

Overcoming implementation barriers: A method for designing Strategic Environmental Assessment guidelines

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Abstract

The effective application of SEA is still limited and needs to be steered through the dissemination of enhanced guidance documents. In this respect, administrative bodies in charge of SEA management have issued guidelines and manuals in order to address the major difficulties that hinder SEA implementation in the day-to-day practice. In this study, we propose a method that assists responsible agencies and professionals in the design of SEA guidance documents. The method uses a comparative approach which builds on the key elements of those documents. We have applied our method to the scrutiny of principles and contents of a selection of SEA guidelines released in the European Union. Results indicate that SEA guidelines should cover a minimum number of relevant issues, including early integration of SEA in the planning and programming processes, development of a fair and inclusive consultation, the construction of credible alternatives, and monitoring strategies. In addition, we found that good SEA guidance documents should build on empirical advice drawn from storytelling referred to a selection of case studies. Our work is intended to support European government agencies as well as practitioners in the design and update of SEA guidelines in a variety of cases, as the general principles that we outline can be systematically applied to any program and plan subject to SEA.

Keywords: SEA guidelines; Guidance documents design; Comparative analysis; SEA practice; SEA implementation barriers

1. Introduction

European Strategic Environmental Assessment (SEA) implementation still presents a number of criticalities, which are often attributed to historical delays leading to less diffuse practices than those in other countries (Tetlow and Hanusch, 2012; Bina, 2007). Since the Directive 2001/42/EC (henceforth, Directive) has introduced the SEA (European Parliament and Council, 2001), the European Union member states have acknowledged its principles through proper legislative acts (see Table 9 in Annex 2 for a selection of cases). The timing of these juridical processes spans over some years: for instance, Bulgaria, France, and the UK released a SEA law in 2004, while Italy in 2006 (Italian Regulation, 2006).

Often times, in front of a weak SEA implementation, member states have used explanatory documents (henceforth, SEA guidelines) in order to steer practice and help developing correct SEA implementations (Schijf, 2011; Thérivel et al., 2004). In some cases, SEA guidelines were drafted just after the release of the SEA law: for instance, the UK released the SEA guidelines in 2005, Italy in 2006, and Portugal in 2007.

In spite of the relevance of this topic, so far specific analyses on SEA guidelines are still rare (Schijf, 2011; Balfors and Schmidtbauer, 2002; Diamantini and Geneletti, 2004; Noble et al., 2012). Thus there is a need for a systematic discussion on the strengths and pitfalls of SEA guidelines and investigation on their rationales, with respect to the abatement of the main barriers hindering a correct SEA implementation. In addition, studies, like the one presented in this article, provide public agencies and professionals with useful advices for the design of timely and efficient SEA guidelines. Hence, the following three Research Questions (RQ_s) shape our work. RQ₁ investigates the scientific literature on the design of SEA guidelines. We scrutinize the academic debate in order

to identify relevant and effective approaches in the design of SEA guidelines. RQ₂ explores the key issues of SEA guidelines. Although SEA guidelines stem from the same source (the Directive), different national approaches have influenced the way SEA practice has been adopted and implemented. Hence, we examine those SEA issues that are key in SEA practice and should be taken into consideration in the creation of SEA guidelines. Finally RQ₃ scrutinizes whether it is possible to conceive a method supporting the design of SEA guidelines. Based on the findings of RQ₁ and RQ₂, we distill an integrated framework for the design and drafting of SEA guidelines.

Our approach consists in considering a number of European national SEA guidelines and evaluates their principles, contents, and completeness. The work presented in this article is useful for the design and update of guidelines concerning SEA implementation to any type of program and plan. The argument unfolds as follows. In the next section, we introduce a state of the art summary on critical issues in SEA implementation and SEA guidelines. In the third section, we define our method. In the fourth section, we describe a selection of SEA guidelines, present and discuss the results of our analysis, and propose a framework for the design of SEA guidelines in a given member state. The fifth section concludes this paper and provides some final outlook remarks.

2. SEA implementation critical issues and guidelines: a state of the art report

SEA guidelines are prepared to help administrative bodies and practitioners convert in practice the general principles expressed in laws. In this section, we report on the scientific literature concerning the criticalities of SEA implementation (section 2.1) and topics usually covered in SEA guidelines (section 2.2).

2.1 Key issues in SEA implementation

Research has shown that an effective SEA implementation is characterized by a number of key elements, such as public participation, quality of SEA report, monitoring, and integration between planning process and SEA (Rega and Baldizzone, 2015; De Montis et al., 2014; Nelson, 2011; Fischer, 2010). Many authors have emphasized the importance of contextual elements that influence SEA implementation (see, inter alia, De Montis et al.; 2014; Fischer, 2007; Gazzola et al., 2004; Brown and Thérivel, 2000; Mardsen, 1998). According to Brown and Thérivel (2000) and Marsden (1998), the clarification of social, political, environmental, economic, legal, and administrative issues of a given context is important for attaining effective SEA processes. Gazzola et al. (2004) stress that the political, cultural and legislative context is a key element for a correct application of the SEA Directive. Fischer (2007) assesses SEA effectiveness by adopting criteria related to the context, such as formal requirements and clear provisions, goals, and appropriate funding, time, and support. De Montis et al. (2014) develop a study about the SEA effectiveness for landscape and master planning in Sardinia, Italy, and point out a low degree of SEA implementation at the municipal level due to, inter alia, “the lack of political interest and insufficient financial resources” (De Montis et al., 2014, p. 8). Participation is crucial during an SEA process, as Rega and Baldizzone (2015) argued. In order to assess conflict resolution strategies, Rauschmayer and Risse (2005) after Wittmer et al. (2006) proposed a framework including legitimacy and social dynamics. Gauthier et al. (2011) investigated the link between public participation and planning processes in environmental assessment by focusing on public meetings, thematic workshops, selective consultation during the scoping stage and the legitimization of the final choice during the decision-making stage. Another important point is the integration between SEA and the planning process (Fischer, 2001, 2007; Jones et al., 2005; Nelson, 2011). According to De Mulder (2001), more integrated planning systems lead to planning tools, where environmental concerns are incorporated

