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The role of Strategic Environmental Assessment towards sustainability in small islands: the case of Azores and Orkney archipelagos

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ABSTRACT

Strategic Environmental Assessment (SEA) is often accepted as a mean for the transition towards sustainability through decision-making, but it is widely acknowledged that are challenges to overcome. SEA is context-specific, depending on different aspects, including the territorial context. It was identified a lack of research focusing on systematised and consistent studies enhancing SEA context specificity for sustainability in particular territories, namely through tailored practices and procedures. Hence, the main goal was *to explore SEA for sustainability in territories with unique features, such as small islands*. These territories provide an opportunity to explore and advance SEA for sustainability because small islands have a pressing need for the enhancement of sustainability. To address the research goal an exploratory and inductive mixed-method approach was used, unfolded through (i) a literature review, identifying the main trending topics on sustainability and SEA practices in small islands, (ii) a case-study, using the Azores (Portugal) and Orkney (Scotland) archipelagos, to assess and compare small islands SEA practices with the mainland, (iii) a questionnaire survey, to identify key issues to take into account while preparing SEA for sustainability integration in these territories, and (iv) a conceptual framework, developing the findings of the empirical research phases with further literature review. The operationalization of the framework was conceptualized for the Azores and Orkney archipelagos. The key findings suggest that it could be easier for Azores to operationalize SEA for sustainability while it is expected that Orkney may need creative solutions to overcome different challenges. Transitioning towards sustainability in small islands through SEA needs a strong support from decision-makers and ownership by practitioners and intermediate decision-makers, with an effective involvement of small islands stakeholders (e.g., small islands civil organizations, small islands experts). Islands' knowledge and cooperation networks need to be established, and a continuous learning process needs to take place.

Keywords: Strategic Environmental Assessment (SEA); sustainability; specific contexts; community empowerment; conceptual model; small islands.

RESUMO

A Avaliação Ambiental Estratégica (AAE) é uma ferramenta de apoio à decisão que facilita a transição para a sustentabilidade dos processos de política e planeamento. A AAE tem vindo a ser aplicada internacionalmente a diferentes domínios e sectores de atividade, através de diferentes metodologias e práticas. Apesar de ser frequentemente discutido a importância do contexto territorial para as avaliações ambientais, incluindo as especificidades institucionais e culturais, têm sido poucos os trabalhos de investigação que focam este tema. Assim, o principal objetivo desta investigação foi explorar o papel da AAE para a sustentabilidade em territórios com características únicas, tais como as Ilhas de Pequena Dimensão (IPD). Estes territórios, devido às suas características singulares e necessidades especiais de desenvolvimento, proporcionam uma oportunidade para explorar e desenvolver a AAE para a sustentabilidade. O método de investigação utilizado foi apoiado numa abordagem exploratória e indutiva, com recurso a métodos mistos, nomeadamente: (i) uma revisão da literatura, identificando as principais práticas de sustentabilidade e AAE em IPD; (ii) um estudo de caso, utilizando os arquipélagos dos Açores (Portugal) e Órcades (Escócia), para avaliar e comparar as práticas de AAE em IPD com as do continente; (iii) um inquérito por questionário, identificando os aspetos relevantes na preparação de AAE para a integração da sustentabilidade nesses territórios; e, (iv) um modelo conceptual, desenvolvido através de mapas conceptuais, suportado nos resultados das fases de investigação empírica e em revisão de literatura adicional. A operacionalização do modelo foi planeada para os estudos de caso dos Açores e Órcades. Os principais resultados sugerem que poderá ser mais acessível operacionalizar a AAE para a sustentabilidade nos Açores. As Órcades poderão necessitar de soluções criativas para superar os desafios existentes. A transição para a sustentabilidade em IPD através da AAE precisa de um compromisso explícito dos decisores de topo e de apropriação por parte dos técnicos e dos decisores intermédios, com um envolvimento efetivo dos atores-chave das IPD (*e.g.*, comunidades locais, organizações não governamentais, peritos de IPD). Os resultados sugerem também que deverão ser definidas redes de cooperação e conhecimento em IPD, bem como, ser estabelecidos processos de aprendizagem contínua.

Palavras-chave: Avaliação Ambiental Estratégica (AAE); sustentabilidade; contexto específico; capacitação da comunidade; modelo conceptual; ilhas de pequena dimensão.

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LIST OF ABBREVIATIONS AND ACRONYMS

APA	Portuguese Environmental Agency
BPoA	Barbados Program of Action
CENSE	Center for Environmental and Sustainability Research
DGOTDU	Portuguese Directorate-General for Spatial Planning and Urban Development
EA	Environmental Assessment
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ES	Ecosystem Services
EU	European Union
IA	Impact Assessment
IAIA	International Association for Impact Assessment
ISDRS	International Sustainable Development Research Society
NEPA	United States National Environmental Policy Act
SA	Sustainability Assessment
SEA	Strategic Environmental Assessment
SEPA	Scottish Environment Protection Agency
SIDS	Small Islands Developing States
SNH	Scottish Natural Heritage
UN	United Nations
UNCED	United Nations Conference on Environment and Development

1 Introduction

Environmental Assessment (EA) is a growing academic research field which as the duality of being also a strong professional practice discipline (Fischer et al., 2015). EA was firstly introduced in 1969 through the National Environmental Policy Act in the United States of America (NEPA), due to the increasing demand of the population for explicit environmental outcomes through decision-making (Barker and Wood, 2001; Eccleston, 2001). Particularly, the NEPA established the EA of projects and more strategic actions, currently known in the literature as Environmental Impact Assessment (EIA – related to projects) and Strategic Environmental Assessment (SEA – related to policies, plans and programmes) (Fischer and Noble, 2015). Even though, in its inception EIA and SEA were not differentiated (Morgan, 2012), it was necessary to make a formal distinction between them due to the EIA limitations when applied beyond the scope of projects (Alshuwaikhat, 2005; João, 2005; Momtaz, 2002; Therivel et al., 1992). Similarly, in the European Union (EU) context, the EA was introduced through the EU Directive 85/337/EEC, in 1985, related to projects, and later, in 2001, it was introduced SEA for plans and programmes through the Directive 2001/42/EC.

SEA is a formal and systematic policy tool which aims to integrate and promote sustainability through the evaluation of the effects of strategic decision-making processes (Fischer, 2007; Sadler and Verheem, 1996; Therivel et al., 2004). SEA has the potential to contribute to more sustainable decision-making processes (Noble and Nwanekezie, 2016; White and Noble, 2013), however, sustainability itself is a difficult concept to grasp with different discourses associated with it (see Hugé et al., 2013). SEA can support sustainability through a systematic framework which focus on setting sustainability objectives and criteria in decision-making development, promoting the assessment of alternatives, envisaging the participation of different stakeholders and enabling institutional change and learning (Eggenberger and Partidario, 2000; Fischer, 2007; White and Noble, 2013). But there are challenges impeding the advance of SEA for sustainability, namely SEA context specificity, as explored by, for example, Hilding-Rydevik and Bjarnadóttir (2007) and Wirutskulshai et al. (2011).

The context specificity of SEA is largely addressed in the literature (e.g., Fischer and Gazzola, 2006; Hilding-Rydevik and Bjarnadóttir, 2007) and Jiliberto (2011) stresses the need for SEA context specificity to be focused in changing the rationale of the SEA methodology towards deliberative models. Overall, SEA application and effectiveness is dependent of different factors such as the political and planning system (Bina et al., 2011; Fischer and Gazzola, 2006; Partidário, 2011), the type of decision-making addressed (Fischer, 2002; Hilding-Rydevik and Bjarnadóttir, 2007), practitioners and intermediate decision-makers SEA capacity (Hilding-Rydevik and Bjarnadóttir, 2007; Partidário, 2011), or, the specific natural and human features (Fischer, 2002).

Overall, it has been identified a lack of research focusing on systematised and consistent studies enhancing SEA context specificity for sustainability in particular territories, namely through tailored practices and procedures. This gap led to the exploration of SEA *for sustainability* in territories with unique features, such as small islands. These territories provide an opportunity to explore and advance SEA for sustainability because small islands have a pressing need for the enhancement of sustainability, even though sustainability in these territories may be paradoxical.

The definition of small island has been widely debated with different authors warning about a possible meaningless and arbitrary definition which may not consider social dimensions causing bias research and analysis (Anckar, 2006; Hein, 2010; Kerr, 2005; Maul, 1996). But for the purposes of their researches, Dolman (1985) and Hess (1990) define a small island as a territory surrounded by a large body of water with a land area of less than 10,000 to 13,000 km² and 500,000 to 1,000,000 inhabitants or less.

Small islands, territories that are geographically isolated, have the attention of the international community due to their specific characteristics and vulnerabilities – narrow and dependent economic base, limited resources, sensitive and fragile ecosystems, and small populations with possible skills pool constraints (Kerr, 2005; McIntyre, 2004; Ramjeawon and Beedassy, 2004). Small islands are also prone to natural catastrophes (e.g. volcanic eruptions, extreme climatic events) and because of their small size, they are less resilient to single event disasters (Briguglio, 1995; Hein, 2010; Pelling and Uitto, 2001). These issues are evidence for the urgency of integrating sustainability in decision-making processes in these territories (Campling and Rosalie, 2006; Crossley and Sprague, 2014; Douglas, 2003).

The international community developed high-policy sustainability instruments for small islands, namely for the case of Small Islands Developing States (SIDS). SIDS are a specific group of small islands¹, recognized as a distinct group of developing countries facing the specific vulnerabilities and constraints identified in the previous paragraph and common to other small islands (Adrianto and Matsuda, 2002). These challenges were firstly acknowledged through Agenda 21 (McAlpine and Birnie, 2006; UNCED, 1992) which stated goals and activities for sustainability in these territories. After UNCED (1992), the UN Global Conference on the Sustainable Development of SIDS was held in Barbados in 1994 reaffirming the principles and commitments of the Agenda 21 (UNCED, 1992) and translating these into a specific programme of action for SIDS (Griffith, 1995; Hein, 2004). In 2005, a new commitment was drafted through the adoption of the Mauritius Strategy, to further implement the Barbados programme of action, adding five new thematic areas, and the Mauritius Declaration, recognizing that particular attention should be given to building resilience in these territories. In 2014, was adopted the SIDS Accelerated Modalities of Action (SAMOA)

¹ Many SIDS have a surface area and/or population bigger than what is defined by Dolman (1985) and Hess (1990) (see <https://sustainabledevelopment.un.org/content/documents/1957Statistical%20PB2014SIDS.pdf>). It is also acknowledged that not all SIDS are islands, however, islands are the majority of the states represented by SIDS.

Pathway, which reaffirms the commitments for the next ten years towards sustainability in SIDS (see United Nations, 2014, 2005, 1994). Despite the fact that the international community addresses mainly SIDS, it is commonly known that small islands generally also face the same vulnerabilities and constraints (Beller et al., 1990).

However, sustainability in small islands is often viewed as paradoxical, where specific approaches towards sustainability are needed (Kerr, 2005), being necessary to go beyond those priority areas established by the United Nations, enhancing the definition and scope of sustainability in small islands, tackling the core issues towards sustainability (van der Velde et al., 2007).

Overall, small islands have characteristics of closed and bounded systems, being 'hotspots' for biological and cultural diversity (Kelman et al., 2015), posing a manageable unit of study (Nagarajan, 2006). The physical small size emphasises these characteristics and vulnerabilities (Baldacchino, 2004). Whereas islands communities and islanders are often considered by academics as having a specific sense of place (Conkling, 2007; Vannini and Taggart, 2013), an "*experiential identity*" (Spilanis et al., 2013, p. 1999).

This research aims at being a contribution for the enhancement of SEA research and practice by exploring SEA context-specific application for sustainability in territories with specific natural and human features, such as small islands. Having identified the research gap and the overall aim of the thesis, this chapter further unfolds into the methodological approach (Section 1.1), where the research questions are presented and the research design explained, and following it is presented the structure of the thesis, identifying the main objectives for each chapter and the research strategies used (Section 1.2).

1.1 Methodological approach

As identified in the previous section, the overall goal derived from the research gap found: *to explore SEA context-specific application for sustainability in territories with specific natural and human features, such as small islands*. To address the research gap and the overall objective, five research questions were identified which further unfolded into specific objectives. The thesis was developed through an exploratory and inductive approach (Saunders et al., 2009) which allowed to be flexible and adaptable throughout the research as new data and new insights appeared. In line with the exploratory and inductive approach, the research was based on a mixed method design (Hesse-Biber, 2010; Teddlie and Tashakkori, 2003). This type of research approach also follows what is usually done in Impact Assessment (IA) research as stressed by Faith-Ell (2015), because of its multidisciplinary and need to combine various research methods adopting an explorative approach to the research. In this section are presented the research questions, specific objectives and the research design followed to achieve the overall goal.

1.1.1 *Research questions and specific objectives*

Based on the research gap identified the following five research questions (RQ) arose. To further guide and operationalise the research, these questions were then unfolded in seven specific objectives (SO):

RQ 1. How is sustainability integration addressed in small islands?

SO 1. Identify, explore and discuss sustainability integration in small islands.

RQ 2. What is the role for SEA in small islands sustainability integration?

SO 2. Study the role of SEA in the integration of sustainability into decision-making of these territories.

RQ 3. Are SEA practices, methodologies and issues used in small islands context-specific?

SO 3. Assess SEA practices and procedures in small islands.

SO 4. Compare SEA practices and procedures in small islands with the mainland.

RQ 4. Are there specific issues to be introduced in SEA practices to enhance sustainability of small islands?

SO 5. Identify key issues for sustainability integration through SEA practice in small islands.

RQ 5. How may sustainability be introduced in small islands through SEA?

SO 6. Develop an SEA context-specific application towards transitions for sustainability in small islands.

SO 7. Give provision for its operationalization for different stakeholders.

1.1.2 *Research design*

To address the specific objectives, different research methods (qualitative and quantitative) were used through an inductive approach. This type of design allows the different research projects that are aggregated by one common overall goal, to have independent methodological approaches and where it is necessary to have more than one perspective on a research topic (Morse, 2003; Teddlie and Tashakkori, 2003).

First, it was developed an integrative literature review, following Torraco's (2005) approach aimed at identifying, exploring and discussing the key arguments for sustainability integration and SEA approaches in small islands (RQ 1 and 2; SO 1 and 2). This was achieved through systematic search of academic literature supported by different online databases using key terms: "sustainability islands", "sustainable development islands", "sustainability assessment islands" and "environmental assessment islands". A total of 107 papers (see Section 2.3 for the rationale on the choice of these papers) were analysed through a content analysis based on Bardin (1977), Krippendorff (2004) and Neuendorf (2002).

