better assist the policy choices, and planning and programme development. Figure 15 illustrates three sets of options in the SEA of the National Strategy for Integrated Coastal Zone Management (NSICZM) in Portugal (IST-INAG, 2008).

Strategic assessment will consider synergies and conflicts of strategic options for different scenarios, in terms of environmental and sustainability dimensions, using the CDF framework. **The assessment of risks and opportunities** of strategic options represent a key input to the decision-making process. An iterative process, between SEA and policy/planning processes should happen while options are being discussed, and choice is yet to be made. Outcomes of options assessment will include strategic arguments for opportunities and risks per each CDF considered.

Perspectives and expectations of selected stakeholders, individually or in focal groups, should always be taken into account. Dialogue platforms at different geographic/administrative levels are useful to obtain different perspectives and enable fine-tuning the preferred strategic options. Trade-off rules for sustainable development (Gibson et al., 2005) should be agreed and made specific at this stage, signed off by sectors and institutions involved. This will be then incorporated into management and monitoring guidelines for follow-up.

Template 9 in Annex II can be used to organize strategic options per policy area, also relating to the plan or programme as it develops and incorporates the strategic options for consideration. Template 10 in Annex II can be used for assessment of strategic options.

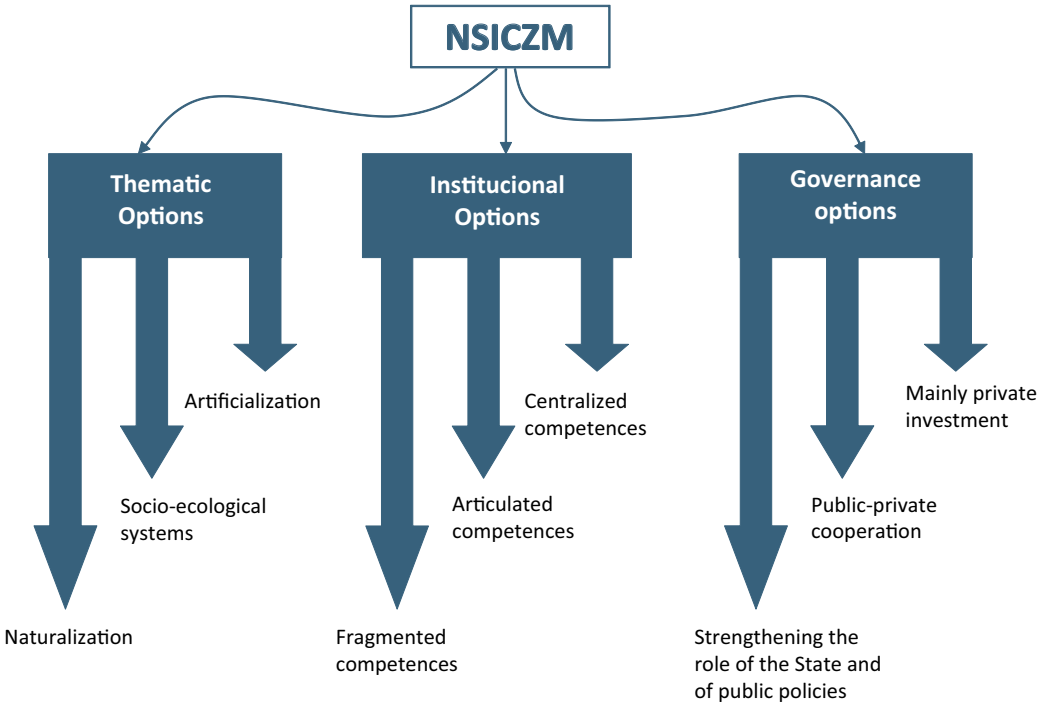


Figure 15 – Example of strategic options in the Portuguese Coastal Development Strategy

The **assessment of strategic options** should happen at key decision windows for policy, planning or programme formulation, providing the necessary basis for preparation of guidelines for follow-up. Eventually a subsequent level of assessment may be required to look at how policy, planning or programme concepts might be consolidating the identified pathways to be pursued and addressing priorities. Once the **policy, planning or programme concept** is set (for example a territorial model) a web of other subsequent instruments, such as EIA, environmental management systems, planning, control and accountability instruments should enter into play to pursue the SEA guidelines and provide feed-back to SEA on implementation.

However under the European directive legal obligations, and related national legislation, more detailed assessment of physical, materialized effects, of the final plan or programme proposal is required, in line with a more project oriented perspective. In this case, after the options and strategic concept assessments, SEA may need to invest more time into the assessment of the planning or programme solutions, using the same assessment framework and delivering an assessment compatible with the scale of the object of assessment. If an options assessment has taken place, it is likely that the proposed solutions will be much more environmental and sustainability sound and therefore the assessment of plan or programme solutions will serve more as a confirmation of previous SEA guidelines.