very early in the process. In addition, a critical issue is the interplay between SEA and Environmental Impact Assessment (EIA). Undoubtedly SEA and EIA have similarities in common (Lobos and Partidário, 2014) but differentiate themselves (Fischer, 2007) in theoretical and practical terms. Comparing the main stages of SEA and EIA processes, Lee and Walsh (1992)'s analysis suggests that such assessment tools should be closely related within the same planning process. Similarly, Arts et al. (2011)'s work points out that the inclusion of sustainability themes in planning processes implies a harmonization between SEA and EIA. According to some authors (Fischer, 2007; Marsden and De Mulder, 2005), the SEA Directive is closely related to the EIA Directive. Their common juridical ground may explain why SEA practice is sometimes strongly rooted in the EIA based approach (Lobos and Partidário, 2014). Some of the criticalities, discussed in literature and connected to the development of the SEA stages, pertain to screening procedures and final decisions taken on a discretionary basis (Risse et al., 2003; Kørnøv and Wejs, 2013). Polido and Ramos (2015) draw attention to the importance of the scoping phase of SEA reports while von Seht (1999) emphasizes that wider possibilities of public participation should be assured. Strengths and weaknesses of the SEA report, its quality assessment and implementation have been largely investigated in literature (Bonde and Cherp, 2000; Fischer, 2010; De Montis, 2014). Some of the highlighted issues with the SEA implementation regard the development of alternatives in SEA reports (González, 2015; Nelson, 2011; João, 2005), monitoring phase, insufficient tools, and lack of financial and human resources (Hanusch and Glasson, 2008; Partidário and Fischer, 2004).

2.2 Recurrent topics in SEA guidelines

Schijf (2011) observes that systematic studies on SEA guidelines are still rare, despite the relevance of the subject. In the reminder of this section, we discuss the main findings of these studies. Balfors and Schmidtbauer (2002) discuss the use of Swedish SEA guidelines with respect

to the European Structural Fund programmes (SFp) by stressing a lack of environmental consideration in previous SFps and providing a general framework for SEA implementation organized in stages. Balfors and Schmidtbauer (2002) point out that SEA guidelines by themselves are not sufficient for promoting sustainable development, and supporting educational strategies are needed to achieve an effective implementation. Diamantini and Geneletti (2004) discuss positive and negative issues of an experimental application of SEA guidelines for SEA reports drafted for sectoral plans in the Autonomous Province of Trento, Italy. As for the positive aspects, Diamantini and Geneletti (2004) scrutinize the drivers of uncertainty, and a top-down approach for the assessment of groups of actions. With respect to the negative issues, they focused on a generic, unclear and inaccurate definition of sustainability principles, a weak integration in the SEA process of the indicators for the assessment of the objectives, and unclear advice on the ideal indication of targets and benchmarks in the SEA report. Schijf (2011) develops a study on SEA guidance documents by integrating the remarks advanced by Thérivel et al. (2004) on five SEA guidelines issued in the European Union. Schijf (2011) reports on a number of available SEA guidelines of EU member states covering spatial and transportation planning and observed that, beyond the EU, international agencies (including the World Bank and the United Nations Economic Commission for Europe) are key contributors in developing SEA guidelines. Starting from practical experience and professional advices, Schijf (2011) draws out a number of considerations, suggestions and tips for drafting good SEA guidelines that concern a participative approach in which stakeholders are consulted, pilot applications to test the draft document, and the inclusion of case study material useful for making SEA processes less intangible. Schijf (2011) finally stresses that SEA guidelines should be regularly updated to take into account changes in planning and SEA experience. Noble et al. (2012) study international and Canadian SEA guidance documents. They review SEA guidelines and confront the results with evidence from a survey based on semi-structured interviews with

practitioners. Noble et al. (2012) claim that the promotion of quantitative approaches to the design of clear and verifiable analytical impact assessment methods is still inadequate. In addition, they note a lack of practical guidance to the understanding and choice of SEA frameworks and methods that are most appropriate to different contexts. Finally, a key SEA aspect is the context-specificity of SEA guidelines that should be tailored for a specific level or type of policy, plan or program, sector, organization, and impact (Thérivel, 2004; Noble et al., 2012; Schijf, 2011). According to Schijf (2011), specific SEA guidelines are needed, since legal and procedural requirements differ from one administration to another. The experience of practitioners varies among the different planning and assessment systems, and local information and instructions change for each specific SEA process.

3. Methods

Recent works by Mascarenhas et al. (2015) and Lozano and Huisingh (2011) provide us with a useful framework for the analysis of textual documents. Mascarenhas et al. (2015) combine a qualitative and quantitative approach for the analysis of policy and guidance documents. Qualitative approaches have been often adopted in the review of SEA guidelines and SEA reports (White and Noble, 2013; Noble et al., 2012; De Montis, 2014; Fischer, 2010). Taking into account these essays and the contributions presented in section 2, we use a comparative and qualitative approach for the analysis of SEA guidelines and implement the framework sketched in Table 1.

Table 1 Methodological phases and sub-phases developed in this paper.