Secondly, the empirical studies used (i) embedded multiple-case study, (ii) comparative assessment through content analysis, and (iii) questionnaire survey. The embedded multiple-case study (Yin, 2009), where Azores (Portugal) and Orkney (Scotland) archipelagos were used (see Section 3.3.1 for the rationale on using these case-studies), was developed to assess the

integration of SEA context-specific small islands practices and procedures (RQ 3; SO 3). Additionally, a comparative assessment (Bryman, 2012) with Portuguese and Scottish mainland was also completed to contextualize the case studies (RQ 3; SO 4). The data collection and analysis was done through a qualitative content analysis approach following Bardin (1977), Krippendorff (2004) and Mayring (2000) to 43 SEA reports (unit of analysis) (see Section 3.3.2 for the rationale on the choice of these reports). To understand what specific issues should be introduced in SEA practices to enhance sustainability of small islands (RQ 4; SO 5), an online self-administered questionnaire survey was used (Ghiglione and Matalon, 1993; Saunders et al., 2009). The survey enhanced the knowledge about SEA experts' views and perspectives on SEA context-specific approaches and the contribution of SEA to sustainability in small islands (see Section 4.2 for the rationale on the choice of SEA small islands experts).

Finally, a concept map (Lanzing, 1998; Tergan, 2005) was drafted iteratively using the information from the previous research phases and additional literature review allowing data triangulation (Bryman, 2012; Erzberger and Kelle, 2003). The concept map was drawn to develop a conceptual framework for an SEA context-specific application towards transitions for sustainability in small islands (RQ 5; SO 6). Additionally, the Azores and Orkney archipelagos were used as case-study to operationalize the framework (RQ 5; SO 7). The research design used is further detailed in each individual chapter.

1.2 Structure of the Thesis

This thesis consists of four main chapters, each representing an individual paper (Chapters 2 to 5). The papers are cumulative and sequential, yet, they may read as stand-alone papers. Three of the four papers were published in international peer-reviewed journals, and the fourth was recently submitted. Figure 1.1 shows the structure of the thesis, including the objectives and strategies used for each chapter.

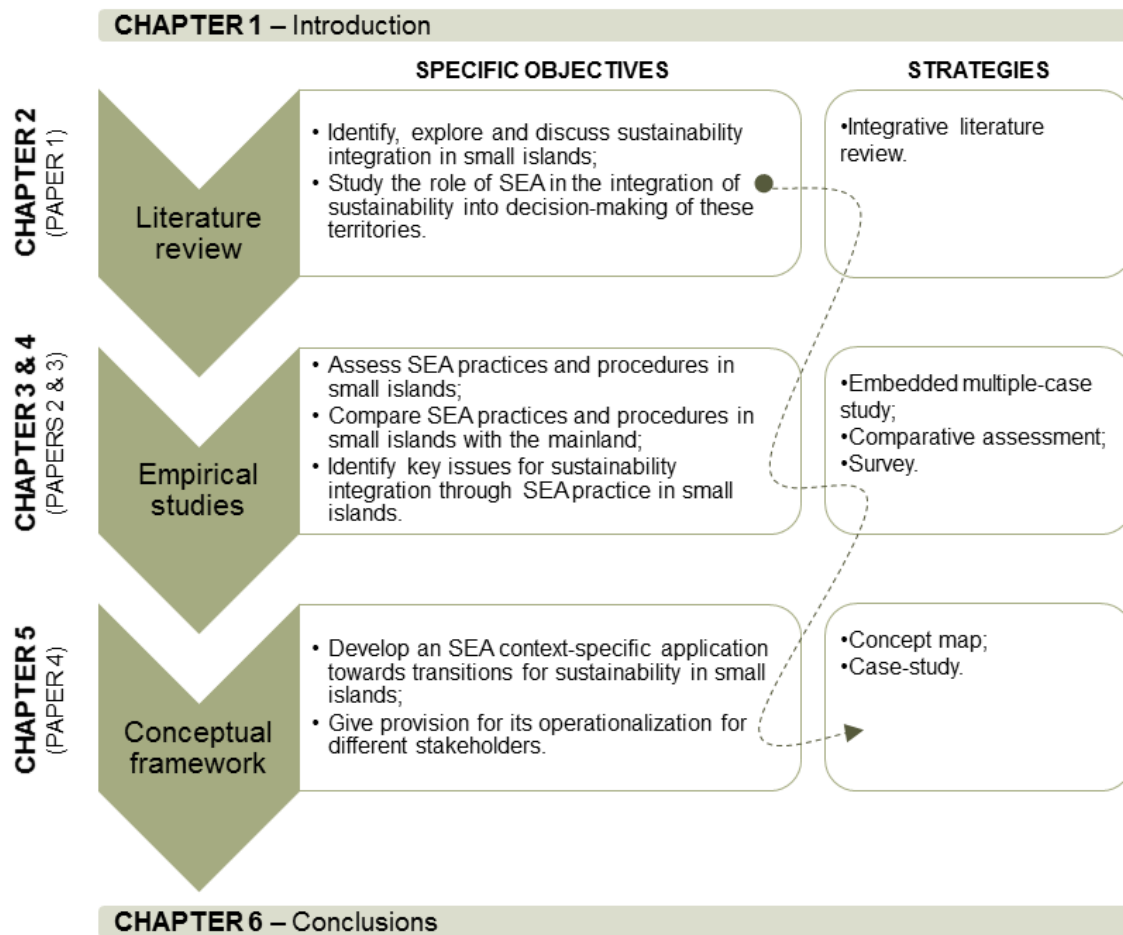


Figure 1.1 – Thesis roadmap, including specific objectives and research strategies used for each chapter.

Chapter 2 comprises the first paper which introduces the reader on the topic of the thesis, by developing an integrated literature review aimed at understanding what academic literature reported on the key sustainability issues and SEA approaches in small islands. Also, the paper identified the main trending topics on sustainability for small islands, key arguments and drivers for the transition towards sustainability in these territories linked through SEA. These drivers guided the subsequent steps of the research.

Chapters 3 and 4 (papers 2 and 3) consist on the empirical studies. In the second paper the empirical study aimed at assessing and comparing SEA practices in small islands with the mainland. The Azores (Portugal) and Orkney (Scotland) archipelagos were used as case-studies. The paper identified gaps in the practice of these territories, and the lack of small islands specific SEA approaches, suggesting a need for tailored approaches. Additionally, the findings also suggested a need for the enhancement of practitioners' knowledge and capacity, as well as effective participatory approaches, and information and experience exchange networks between different small islands. Further data was needed on these issues and the third paper provided a study on the identification of the key issues to take into account while preparing SEA for sustainability integration in these territories. This was achieved through self-administered

questionnaire survey sent to SEA experts from European small islands. The questionnaire was built on the previous research results (Chapters 2 and 3), and contributed to further explore and enhance those results. Overall, the previous results were confirmed, adding some preferences from experts, such as, having supplementary guidelines instead of further legal enforcement.

Following, Chapter 5 shows the conceptual framework to enhance an SEA context-specific application towards transitions for sustainability in small islands and give provision for its operationalization for stakeholders, namely decision-makers, practitioners and intermediate decision-makers. The conceptual framework took into account the empirical research phases, further literature review and its operationalization was conceptualized for the Azores and Orkney archipelagos. The chapter provides a dynamic framework that needs to be adjusted iteratively with practice. The framework has mind-set changing capacity, enhancing future practice and influencing different stakeholders for the need of specific a small islands approaches (Paper 4).

Additionally, a first chapter provides a general introduction where the main research goal and research questions, the justification of the thesis, and the overall research design are identified (Chapter 1), and the last chapter presents the final reflections and conclusions, including summary of key findings, recommendations for future practice and for future research (Chapter 6).

2 Sustainability approaches and strategic environmental assessment in small islands: an integrative review²

Abstract

Small islands are territories that are subject to different environmental, economic and social problems and pressures. Strategic Environmental Assessment (SEA) is a systematic approach that integrates sustainability issues into policies, plans and programmes promoting the participation of different stakeholders including the communities. In this research an integrative review is performed to identify, explore and discuss the academic outlook on sustainability in small islands and SEA in their decision-making context. The study is justified by the pressing need to find suitable responses for integrating sustainability into small islands through the decision-making process. The review was conducted through academic literature that focused on sustainability and environmental assessment in islands from the last 15 years. The documents were analysed through a content analysis based approach where they were coded with pre-determined categories according with the 14 priority areas identified in the Barbados Programme of Action and the three additional priority areas from the Mauritius Strategy for addressing the special challenges faced by Small Islands Developing States. From the review it is understood that it is still not clear what sustainability is for small islands or what is the best approach to achieve it. However, three key arguments, linked with SEA, emerged from the discussion on how to enhance sustainability in these territories (i) change in decision-making paradigm, (ii) good governance and community empowerment and, (iii) resilience. SEA can help to put forward these three “sustainability enhancers” since SEA approaches addressed them, yet, it is necessary to develop or rethink a framework for SEA in these territories, promote SEA research for small islands and stimulate capacity-building.

Keywords: decision-making process and planning; integrative review; small islands; strategic environmental assessment; sustainability; sustainable development;

² Polido, A., João, E., & Ramos, T.B. (2014). Sustainability approaches and strategic environmental assessment in small islands: An integrative review. *Ocean & Coastal Management*, 96, 138–148. doi.org/10.1016/j.ocecoaman.2014.05.005 (Reproduced with authorization of the publisher and subject to copyright restrictions imposed by them).

2.1 Introduction

Small islands face vulnerabilities and constraints that concern the international community, which engages in efforts to develop programmes of action to address sustainability in these territories (Bass and Dalal-Clayton, 1995; UNCED, 1992). These territories are living laboratories for the planet, because they are a closed and bounded system and are manageable units of study. In these territories people can see and experience the impacts of their actions on the ecosystems and what it causes in the whole system (Nagarajan, 2006). Hence, small islands can become an influencing “voice” of future goals and targets for sustainability and for that, they deserve increased attention and greater international support (Crossley and Sprague, 2014).

These territories are vulnerable and have specific features, being subjected to internal and external generated environmental problems (Douglas, 1997) and there is a need to implement sustainability strategies (Herbert, 1998). This can be achieved by finding the key principles to integrate sustainability into decision-making of these territories. There are several issues linked with sustainability to be taken into account in the political and planning system of small islands, such as, climate change and sea-level rise, natural and environmental disasters, waste management, coastal and marine resources, among others (Beller et al., 1990; Griffith, 1995; Hein, 2010). Therefore, traditional concepts of sustainability cannot be applied to small islands (van der Velde et al., 2007), needing a tailored approach to integrate sustainability in the political and planning system of these territories. Despite the existence of different approaches that could contribute to the integration of environmental, social and economic sustainability aspects into strategic decision processes, there is one that was specifically designed to respond to this challenge, and for that reason, it may also play a fundamental role in small islands – the Strategic Environmental Assessment (SEA). SEA was developed to provide a systematic framework for analysing and assessing the decision-making processes of policies, plans and programmes (Fischer, 2007; Therivel, 2004).

SEA may improve the decision-making process, focusing on key sustainability constraints, assessing alternatives and promoting the participation of different stakeholders (Eggenberger and Partidario, 2000; João, 2005; Therivel et al., 1992). SEA is context specific and needs to be developed taking this into account (Hilding-Rydevik and Bjarnadóttir, 2007).

Despite the extensive research discussing sustainability aspects in small islands, the majority primarily focus on individual environmental, social or economic issues. Therefore, there is a dearth of research that review and analyse the holistic approaches to integrate sustainability and, in particular, using SEA. The aim of this research was to do an integrative review to identify, explore and discuss what the academic literature reports on the key arguments for sustainability integration in small islands and on SEA approaches in their decision-making processes.

2.2 Study context and rationale

This section sets out the fundamental principles of the three key-topics of this paper: small islands, sustainability and SEA. This study context and rationale on the key-topics will help establish the starting point of the research, making clearer the arguments used in the paper. This section will be a brief introduction to the subject under review.

2.2.1 *Small Islands as specific and vulnerable territories*

Different authors have debated over the definition of “Small Island” and what it means without conclusive scope delimitation (Baldacchino, 2004; Deschenes and Chertow, 2004; Hay, 2006; Kerr, 2005). The criteria found in the literature (e.g., population size and/or density, area, gross disposable product) to establish the definition of small island, seems to be meaningless, arbitrary and does not consider social dimensions which may cause bias research and analysis (Anckar, 2006; Hein, 2010; Kerr, 2005; Maul, 1996). It is necessary to define what a small island is in a specific context (Nunn, 1994), whether it is for study proposes, for international financial aid access, for political reasons and/or for economic reasons. For instance, and for the purposes of their researches, Dolman (1985, p. 40) defines a small island as “a territory surrounded by a large body of water” with a land area of less than 13,000 km² and one million inhabitants or less, and Hess (1990, p. 3) defines a small island as having a land area of 10,000 km² or less and 500,000 or less inhabitants. Baldacchino (2005) advises against a rigid definition of island and their categorisation. More than having a well-accepted single rigid definition, we will need to have a flexible concept that despite adopting some common criteria or assumptions it will also integrate a dynamic view for each particular context.

Small islands have specific characteristics and vulnerabilities because of their small size and geographic isolation. These specific features may be categorised in five major areas, such as: (i) economic dependency due to problems related to transportation of people and goods and communication (Briguglio, 1995; Hein, 2010; McIntyre, 2004), also, due to limited capacity to produce and consume, become highly dependent on international trade and markets (Bass and Dalal-Clayton, 1995; Briguglio, 1995; Hein, 2010); (ii) limited resources, because there is a scarcity of basic resources, such as, fresh water and fertile soil (Bass and Dalal-Clayton, 1995; Deschenes and Chertow, 2004); (iii) population size, small islands that have small populations, have a limited pool of skills, while high populations densities have high demands on resources (Bass and Dalal-Clayton, 1995; McIntyre, 2004); (iv) unique biodiversity and vulnerable ecosystems with small population species that are indigenous to only one island or island group within a region and with a greater risk and vulnerability from overexploitation and habitat degradation (Bass and Dalal-Clayton, 1995; Hein, 2010; McIntyre, 2004); and (v) proneness to natural catastrophes because many islands are volcanic in origin with active volcanoes, furthermore, climate change and the rise of sea level are a pressing concern because small islands are less resilient to single event disasters (Briguglio, 1995; Hein, 2010; Pelling and Uitto, 2001).