How to deal with uncertainty - Guidelines for follow-up

How to deal with uncertainty?

- **Dialogues**
- **Guidelines**
- **Follow-up**

In order to reduce uncertainty we need to follow the implementation of the process, to ensure we take advantage of opportunities and we will not be surprised by unexpected changes. Proposed measures, rules of good practice, rules for joint actions and conditions to enhance synergisms and avoid conflicts will need to be set up as guidelines for follow-up.

Guidelines can be identified based on the assessment of opportunities and risks of strategic options. Guidelines should also be the subject of inter-connectedness between the SEA and policy and planning processes to harmonize recommendations, as well as monitoring measures and indicators, ensure synergism and avoid conflicts and overlaps (Templates 11 and 12 in Annex II respectively for guidelines on opportunities and guidelines on risks, with linkage to plan measures and recommendations).

This will establish the basis for a follow-up programme, including planning, management and monitoring guidelines (Table 17 and Template 13). The governance framework will ensure cooperation and shared responsibility during the implementation of the strategy. Template 14 in Annex II can be used to structure the various organizations and their respective responsibility for follow-up.

Table 17 – Examples of Monitoring guidelines and indicators, Maritime Spatial Plan, Portugal

Examples of Monitoring Guidelines	Examples of Monitoring Indicators
Monitoring the safeguard of the cultural heritage (material and immaterial)	Classification and recovery of material cultural heritage of Portuguese origin, in national and international territory; Protection actions of the immaterial cultural heritage (for example disclosure, transcription, expositions)
Monitoring the establishment of safeguard measures, for conservation and recovery of marine ecosystems	Establishment of a network of protected marine areas and its effectiveness Evolution of the implementation and sufficiency of the Natura 2000 network extension to the marine environment Investment in recovery actions of marine ecosystems and/or respective ecosystem services, and their effectiveness
Monitoring the evolution of the marine environmental state	Marine environmental state, according to what is established (Maritime Framework Directive)
Monitoring the stakeholders engagement in the conservation of the natural resources	Private investments in conservation projects

Once guidelines are completed the whole story of the SEA process can be pulled together in a final report to share particular aspects of the SEA and final outcomes on potential opportunities and risks of an intended strategy and guidelines for follow-up. Annex III provides a suggested structure for the final report.

How to follow-up?

Follow-up in SEA is still a rather immature activity on which very little experience exists. It is understood that a follow-up programme should be based namely on monitoring and evaluation and supported by a web of instruments to assist SEA systematically.

How to follow-up?

- **Follow-up programme**
- **Monitoring and evaluation instruments**

A **follow-up programme** is part of the continuous stage of SEA. Follow-up programmes should be directed by the planning, management and monitoring guidelines and develop evaluation studies and stakeholders engagement. A follow-up programme includes monitoring indicators, a system of rapid evaluation, the support of a set of evaluation instruments and a responsible team, as well as the necessary resources that will enable follow-up reports to be systematically updated.

It is important that a parallel and contributively environmental monitoring registry system, and database, be set in motion for continuing up-date to provide data for future control and environmental studies. This monitoring registry system and database need to be under the responsibility of public authorities to allow the public availability of data for future needs, and should be financially sustainable.

Communication and participation is also fundamental. On-going liaison for engaging relevant stakeholders, should be established and made operational, adopting different formats as adequate to each case.

Monitoring and evaluation of the strategic decision cycle is unavoidable in strategic processes in order to enable uncertainty management. Legal requirements refer only to monitoring and reporting. But ideally follow-up activities should be grounded into existing planning and policy-making monitoring and evaluation mechanisms. For this to happen effectively systematic process linkages are fundamental.

Systematic control over performance and conformance outcomes as well as inputs to address emerging unexpected issues that require change of pathways are the key purpose of follow-up. Performance and strategic indicators should be selected, based on standard available indicators and also on the indicators used in CDF assessment framework.

State of the environment reports, state of territory reports, local, regional, sectorial sustainability reports should be fundamental contributors to setting up a monitoring database that may, whenever necessary, inform any future changes of strategic direction in a rapid and simple way. A limited number of follow-up indicators need to be selected to ensure a viable follow-up programme and effective control. While the exact number of indicators is impossible to establish it is recommended that, on average, 20 indicators be used in follow-up.

Follow-up should pay particular attention to strategic changes and especially to emerging strategies, or ruptures in the system, that may suddenly change previously expected trends. It is important to run follow-up on the basis of short and rapid evaluations that can provide a quick indication on driving forces and changing events.