Phase	Sub-phase	Description
1. Collection	1.1 On-line search	Identification of SEA guidelines available on-line
	1.2 Selection	Definition of a homogeneous set of SEA guidelines
2. Evaluation	2.1 General analysis	Analysis of SEA guidelines with respect to the critical issues
	2.2 Specific analysis	Analysis of SEA guidelines' contents
3. Recommendation		Identification of important topics for designing SEA guidelines

The first phase consists in the collection of a number of SEA guidelines through web search and application of a proper filter to obtain a homogeneous set of documents. The on-line search (sub phase 1.1) is based on web engine searches via Google, Bing and Yahoo sessions with relevant keywords, such as ‘SEA guidelines [and the name of a European country]’, ‘SEA guidance’, and ‘strategic environmental assessment guidelines’. The sub-phase 1.2 served to filter a homogeneous number of documents to be included in this study. The filter was set with the following rules; an SEA guideline is chosen if it is: i) approved within the context of the European Union, ii) accessible on-line for free, and iii) released after the approval of and coherent to the Directive. The first condition is useful to reduce the sample to our specific geo-institutional context. The second condition serves the causes of accessibility and transparency of the SEA procedure. The third condition focuses on documents clearly adhering to the concepts of the Directive.

The second phase (*Evaluation*) appraises the SEA guidelines selected in the first phase. It includes the analysis (sub-phase 2.1) of the documents with respect to the classification criteria detailed in Table 2 and a specific analysis (sub-phase 2.2) of the themes usually discussed in guidance texts. The classification of Table 2 uses the criteria that we extracted from the literature and are often indicated as relevant benchmarks for describing proper SEA guidelines.

Table 2 Sub-phase 2.1: classification criteria of SEA guidelines.

Classification criteria	Criticality	References
Specific focus	SEA guidelines should be specific and take into account the hierarchical level (policy, plan, or programme) and sector of implementation.	Brooke et al. (2004); Sheate et al. (2004); Thérivel (2004); Schijf (2011)
Regular updating	SEA guidelines should be frequently updated and adapt immediately to contextual changes of planning and SEA theory and practice.	Schijf (2011)
Case studies	SEA guidelines should be pragmatic and showcase successful and critical past and on-going experiences.	

The first criterion reflects the criticality that SEA guidelines should steer practice in a given context but usually are too vague and general. SEA guidelines should be repeatedly updated in order for them to efficiently influence practice in succeeding periods (second criterion). Finally SEA guidelines should provide best practices by critically presenting and discussing relevant case studies.

The *specific analysis* of SEA documents (sub-phase 2.2) has been carried out with a focus on the themes illustrated in Table 3. The selection of these themes was compiled using the review presented in section 2 as well as integrated by our experience in the field as researchers and practitioners.

Table 3 Sub-phase 2.2: macro themes and recurring themes in SEA guidelines.

Macro themes	Recurring themes	References
General	Integration SEA-planning process	De Mulder (2001), IAIA (2002), Fischer (2001, 2007), Jones et al. (2005), Nelson (2011)
	SEA-EIA	Dalal-Clayton and Sadler (2005), Fischer (2007), Arts et al. (2011), Lobos and Partidário (2014)
Process	Screening	Risse et al. (2003), Thérivel (2004), Jones et al. (2005), Kørnøv and Wejs (2013)
	Scoping	von Seht (1999), Thérivel (2004), Polido and Ramos (2015)
	Environmental report	Bonde and Cherp (2000), Simpson (2001), Fischer (2010), De Montis (2014)
	Participation and Consultation	Partidário (1996), Ren and Shang (2005), Runhaar and Driessen (2007), d'Auria and Ó Cinnéide (2009), Sinclair et al. (2009), Elling (2011), Gauthier et al. (2011), Rega and Baldizzone (2015)
	Monitoring	Morrison-Saunders and Arts (2004), Partidário and Arts (2005), Hanusch and Glasson (2008), Gachechiladze-Bozhesku and Fischer (2012), Mascarenhas et al. (2012), De Montis et al. (2014)
		IAIA (2002, 2014), João (2005), Fischer and Gazzola (2006), Fischer (2007), Desmond (2007), Lyhne (2012)
Specifics	Alternatives	
	Checklists	Bonde and Cherp (2000), Simpson (2001)

We cluster the criticalities into three macro-themes: i) general, ii) process, and iii) specifics. The first macro-theme attains broad concepts regarding SEA implementation in the planning process

and the relation with EIA. The second one regards how SEA guidelines steer practice with respect to the phases and documents required in an SEA process. The third one attains specific SEA issues.

The context analysis of each SEA guidelines in Table 3 leads to the distillation of argumentative discourses, heretofore called narratives, which represent a synthetic combination of the main concepts covered in the guidance documents. Narratives are key to the discussion of the results developed in the next phase.

The third phase (*Recommendations*) consists of a discussion of the results –i.e. narratives- obtained in the *Process* phase with the aim of drawing key issues for the design of SEA guidelines in the specific European context.

Having investigated RQ₁, RQ₂ and illustrated our method, in the next section we scrutinize a set of European national SEA guidelines. This analysis serves two purposes: we offer an assessment of the current state of the art of SEA guidelines' production as well as testing our method (RQ₃) which could have helped improving the quality of the SEA guidelines under scrutiny.

4. Case study: the design of national SEA guidelines

We have organised this section in three parts, which follow the phases of our method: section 4.1 describes the set of SEA guidelines selected; section 4.2 assesses the SEA guidelines while section 4.3 draws key contents for designing a proposal of SEA guidance document for a given member state.

4.1 Selection and characterization of SEA guidelines

A number of national agencies have drafted and circulated SEA guidelines. We have retrieved and analyzed the most recent SEA guidelines available on the Internet at the time of writing (2015).