The international community concern about the singular features of small islands, their development, vulnerabilities and specific characteristics started in the 1970s (Campling and Rosalie, 2006) and in the following decade, in 1986, the “Interoceanic Workshop on Sustainable Development and Environmental Management of Small Islands” took place (Beller et al., 1990). This workshop brought together 32 experts and focused not only on what would be commonly known as Small Islands Developing States (SIDS) but other islands, such as the Mediterranean islands of Greece and Malta, which face similar constraints (Adrianto and Matsuda, 2002; Beller et al., 1990; Newitt, 1992).

In 1992, at the Earth Summit, it was formally recognized the unique challenges faced by SIDS. Agenda 21 (UNCED, 1992) states the goals and main activities for SIDS to achieve sustainable development through the adoption and implementation of plans and programmes to support the sustainable development and also through the adoption of measures to cope with environmental change (Griffith, 1995; McAlpine and Birnie, 2006; UNCED, 1992). Taking this into account, the UN Global Conference on the Sustainable Development of SIDS was held in Barbados in 1994 reaffirming the principles and commitments of the Agenda 21 (UNCED, 1992) and translating these into a specific programme of action for SIDS (Griffith, 1995; Hein, 2010). The Barbados Programme of Action (BPoA) (UNGCSD-SIDS, 1994) recognizes 14 priority areas for sustainable development in SIDS. In 2005, the BPoA commitments were renewed and improved with the Mauritius Strategy in 2005 (United Nations, 2005), which identifies additional priority areas such as health, culture and, sustainable production and consumption.

2.2.2 The definition issues of sustainability

Even though the international community addresses and recognizes the importance of sustainability to small islands, the definition of “sustainability” is still discussed by different authors with different outlooks. Some define sustainability as being (ideally) a nearly steady-state, since there are limits to growth (Daly, 2007; Meadows et al., 1972), and to others is something that is essential for the development of the nations (Costanza and Patten, 1995; WCED, 1987). Costanza and Patten (1995) outline that the problem of defining sustainability is due to a misdirect discussion and what should be taken into account is that more than being a problem of definition, sustainability is a matter of wills, meaning that “sustainability” should be a consensus of what the communities want to preserve and at the same time what has the capacity to be preserved. This depends on the time and space scales.

When the dilemma of defining sustainability arises, the definition given by the Brundtland Report (WCED, 1987) for sustainable development is quoted as development that “meets the needs of the present without compromising the ability of future generations to meet their own needs.” There is a fuss surrounding the terms “sustainability” and “sustainable development” discussing if they have the same meaning. In Agenda 21 both terms were used interchangeably (Dresner, 2008). However, it is paramount that the development focuses on human well-being and the maintenance of natural resources (Costanza, 1991; Goodland, 1995). Due to this dilemma, different authors usually define

what sustainability means in the context of their own works (see Costanza, 1991; Jaramillo-Nieves and del Río, 2010).

Dalal-Clayton and Bass (2002) show that the key-principles for sustainable development strategies are people-centred, consensus on long-term vision, comprehensive and integrated, targeted with clear budgetary priorities and based on comprehensive, reliable analysis, incorporate monitoring, learning and improvement, country-led and nationally-owned, high-level government commitment and influential lead institutions, building on existing mechanism and strategies, effective participation, link national and local levels and develop and build on existing capacity. However, sustainability strategies in small island have been discussed by several authors and international agencies, due to their special vulnerabilities and particular characteristics (Bass and Dalal-Clayton, 1995; Briguglio, 1995; Douglas, 2003; McIntyre, 2004; Ramjeawon and Beedassy, 2004), and as recognised by Kerr (2005) and Bass and Dalal-Clayton (1995), sustainability strategies in these territories may be paradoxical and demand different approaches.

2.2.3 Strategic Environmental Assessment

SEA was introduced in the United States in 1969 with the National Environmental Policy Act (NEPA) due to the increasing concern of the population facing marked environmental problems (Barker and Wood, 2001; Eccleston, 2001; Fischer, 2007). NEPA did not differentiate environmental assessment of policies, plans and programmes, usually called SEA, from the environmental assessment of projects, designated as Environmental Impact Assessment (EIA) (Morgan, 2012). In the European Union (EU) context, the environmental assessment concept was introduced through the EU Directive 85/337/EEC, in 1985, but understanding the need for a different approach, for plans and programmes, the EU introduced SEA through the Directive 2001/42/EC.

The distinction between EIA and SEA was necessary since EIA has limitations when applied beyond the scope of projects, and focusing on strategic instruments, such as plans (Alshuwaikhat, 2005; João, 2005; Momtaz, 2002; Therivel et al., 1992). The most common limitations of EIA are the narrow scope, entering too late into the decision-making process, overlooking the context where the project is in and, consequently, dismissing the cumulative impacts of contiguous projects (João, 2005; Therivel et al., 1992; Thompson et al., 1995). By itself, EIA does not ensure that sustainability is integrated in the decision-making process becoming ineffective in protecting the natural resources and being necessary to be complemented with SEA at high tiering level (Clark and Partidário, 2000; João, 2005; Momtaz, 2002; Therivel et al., 1992).

The need to integrate sustainability concepts in previous steps of the decision making process have become a concern (Alshuwaikhat, 2005; Briffett et al., 2003; Ramjeawon and Beedassy, 2004; Turnbull, 2003; Zubair et al., 2011). It was necessary to start thinking strategically about the impacts of the decision making and it was to fill this gap that SEA was developed (Partidário, 2005; Pope et al., 2013; Tetlow and Hanusch, 2012; Therivel, 2004).

One of the most quoted definitions of SEA (Dalal-Clayton and Sadler, 2005; Therivel, 2004) is the one given by Sadler and Verheem (1996, p. 27), which states that SEA is:

“a systematic process for evaluating the environmental consequences of proposed policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at the earliest appropriate stage of decision making on par with economic and social considerations”.

Fischer (2007) adds to this definition stating that SEA also provides a structured decision framework and the information produced through this approach enhances the scientific rigour of the decision-making process.

SEA is typically operationalised through different stages and approaches that are integrated into the decision-making process (Therivel, 2004). There are different guidelines (ODPM, 2005; OECD, 2006; Partidário, 2012) depending on the SEA context (Therivel et al., 2004). However, there are similar features. Generally, SEA is built on three main stages: Scoping, Environmental Assessment and Follow-up. The first two stages produce a report (scoping report and environmental report) that is subject to stakeholders consult and comments. The comments are addressed and incorporated into the final version of the reports which will inform the decision-making (OECD, 2006).

In the scoping phase, the nature and extend of the assessment is decided. The scoping is developed through different actions, such as, identification and inclusion of sustainability issues in the decision-making objectives and identifying SEA objectives and indicators. After this exercise, it is necessary to understand what is the current situation, environmentally, socially and economically, identifying problem areas and links to other strategic actions (Therivel, 2004). This will inform and help identify alternatives to achieve the decision-making objectives. A report is produced and a consultation process takes place (OECD, 2006; Partidário, 2012).

The consultation results of the scoping phase inform the decision-making and the following stages of the SEA. It is in the environmental assessment stage that the impacts are predicted and alternatives are evaluated (Therivel, 2004). This can be achieved through different techniques (Fischer, 2007). Mitigation measures and guidelines for implementation are also planned in this stage (Therivel, 2004). Stating this information, a report is completed and, in the same way to the scoping report, is consulted by stakeholders which comment on it. The comments inform the final version of the environmental report which will inform the strategic action.

The final stage, the follow-up, aims to monitor the impacts of the strategic action (Therivel, 2004). After the SEA is implemented, it is necessary to understand if the mitigation measures and conclusions of the environmental assessment are being taken into account (Fischer, 2007; ODPM, 2005; OECD, 2006).

Currently, regulations and procedures in SEA are “context free” (Hilding-Rydevik and Bjarnadóttir, 2007, p. 681). The need for SEA to be adapted to different contexts has been discussed by different authors (Fischer and Gazzola, 2006; Gunn and Noble, 2009; Hilding-Rydevik and Bjarnadóttir, 2007; White and Noble, 2013), however, it is not clear what is the context that has been referred to

as “the SEA context” (Hilding-Rydevik and Bjarnadóttir, 2007; Runhaar, 2009). Different authors see context differently. SEA context can relate to the political and planning system (Bina et al., 2011; Fischer and Gazzola, 2006; Partidário, 2011), the type of decision-making it address (Fischer, 2002; Hilding-Rydevik and Bjarnadóttir, 2007), the context of professional practice and capacity (Hilding-Rydevik and Bjarnadóttir, 2007; Partidário, 2011) or the territorial context and their specific natural and human aspects (Fischer, 2002). This opens different possibilities for small islands to have tailored approaches according to the sustainability goals for the territory and its specific features.

2.3 Research Design

The integrative literature review was based on the peer review papers that cover the approaches of sustainability in small islands and SEA in their decision-making processes from the last 15 years between 1997 and 2012 (and early 2013 papers). The search of the academic literature was supported by the following online databases: Web of KnowledgeSM, ScienceDirect®, Taylor & Francis Online and Wiley Online Library, and the search engine Google Scholar. Different key terms, such as “sustainability islands”, “sustainable development islands”, “sustainability assessment islands” and “environmental assessment islands” appearing on the title and keywords, when applicable, were used. After removing the repeated and non-academic material a total of 107 papers were selected. A subset of eight was retrieved using the search terms “sustainability assessment islands” and “environmental assessment islands”.

Following the data collection, an in-depth analysis of the state of the art was conducted. The documents were analysed through a content analysis based approach developed according to the methodological recommendations of Bardin(1977), Krippendorff (2004) and Neuendorf (2002). The use of a content analysis is justified by the exploratory nature of this process, which allows replicable and valid inferences from texts (Krippendorff, 2004). Through content analysis, it was possible to group ideas and parts of text into content-related categories as suggested by Elo and Kyngäs (2008). Also, content analysis has a wide scope and may be used in different contexts and scientific areas (Fischer and Gazzola, 2006), such as the ones covered by this review. Furthermore, this method may be used with qualitative or quantitative data and in an inductive or deductive way (Elo and Kyngäs, 2008), which allowed, for the purpose of this research, the adoption of a qualitative and inductive approach.

Similarly to what was developed by White and Noble (2013), a pre-analysis of the papers was conducted, as recommended by Bardin (1977) and the material was classified through a pre-determined set of categories according to the 14 priority areas identified in the Barbados Programme of Action (BPoA) and the three additional priority areas introduced in the Mauritius Strategy for addressing the special challenges faced by SIDS: climate change and sea-level rise, natural and environmental disasters, management of wastes, coastal and marine resources, freshwater resources, land resources, energy, tourism, biodiversity, national institutions and administrative capacity, regional institutions and technical cooperation, transport and

communication, science and technology, human resource development, health, culture and sustainable consumption and production.

After the pre-analysis, a series of iterations was performed, where similar concepts were grouped. From these iterations three broad themes (or key arguments) addressing sustainability in small islands, which go behind the pre-determined categories, arose: change in decision-making paradigm, good governance and community empowerment and resilience.

The disadvantages of the research method used are associated with the limits to the inferences drawn and the inability to assess causality (Kondracki et al., 2002). Furthermore, the authors acknowledge that these are not the only sources of peer review papers and that there are different search words that could have been used. However, it would be an almost impossible task to review all the potential relevant documents and therefore the research was confined to this method.

2.4 Findings on sustainability and environmental assessment in small islands

It is expected, when researching small islands, to talk about SIDS, due to the attention given by the international community since the Earth Summit in 1992 took place. This is reflected in the academic agenda. Of the 107 papers analysed, 35 were about SIDS, so what about the small islands that are not in this group? It is recognised that small islands, whether or not SIDS, face similar constraints, special features and vulnerabilities (Beller et al., 1990; Douglas, 1997), hence, the different examples from sustainability action in SIDS can be used as a starting point for research in small islands.

From the 107 papers analysed 45 did not fit the categories (BPoA and Mauritius Strategy priority areas), i.e., they did not focus in any priority areas and seven papers focused in more than one category. Five of the 17 BPoA and Mauritius Strategy priority areas were not addressed in the material reviewed (natural and environmental disasters, national institutions and administrative capacity, regional institutions and technical cooperation, science and technology and health). Furthermore, only 11 papers make a holistic approach to sustainability issues in small islands, the other papers have a sectoral approach to the issue, this means that these papers only focused in one topic.

Even though the priority area “science and technology” is not the focus of any of the manuscripts reviewed, in order to set an agenda for research and development, it is necessary to notice that these papers, by themselves, show advancements in this priority area. From the analysis it was understood that new trends in sustainability in these territories are arising, that go beyond these priority areas.

For each priority area, the BPoA and the Mauritius Strategy have actions that should be taken into account to enhance sustainable development in SIDS and the most part of the papers analysed do not present advancements beyond these actions. It is difficult to extrapolate the findings of one

case to the general case of small islands, confirming that each territory has its own specificity but, there is common ground and complementarity among the material, which allowed for the development of a profile of the main considerations and recommendations, which is presented in Table 2.1.

Due to the global interest in *Climate Change and Sea-level rise*, it was expected that these priority area would be the most addressed, but only four papers focused this topic. Increasing resilience in these territories and communities capacity-building are the main arguments explored which are also present in the Buenos Aires Programme of Work on Adaptation and Response Measures (UNFCCC, 2005) and reflected on the Mauritius Strategy. Intertwining with Climate Change is the *Energy* priority area, as the use of renewable and clean energy may enhance sustainability in small islands by reducing carbon emissions, contributing for environmental protection and, at the same time, reducing the dependency of energy-related imports (Zheng et al., 2013; Zheng and Pan, 2014). From the papers analysed it is shown the importance of the combination and use of different types of energy supply in small islands and need to give attention to the complete energy chain, from source to waste (e.g., Jaramillo-Nieves and del Río, 2010; Johnson and Chertow, 2009).