Instruments such as environmental impact assessment (EIA), environmental management systems, environmental management programmes of public and private initiatives, public policies analysis and evaluation, spatial planning and conservation programmes, corporate sustainability reporting amongst others are instruments that may assist SEA in following up policy, planning and programme implementation. The following tasks might be considered in a follow-up programme:

- Develop, or review, follow-up guidelines (planning, management and monitoring)
- Verify the efficiency of the governance framework and any institutional changes
- Verify changes to SRF and additional conditions or orientations
- Verify uncertainties and unexpected events

- Verify adequacy of monitoring indicators
- Analyse selected follow-up indicators (preferably around 20)
- Verify SEA efficiency – what was the added value of SEA to decision, to the environment and to progresses towards sustainability?

Communication and engagement

- **different types of stakeholders**
- **appropriate techniques**
- **stakeholders engagement**

How do you communicate and engage?

Throughout previous sections attention was called several times for the need to engage stakeholders in different SEA activities and stages. Public participation is considered a major activity in stakeholders engagement. Communication is one of the main components of SEA as a facilitator of strategic decision processes.

The principles of learning and knowledge sharing underline communication and engagement. Only a well-informed community is capable of effective participation. Only multi-stakeholders platforms are likely to convey the majority of existing perceptions and values. Various communication tools and methods need to be used to engage stakeholders, depending on the occasion, type of stakeholders, context, time and resources available (Annex I).

The publication of **newsletters** from early moments and throughout the process is a very informative tool. Where **internet** is easily accessible by the majority of relevant stakeholders it may be a preferred means of communication for information and reciprocal exchange. However where internet accessibility does not exist, then it is useless. In any case internet should not replace direct contact and opportunities for dialogue and constructive exchange of ideas and perspectives namely in **workshops, social networks** and other direct fora. **Sectorial groups, citizen panels or general assemblies** may be adequate formats particularly to use selected techniques for different groups, and enable more focused discussions. Finally **reporting** should also be seen as a mean of communication to both reviewing authorities as well as key stakeholders.

The adequate moments for communication are several. Keeping stakeholders informed is important throughout the process, and especially before we need their contribution. Dialogues however must be restricted to fundamental moments in order to avoid participation exhaustion. There are at least three indispensable moments for stakeholders engagement: when discussing the main problems and the strategic focus, when assessing possible strategic options and when sharing final results. Structures for each of these reports are suggested in Annex III.

Increased stakeholders engagement is becoming a quick reality in many parts of the world through collaborative approaches and collective learning processes. Although perhaps difficult to operationalize in a routine practice where a strong regulatory perspective still exist, good practice recommends more use of dialogues, networks and collective thinking throughout the SEA process. Establishing routines, through for example citizen panels, with collaborative NGOs, could contribute to improve accountability, transparency and communication throughout, in close collaboration with the policy-making or planning teams.

Ten checking points for a successful strategic thinking SEA

To enable verification of better practice in SEA a checklist of criteria is suggested. These criteria have been presented and discussed internationally (Partidário, et al. 2009), and have meanwhile been improved based on comments received.

Assessment parameter	Key-question	Recommended
1. Object of assessment	What was assessed?	Scenarios and/or Strategic options
2. Entry point	At what stage did SEA start?	When initiating the plan or programme
3. Interactivity	What was the degree of integration and feedback between assessment and planning activities?	High
4. . Problem framework	Were problems identified?	Preliminary diagnosis mapping short and sharp
5. Governance framework	Was a governance framework established?	Institutional responsibility Institutional cooperation Stakeholders engagement
6. Strategic Reference Framework	How was the Strategic Reference Framework defined and used?	Less or equal than 30 references Used in the assessment as a referential
7. CDF assessment framework	The CDF assessment framework was well defined?	Holistic and integrated Less or equal than 7 CDF
8. Strategic options	Were strategic options assessed?	Opportunities and risks of options for relevant strategies
9. Participation	What was the degree of participation?	Enlarged Active engagement
10. Guidelines for planning, management and monitoring	Are there guidelines for follow-up?	For planning, management and monitoring Include cc 20 monitoring indicators

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Glossary

Assessment - The action of assessing. It is to ascertain the value attributed to something, by more or less meticulous calculation, expressing a value judgment. It is also the approximate determination of magnitude or a quantity without resorting to direct measurement, by estimation (Academia das Ciências de Lisboa, 2001). Assessment entails the assumption that an object of assessment exists, the value of which is estimated, and that there is an assessor, expert or any other qualified person that knows how to gauge the value or qualities of something (Academia das Ciências de Lisboa, 2001).

Assessment criteria - That which serves to make distinctions or choices; serves to distinguish values; forms the basis for a judgment, reason, rationale (Porto Editora, 2007).