The results of the online collection of phase 1.1 showed 19 eligible SEA guidelines, which were subject to the filters of sub-phase 1.2 and lead to a final list of seven documents approved in the following European countries: Ireland, Italy, Latvia, Portugal, Scotland, Sweden, and the UK (Figure 1).



Figure 1 Location of the European administrations included in our sample. Source: our elaboration on data from Global Administrative Areas.

Our sample concerns a territory spanning 1.2 millions square kilometers (roughly 27% of EU surface area) and hosting 152.3 million people (around 30% of total European population).

In the reminder of this section, we combine the characteristics of the selected SEA guidelines (Table 4) with their national SEA juridical acts in force.

The Irish SEA guidelines have been released by the Government of Ireland in 2004, with the aim of assisting regional and planning authorities in implementing the Directive. This document offers general indications on the integration of SEA in the planning process, from pre-review to

post-plan stages. A specific chapter is dedicated to a step-by-step guide to SEA stages: screening and scoping, environmental report, consultations, adoption and approval, and monitoring.

Italy released the SEA guidelines in 2006 (Formez, 2006). This document contains a description of SEA as a tool for planning, and suggestions for the design of environmental reports, with special emphasis for the development of planning alternatives and desired timeline. In terms of rationale of the planning process, the guidance act often mentions the Handbook on Environmental Assessment of Regional Development Plans and EU Structural Funds programs (European Commission, 1998). In addition, it provides indication of an exemplary SEA for municipal land use plans.

The Latvian SEA guidelines have been released in 2007 by the Finnish Environment Institute and SIA Estonian, Latvian & Lithuanian Environmental agency in the context of the Finnish-Latvian joint project on Capacity building in the fields of SEA and Natura 2000. The SEA guidance document focuses on i) key aspects of SEA implementation, ii) SEA good practices and iii) raising awareness among public and private stakeholders (national authorities, interested bodies, and NGOs) on the need to carry out a correct SEA procedure since the early stages of planning and programming processes.

The Portuguese SEA guidelines have been released in 2007 and updated in 2012 (Partidario, 2012). The guidelines refer to the assessment of plans and programs with a strategic nature, and support the assessment of policy strategies. Partidário (2007) observes that terms traditionally adopted in the EIA discourse are replaced by other expressions: ‘scoping’ is substituted by ‘Critical Decision Factors’, and ‘alternatives’ by ‘Strategic Options’. Partidario (2012) suggests that the terminology to be used in SEA must reflect the fact that strategic thinking involves values, not physical structures, is more focused and collaborative, and is based on dialogues and futures-thinking.

Table 4 SEA guidelines selected in this study.

EU administration	SEA Guidelines (denomination, publication year)	SEA juridical acts (denomination, publication year)	Comparative analysis (key issues)
Ireland	Implementation of SEA Directive (2001/42/EC): Assessment of the Effects of Certain Plans and Programmes on the Environment Guidelines for Regional Authorities and Planning Authorities, 2004	Regulations 2004 (Statutory Instrument Number 435 of 2004), and Planning and Development (Strategic Environmental Assessment) Regulations 2004 (Statutory Instrument Number 436 of 2004), 2004	Integration SEA-planning process; detailed guide to SEA stages; a suggested layout of Environmental Report
Italy	Strategic Environmental Assessment of Urban and Regional Plans, 2006	Environmental Code, 2006	SEA as a planning support system ; suggestions for the design and draft of the SEA report; focus on the alternatives; examples of SEA of master plans.
Latvia	Guidance to SEA in practice, 2007	Environmental Impact Assessment (EIA) Act on 26 February 2004 and 15 September 2005 and by new secondary legislation, 2004	SEA relevant issues a good practices; focus on the integration of SEA and planning process; Frequently asked questions.
Portugal	Strategic Environmental Assessment Better Practice Guide – methodological guidance for strategic thinking in SEA, 2012	Decree-Law 232/2007, 2007	Document based on strategic thinking model in SEA, which can also be used as a tool to assess long term policy strategies; traditional terms used in EIA are replaced by a new lexicon; SEA and EIA relationship is stressed; a glossary; extensive bibliography; a number of schemes/frameworks of SEA report are provided.
Scotland	Strategic Environmental Assessment Guidance, 2013	Environmental Assessment (Scotland) Act, 2005	Step by step guide to SEA phases; SEA implementation barriers; operative suggestions for practitioners; checklists; a glossary defines some key SEA terms.
Sweden	Practical guidelines on strategic environmental assessment of plans and programmes, 2010	Environmental Code, 2004	SEA stages; many impact assessment procedures considered; extensive reference section of SEA literature; integration of SEA and planning process; early design of the alternatives; participation; a glossary defines some key SEA terms; extensive references and websites section.
United Kingdom	A Practical Guide to the Strategic Environmental Assessment Directive, 2005	Environmental Assessment of Plans and Programmes Regulations, 2004	Documentation required in each SEA stage; essays on SEA; tiering SEA and other environmental assessment procedures; Frequently asked questions.

The Swedish Environmental Protection Agency published the SEA guidelines in 2009: in this paper, we refer to the English release published in 2010. This document refers to: i) SEA stages; ii) overview of different impact assessment procedures; iii) other SEA guidance documents; and iv) an extensive bibliography on SEA. The Swedish SEA guidelines focus on a few key issues for SEA

integration in the planning process: early activation of SEA, communication, cooperation, public participation, and early design of the alternatives.