Tourism is the most addressed issue in the material collected (28 out of 107 papers addressed this priority area). It is also frequently identified as one of “the most important factors” in the development of small islands stimulating growth in the economy. The authors argue in agreement with what is recommended in the BPoA and the Mauritius Strategy. For instance, some works (e.g., Alonso and Liu, 2012; Avdimiotis and Golumbeanu, 2008) state that there should be new forms of tourism, integrating different sectors of the economy of the islands, a statement that is already reflected in the Mauritius Strategy. The same happens with the community engagement and the integration of environmental issues with tourism. The main recommendation from the different authors and from the BPoA and Mauritius Strategy is that there should be a close political engagement in the development of a sustainable tourism policy, empowering communities and a tourism that goes beyond the “sun, sea and sand” approach, as emphasized by Agrusa et al. (2010) and Fortuny et al. (2008) for the Hawaiian and Balearic Islands context. Furthermore, regional co-operation between different states is a relevant issue to be considered. This issue is also referenced by the authors that analysed the transport and communication topic (Abeyratne, 1999; Gil et al., 2011). This co-operation would enhance regional economy with gains for the environment and the communities.

Besides tourism and climate change, also, coastal and marine resources, freshwater resources and land use, share in their main arguments one common idea: community involvement should play a central role in these territories. It is stressed that the local and regional communities must be taken into account about the development of policies related to fisheries, and must be engaged on the implementation of freshwater management policies and land use development strategies. The BPoA and Mauritius Strategy referred several times the need for community engagement in these priority areas as well as for biodiversity resources.

Table 2.1 – Main sustainability considerations and recommendations explored by the surveyed academic papers and grouped by the BPoA and Mauritius Strategy priority areas.

BPoA/Mauritius Strategy Priority Areas	Main considerations and recommendations	Authors (date)
Climate change and sea-level rise	Considered the most immediate threat to small islands, affecting structuring systems like the environment, agriculture, fisheries, health, economy, human settlements, infrastructures and security, these territories need to develop and implement policy frameworks for “climate proofing”. Small islands states within a region, such as the Caribbean islands, should make efforts to engage in a common approach concerning climate change mitigation and adaptation to increase their resilience and reduce their vulnerability. However, help from the international communities is necessary mainly to develop capacity-building in these territories.	Ghina (2003) Johnson and Chertow (2009) Moss (2007) Voccia (2012)
Waste management	With the increasing trends in consumption the problem of waste disposal as become a concern since there are limitations on island waste assimilation capacity due to their small size, land tenure and reluctance to propose unpopular options (among other issues).	Georges (2006)
Coastal and marine resources	The increased degradation of coastal systems urges the need to take action. It is necessary to integrate coastal management with fisheries management and development, and at the same time, taking into account all ocean-related issues (law and policy, management of the uses and development of knowledge bases marine sciences). It is important to keep in mind that the loss of coastal fisheries may imply the destruction of the entire fisheries-dependent community; hence fisheries development must take into account the community.	Adrianto et al. (2005) Casiwan-Launio et al. (2011) Ghina (2003) Hay (2013) Mitchell and Hinds (1999) Moss (2007) Mulyila et al. (2012) Newton et al. (2007)
Freshwater resources	The availability and contamination of freshwater are of most concern in small islands. The rise of sea-level and the increase of storms and their intensity can have an impact on freshwater availability and can result on contamination of freshwater by saltwater. Desalination is extremely costly and therefore one of the possible strategies can be the harvesting of rainwater through the construction of rainwater storage tanks. However, it is necessary to implement freshwater management systems to regulate pressures on the environment engaging the communities.	Baharuddin et al. (2013) Ghina (2003) Ni et al. (2012) Smith (2008) van der Velde et al. (2007)
Land Use	There are different uses for land as a resource, agriculture being one of them; it can be problematic if there is a changing in the farming practices and agricultural structure, which can lead to environmental degradation. Therefore, it is necessary to adopt practices that engage the community and help connect the land with the farmer respecting tradition and ancestral heritage. Furthermore, the change of rural landscapes into leisure landscapes will result into a change on the land use resulting in new spatialities, may compromise the implementation of a sustainable spatial planning agenda.	Bunce (2008) Giourga et al. (2008)

Table 2.1 – Main sustainability considerations and recommendations explored by the surveyed academic papers and grouped by the BPoA and Mauritius Strategy priority areas (Cont.).

BPoA/Mauritius Strategy Priority Areas	Main considerations and recommendations	Authors (date)
Energy	<p>Few islands produce fossil fuels and the import of fuel brings many constraints to the small economies and has impacts on the islands' environment. An approach that combines different types of energy sources can enhance sustainable strategies. Research and development is necessary to understand the types of energy combination possible to achieve efficiency and cost effectiveness. Attention must be given to the complete energy chain, from source of supply to ultimate consumption and waste. It is necessary a careful planning to prepare for a sustainable energy future.</p>	<p>Darus et al. (2009) Frangou et al. (2012) Hong and Abe (2012) Jaramillo-Nieves and Río (2010) Johnson and Chertow (2009) Michalena and Tripanagnostopoulos (2010) Stuart (2006) Yu and Taplin (1998)</p>
Tourism	<p>Authors advise that tourism development in these territories must be carefully planned, due to their special characteristics. Tourism development must take into account different factors, such as:</p> <ul style="list-style-type: none"> (i) integration between tourism and environmental management; (ii) political and planning systems should give serious thought to environmental impact and monitoring of this activity; (iii) sustainable construction with focus on energy consumption, waste disposal and land degradation; (iv) tourism related jobs must comply with international standards of health and safety regulations; (v) establish regional mechanisms for the co-operation between different states (e.g. in the Caribbean islands); (vi) population engagement in the protection and management of local/regional/national attractions; and, (vii) the life cycle of the tourism model. Furthermore, local communities must be empowered and engage in tourist related products and activities and new approaches to tourism like a specific sectoral tourism-approach should be enhanced (e.g. wine tourism, surf tourism, cultural tourism) instead of the usual 3S approach (sun, sea and sand). 	<p>Abeyratne (1999) Agrusa et al.(2010) Alonso and Liu (2012) Avdimiotis and Golumbeanu (2008) Bianchi (2004) Buckley (2002) Diamantis (2000) Domroes (2001) Fortuny et al. (2008) García-Falcón and Medina-Muñoz (1999) Ghina (2003) Jaafar and Maideen (2012) Jitpakdee and Thapa (2012) Kokkranikal et al. (2003) McKee (2013) Nižić et al. (2010) Pantin (1999) Rodriguez et al. (2008) Scheyvens and Russell (2012) Shakeela et al. (2011) Sheldon (2005) Twining-Ward and Butler (2002) Yasarata et al. (2010)</p>

Table 2.1 – Main sustainability considerations and recommendations explored by the surveyed academic papers and grouped by the BPoA and Mauritius Strategy priority areas (Cont.).

BPoA/Mauritius Strategy Priority Areas	Main considerations and recommendations	Authors (date)
Biodiversity	Biodiversity possess ecological, social and economic value which has the potential to enhance different economic activities, such as tourism and hence, it can suffer from overexploitation, poor management and degradation leading to a loss of unique species. There is a need to take action, thinking what kind of activities are less threatening, leading to sustainable development of the island.	Alexopoulos et al. (2013) Ghina (2003) Gough et al. (2010)
Transport and communication	The transport of people and cargo to small islands has a lot of constraints due to the special features of these territories. Also, the land transport planning to ensure mobility at local level needs special attention. It is necessary to find means of co-operation among national and regional governments and stakeholders to promote research and development in air transport (from and to the islands and between islands in the case of archipelagos), land transport and telecommunication in order to lower the costs involved and to find the most effective strategy in these areas.	Abeyratne (1999) Gil et al. (2011)
Human resource development	Education for sustainable development and community capacity building in co-ordination with wider socio-economic initiatives at national, regional and global levels can be an important strategy to the effectiveness in this process. However, it is important that to go beyond the usual western, western-centric culture and combine western with and indigenous knowledge. It must be given opportunity for these territories to implement education and public awareness programmes since due to their special features they can set the agenda for international practices in similar areas such as coastal areas in mainland territories.	Beckford et al. (2010) Crossley and Sprague (2014) Smith (2008) Tran (2006)
Culture	Addressing cultural landscapes and the role of UNESCO in developing awareness to intangible culture. This research draws the conclusion that the cultural identity of islands may be assumed as the basis for spatial planning incorporating an ecological identity.	Vallega (2007)
Sustainable consumption and production	This paper focus is on the Design for Sustainability (D4S), a methodology developed by the University of Delft and sponsored by UNEP. The main findings of the paper showed that D4S provide a manufacturing tool that produce less waste but as a global impact due to the production and manufacture of the new materials use.	Wood et al. (2010)

The retrieved material tackling issues of EIA, SEA and Sustainability Assessment (SA) in these territories was poor. From the 107 papers, only eight were identified as related with EIA, SEA and SA. Four of those had a holistic approach to the topic, even though they address specific country or regional systems. Only two papers report on SEA. It was expected that more material would be collected, because, according to Morgan (2012) “191 of 193 member nations of the United Nations have national legislation or have signed some form of international legal instrument that refers to the use of EIA” and there is experience with SEA systems or SEA-type approaches in SIDS (Dalal-Clayton and Sadler, 2005; Levett and McNally, 2003; OECD, 2012).

For instance, the Dominican Republic introduces SEA in their legal framework (Congreso Nacional, 2000; Dalal-Clayton and Sadler, 2005), Fiji developed SEA on Tourism Development Plan (Levett and McNally, 2003) and Mauritius developed SEA on the sugar cane sector (AGRECO Consortium, 2007; Palerm et al., 2012). Accordingly, it was expected more research initiatives at the international level, however, with the keywords used and the restriction to academic literature, this did not happen. It can be stated that the current EIA and SEA islands practices and experiences, still poorly explored by scientific research are not reflected on this review analysis.

In the case of European small islands, such as the European outermost regions or islands under the rule of the mainland state, such as Scottish islands, Greek Islands, among others, the SEA panorama is different from the one from SIDS, since these territories developed legislation on SEA to comply with the SEA Directive (Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001). Despite a dearth of research on this specific subject, some authors have been addressing EIA and SEA matters in these territories, such as the research conducted by Ramos et al. (2009), focused on the Portuguese Autonomous regions and Keller (1997) on the Highlands and Islands of Scotland.

The integrative review of the papers showed that there is a need to raise awareness on stakeholders (e.g., government authorities, developers, planners and the public) to EIA, SEA and SA, enhance stakeholders capacity-building and engagement, and start early in the decision-making process. The main rationale and findings of the different papers are presented in Table 2.2. This analysis meets the recommendations previously made by Alshuwaikhat (2005) for SEA in the specific case of developing countries. Alshuwaikhat (2005) states that is paramount to clarify the concepts of SEA and sustainability to the different stakeholders, SEA training, further scientific research, extensive public participation and simple and flexible SEA procedures consistent with the availability of resources.

Table 2.2 – Summary of rationale and findings on environmental and sustainability assessment in the academic papers surveyed.

Assessment studied	Rationale and Findings
Sustainability Assessment (SA)	<p>Frangou et al.(2012) assesses the sustainability of a solar thermal power plant in the island of Crete. The main environmental impacts in these context are: binding of large tracts of land, consumption of large quantities of water for cooling as well as waste heat from cooling, but this can be overcome through proper siting, choice of cooling system with low or no water consumption and exploitation of waste heat.</p> <p>Focusing on the Pangan-an Island, the study conducted by Hong and Abe (2012) aims to further understand and promote awareness of the challenges and social impacts of rural electrification projects using Renewable Energy System. The sustainability challenges found during the study are centred in the costs for the community, plant management including the lack of funds and the unreliable power source. The authors recommend a holistic and comprehensive approach in developing, monitoring, and maintaining renewable energy systems.</p>
Environmental Impact Assessment (EIA)	<p>Hopkins and Olleveant (2002) addresses the environmental assessment in the oil exploration activities offshore the Falkland Island was used a collaborative approach with the operating companies. All operators made commitments to develop an understanding of the Falklands environment during the course of exploration. The main outcomes from this approach were the financial savings because of the shared resources, there was no duplication of effort, and for the consultees there was a reduction of work load. The main lessons from this approach are that by starting environmental work early in the programme and by establishing a collaborative effort, this can benefit all parties involved and lead to a better understanding of the environment.</p> <p>Ramjeawon and Beedassy (2004) focused on the EIA system of the Mauritius, this paper identifies the problems in that EIA system and proposes an EIA follow-up mechanism. The main recommendations for the Mauritius EIA system are: (i) effective engagement of the public through public participation since the early stages of the assessment; (ii) proper monitoring plans; (iii) there is a need SEA in the decision making framework and proper integration with EIA and; (iv) enhance capacity-building on strategic and environmental impact assessment.</p> <p>The research carried out by Turnbull (2003) focuses on the EIA system of the Fiji. The use of EIA did not enhance the environmental quality in Fiji, since there is no political will to improve the EIA system. EIA is mainly used for funding proposes and the governmental entities are only concerned to do what is required by the funding agencies. The improvement of EIA is not a matter of training but of socio-political and socio-economic research.</p> <p>Zubair et al. (2011) evaluate the process of environmental impact assessment (EIA) in project appraisal and sustainable tourism development of tourist resorts in the Maldives. The main recommendations for the Maldives EIA system are: (i) effective public engagement since early stages of the process; (ii) effective engagement of the government, and; (iii) framework for assessing and monitoring tourism impacts.</p>
Strategic Environmental Assessment (SEA)	<p>Keller (1997) analyses the approach taken in the SEA of the Highlands and Islands of Scotland for the European Union (EU) Structural Fund Programme. At the time, the European SEA Directive did not exist and the author points out that SEA could be a useful mechanism to promote sustainable development but there has to be the political will and co-ordination from the EU. It is necessary to have guidance for developing the process and applying it, monitor implementation and revise the process in the light of experience.</p>

Table 2.2 – Summary of rationale and findings on environmental and sustainability assessment in the academic papers surveyed (Cont.).

Assessment studied	Rationale and Findings
EIA/SEA	Ramos et al. (2009) evaluate the state of strategic and environmental impact assessment practices in Azores and Madeira islands. The main recommendations are: (i) develop specific guidelines for assessments in small island context; (ii) local knowledge of the environment, traditional ways of working and local cultural and social values must be taken into account; (iii) policy-makers should provide advice and guidance on impact assessment to all stakeholders (e.g. public, local communities, developers) and; (iv) assessments should integrate several important key-factors aimed at influencing the methodological approaches, such as, scale effects (detail and spatial extent), intra-insular regional dimension, impact significance evaluation approaches, technical and educational skills, socio economic factors, physical, geographical and ecological characteristic and natural resources scarceness, governance and institutional framework, relationships among small islands.