Assessment framework – The framework established by the critical decision factors (CDF), and respective assessment criteria and indicators, which will structure the assessment of strategic options in a given SEA, when using a strategic-based approach.

Critical Decision Factors (CDF) – Key integrated themes that are seen as success factors of a strategic decision and upon which SEA must be focused. The CDF act as windows of observation to focus attention on the strategic environment and sustainability issues that matter in the assessment. CDF materialize the concept of scoping at strategic levels and satisfy the European legal requirements concerning the details of information to be considered in the environmental report. The CDF set the assessment framework in the SEA, providing direction for the trend analysis, through the technical studies that need to be carried out, a framework for the assessment of strategic options in terms of opportunities and risks, and the structure for the presentation of results. The CDF are identified mainly through observation and dialogues with relevant stakeholders, considering multiple points of view and issues of concern. A synthesis effort must be done when identifying CDF in order to be holistic and focused. CDF should be named using a keyword that expresses its integrated meaning and should not be more than seven, ideally between three and five, to ensure a strategic focus.

Decision cycle - This concept is inherent to a strategic approach, establishes the notion of continuity, in which strategic decisions (concerning prioritization, planning, choice or implementation) are taken several times throughout a planning and programming process, at critical moments of the decision process (decision windows). The development of new strategies results from an informal re-analysis of previous strategies, in the context of evolving scenarios and priority objectives, thereby influencing the following planning or programming cycle. This notion of continuity is crucial to SEA since the object of assessment is an on-going and iterative process.

Decision problem – The problem of finding a way to decide whether a formula or class of formulas is true or probable within the framework or given system of axioms. The reasons that motivate the need for a decision. It is what decision-makers need to resolve for a decision to be made. Identification of a problem implies identification of what is at stake considering the level of uncertainty.

Decision windows – The moments in the decision process in which critical decisions are taken and which can benefit from SEA input. They comprise a strategic opportunity to influence decision and to ensure the integration of environmental issues and sustainability guidelines.

Driving forces - Determinants of change in strategic decision-making, important to understand deep trends related to a focal issue. It is a conceptual tool popularized in the context of scenario building. In SEA it refer to forces that set change in a strategic development process determining trends. Driving forces can be distinguished as enablers and inhibitors, may be internal or external forces. Population growth and land use changes account for the most relevant direct drivers of change (MEA, 2005). The OECD DPSIR (D-Drivers; P-Pressures; S-state; I-Impact; R-Response) model uses the concept of driving forces. Driving forces are often categorized in demographics, economics, political, social, science and technology (see for example http://ag.arizona.edu/futures/fut/dfmain.html).

Environment - Defined in the Portuguese Framework Environmental Law (Law 11/87, of 7 April) as the set of physical, chemical and biological systems and their relationships with economic, social and cultural factors with direct or indirect, gradual or immediate effect on living beings and human´s quality of life. The Academia de Ciências de Lisboa (Lisbon Academy of Sciences) (2001) dictionary defines environment as that which surrounds, envelops or is related to the physical, social or moral surroundings in which humans live.

Environmental Assessment - The identification, description and evaluation of the likely significant effects on the environment of implementing a plan or programme, carried out during the preparation and design of the plan or programme and before its approval or its submittal to legislation, described in a report and through consultation processes and the appraisal of the results obtained in the final report on the plan or programme, and the public disclosure of the final decision (Decree-Law 232/ 2007 of 15 June)

Environmental issues (EI) - The environmental issues that define the relevant environmental scope, adjusted to the topic, context and scale of the object of assessment, based on the legally established issues.

Environmental Impact Assessment (EIA) - The process of identifying, forecasting, assessing and mitigating the biophysical effects (physical and ecological effects), social effects and other relevant effects of development proposals before fundamental decisions are taken and commitments made (IAIA, 1999).

Follow-up - The process of tracking the planning and programming cycle, ensuring the on-going contribution of the SEA as a facilitator of the integration of environmental and sustainability issues in the decision-making process. It works on the multiple dimensions of uncertainty that typify any strategic decision process. SEA follow-up is heavily based on performance assessment and monitoring, frequently and swiftly adjusting to the decision cycle, which means that the SEA must follow the strategy's drive.