The UK SEA guidelines have been published in 2005 by the Office of the Deputy Prime Minister jointly by the Scottish Executive, the Welsh Assembly Government, and the Department of the Environment in Northern Ireland. This document concerns all plans and programs, which fall within the scope of the Directive and of the Regulations of England, Northern Ireland, Scotland and Wales (see Annex 1), which transpose the Directive into UK law. The UK guidelines focus on the Directive's requirements, the decisions to be taken, and the documentation to be provided in each SEA stage. A rich reference section includes essays released by official bodies and SEA experts. In addition, the guidelines provide suggestions to integrate SEA with other types of environmental evaluation procedures. The UK guidelines were the reference guidance for any plan or program which relates either solely to the whole or any part of the UK. In 2006, the Scottish Government released the 'SEA Toolkit' (Partidário and Wilson, 2011), which was replaced in 2013 by new SEA guidelines (The Scottish Government, 2013). The Scottish guidance document substituted the UK guidance for plans and programs strictly concerning territories within the national borders of Scotland. As far as Scotland is concerned, the UK guidance regards plans and programs affecting the environment in jurisdictional UK cross-border territories. The 2013 Scottish guidelines are a step-by-step document of the SEA process, proposes measures for producing a successful SEA process, and a list of questions on key SEA implementation issues. In addition, the guidelines provide practitioners with a list of operative suggestions included in a 'Dos and Don'ts in SEA' table.

4.2 Evaluation of the SEA guidelines

The *Evaluation* analysis (phase two) of our method starts with an examination of the critical issues that a SEA guideline needs to take into account (Table 5).

Table 5 General analysis of SEA guidelines.

Institution	(A) Specific focus	(B) Regular updating	(C) Case studies
Ireland			✓
Italy	✓		✓
Latvia			✓
Portugal			✓
Scotland			
Sweden			
The UK			✓

From the set of guidance documents analyzed, only Italy fulfills criterion ‘A’. Irish guidelines relate to the application of SEA to plans prepared under the Planning and Development Act 2000. UK SEA guidelines refer to additional guidance documents (partly not available on-line) relating, for example, to transport, land use, and spatial plans (ODPM, 2005). With respect to criterion ‘B’, no SEA guidelines in our sample is regularly updated; the oldest ones date back to ten years ago. Scottish and Portuguese guidance documents have been finalized recently so an updating is not needed yet; in our study we have taken into account the updated version of both guidelines. No information has been found on scheduled updates over the next few years. Five SEA guidelines include case studies (criterion ‘C’) sometimes with an incomplete description and a mere mention of the case study. Some documents propose frameworks for designing a number of SEA activities, such as impact matrices and SWOT analysis. A summary of the results of our qualitative content analysis (sub-phase 2.2) is reported in Table 6. Most of the themes discussed in SEA literature are covered in the SEA guidelines, but they are sometimes poorly detailed and explained through basic definitions or short descriptions (see the SEA-EIA relationship, in particular). Irish, Latvian,

Scottish, and Swedish SEA guidelines are fairly complete, as they present full coverage of eight out of nine issues.

Table 6 Specific analysis of SEA guidelines. Key: 😊 full coverage, 😐 fair coverage, 😞 mere mention or absent coverage.

Institution	General		Process				Specifics		
	Integration	SEA-EIA	Screening	Scoping	Environmental Report	Participation and Consultation	Monitoring	Alternatives	Checklists
Ireland	😊	😐	😊	😊	😊	😊	😊	😊	😊
Italy	😐	😐	😞	😞	😐	😊	😐	😐	😞
Latvia	😊	😐	😊	😊	😊	😊	😊	😊	😊
Portugal	😊	😊	😞	😊	😐	😊	😊	😊	😊
Scotland	😊	😊	😊	😊	😐	😊	😊	😊	😊
Sweden	😊	😐	😊	😊	😊	😊	😊	😊	😊
The UK	😊	😐	😊	😐	😊	😊	😊	😊	😊

Table 7 associates the themes to the narratives distilled from the combinatory analysis of the seven guidance documents. Narratives clarify the underlying concepts and introduce the third phase of the method (section 4.3), where we provide professionals with suggestions for the design of ad hoc SEA guidelines.

Table 7 Combined content analysis of SEA guidelines by theme: the narratives.

	Themes	Narratives
General	Integration SEA-planning process	The need to integrate SEA within plan process is highlighted
Process	SEA-EIA	Differences between SEA and EIA; how they connect with each other
	Screening	Aim; basic criteria and exceptions; important concepts and aspects involved
	Scoping	Aim; information needed for drafting the scoping document; definition of aims of plan and SEA; definition of tentative contents of the SEA report
	Environmental report	Aim; quality assessment; handling uncertainties and lack of data; identifying, describing, and evaluating the effects of the plan; preparing schemes/frameworks of SEA report
	Consultation	Aim; who, when and how; different ways of carrying out consultations; quality assessment
Specifics	Monitoring	Aim; body in charge; issues to be monitored; monitoring measures and strategies; monitoring indicators
	Alternatives	Alternatives' definition and comparison; final selection of a reasonable alternative
	Checklist	Adopting checklists to assess the SEA quality and SEA phases

As per the macro theme 'general', most of the guidelines insist that SEA should be integrated and carried out as early as possible during the development of plans and programs. All the guidelines -and in particular for Scotland, Sweden and Portugal- refer to the integration between SEA and planning. Officials representing environmental agencies should not be undermined by other stakeholders in order to keep environmental sustainability issues central in the SEA process (see Swedish SEA guidelines). Portuguese guidelines stress that "[...] 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" (Partidario, 2012, p. 19). While the use of external consultants could lead to a more independent and objective process, the Latvian SEA guidelines suggests that the involvement of internal staff gives the "assessment team a possibility to react immediately to any new ideas and drafts produced by planners" (Finnish Environment Institute and SIA Estonian, Latvian & Lithuanian Environment, 2007, p. 24). Integration can

improve by holding workshops during the key stages of the process, and predicting environmental effects through a collaborative approach (Scottish Government, 2013). Portuguese and Scottish guidelines clearly focus on the relationship between EIA and SEA. Portuguese SEA guidelines offer a perspective about some fundamental differences between SEA and EIA and provide practical examples about the connection between such environmental assessment tools. A clear position concerning the link EIA-SEA is important. EIA processes can be improved when they are preceded by an earlier assessment and a broader contextual framework (Partidário, 2005; IAIA, 2002).