2.5 Key arguments on small islands sustainability linked with SEA

As stated in the research design section, after the pre-analysis, an in-depth analysis grouping similar concepts was conducted and three key arguments emerged from the integrative review that helped to understand what to address to promote sustainability in small islands. There is still a debate on the definition of sustainability in small islands (Douglas, 2006; Kerr, 2005), being of most importance for these territories and therefore, widely discussed (Bass and Dalal-Clayton, 1995; Briguglio, 1995; Douglas, 2006; McIntyre, 2004; Ramjeawon and Beedassy, 2004). Authors claim that the traditional concepts of sustainable development cannot be applied to small islands (van der Velde et al., 2007), since sustainability in these territories is paradoxical and demand different and tailored perspectives and approaches (Bass and Dalal-Clayton, 1995; Kerr, 2005).

From the review conducted in this research, three key arguments to enhance sustainability in small islands emerged: (a) change in decision-making paradigm, (b) good governance and community empowerment and, (c) resilience.

(a) Change in decision-making paradigm: transparency or openness in public administration and accountability are key points to enhance sustainability (Douglas, 2006; Herbert, 1998). Transparency implies that wide spread information and personal responsibility of decision-makers. This could be achieved through the changing of the decision-making models and the development of legal frameworks that make provision for greater transparency and accountability and at the same time, develop a monitoring and supervision system to make it effective. Free press and civic organisations to mobilize public opinion to combat corruption must also be part of this system (Herbert, 1998; Yasarata et al., 2010).

(b) Good governance and community empowerment: linked with the change in decision-making paradigm is good governance and community engagement (Walker and Salt, 2012) in island

policies, strategies, plans and projects, as an essential pre-condition for sustainability (Herbert, 1998). Community awareness and empowerment are building blocks of good governance and need to be effective in these territories (Bunce, 2008; Tran, 2006). In its turn, good governance promotes resilience in island communities through the enhancement of leadership, legal and institutional frameworks (Hay, 2013; Mitchell and Hinds, 1999).

(c) *Resilience*: resilience is the ability of a system to resist, absorb and cope from different pressures and still be able to return to its original state (Hay, 2013; Sloomweg and Jones, 2011; Walker and Salt, 2012). This terminology is linked to the vulnerability to economic shocks, global environmental changes and unsustainable population growth, among others. By lowering vulnerability, resilience increases and small islands need to develop capacity to limit the impact of and recover from the different vulnerabilities they face (Hay, 2013). There is evidence that due to their small size which promotes social cohesion, facilitating the setting-up of education, health, ecology and re-distribution policies, helps overcome these vulnerabilities (Blancard and Hoarau, 2013). International community already understands the importance of resilience, addressing it to cope with climate change, for instance (UNFCCC, 2005).

These three key arguments are linked with the main SEA methodological approaches and processes, since SEA aims for a change in the decision making paradigm, promotes good governance and recent academic research started to put resilience thinking in the SEA research agenda. Moreover, the concept of SEA is still being explored and developed with new approaches being proposed and established. For this reason, there is recent and significant number of novel academic research being developed on this subject, regardless the need for advances on SEA for sustainability (Bina, 2007; Pope et al., 2013; Tetlow and Hanusch, 2012; White and Noble, 2013). At the same time, and as previously said, SEA needs to be tailored to the specific needs of the context and only this way it will become effective.

In early SEA developments, Therivel and Partidário (2000, p. 280) claim that “SEA would help us move toward a fairer, cleaner, more diverse world”, even though this still has a long way to go, recent findings state that SEA has the potential to change the institutional paradigm by helping organizations learn through SEA (White and Noble, 2013). Also, to strengthen the policy context and of the policy processes leading to changes in the political, institutional and cultural context that influences outcomes of the decision-making (Bina, 2007). Linked to the changing of decision-making paradigm is transparency. SEA promotes transparency in the decision-making by supporting a participatory and structured assessment process (Fischer, 2007). As Bina (2007) notes, SEA facilitates cooperation and coordination between different stakeholders (e.g., government agencies, development sectors and sources of expertise and communities). This leads to good governance and community empowerment, developing ownership (Fischer, 2007). Furthermore, SEA enables long-term positive impacts on the culture (Bina, 2007) through its educational capacity (McLauchlan and João, 2012) – the “thinking SEA” envisaged by Therivel (2004, p. 209). Altogether, these positive arguments supporting the use of SEA also provide good

signs for understanding the role of this approach in overlooked territories with special needs, such as the small islands.

By promoting good governance, resilience is enabled (Walker and Salt, 2012). The integration of resilience thinking with SEA is in its infancy, however, Slootweg and Jones (2011, pp. 267, 268) argue that SEA “*provide[s] an ideal vehicle for applying resilience thinking in practice*” and that “[*r*]esilience thinking has the potential to overcome some of the current weaknesses inherent in SEA”. Furthermore, Slootweg and Jones (2011, p. 274) believe that there is no need for new SEA methodologies, it is only necessary “to accept a different mental model that embraces complexity and uncertainty in management and development”.

Since SEA promotes the integration of sustainability into decision-making and goes beyond the three pillars intertwining with the arguments introduced in this section, it is paramount to promote SEA in these territories. Additionally, it is known that EIA has been widely implemented since the 1980s’, and in the case of SIDS this was mainly driven by international donor agencies (Alshuwaikhat, 2005; Gamman and McCreary, 1988; Horberry, 1985; Kennedy, 1985; Momtaz, 2002; Wandesforde-Smith et al., 1985), but EIA in small islands is insufficient and to ensure that sustainability in small islands SEA should be effectively implemented (Alshuwaikhat, 2005; Zubair et al., 2011).

In future research and as discussed in Section 2.4, it could be necessary to develop or rethink the approaches for SEA in these territories. Guidelines and tailored methods to be developed need to consider the topics explored along this manuscript, linking them with the proposals made by Alshuwaikhat (2005), which are mutually supportive.

A clear understanding of SEA and sustainability concepts among government, academics and practitioners in small islands is paramount (Alshuwaikhat, 2005), hence, it is emphasized the need to promote research focused on SEA in small islands and other specific territories, stimulating SEA capacity-building. Operationalising effective public participation will enhance good governance and community empowerment; however, new political and institutional paradigms must be in place (Wirutskulshai et al., 2011). Developing an SEA directive at the regional level under the authority of regional co-operation associations might be a good solution to lower the costs involved and to have an effective implementation of the SEA system in these territories, similarly to what the EU has (Alshuwaikhat, 2005), necessarily adapted to small islands context.

2.6 Conclusions

This paper was set out to do an integrative review to identify, explore and discuss what the academic literature reports on key issues for sustainability in small islands and on SEA of the decision-making context of these territories. From the papers analysed it is understood that the international interest in SIDS put them on the academic research agenda as drivers for small islands case studies. However, the constraints and vulnerabilities addressed for SIDS are, in a different extent, constraints and vulnerabilities shared by small islands in general. The priority areas focused

in the BPoA and Mauritius Strategy are a concern for all small islands, and future strategies must focus on the link between the different priority areas and not only in individual sectoral issues.

Further research is necessary in those priorities areas not addressed in the reviewed papers (natural and environmental disasters, national institutions and administrative capacity, regional institutions and technical cooperation, science and technology and health). It is inferred that sustainability in small islands must be addressed with a new set of concepts and open-mindedness; it is necessary to have a holistic approach to sustainability and SEA constitutes an approach that promotes it.

SEA is an assessment tool to support decision-making processes which studies sustainability issues, such as the BPoA and Mauritius Strategy priority areas and at the same time, develops sustainability in the territories by enhancing change in the decision making paradigm, good governance and community empowerment and resilience. To some extent, SEA is already used in small islands, mainly due to funding agencies, in the case of small islands that require international aid and remittances and due to regional regulation, in the case of small islands in the European Union, for instance.

There are challenges to overcome, e.g., political and planning context of the countries, lack of skilled sustainability and SEA professionals in these territories and specific guidelines that reflect the specificities of the small islands. It is necessary to advance scientific research allied with trial practice to fine tune the SEA in small islands. In the SEA context, the scientific research must focus on key-factors to enhance SEA in small islands, tackling these issues, promote a set of guidelines for these territories and stimulate the debate around regional SEA legal framework.

This paper constitutes a first approach on the understanding of the key considerations to take into account when developing regulations and procedures for SEA in small islands in order to promote sustainability.

3 Strategic Environmental Assessment Practices in European Small Islands: Insights from Azores and Orkney Islands³

Abstract

The literature concerning Strategic Environmental Assessment (SEA) often refers to the importance of context-specific approaches. However, there is a lack of systematised and consistent studies that enhance tailor-made SEA practices and procedures. Small islands are bounded units of study which may help explore SEA theory and practice in special territories. Small islands present particular features and unique values, such as, small size and population, geographic isolation, limited resources and vulnerable ecosystems. Hence, the main goal of this research was to profile SEA practices and procedures in European small islands and provide a background for future research aiming to improve context-specific SEA applications. To achieve this goal, an exploratory case study was developed using Azores (Portugal) and Orkney (Scotland) archipelagos. An analysis of the corresponding mainland was also carried out to contextualise both case studies. The data collection was achieved through a qualitative content analysis of 43 Environmental Reports. The research found that there is *not* an SEA context-specific approach used within these European small islands, including guidelines, assessment topics, assessment techniques, follow-up and stakeholders engagement. The debate concerning specific approaches to small islands must be re-focused on the enhancement of SEA capacity-building amongst different stakeholders (including decision-makers), on the development and implementation of collaborative approaches, and on the exchange of knowledge and experiences between small islands networks.

Keywords: Strategic Environmental Assessment; sustainability; context; small islands; Azores; Portugal; Orkney; Scotland.

³ Polido, A., João, E., & Ramos, T.B. (2016a). Strategic Environmental Assessment practices in European small islands: Insights from Azores and Orkney islands. *Environmental Impact Assessment Review*, 57, 18–30. doi.org/10.1016/j.eiar.2015.11.003 (Reproduced with authorization of the publisher and subject to copyright restrictions imposed by them).

3.1 Introduction

Several authors stress that Strategic Environmental Assessment (SEA) should be context-specific (e.g., Fischer and Gazzola, 2006; Gunn and Noble, 2009; Hildén et al., 2004). However, this argument has led to SEA approaches which can be vague and confusing (Noble et al., 2012). To counteract this, SEA has had to evolve and there are new approaches emerging in its practice. This includes: the integration of ecosystems services in SEA (Baker et al., 2013); resilience thinking linked with SEA (Slootweg and Jones, 2011); and more recently, evolutionary resilience (Bond et al., 2015). These approaches require a context-specific consideration and may provide a valuable framework for SEA practices in a particular type of decision-making process. Hence, territories with specific features and characteristics have needs that must be reflected in the SEA (Gunn and Noble, 2009; Polido et al., 2014).

Small Islands are vulnerable and unique territories (Bass and Dalal-Clayton, 1995; Douglas, 2006). Due to characteristics such as relatively small size, geographic isolation, a narrow economic base, limited resources, ecosystems vulnerable to other external ecological influences, and relatively small populations with a narrow skills base (McIntyre, 2004; Ramjeawon and Beedassy, 2004), small islands become the target of international attention (UNCED, 1992; United Nations, 1994). In particular, the international community understands the urgent need for sustainability-led approaches in the islands' decision-making system (Bass and Dalal-Clayton, 1995; Deschenes and Chertow, 2004). Several authors still discuss how this can be done, since sustainability may be paradoxical in these territories and demand different approaches (Bass and Dalal-Clayton, 1995; Kerr, 2005; Zubair et al., 2011). As shown by Polido et al. (2014), SEA has the potential to fill this gap since it links the three key arguments found to enhance sustainability in small islands: (a) change in decision-making paradigm, (b) good governance and community empowerment, and (c) resilience.

Additionally, small islands are living laboratories for the planet, since they are a closed and bounded system, and thus manageable units of study (Nagarajan, 2006) which can influence future discussion on SEA and sustainability. They therefore deserve increased attention from the academic community as well as from the international institutions (Bass and Dalal-Clayton, 1995; Crossley and Sprague, 2014). Even though literature and studies mainly focus on Small Islands Developing States (SIDS), as reviewed by Polido et al. (2014), Adrianto and Matsuda (2002) argue that small islands in general have common economic and environmental characteristics. Newitt (1992), also states that small islands share the same characteristics to different extents, stressing that there are three different categories of islands: (i) independent islands States, such as SIDS, (ii) islands that are an autonomous region of a mainland state, as is the case of the Azores, and (iii) islands under the rule of the mainland state, such as the Scottish islands (e.g., Orkney).

As noted by Montaña et al. (2014) the number of studies assessing SEA systems is increasing, allowing inferences about the importance of the context in SEA. The common items between the different approaches are (i) legal basis for SEA application and guidance tools; (ii) existing process

and procedural framework (including stages of the SEA (e.g., screening, scoping, environmental assessment, public participation, follow-up) and assessment methodologies and components (assessment techniques and issues)); (iii) SEA review and influence to the decision-making (Chaker et al., 2006; Rachid and El Fadel, 2013; Therivel, 1993; Zhou and Sheate, 2009). These items reflect issues required by good SEA practices and depend on the type of analysis planned (Zhou and Sheate, 2009). Even though there is literature reflecting overall good practice on SEA (e.g., Abaza et al., 2004; Fischer, 2002), methodological approaches and assessment techniques (e.g., Fischer, 2007; Noble et al., 2012; OECD, 2006; Therivel, 2004; UNEP, 2009), there is also literature providing focus on specific components of the assessment, for instance, on follow-up (e.g., Fischer, 2007; Morrison-Saunders et al., 2014; Nilsson et al., 2009; Partidário and Fischer, 2004), and stakeholder engagement (e.g., Doren et al., 2013; Gauthier et al., 2011; IAIA, 2002; Ren and Shang, 2005).

Despite the above research exploring the importance of context on SEA approaches or discussing sustainability related approaches, there is a dearth of research on initiatives that offer a coherent integrated analysis of SEA and sustainability assessment in small islands (Polido et al., 2014). To help fill this research gap, the aim of this analysis was to evaluate the state of integration of the SEA practices and procedures in small islands and understand what might be improved in the SEA of these islands.

To achieve the research aim, the Azores and Orkney archipelagos were used as an exploratory case study, following the research approaches by Yin (2009). A comparative assessment with the Portuguese and Scottish mainland was carried out in order to understand the SEA national context of the archipelagos. The data collection was achieved through a qualitative content analysis, following the research approaches by Bardin (1977), Krippendorff (2004), and Mayring (2000), of 43 Environmental Reports (ER) (viz. 7 from Azores, 14 from the Portuguese mainland, 5 from Orkney and 17 from the Scottish mainland). The qualitative content analysis criteria were developed taking into account the literature on comparative assessment of SEA systems, their practices and procedures.