Governance - The set of rules, processes and practices relative to the exercise of power, essentially in relation to accountability, transparency, coherence, efficiency and effectiveness. Good governance helps to achieve objectives. Good governance is about performance (efficiency) and conformance (meeting the requirements of the law, regulations, published standards and community expectations) (http://www.apsc.gov.au/publications07/bettergovernance1.htm, accessed on 2012.05.14)

Governance framework – Based on principles of public sector governance including accountability (being answerable for decisions and having meaningful mechanisms in place), transparency/openness (having clear roles and responsibilities and clear procedures for making decisions and exercising power), integrity (acting impartially, ethically and not misusing information), stewardship (using every opportunity to enhance the value of the public assets and institutions), efficiency (ensuring the best use of resources to further intended aims, with a commitment to evidence-based strategies for improvement) and leadership (achieving a commitment to good governance through leadership from the top) (http://www.apsc.gov.au/publications07/bettergovernance1.htm, accessed on 2012.05.14)

Indicator - That which indicates or provides indication; an analytical form in which the quantity measured in the real space under study is compared to a scientific or arbitrary standard.

Monitoring - The process of observation and systematic collection of data on the state or on the (environmental) effects of certain actions, and the periodic description of those effects.

Object of assessment – Identifies what is being assessed, usually relates to the objectives and major strategic options considered in the decision process. It strongly relates to the decision problem.

Occam's razor, or the principle of simplicity or parsimony – Descriptions of this principle include: "Entities should not be multiplied unnecessarily" or "One should not increase, beyond what is necessary, the number of entities required to explain anything". This principle goes back at least as far as Aristotle, who wrote "Nature operates in the shortest way possible." (http://math.ucr.edu/home/baez/physics/General/occam.html).

Plan - Result of the planning and management process whenever intentions and rules relative to measures and actions adopted to resolve and prevent problems, which define the plan's scope, are explained. Action proposal, with priorities, options and measures for the allocation of resources, according to its suitability and availability, following the guidance and implementation of relevant global and sectoral policies.

Problem tree - A very common tool to help understand a problem and find solutions by mapping out the anatomy of cause and effect around an issue, similar to a mind mapping (graphical representation of ideas and concepts, a visual thinking tool that helps structuring information). It enables a clearer prioritization of factors and helps focus objectives. Figure 6 is a simple representation of a problem tree that attempts to illustrate the complexity of issues that SEA face, and where SEA should be placed to contribute to sustainable decision-making.

Programme - Organized agenda with objectives, the detailing of investment activities and programmes, defined in the relevant plan and policy framework.

Relevance - That which is important or pertinent, the characteristic of that which is relevant; something standing apart, or emphasised or which is significant (Porto Editora, 2007).

Scenarios – A vehicle for an imaginative leap into the future. A series of what-if stories. Scenarios are stories about the way the world might turn out tomorrow, stories that can help us recognize and adapt to changing aspects of our present environment. The point is not to pick one preferred future, or find the most probable future, the point is to make strategic decisions that will be sound for all plausible futures (Schwartz, 1999).

Strategic decision - According to Lloyaza, Verheem and Patidário (2008) is any decision that has got a vision – looks at the wider context (time and space) and adopts a long-term perspective; sets objectives to be achieved throughout time and adapted to context; searches for the critical pathways and tools to meet set objectives; accommodates interests of stakeholders affected by the decision; and is a learning process that accommodates tools, pathways and objectives to changing contexts (environmental, social, economic and political priorities).

Strategic Environmental Assessment - Strategic instrument that helps to create a development context towards sustainability, by integrating environment and sustainability issues in decision-making and assessing development options in face of contextual conditions.

Strategic Issues (SI) - Fundamental policy choices, or critical challenges associated to the object of assessment, that must be addressed to achieve a long-term vision. SI contribute to the definition of the CDF.

Strategic option – Strategic pathway that enable reaching a sustainability objective.

Strategic Reference Framework (SRF) – The strategic macro-policy framework for the SEA. It is a key component in setting the context for SEA. Creates an assessment benchmark based upon relevant policy orientations and targets established as formal sectoral, sustainability and environmental policy macro-objectives at international, European and national levels. It may also include requirements from other plans and programmes that set relevant policy orientations.

Strategy - Intended means that aim to achieve long-term objectives driven by a vision, accommodating its pathway to changing circumstances. A concept that originated in military science and generally refers to the study and planning of means to achieve policy objectives. It is normally associated to long-term objectives, distinguished from tactics that refer to more medium to short-term objectives. Strategic approaches in policy and planning, according to Mintzberg (1994), are not intended to find out what can happen in the future but aim to plan and steer actions that make up possible routes to a desirable future.

Sustainability - A complex concept that is based on the term 'sustainable', which according to Heinberg (2007) means "that which can be maintained over time". Gibson et al. (2005) definition of sustainability is "essentially an integrated concept that result from the intersection of ecological, social and economic interests and initiatives". It is associated to the concept of sustainable development, for which there are a number of formal definitions. In this Guide sustainability is understood as an objective and sustainable development the process that eventually enables reaching sustainability.