As per the macro theme ‘process’, guidance documents usually describe SEA procedure by segmenting it into distinct stages and indicating to the stakeholders the need to be involved in the process and its timeline. The selected guidelines address the screening stage by emphasizing important concepts and aspects involved in this phase and by reminding the aims, basic criteria and exceptions in the determination of the need to commit a certain plan or program to SEA. Screening receives different degrees of attention in the guidelines: it is considered more important in Scottish and Swedish guidelines but less in the Latvian one. Scottish guidelines include information about ‘who to consult’, ‘when to notify’, ‘how to notify’, and ‘good practice’ both in prescreening and screening. As Scottish guidelines point out, the screening criteria are set out by the Environmental Assessment (Scotland) Act 2005 but practical examples are provided in the guidelines in order to help practitioners understand and apply the screening criteria effectively. This is important, because “although legislation and guidance offer practitioners a legal and logical approach to the screening process, it is inevitable that discretionary judgement takes place and will impact on the screening decision” (Kørnøv and Wejs, 2013, p. 64). Scoping is a mandatory procedure in the EU Member States and methods applied for scoping are mainly qualitative (European Commission, 2009). The scoping phase consists in the early identification of the most relevant environmental issues of a plan or program. This phase defines the general aims of the SEA process and the level of information

required for a proper SEA report. Issues of this phase usually concern the choice of the assessment methods, the involvement of stakeholders, and draft instructions on monitoring. Scoping is recommended to be developed in collaboration with the environmental authorities since the early stages of the planning process. The whole set of guidelines take into account the scoping phase, although this stage is regarded as a preliminary SEA phase in the Italian guidelines. Latvian, Portuguese, Scottish, and Swedish SEA guidelines approach accurately the description of the scoping stage. Polido and Ramos (2015) propose a framework including criteria enhancing the effectiveness of SEA scoping. This framework is grounded on international guidelines, scientific works, and Portuguese regulations and guidelines. EU Member States could tailor the framework to their national context, regulations, and SEA guidelines. It is important to develop carefully the scoping phase as early as possible in order to enhance decision-making and exploit the full potential of SEA (Polido and Ramos, 2015; Aschemann, 2004). As many guidelines stress, the SEA report is the core document, as it illustrates the effects of the plan on the environment, builds and assesses the alternatives, and develops on environmental indicators and monitoring strategies. Some SEA guidelines indicate methods (i.e., checklists) for measuring SEA report quality and strategies for handling uncertainties and lack of data. Five out seven guidelines (Ireland, Latvia, Portugal, Sweden and UK) also provide a variety of frameworks suggesting possible formal schemes and contents for drafting the SEA report. The Scottish guidelines do not provide a template but claim that contents and structure of SEA report is best defined at the scoping stage. SEA guidelines of Sweden include a series of suggestions for improving the quality of SEA report, while those of Ireland refer to an external document issued by the Environmental Protection Agency (Government of Ireland, 2004). In our opinion the later approach should be avoided. In SEA guidelines an ad hoc section should cover the quality of SEA report: in this way practitioners could easily and quickly check the quality of the SEA report when drafting the document. SEA guidelines should indicate

quality assessment packages (QAPs), such as those developed by Fischer (2010) and De Montis (2014). The QAPs, calibrated for a specific context, are a good support in the drafting of SEA reports.

Participation and consultation are discussed in the guidelines with different levels of detail. Such issues are extensively treated by Irish, Portuguese, Swedish, and Scottish guidelines. Some guidance documents (Italy, Latvia, and Sweden) assign a crucial role to the consultation phase. Consultation provides stakeholders and the public with updated information on the plan and program and its environmental effects. Consultation is an important contribution “to the quality of the information available to decision-makers when adopting a plan” (Government of Ireland, 2004, p. 41). Guidelines generally specify who should be involved and suggest that consultations should take place at the beginning of the process (Ireland, Latvia, and Sweden). In particular, Swedish SEA guidelines stress that participation “may help achieve a more open, participative process and obtain more support for decisions on plans and programmes among different groups within society” (SEPA, 2010, p. 61). Latvian SEA guidelines propose the use of checklist-based guidance tools for building a successful participation phase. Participation and consultation are described as key elements of SEA. Emphasis on participation in the scoping phase (see Scottish and Portuguese guidelines) is important, given that it assumes some relevance for SEA scoping effectiveness (Polido and Ramos, 2015). Participation can also help to make the plan both rooted on consensus and more credible (Rega and Baldizzone, 2015; De Montis et al, 2014; Gauthier et al., 2011; Runhaar and Driessen, 2007; Rauschmayer and Risse, 2005; IAIA, 2002). The relevance of monitoring and follow-up is internationally acknowledged (De Montis et al, 2014; Gachechiladze-Bozhesku and Fischer, 2012; Hanusch and Glasson, 2008; Fischer, 2007; Partidário and Arts, 2005; Partidário and Fischer, 2004). According to the European Commission (2009), the lack of substantial national guidance on SEA monitoring may pose a problem for the success of the SEA

process. In the monitoring phase, the effects of a plan on the environment are checked and traced in space and time. The issue of monitoring is a common theme for the entire set of guidelines selected. Recurring themes include aims (Ireland, Italy, Latvia, Portugal), launch of the process (Ireland, Italy, Latvia, Portugal), arrangements and methods (Ireland, Latvia, Portugal), indicators (Ireland, Italy, Portugal, Scotland), guidance (Ireland, Portugal), and release of the periodic report (Italy, Latvia). If appropriate, use of existing monitoring systems is recommended to avoid duplication and save resources (Latvia, Scotland). Uncertainties within assessments can be verified and managed through monitoring (Portugal, Scotland).