The paper starts by characterising the Portuguese and Scottish SEA system, to establish the background of the research (Section 3.2). It then explains and justifies the research design, including the choice of the case studies (Azores and Orkney) and the development of the qualitative content analysis criteria for the data collection and analysis (Section 3.3). Following this, the paper presents the relevant results and findings from the empirical studies (Section 3.4), and a cross-case analysis adding a comprehensive integrative examination of both cases (Section 3.5). The final section concludes by showing possible ways to develop research and practice of SEA in small islands.

3.2 The Portuguese and Scottish SEA System

The Portuguese and Scottish SEA systems both need to comply with the EU SEA Directive⁴. However, contrary to what would be expected, there are structural differences between them. In Portugal, the transposition of the EU Directive was concluded only in 2007 (three years after the implementation deadline established by the Directive) through the Decree-Law 232/2007 (national legislation) and is similar to the SEA Directive. Due to the special administrative status of the Portuguese autonomous regions of Azores and Madeira, the Decree-Law allows its adaptation through specific regional legislative procedures by the regional authorities. In 2010, the Azores adapted it through the Regional Decree-Law 30/2010/A (see Polido and Ramos, 2015).

There are two main differences between the national and regional regulations in Portugal. The Regional Decree-Law defines that a small area, in the context of Article 3 (3) of the Directive has 25 hectares (0.25 km²), and introduces the need to climate proof the plan or programme (assessment and internalization of mitigation and adaptation strategies needed due to the potential impacts of global climate change, and its effects at local and regional level, on the plan or programme).

To help with the implementation of the Regulations, the Portuguese Environmental Agency (APA) and the Portuguese Directorate-General for Spatial Planning and Urban Development (DGOTDU) developed guideline manuals outlining the SEA practice in Portugal. The APA guideline manual (Partidário, 2007) has a wide scope and was recently updated (see Partidário, 2012) and the DGOTDU guideline manual (DGOTDU, 2008) is specifically for the SEA of Local Spatial Plans (e.g., master plans; urban plans). The Azorean Regional Directorate for the Environment adopted the guidance published by APA as their SEA guidelines, indicative of the influence from outside agencies rather than the regional and local ones (Ramos et al., 2009), in these territories.

The case of Scotland is very different. Here the Government published the first SEA regulation in 2004 (Jackson and Illsley, 2007) in order to implement the Directive on time. However, the “*Scottish Ministers want[ed] Scotland to be a world leader in [SEA]*” (SEEG, 2004, p. 1), and so several consultations and workshops took place to deliver a broader version of the SEA (2004) regulation (McLauchlan and João, 2012). In 2006, the Environmental Assessment (Scotland) Act 2005 (SEA Act (2005)) became mandatory for all the Scottish territory without specific adaptations for different regions/islands.

By covering not only Plans and Programmes as stated in the Directive, but addressing also *Strategies*, the SEA Act (2005) goes beyond the scope of the Directive and covers almost all aspects of policy formulation in Scotland (Jackson and Dixon, 2006; Kelly et al., 2012). Also, as

⁴ The nomenclature “EU SEA Directive” or simply “SEA Directive” in this research paper refers to the Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the assessment of the effects of certain plans and programmes on the environment. This Directive has been transposed by all member states of the European Union to domestic legislation (Polido et al., 2014).

identified by McLauchlan and João (2012), SEA in Scotland presents a unique SEA stage - the pre-screening - where the responsible authority needs to register their intention not to do an SEA that they identify as having “no” or “minimal” effect on the environment (SEA Act (2005), Part 1, 7(1)).

To provide practitioners with the tools to develop SEA, the Scottish Executive issued an SEA toolkit (Scottish Executive, 2006) with detailed guidance where the SEA process is organised and structured (Kelly et al., 2012; Noble et al., 2012; SEPA, 2011). In 2013 the SEA Toolkit was replaced by the “Strategic Environmental Assessment Guidance” (Scottish Government, 2013).

Comparing the guidelines from both SEA system process and procedural frameworks (i.e., Partidário, 2012, 2007; Scottish Executive, 2006; Scottish Government, 2013) it is clear that there are also differences between the two countries. For instance, the Portuguese guidance uses an integrated environmental issue type as assessment topic⁵, while the Scottish practice focus mainly on the environmental issues provided by the Directive or by the SEA objectives established.

Both types of assessment topics provide a yardstick, grounding the assessment, against which the Plan, Programme or, in the Scottish case, Strategy (PPS), integrating the different SEA stages and assessment methods and techniques used, can be assessed. The Portuguese and Scottish guidelines indicate the context-specificity of the assessment techniques, which should be adequate to the type of PPS addressed. Nonetheless, the Portuguese and Scottish guidelines mention the use of “sustainability framework and indicators” (similar to the definition by UNEP (2009)) to set the SEA context and objectives and “trend analysis”, and “SWOT analysis” (similar to the definition by UNEP (2009) and Fischer (2007) respectively) for the baseline information and evolution without PPS.

However, the definition used for alternatives vary, as well as the techniques for the assessment of effects. Partidário (2012), proposes “strategic options⁶” instead of “alternatives”, whereas in the Scottish guidelines, alternatives should follow a hierarchy (ODPM, 2005; Scottish Executive, 2006) mainly done through “impact matrices” (similar to the definition by Fischer (2007)). Also, in the case of the assessment of effects, the Portuguese guidelines suggest it should be done through “scenario analysis”, “stakeholder involvement”, and the “assessment of opportunities and risks”, while in the Scottish guidelines, a different combination of methods could be used, depending on the types of objectives and alternatives, e.g., “matrix based approaches and scoring systems”, “mapping and spatial analysis”, “criteria based checklists”, and “environmental topics based approach”.

⁵ The Portuguese guidelines use the designation “critical factor for decision-making” for the assessment topics, which is defined as “(...) aspects that must be considered in the decision process concerning the strategy design and the implementing actions (...) and are generated out of an integrated analysis of the following elements (...): Strategic Reference Framework (SRF); Strategic issues (SI) (strategic objectives and core principles) of the object of assessment; Environmental factors (EF)” (Partidário, 2007, p.20).

⁶ “The strategic options are policy or planning options that help us to move from where we are to where we want to get (...). Strategic options are optional pathways that help us reach our intended long-term objectives, associated with our vision.” (Partidário, 2012, p. 38, p. 38).

After the assessment is done, and the PPS is implemented, it is necessary to monitor the actual effects on the environment as well as to identify unforeseen adverse effects. Monitoring is mandatory but regulations fail to provide insights on how this can be done. However, it is important to anticipate and plan how the follow-up will be achieved during the environmental report phase. The Portuguese and Scottish guidelines go beyond regulation providing good practices for SEA follow-up. For instance, the Portuguese guide makes reference to three types of follow-up: performance, conformance, and uncertainty (as defined by Partidário and Fischer (2004)), and use as techniques, indicators (similar to the definition by Fischer (2007)) and stakeholder engagement, while the Scottish guides focus on performance, uncertainty and dissemination, using mainly indicators as techniques for monitoring.

Stakeholder engagement is a key issue in SEA, which should occur in the early stages of the process and include everyone with an interest, or is affected by the PPS (Abaza et al., 2004). The SEA Directive clearly states that to have a more transparent decision-making, and a comprehensive and reliable assessment it is necessary to consult authorities with relevant environmental responsibilities, and the public. It also states that the Member States need to appoint these authorities. However, the techniques used for stakeholder engagement are to be determined by the Member States.

To address these issues, the Portuguese Decree-Law presents an illustrative list of entities with specific environmental responsibilities (e.g. Portuguese Environmental Protection Agency, Portuguese Institute for Nature Conservation and Forests, regional coordination and development commissions, health authorities, municipalities), while the Scottish SEA Act clearly identifies as the consultation authorities, Scottish Ministers (Historic Scotland)⁷ (SPCB, 2005), Scottish Environment Protection Agency, and Scottish Natural Heritage.

According to the SEA Directive, it is mandatory to consult the authorities in the scoping phase as well as in the environmental report phase. The public is only called on to participate in the environmental report phase, even though the Directive states that the public should be “*given an early and effective opportunity (...) to express their opinions*” (Directive 2001/42/EC, article 6 (2)). Nonetheless, both the Portuguese and Scottish guidelines make reference to the appropriateness of involving other stakeholders, in addition to the authorities named in the legislation, from the scoping stage onwards.

As for techniques to engage stakeholders, neither set of regulations recommend what techniques to use. However, the guidelines provide strategies for the engagement during the early stages, for instance, workshops, social networks or citizen panels. Additionally, the Portuguese guidelines

⁷ Due to Historic Environment Scotland Act 2014 and secondary legislation, from 1 October 2015, Historic Scotland will be replaced by Historic Environment Scotland as a Consultation Authority (Scottish Government/Environmental Assessment Team et al., 2015).

make reference to a “governance framework”⁸ as part of the SEA process. The framework should be used to identify different stakeholders, establish relations between them, and their responsibilities with respect to the SEA process.

Aligned with stakeholder engagement is keeping the public and other entities informed, being a major concern within the EU SEA Directive. However, in the Portuguese case, the availability of information is dispersed among APA webpages for different sectors and other governmental agencies. In the case of the Azores, the information is spread among different sections within the Regional Directorate of the Environment website. Additionally, there is also a low representation of Environmental Reports available in APA, compared to the number which were supposed to be available, and there is no reliable way to know how many SEAs were developed in Portugal (Partidário et al., 2010).

The Scottish Government made provisions in their SEA website to provide information on all SEA being developed or already completed, making the information regarding the SEA process accessible for the general public. The documents from the different SEA stages are made available as well as the consultation authorities’ responses. As noted by McLauchlan and João (2012), the SEA Act (2005) does not legislate about the availability of the information, but with the commitment to become a leading country in SEA, uniquely the Scottish government made information accessible through the web-based SEA database (see Scottish Government, n.d.).

The Scottish Executive has also created the SEA Gateway Team to operate as a centralised body where the information is gathered and integrated to advise and co-ordinate the process to ensure SEA quality (Jackson and Dixon, 2006; SPCB, 2005). In addition, the Scottish Government SEA-dedicated website (see Scottish Government, n.d.), provides specific guidance for the consideration of climatic factors, air, soil and water. All of these initiatives link to Scotland’s ambition to be a world leader in SEA.

3.3 Methods

Due to the exploratory nature of the research, an inductive research approach was used. This involved a mixed model research approach employing an embedded multiple-case study (Azores and Orkney archipelagos) (Yin, 2009) and qualitative content analysis to 43 SEA Environmental Reports (ERs) (Mayring, 2000). The 43 SEA ERs include Portuguese and Scottish mainland reports, to contextualise the European small islands case studies. This section presents and justifies the methods used to conduct the research. First, a rationale for using the Azores and Orkney archipelagos is presented, as well as their characterisation. It then provides the

⁸ Governance framework is defined as “a network of inter-related government and non-governmental organizations and institutions, including citizen panels or other forms of citizen deliberative organizations” (Partidário, 2012, p. 38).

Environmental Reports (ERs) selection justification and finally, explains how the content analysis was developed.

3.3.1 *Two-case study approach: The Azores and Orkney archipelagos*

Case study is a systematic research strategy which investigates phenomena, emphasising an understanding of how processes are influenced, and how they influence context (Hartley, 2004; Yin, 2009). In this research, an embedded multiple-case study was conducted using the methodological guidelines developed by Yin (2009), following a literal replication logic, meaning that the selection of the case studies predicts similar results since they share similar core characteristics (e.g. small size, geographic isolation, a narrow economic base, limited resources, and ecosystems vulnerable to other external ecological influences (see Section 3.1), even though there are some differences between these two archipelagos. Following this, the rationale for the choice of Azores and Orkney as case studies, as well as the characterisation of the case studies, is presented.

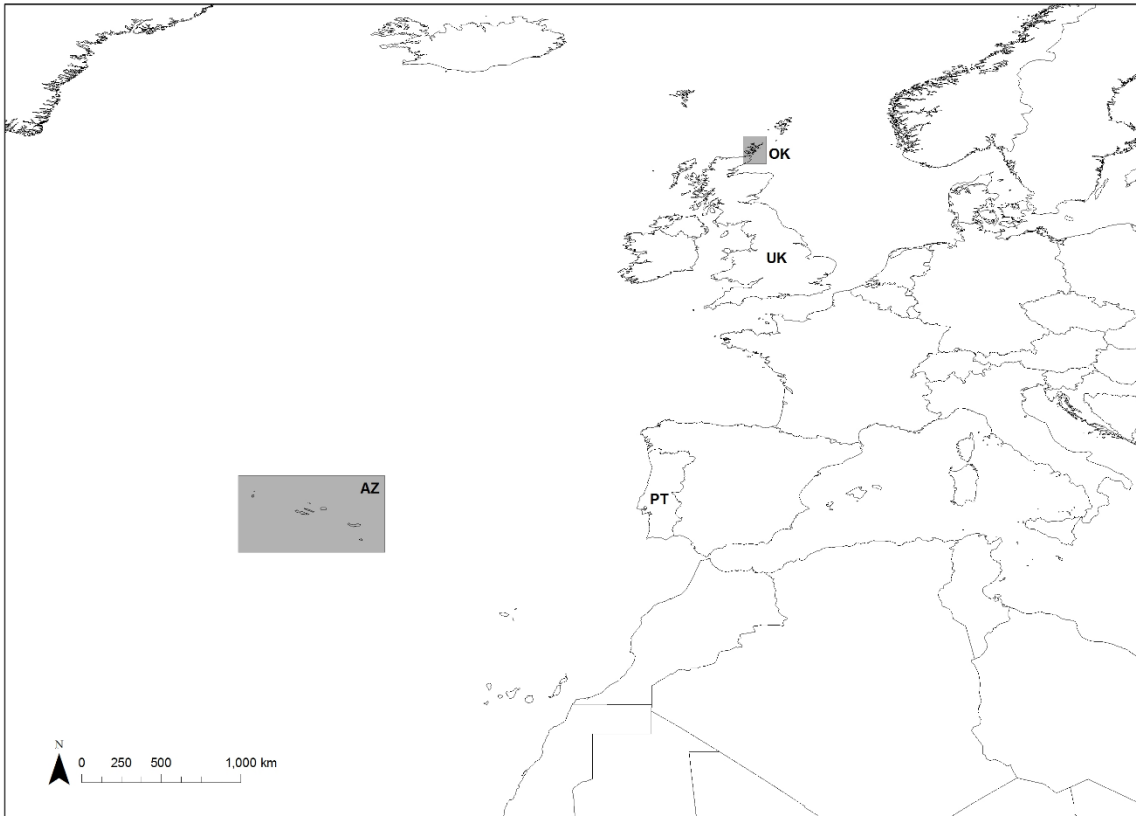
3.3.1.1 Rationale for Azores and Orkney as case studies

To develop this research it was necessary to choose case studies that had a well-established SEA system with SEA reports available. As shown by Fischer and Onyango (2012), the European Union (EU) is the area most covered by research projects on SEA, probably due to the well-established SEA system (the SEA Directive, as referred in Section 3.2). Therefore, the first criterion was that the small islands had to be an EU member state or be part of an EU member state.