SWOT Analysis - A strategic management technique, adopts a logical, subjective approach that assists in the structuring of ideas. An instrument to foster understanding and decision-making in business areas and organizations. It allows the strategies, stances and orientation of a proposal or idea to be reviewed.

SWOT - Strengths, Weaknesses, Opportunities and Threats. See SWOT analysis.

Trend analysis – The collection of facts, over a period of time, to spot a pattern, or trend, in a given situation. Trend analysis need to consider the driving forces that may eventually change current trends, in a dynamic analysis. In trend analysis we observe patterns of change and relate to driving forces.

Annex I – Techniques

List of useful techniques for SEA and sources with more detailed information:

	OCDE, 2006	UNEP, 2009
Experts groups	√	√
Participatory techniques for assessment	√	
Stakeholder Analysis and Mapping (SAM)	√	√
SWOT analysis	√	
Sustainability Framework and Indicators		√
Network analysis	√	
Causal Chain Analysis (CCA)		√
Root Cause Analysis (RCA)		√
Trend analysis		√
Scenario building	√	√
Social and economic analysis/surveys	√	
Household Surveys		√
Opinion surveys to identify priorities	√	
Focus groups	√	√
Consensus building processes	√	
Cost-benefit analysis, sensitivity analysis and multi-criteria analysis	√	
Geographical Information Systems	√	
Overlay maps	√	
Land use analysis	√	
Modeling analysis	√	
Vulnerability analysis	√	
Quality of life assessment	√	
Compatibility appraisal	√	
Carrying capacity analysis	√	
Risk analysis or assessment	√	

Sources:

OECD, 2006 Applying SEA: Good Practice Guidance for Development Co-operation http://www.seataskteam.net/guidance.php

UNEP, 2009 Integrated Assessment for Mainstreaming Sustainability into Policymaking: A Guidance Manual http://www.unep.ch/etb/index.php

Annex II – Tables and tools templates

This annex provides templates to help the application of tools suggested in this Guidance

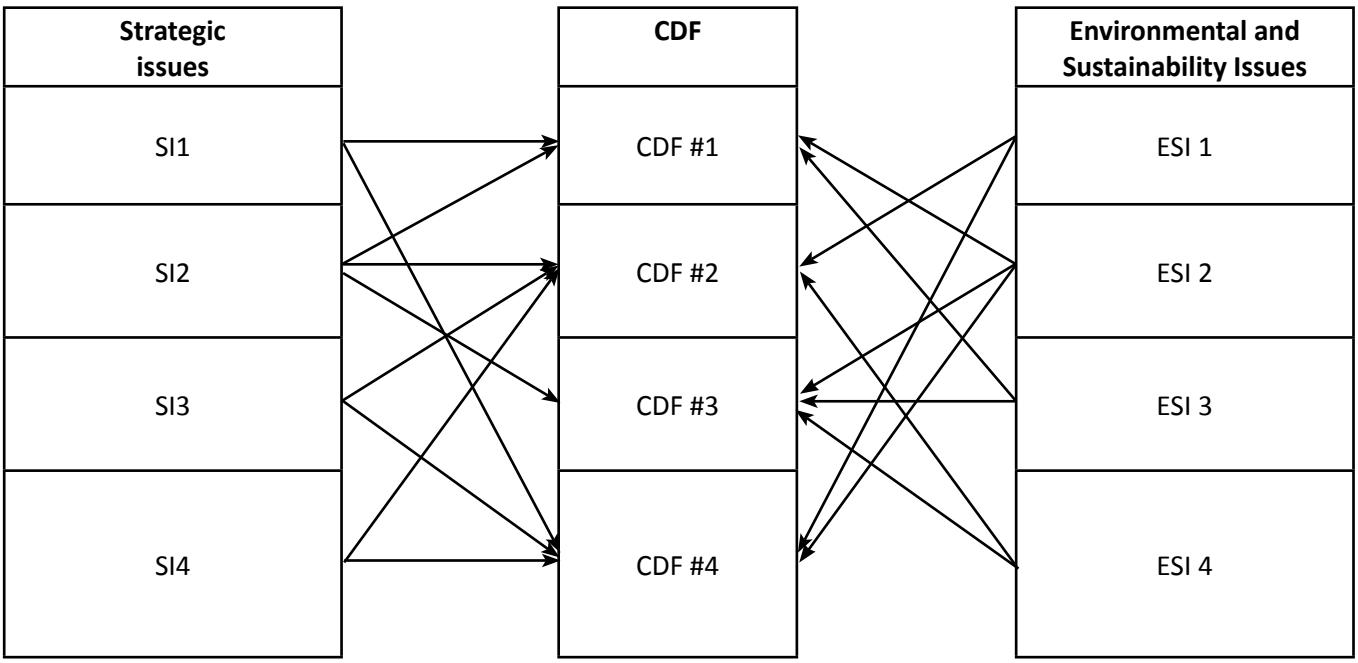
Template 1 - CDF, Environmental and Sustainability Issues (ESI) and Environmental Issues (EI)