As for the macro theme ‘specifics’, SEA guidelines refer to the generation and assessment of alternatives as a normal practice. In the SEA process, the development of alternatives is relevant (IAIA, 2014; Fischer, 2007, Fischer and Gazzola, 2006, IAIA, 2002), as it leads to important and perceived benefits (Jones et al., 2005). Development of reasonable and relevant alternatives in the SEA report has been acknowledged as one of the main problem in the European Union Member States (European Commission, 2009). The whole set of guidelines emphasized the alternatives as an important issue in SEA. Alternatives should be realistic and limited (Portugal, Scotland, the UK), introduced early, possibly in the scoping phase (Latvia, Scotland, Sweden), and assessed in the decisional stage (Portugal) to provide a basis for preparing the follow-up stage. By contrast, Scottish guidelines (p. 35) suggest that if “there are genuinely no reasonable alternatives to a plan, alternatives should not be artificially generated”.

4.3 Recommendations on the design of SEA guidelines

In this section, we apply the third phase of our method by drawing useful elements for the design of guidelines steering SEA application in the European Union Member States. Our analysis suggests that SEA guidelines should consider and include the key contents detailed in Table 8.

Table 8 Proposal of national SEA guidelines: key contents.

Key contents	Description
Legislative framework	Analysis and comment on the prescriptions of the SEA international, national, and regional legislative acts and documents.
Define plan's objectives in respect to an environmental sustainability framework	Report on: i) the environmental sustainability framework, which includes universally acknowledged criteria about SEA effectiveness; ii) planning objectives, which must be consistent with the environmental sustainability criteria.
Participation	Description of participation strategies with a focus on: i) objectives; ii) timetable of public participation; iii) bodies and individuals; iv) venues; v) encouraging public participation.
Alternatives	Advice on the definition, comparison, and choice of the most reasonable alternative.
Monitoring	Suggestions on the establishment and maintenance of an efficacious monitoring systems with reference to: i) definition of the effects; ii) choice and exclusion of monitoring indicators; iii) partial or total absence of tools and data.
SEA stages	Explanation of each SEA stage and the role of any participating individual and body.
SEA and EIA	Clarify differences between SEA and EIA and provide some examples about how SEA and EIA can be linked.
Checklists	Introduction and comment on some checklists for assessing SEA quality, drafting a SEA report, and managing the monitoring system.
Environmental report scheme/framework	Suggestion of a general scheme/framework for the draft of SEA report in specific planning sectors and levels.
Examples of good practices and case studies	Gathering all the references concerning methodological practical issues (best practices).
Common mistakes and solutions (or Frequently Asked Questions - FAQ)	Commenting on issues often occurring during the development of SEA processes.

SEA is always applied in a specific institutional and juridical context. Thus, SEA guidance documents should present a complete legislative framework to practitioners. For a given member state, SEA guidelines should refer to the national SEA law and other related juridical documents. A second relevant issue attains the description of planning objectives, which are expected to be consistent with the universally acknowledged environmental sustainability criteria. SEA guidelines should propose exemplary environmental sustainability frameworks to give an idea of the environmental objectives. Criteria can be retrieved, for example, from the SEA manual of 1998 (European Commission, 1998). Participation is crucial for a transparent SEA-planning process. SEA guidelines should provide guidance about the public involvement and help defining an agenda that ensures a fair time for the involvement of as many people as possible. Participation of stakeholders can be facilitated through meetings or workshop. As for the involvement of larger

audiences, other tools can be more efficacious: web pages, newspapers, and mass-media. In this case, the opinion of general public can be expressed through written responses. Development of alternatives is another critical issue in SEA practice: SEA guidelines should provide some advice about how to define, compare, and choose the most reasonable sustainable alternative. SEA guidelines could suggest useful tools to practitioners for i) developing alternatives (i.e., schemes/frameworks for reports, geographical information systems), scenario techniques, and ii) dealing with comparative alternatives (i.e., SWOT and multi-criteria analyses). Monitoring is a well-known critical issue in SEA practice. SEA guidelines should provide advice about monitoring plans, including the environmental effects and the indicators, and suggest the practitioners to be particularly attentive avoiding partial or complete lack of tools and data during the drafting of the monitoring plan. SEA guidelines should remind that i) the monitoring report must refer to the achievement of the environmental sustainability objectives and be published periodically; ii) decisions about the reorientation of the plan depending on the monitoring results should be made transparent; and iii) the monitoring authority must clearly specify its financial needs. Guidelines should provide a description of each SEA stage and clearly highlight the key issues such as participation in scoping phase, and the need to early integrate environmental concerns within the planning process. Checklists are useful to assess the quality of SEA, and SEA guidelines should suggest the critical issues which need to be addressed and satisfied during the process. Checklists for planning the assessment and the monitoring phase such as those included in the Latvian SEA guidelines would be helpful. A relevant collection of critical issues is the inventory of performance criteria proposed by IAIA (2002). A general SEA report scheme or framework should be suggested by SEA guidelines where practitioners can find a logical pattern that suggests a step-by-step process and how the SEA report should be drawn up. The report will then be tailored on the specific context to which SEA is applied. Examples of good practices and case studies are desirable, if not essential,

for an SEA guidance document. A list of freely accessible documents about the SEA processes already completed, and practical suggestions, may help practitioners to deal with and solve practical problems. The SEA guidelines should include a section of Frequently Asked Questions (FAQ) covering common mistakes and solutions which will be updated over time.