From the countries stated in the Fischer and Onyango (2012) research, it was understood that Portugal offered an opportunity to study a European Outermost Region⁹, either Madeira or the Azores. The Azores was chosen, rather than Madeira, due to their unique geographic location (isolated in the North Atlantic, on the Mid-Atlantic Ridge) and their specific SEA legislation.

Also, Fischer and Onyango (2012), showed that the EU SEA research projects mainly focused on the UK. The UK has several small islands but since the Scottish Government is committed to becoming SEA world leader and the Scottish SEA Act (2005) goes beyond the scope of the Directive, covering Strategies, Plans and Programmes, it was decided to choose an island or archipelago within Scotland to represent the UK. Looking further into the Scottish territorial system it was decided to have an island that represented an area council. The Orkney Islands were therefore chosen because they are a Scottish council area, have the smallest area and the highest population density within the Islands Council areas of Scotland. Figure 3.1 shows the Azores and Orkney archipelago locations.

⁹ The European outermost regions are addressed in the Treaty on the Functioning of the European Union (TFEU), articles 349 and 355.



Source of official administrative boundaries: Eurostat (2014) (© EuroGeographics for the administrative boundaries).

Figure 3.1 – Location of Azores and Orkney Archipelagos (AZ: Azores; OK: Orkney; PT: Portuguese Mainland; UK: United Kingdom mainland)

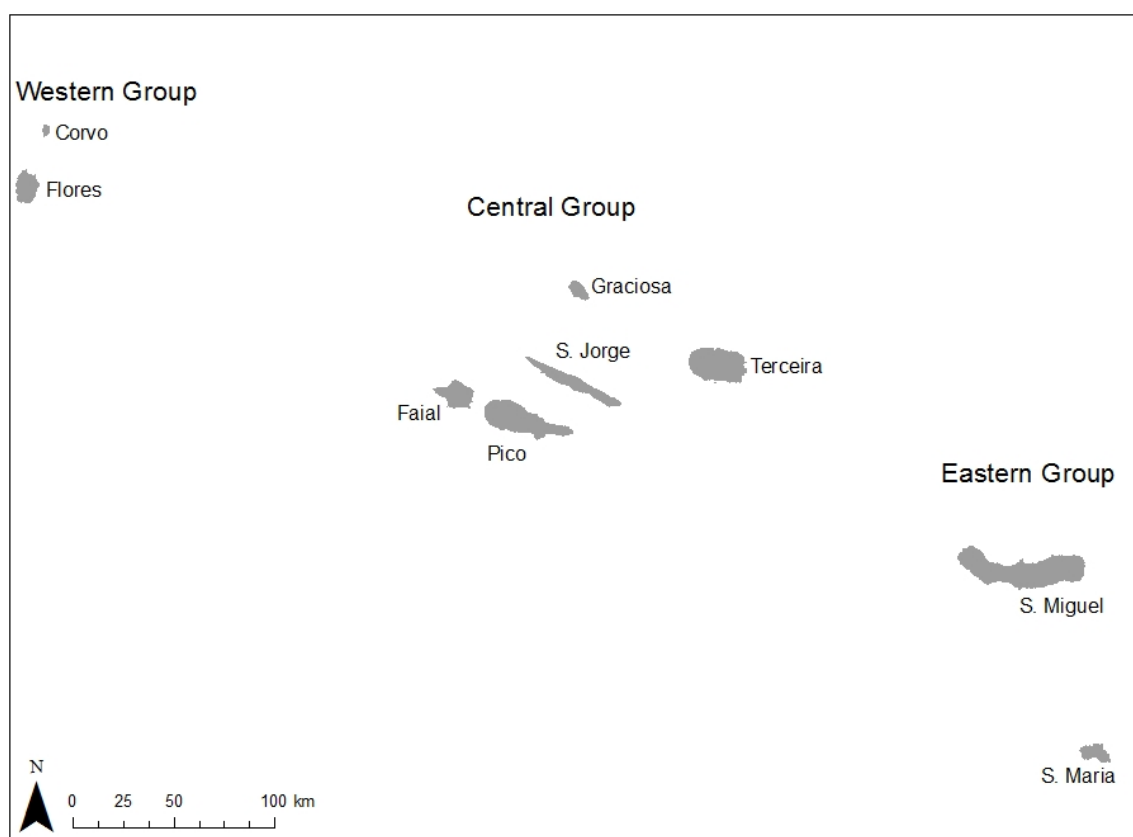
3.3.1.2 Characterisation of Azores Archipelago

The Azores is a Portuguese autonomous region with its own political-administrative statutes and government bodies. This political regime was established in *Título VII* of the Portuguese Constitution. The autonomy of the archipelago is based on the geographical, economic, social, natural characteristics, and the historical aspirations for autonomy of the populations of the islands (Suárez de Vivero, 1995).

The archipelago is constituted by nine inhabited islands, divided into three groups: western group (Corvo and Flores islands), central group (Graciosa, Terceira, São Jorge, Pico and Faial islands), and an eastern group (São Miguel and Santa Maria islands) (Figure 3.2), distributed along 600 km with an Exclusive Economic Zone (EEZ) of approximately 984,300 km² and a coastline of 690 km (Borges et al., 2009). The islands are of volcanic origin and are located on the Mid-Atlantic Ridge, a tectonically and volcanically active region (Andrade et al., 2006; Borges et al., 2002; Calado et al., 2011a, 2011b), in the middle of the North Atlantic. Ponta Delgada, on São Miguel island, is the capital of the archipelago, and is approximately 1,500 km from Lisbon. Corvo is the smallest island with 17 km² of land area and 430 inhabitants, whereas São Miguel is the largest with 745 km² of land area and 137,830 inhabitants. In total the archipelago has a land area of 2,322 km², and in 2011 had 246,746 inhabitants (DGT, 2014; SREA, 2012).

Azores have high biologic and geologic diversity, reflected by 452 endemic species and about 24% of the terrestrial territory has been designated a protected area. In the scope of the nine Islands Natural Parks, there are 123 protected areas (terrestrial and marine) and in the scope of the Azores Marine Park there are 11 protected areas (representing ca. 11% of the EEZ). In the archipelago there are three Biosphere Reserves (Corvo, Flores and Graciosa islands) and two World Heritage sites (DRA et al., 2014).

The regional economy depends highly on the public sector, but also on the traditional sectors, such as, agriculture and fisheries, particularly livestock production and its related industries. Tourism appears to be an emerging sector (SRAF, 2011). National and European structural funds are central to the development of the region (Carvalho et al., 2011).



Source of official administrative boundaries: DGT (2014)

Figure 3.2 – Azores Archipelago

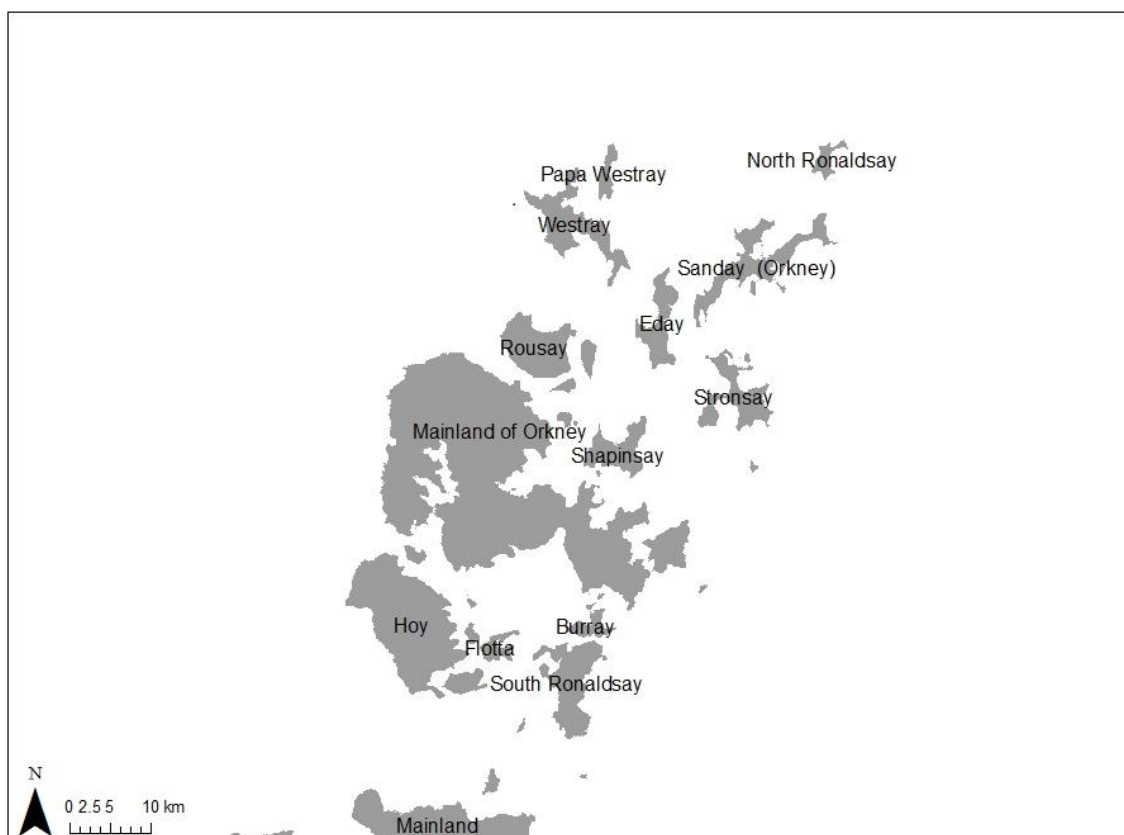
3.3.1.3 Characterisation of Orkney Archipelago

Orkney is a Scottish council area, located 32 km north from the Scottish mainland, made up of more than 70 islands and islets (Orkney Islands Council, 2012) (Figure 3.3) but only 20 have full-time residents (National Records of Scotland, 2013a). Orkney was formed through the collision of continents, and are predominantly built from accumulated sediments dating from the Devonian period (McKirdy, 2010).

In 2011, Orkney had a population of 21,349 inhabitants, an area of approximately 990 km² (National Records of Scotland, 2013b) and a total length of coastline of over 980 km (Orkney Islands Council, 2012). The least populated island is Inner Holm with a population of 1 inhabitant and the most inhabited is Mainland of Orkney with 17,162 inhabitants (National Records of Scotland, 2013a). Kirkwall, in Mainland of Orkney, is the capital of the archipelago.

The biologic and geologic diversity is reflected in the 73 international and national protected areas: six special areas of conservation, 13 special protection areas, 36 sites of specific scientific interest, one Ramsar site, one local nature reserve, and 16 geological conservation review sites (of these, 12 are also Sites of Special Scientific Interest - SSSIs) (Orkney Islands Council, 2012). Furthermore, Orkney is home to a World Heritage site – The Heart of the Neolithic, due to their prehistoric cultural landscape dating from ca. 5,000 years ago.

The Orkney economy is reliant on tourism and has a high percentage of employment in the health and social work, wholesale and retail trades, construction, and agricultural, forestry, and fishing, sectors (Highlands and Islands Enterprise, 2014; Orkney Islands Council, 2007). Additionally, beef cattle farming, fishing, salmon farming, and the ferry operation are central in the development of the local economy (Orkney Islands Council, 2007).



Source of official administrative boundaries: National Records of Scotland (2013c) (© Crown copyright and database right 2013)

Figure 3.3 – Orkney Archipelago

3.3.2 Environmental reports selection

The selection of the SEA ERs took into account the scope of the research. The Azorean and Orkney ERs were chosen using the following criteria:

- (i) Availability in the institutional webpages (Azorean Government and Scottish SEA Database);
- (ii) SEA process with, at least, final ERs and/or post-adoption statements, and;
- (iii) For the Azores, the ER from regional spatial plan, special spatial plan (environmental protection related plans) or sectoral plan or programmes (PP); for the Orkney case, plans, programmes or strategies (PPS) affecting the council area, to reflect that island as the spatial unit.

For the mainland, ERs selection followed the pre-requisite that they had to be similar to the ERs retrieved for the islands, to allow comparison between the island context and the mainland. However, in the Portuguese mainland case, due to the administrative specificities, the correspondent institutional webpage is the Portuguese Environmental Agency.

The sample collection was conducted from January to July 2013. A total of 43 cases were retrieved – 7 from the Azores and 14 from the Portuguese mainland; 5 from Orkney and 17 from the Scottish mainland. Table 3.1 summarises the Environmental Reports used in the content analysis (for a detailed characterisation see Appendix I).

Table 3.1 – Environmental Reports included in the content analysis

Code	Plan or Programme title
<i>Azorean Environmental Reports</i>	
A1	PROT Azores
A2	POOC Santa Maria
A3	POOC Corvo
A4	POOC Flores
A5	POOC Graciosa
A6	POOC Pico
A7	PGRH Azores
<i>Portuguese Mainland Environmental Reports*</i>	
PM1	PROT Oeste e Vale do Tejo
PM2	PROT Alentejo
PM3	PROT Norte
PM4	PROT Área Metropolitana Lisboa
PM5	PROT Centro
PM6	PGRH Ribeiras do Algarve
PM7	PGRH Sado e Mira
PM8	PGRH Guadiana
PM9	PGRH Ribeiras do Oeste
PM10	PGRH Tejo
PM11	PGRH Minho e Lima

Table 3.1 – Environmental Reports included in the content analysis (Cont.).