(purpose: help justify how CDF and ESI include in its scope EI required by law, ensuring integration)

Critical Decision Factors	Relevant ESI	EI legally required
FCD#1		
FCD#2		
FCD#3		
FCD#4		

Template 2 - CDF, strategic issues and ESI relationship

(purpose: help justify how CDF relate to strategic issues (SI) and ESI)



Template 3 – Strategic Reference Framework and CDF relationship

(purpose: indicate which macro-policies are considered in the SEA and relevance to CDF; to be included in the main body of a report, maximum 1 page, or half a page)

Relevant strategic macro-policies / Critical Decision Factors																				
FCD #1	√			√		√				√	√		√	√	√			√	√	√
FCD #2	√		√				√			√			√				√	√		
FCD #3		√			√				√	√		√	√		√	√		√	√	
FCD #4			√		√			√			√			√	√					

Template 4 – Strategic Reference Framework – policy orientations and targets

(purpose: indicate policy orientation and targets organized per CDF, to be used in the strategic assessment; to be included in the annex of a report, may be a few pages)

FCD #1	
Environment and sustainability policy orientations	**Relevant targets**
•	
•	
•	
FCD #2	
Environment and sustainability policy orientations	**Metas**
•	
•	
•	
•	
FCD #3	
Environment and sustainability policy orientations	**Metas**
•	
•	
•	

Template 5 – Governance framework

(purpose: identify interest groups, relate them in relation to their interests, areas of competence and responsibility, governance instruments)

Categories	Interest groups
Local authorities	
NGOs	
etc.	

Interest Groups	Sector/policy A	Sector/policy B	Sector/policy C	Sector/policy D	Sector/policy E
	Areas of competence and responsibility				
A	X	X	X	X	X
B	X	X	X	X	X
C	X			X	X
D	X	X	X	X	
E	X	X		X	
F			X		
G	X	X	X	X	X
H	X				X

Categories	Governance instruments
Central government	
Municipalities	
etc.	

Template 6 – CDF objectives or description of scope

(purpose: indicate what is that the CDF intend to assess: objectives or description of scope –50 words in average)

CDF	Objective / description of scope
CDF #1	
CDF #2	
CDF #3	
CDF #4	

Template 7 – CDF Assessment Framework: CDF, Assessment Criteria and Indicators

(purpose: indicate in one single table all assessment framework, state objectives of CDF and of assessment criteria; indicators may be quantitative or qualitative, direct or proxy; indicators are used in trend analysis)

CDF #1	
Objective: Objective of CDF #1	
Assessment Criteria	**Indicators**
Criterion #1 Objective	
Criterion #2 Objective	
Criterion #2 Objective	
CDF #2	
Objective: Objective of CDF #2	
Assessment Criteria	**Indicators**
Criterion #1 Objective	
Criterion #2 Objective	

Template 8 – SWOT analysis

(purpose: to synthesize a trend analysis – should be short and concize)

Simple analysis

Strengths	Weaknesses
Strengths of the internal systems, determined by the systems own characteristics	**Weaknesses** of the internal systems, determined by the systems own characteristics
Opportunities	**Threats**
Opportunities created by the external systems, the characteristics of the context	**Threats** created by the external systems, the characteristics of the context

Cross-related analysis – for further interpretation based on a simple analysis

	Strengths	Weaknesses
Opportunities	**Opportunities/Strengths** Areas to Prioritize – How to use the strengths to take benefits of the opportunities	**Opportunities/Weaknesses** Potential Options – How to overcome the weaknesses to take benefits of the opportunities
Threats	**Threats/Strengths** Protect – How to use the strengths to reduce the threats (and turn the threats into opportunities)	**Threats/Weaknesses** Potential Risk – How to address weaknesses that make threats reality (possible risk assessment)

Template 9 – Identification of strategic options (SO)

(purpose: identify strategic options per policy area, or planning theme, for example mobility options, options in relation to the use of renewables)

Strategic options		
Policy areas	**Name**	**Description**
Policy 1	SO1.1	
	SO1.2	
Policy 2	SO2.1	
	SO2.2	
	SO2.3	

Template 10 – Assessment of strategic options (SO)

(purpose: assess strategic options per CDF, using the assessment criteria; for assessment it is recommendable to use symbols, such as arrows or smileys, not numbers or plus and minus signs)