The selection of SEA guidelines covers very sensitive themes for a correct SEA implementation (for instance, integration SEA-planning process, alternatives, and monitoring). In addition, we considered some tools (checklists) that are powerful support methods to achieve more effective SEA processes. So the key contents reported in Table 8 can be considered as a minimum requirement for the design of SEA guidelines. The method experimented and applied in this work applies a bottom-up approach where the design of guidance documents is steered through a systematic analyses of the criticalities in SEA implementation and the contents and frameworks often adopted in other analogous European SEA guidelines. In this respect, our method is similar to the one proposed by Thérivel et al. (2004), who reported their own experience in drafting five SEA guidelines, Schijf (2011), who described a number of SEA guidelines in the light of observations of SEA experts, and Noble et al. (2012), who reviewed SEA documents with respect to the opinion of selected practitioners. By contrast, our method differs from the other approaches because it explicitly enucleates and merges best practices in the proposition of key contents, which should be taken into account by a potential professional committed to the design of SEA guidelines.

5. Conclusion and outlook

This paper analyzes SEA guidelines assuming that, in the contemporary complex institutional and juridical European national frameworks, practice should be steered by proper, contextual, and up-to-date guidance documents. We scrutinized the typical barriers that still hinder a correct SEA implementation. The state of the art summary and scrutiny of a set of SEA guidelines enucleated

theoretical and practical key issues with respect to the design of a SEA guidance document in European Union member states. Given the few studies in the field, this paper is one of the first contributions to the theoretical and methodological debate concerning the design of SEA guidance documents. In doing so, we have structured this work by addressing three Research Questions (RQs) formulated in the Introduction. In RQ₁, we critically analyzed the debate on SEA guidance documents in both general and specific terms. Our main aim focused on topics recognized as central in a hypothetic proposal of SEA guideline in a European member state. As per RQ₂, we have collected a number of SEA guidelines released in Europe. We proposed a methodological framework that revolves around common key issues in SEA implementation and guidelines. These important topics represent the most frequent points in question that are argued to contribute to the well-known barriers to a correct SEA implementation. In this respect, the literature includes a wealth of studies on SEA implementation inefficiencies. In this perspective, in RQ₃, we distilled a list of recommended key contents, which should always be included in a proposal of SEA guidelines for a given member state. The approach adopted in this study is useful, as it presents a methodological framework supporting the design of SEA guidelines able to take in account and overcome a wide range of barriers to SEA implementation.

The method proposed in this paper has pointed out the current issues in SEA guidelines design at national level although the same principles could be generalised and applied to local plans and other planning processes. Following the advices proposed in this paper, practitioners are exposed to the most frequent criticalities of SEA application. Yet we are aware that each country may present specific institutional, juridical, and processual peculiarities. In front of these particularities, the framework proposed in this paper should be complemented with ad hoc national measures and strategies. The method adopted in this paper is systematic, as it grounds on literature review and content analysis approaches. By contrast, the implementation presented in this work has some

limitations as it is biased by the theoretical principles and operative concepts expressed in the selected guidance documents. Although the general principles that guide SEA processes would have been similar, with a different selection of SEA guidelines we could have argued on different narratives. Our advices for the most appropriate contents of a hypothetical draft of SEA guidelines could have been different. Thus, future applications of this method should take into consideration a larger number of guidelines. On the contrary, the method proves to be general as application on different contexts would bring different results (i.e. SEA guidelines at national or local level).

It is our experience in the application of this method that we would have benefited from a greater integration with practitioners. We have put into practice this method with a limited involvement of individuals and bodies practicing SEA processes, mostly in the form of informal chats. In this respect, the method should consider the involvement of local practitioners and experts in order to take into account key aspects and implementation barriers of the area recipient of the guidelines.

Finally, we agree with Schijf (2011), when the author observes that the analysis of the effectiveness of SEA guidance is a key priority. In future research, we will be experimenting with methods able to assess whether SEA guidelines actually lead to more correct SEA implementation in day-by-day practice. Tools would be required to ascertain to what extent SEA guidelines are easily understood by practitioners and translated in fluent, inclusive, and environmentally-driven procedures. In a virtuous circle, the results of the effectiveness analysis may be used to clarify the major weaknesses and to recalibrate and update SEA guidelines.

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8. Annex 2

Table 9 The process of transposition of the SEA Directive in ten Member states (for the whole EU, see: Fischer, 2007; European Commission, 2009; Justice and Environment, 2012).

N	Member state	Main SEA Regulation
1	Bulgaria	Environmental Protection Act of 2002; Ordinance on the terms and conditions for carrying out of environmental assessment of plans and programmes of 2004.
2	France	A number of legislative measures (Ordinance n. 2004-489) supplemented by a series of regulatory measures (Decrees).
3	Germany	The SEA regulations are part of the EIA act §§ 14a - 14f, implemented in national law in 2005.
4	Greece	Joint Ministerial Decision 107017/2006 on the assessment of the effects of certain plans and programmes on the environment.
5	Italy	Legislative Decree n. 152 of 2006.
6	Latvia	Law on Environmental Impact Assessment; Cabinet of Ministers Regulation n. 157 of 2004 on procedures for Strategic Environmental Impact Assessment.
7	Netherlands	The transposition of SEA into Dutch legislation, into the Environmental Management Act and Environmental Impact Assessment Decree respectively, took place on 28 September 2006.
8	Portugal	Law Decree 232 of 2007.
9	Sweden	Chapter 6 of the Environmental Code (1998:808) (as amended by Svensk författningssamling 2006:57).
10	United Kingdom	Statutory Instrument 2004 n. 1633, the Environmental Assessment of Plans and Programmes Regulations.