		CDF#1		
Policy areas	**Criteria** / **SO**	**Criteria #1**	**Criteria #2**	**Criteria #3**
Policy 1	SO1.1			
	SO1.2			
Policy 2	SO2.1			
	SO2.2			

Template 11 – Guidelines related to opportunities

(purpose: Opportunities found in the assessment need guidelines to ensure its enhancement; relate SEA guidelines to plan measures and/or recommendations that create such opportunities, for example mobility transference to public transports, and establishment of car free zones

CDF #1				
Assessment criteria	**Opportunity**	**Plan measures**	**Plan recomendations**	**SEA guidelines**
Criterion #1				
Criterion #2				

Template 12 – Guidelines related to risks

(purpose: Risks found in the assessment need guidelines in order to be prevented or reduced; relate SEA guidelines to plan measures and/or recommendations that may increase, or already intend to reduce the risk (for example vulnerable communities exposed to extreme events; lack of policies for traditional activities risk loss of traditional knowledge, land abandonment)

CDF#1				
Assessment criteria	**Risks**	**Plan measures or recommendations (may increase risk)**	**Plan measures or recommendations (may reduce risks)**	**SEA Guidelines**
Criterion #1				
Criterion #2				

Template 13 – Monitoring guidelines and indicators for follow-up

(purpose: identify guidelines for monitoring and respective indicators; not all guidelines need to have indicators; avoid having too many indicators; ideally 20 indicators should be enough for follow-up)

Monitoring guidelines	Monitoring indicators

Template 14 – Governance framework for follow-up

(purpose: identify and agree on responsibilities for follow-up – who needs to do what for the successful implementation of the strategy)

Organizations	Governance guidelines
Local authorities	
NGOs	
etc	

Annex III – Suggested Report templates

1 – Critical Decision Factors Report

Introduction
SEA objectives and methodology
Object of assessment
Problem framework
Governance framework
Strategic Reference Framework
Critical Decision Factors (CDF) assessment framework
SEA work programme – SEA and planning processes linkages
Public and Institutional Involvement – communication strategy
Annex – Strategic Reference Framework – orientations and targets

2- Options Assessment Report (not required by law, only by better practice)

Introduction
SEA objectives and methodology
Object of assessment –strategic issues (strategic objectives, priorities) and major strategic options
Critical Decision Factors (CDF)
Strategic Analysis and Assessment
1. Trend and SWOT analysis
2. Strategic Options assessment per CDF – opportunities and risks

Synthesis of options assessment and recommendations for the planning process
Conclusions

3 – Environmental Report

Introduction
SEA objectives and methodology
Object of assessment – context, strategic issues (strategic objectives, priorities) and major strategic options
Critical Decision Factors (CDF)
Policy / institutional responsibilities consistency analysis (if there is a CDF on governance then integrate in the assessment)
Strategic Analysis and Assessment (one section per CDF with the following structure)
1. Trend analysis and SWOT
2. Strategic Options and assessment – opportunities and risks
3. Follow-up guidelines: planning or programming, management, monitoring and assessment, governance framework

Summary of Strategic Environmental Assessment (integration of results)
1. Environmental and sustainability opportunities and risks
2. Follow-up guidelines: planning or programming, management, monitoring and assessment.

Conclusions
Non-Technical Summary

4- Non-Technical Summary

What is the Non-Technical Summary?
What is Strategic Environmental Assessment (SEA)? (and what is Environmental Assessment of plans and programes for systems following the European Directive)?
What is the Environmental Report? What is an Environmental Statement?
What is the object of assessment in SEA? What was assessed?
Which were the Critical Decision Factors (CDF) for the ...(policy, plan or programme)?
Which strategic options were assessed?
What were the key policies considered, as well as the relevant plans and programmes?
Which main trends were relevant for assessing the strategic options?
What are the main opportunities and risks to a sustainable development?
What are the main guidelines? And the key agents to the success of the ...(policy, plan or programme)?
What are the main indicators for monitoring?
What can be concluded on the environmental and sustainability performance of the ...(policy, plan or programme)?

5- Environmental Statement with information on the decision

Introductory note
1. How environmental considerations have been integrated into the …(policy, plan or programme)
   Public Consultation
   Methodology
   Critical Decision Factors (CDF)
   Justification – Main results per CDF
2. Opinions expressed and results of public consultation
3. Opinions expressed and results in transboundary public consultation
4. The reasons for choosing the ...(policy, plan or programme) as adopted, in the light of other reasonable options considered
5. The measures decided concerning
   Planning Guidelines
   Management Guidelines
   Monitoring Guidelines
   Monitoring Indicators (beyond the indicators adopted by the ... (policy, plan or programme))
   Governance Framework

Date
Signature of the Responsible for the policy, plan or programme