Code	Plan or Programme title
PM12	PGRH Douro
PM13	PGRH Cávado, Ave e Leça
PM14	PGRH Vouga, Mondego e Lis
<i>Orkney Environmental Reports</i>	
O1	Orkney Islands Local Transport Strategy
O2	Community Plan
O3	Local Biodiversity Action Plan
O4	Sustainable Energy Strategy
O5	The Orkney Plan
<i>Scottish Mainland Environmental Reports</i>	
SM1	Glasgow Local Transport Strategy – ‘Keeping Glasgow Moving’
SM2	Dumfries and Galloway Local Biodiversity Action Plan (Second Edition)
SM3	North Ayrshire Local Transport Strategy
SM4	Renfrewshire Local Transport Strategy 2006
SM5	West Dunbartonshire Council Local Transport Strategy
SM6	Review of the Ayrshire Local Biodiversity Action Plan
SM7	East Dunbartonshire Local Plan 2
SM8	East Lothian Biodiversity Action Plan 2008 to 2013
SM9	East Renfrewshire Council Local Transport Strategy
SM10	Highland Coastal Development Strategy
SM11	Dunbartonshire Biodiversity Action Plan
SM12	Highland wide Local Development Plan
SM13	Moray Council Draft Local Transport Strategy
SM14	South Lanarkshire Local Biodiversity Action Plan
SM15	Fife Community Plan 2011-2020
SM16	East Ayrshire Community Plan
SM17	Perth & Kinross Council's Community Plan

Note: PGRH – River basin district Management Plan | POOC - Coastal Zone Spatial Plan | PROT - Regional Spatial Plan

*There were no POOC SEAs available for the Portuguese mainland when the research was conducted.

3.3.3 Qualitative content analysis

The data collection for comparison of the practices used in Azores, Portuguese mainland, Orkney and Scottish mainland was accomplished through a qualitative content analysis based-approach of the SEA ERs according to the methodological recommendations of Bardin (1977), Krippendorff (2004) and Mayring (2000). Content analysis is a systematic approach used to collect data from documents (Bardin, 1977) allowing replicable and valid inferences from texts (Krippendorff, 2004). The limitations of the method are mainly associated with the documents analysed, which can pose problems of credibility, authenticity, representativeness and availability (Bryman, 2012). Nonetheless, content analysis allows the research to have the flexibility needed in exploratory studies, and enhances research transparency and reduces subjectivity (Bardin, 1977; Bryman, 2012).

To develop the qualitative content analysis, a criteria set of five items was established, related to the core elements found in the literature (see Sections 3.1 and 3.2). The analytical objectives were also added to the framework to establish the analysis boundaries. The ERs used as the primary data source (see Section 3.3.2) were read and analysed iteratively against it.

Table 3.2 summarizes the criteria framework used. These cover the guidelines used to operationalize the institutional and procedural framework, the assessment topics studied, the adopted assessment techniques and methodological approaches, and the stakeholders' engagement process.

Table 3.2 – Content analysis framework: criteria, rationale and objectives for the analysis done to the environmental reports.

Criteria	Rationale	Analysis objectives	Adapted from
Guidelines	The purpose of this criterion is to help understand what is the procedural guidance framework adopted in the ERs. Also, if SEA is context specific, it is important to understand if there are differences between the systems and between the islands and the mainland.	Identify guidelines used (e.g., Partidário (2007), Scottish Executive (2006)).	Chaker et al. (2006) Noble et al. (2012) Rachid and El Fadel (2013)
Assessment topics	This criterion aims to analyse if islands ERs address similar environmental/ sustainability issues to the ones used in the ERs from the mainland. Furthermore, this criterion helps to establish typical sustainability issues to be studied in future SEA of small islands.	Identify environmental/ sustainability issues used in ER (e.g., environmental/ sustainability issues of the EU Directive, aggregated sustainability issues, strategic sustainability issues). Identify the typical sustainability issues used in the assessment in small islands versus mainland (e.g., are there topics more used in small islands than in the mainland).	Abaza et al. (2004) Fischer (2002) Therivel (2004)
Assessment techniques and methodological approaches	The aim of this criterion is to analyse the different assessment techniques used in the ERs, and to correlate the assessment techniques with steps of the assessment where they were used. This helps to understand what are the current methodological approaches used. Plus, to relate these to the context-specificity (small islands vs. mainland) of the different SEA systems.	Identify assessment techniques (e.g., trend analysis, impact matrix, expert judgement). Identify where each technique was used in the assessment (e.g., baseline information, alternatives, effects prediction and evaluation).	Fischer (2007) Noble et al. (2012) OECD (2006) Therivel (2004) UNEP (2009)

Table 3.2 – Content analysis framework: criteria, rationale and objectives for the analysis done to the environmental reports (Cont.).

Criteria	Rationale	Analysis objectives	Adapted from
Follow-up	Follow-up helps measure how the sustainability inputs are influencing the post-implementation of the decision-making. It is important to plan the follow-up stage in order to allocate responsibilities and ensure a follow-up programme. The analysis also focuses on how this is different for each archipelago.	Identify the type of follow-up proposed (e.g., conformance, performance). Identify if it establishes who is responsible for the follow-up (e.g., authority responsible for plan, independent third party, stakeholders).	Fischer (2007) Morrison-Saunders et al. (2014) Nilsson et al. (2009) Partidário and Fischer (2004)
Stakeholder engagement	Stakeholder engagement is paramount for the development of an effective SEA and to enhance sustainability in small islands. Hence, it is necessary to understand how the ER addresses it in the small islands and compare with the practices of the mainland.	Identify if and which stakeholders were contacted (e.g., lists of stakeholders). Identify how stakeholders were engaged, which techniques were used (e.g., participatory forums, dedicated website, written opinions issued by entities with responsibilities in the plan or program development).	Gauthier et al. (2011) IAIA (2002) Ren and Shang (2005) Doren et al. (2013)

The data collected were then analysed, and for each criterion, information was grouped and regrouped, until there were usable units of analysis. In the case of the identification of guidelines, it was possible to group by type of guideline used (national, international/mixed and team's own approach). For the assessment topics, it was necessary to cluster similar types (see Table 3.3). In the case of the assessment techniques, it was necessary to group the findings of the content analysis into categories which were well known, hence, the definitions of the different assessment techniques, such as, "sustainability framework and indicators", "expert or team judgement", "trend analysis", given by Fischer (2007), OECD (2006), Therivel (2004), and UNEP (2009) were used. Follow-up was analysed against the four types proposed by Fischer (2007) and Partidário and Fischer (2004): conformance, performance, uncertainty, and dissemination.

At the same time, some of the data collected were quantified. Even though the content analysis is qualitative, it is possible to quantify some of the information, as noted by Saunders et al. (2009). While analysing the data collected, and in order to enhance its description and presentation (Saunders et al., 2009), absolute frequencies were used, helping improve the comparison between these exploratory islands case studies and the mainland.

3.4 Results and findings

This section presents the results and findings from the qualitative content analysis done to the SEA Environmental Reports (see Table 3.1 and Appendix I), the two-case studies and the Portuguese

and Scottish mainland reports, which helped establish their context. This section is structured according to the criteria used to develop the analysis: (i) the guidelines used, (ii) the environmental and sustainability issues assessed, (iii) the assessment techniques and methodological approach employed, (iv) the follow-up envisaged and (v) the stakeholder engagement performed.

3.4.1 Guidelines

The sample of Portuguese mainland (PT mainland) ERs analysed show that 10 out of 14 followed national guidelines and/or regulations. Of these 10, three followed the APA guidelines strictly (PM1, PM3 and PM4), six were done with a combination APA guidelines and national regulations (PM6, PM7, PM8, PM9, PM10 and PM14) and only PM13 followed “*good practice and recent national experience in SEA*” but not the APA guidelines. It needs to be noted that the three ERs that followed the APA guidelines strictly (Partidário, 2012, 2007) were coordinated by that author (see Appendix I).

The four remaining PT mainland ERs, from the 14 analysed, used a combination of international and national guidelines. Nonetheless, PM2 only mentions international guidance and practices, but it also follows the national regulations. Additionally, PM5, PM11 and PM12 state they are using methodological guidelines different from national and international experience, presenting the same references.

Even though the Azorean Regional Directorate for the Environment adopted the guidance published by APA as their SEA guidelines (Partidário, 2012, 2007), as seen in Section 3.2, none of the Azorean ERs used them *per se*. Similarly to PM13, A7 states the report is done “*in line with good practice and recent national experience in SEA*”, and it is the only report which refers to the Azorean-specific legislation, since it was completed after these regulations came into force. The ERs A1 and A6 make reference to the same methodological guidelines from national and international experience as PM5, PM11 and PM12. The ERs A2, A3, A4 and A5 were done by the same team, presenting the same structure, and presenting their own approach to SEA, grounded by the national regulations.

These results are in line with the findings of the review conducted by Partidário et al. (2010), where the majority of the Portuguese ERs did not follow the APA guidelines, following instead a combination of national and international guidance. Furthermore, the Portuguese SEA teams tend to systematically use the same type of guidance and structure to develop the ERs, indicating that the approaches used are dependent on the team doing the SEA rather than the type of PP addressed. Overall, only four ERs presented a specific approach for the island report, and it must be highlighted that the reports were done by an academic team from the archipelago (Universidade dos Açores).

In the Scottish case there was a lack of diversity in structure and guidance, not reflecting specific contexts. In the Scottish mainland (SCT mainland), the majority of the reports also used the template or made a specific reference to the SEA (Scotland) Act 2005, only 3 out of the 17 ERs

from the mainland analysed had a different outcome. The SM8 had a shorter version, not making references to the regulations or the SEA template, and perceived as the SEA team's own approach. In the case of SM9 and SM13 references are made to guidance different from the Scottish regulations and toolkit, respectively, to ODPM (2005) and to Therivel (2004), and was perceived as a combination of international and national guidance. In the ERs analysed for the Orkney archipelago, all ERs used the template provided by the Scottish Government (2013).

3.4.2 Assessment topics

The analysis showed a wide variety of terms used for the assessment topics because different reports used different designations for the same type of issue assessed. It was possible to group similar assessment topics for the analysis (see Table 3.3). Also, while analysing the ERs it was possible to categorise different clusters of assessment topics into: (i) aggregated Directive topics¹⁰ (type 1), if an ER used the Directive topics combined with other topics, e.g. biodiversity, fauna and flora; (ii) strategic sustainability issues (type 2), if an ER used assessment topics that derived from a mixed approach with different entry points, including but not limited to, PPS objectives, relevant international and national PPS objectives, inputs from stakeholders; and, (iii) other type of assessment issues (type 3), if an ER did not use one of the previous types, but a different approach. Table 3.3 presents the groups used for the assessment topics categorised by type of assessment topics used.

Table 3.3 – Clustered assessment topics (with the variety of terms used in Environmental Reports, grouped by theme) and codes used in this paper

Code	Clustered assessment topics (with the variety of terms used in Environmental Reports, grouped by theme)
<i>Type 1 – Aggregated Directive topics</i>	
T1.1	Air Air quality Local air quality
T1.2	Air quality and climatic factors
T1.3	Air, water and soil
T1.4	Biodiversity Biodiversity, flora, fauna Biodiversity, Habitats, Flora and Fauna Biodiversity and Nature Conservation (Flora and Fauna)
T1.5	Biodiversity, Flora, fauna, landscape
T1.6	Biodiversity, incorporating fauna, flora, soil and water
T1.7	Climate Factors and Material Assets
T1.8	Climatic factors Climate Energy consumption (associated with climate change)
T1.9	Cultural heritage Cultural heritage including archaeology Historic Environment
T1.10	Geology and Soil Geology Soil
T1.11	Land use
T1.12	Landscape Landscape and townscape
T1.13	Landscape and Geology

¹⁰ Directive 2001/42/CE: Article 5(1) and Annex 1, (f) the likely significant effects(1) on the environment, including on issues such as biodiversity, population, human health, fauna, flora, soil, water, air, climatic factors, material assets, cultural heritage including architectural and archaeological heritage, landscape and the interrelationship between the above factors.

Table 3.3 – Clustered assessment topics (with the variety of terms used in Environmental Reports, grouped by theme) and codes used in this paper (Cont.)

Code	Clustered assessment topics (with the variety of terms used in Environmental Reports, grouped by theme)
T1.14	Material assets
T1.15	Noise Noise and vibration
T1.16	Population and Human health Human health Population
T1.17	Population and Human Health and Cultural Heritage
T1.18	Quality of life
T1.19	Waste
T1.20	Water Water environment
T1.21	Water, soil & geology Water, soil and substrate morphology
<i>Type 2 – Strategic Sustainability issues</i>	
T2.1	Accessibility and Mobility Mobility
T2.2	Biodiversity Biodiversity and Nature Conservation Biodiversity and Ecosystem services Natural Resources and Biodiversity Structure and Ecological Functionality
T2.3	Competitiveness Economic competitiveness Economic Development Economic sustainability and competitiveness Socio-economic development Socio-economic sustainability Efficiency and competitiveness
T2.4	Cultural Resources Cultural and Intangible Heritage
T2.5	Depopulation / Population ageing
T2.6	Desertification
T2.7	Energy and climate change Climate change Energy
T2.8	Environmental quality Environmental sanitation
T2.9	Governance Governance and citizenship Governance and competitiveness Planning and governance Governance and cohesion
T2.10	Human Development Human Potential
T2.11	Natural and Cultural Resources Natural, landscape and heritage values Natural and Patrimonial Values
T2.12	Natural Resources
T2.13	Population and Social Cohesion
T2.14	Rural Development / Rural-Urban Relationship
T2.15	Spatial Planning Territorial fragmentation Territorial Dynamics Territorial specificities Territorial and social cohesion Territorial Development and Competitiveness Structuring and Territorial Rehabilitation
T2.16	Vulnerabilities and risks Natural and Technological Risks Natural and Technological Hazards Risks (human health)
T2.17	Water resources
<i>Type 3 – Other type of assessment issues</i>	
	The assessment was conducted through issues different from type 1 and type 2 assessment topics, e.g. programmes envisaged in the Plans, SEA objectives.

Note: the assessment topics were clustered for each code by content and similarity of terminology. Even though some codes may seem similar, they represent a different assessment topic, which was placed under a different code for the purpose of analysis transparency.

The analysis showed that the Portuguese ERs, mainly used “strategic sustainability issues” (type 2) while the Scottish ERs mainly used “aggregated Directive topics” (type 1). Eight ERs used another type of assessment issues: four Azorean ERs and four SCT mainland ERs. In the case of the Azores, these are the same ERs that were made by the SEA team’s own approach (A2, A3, A4 and A5) and used the programmes envisaged in the Plans to do the assessment. The SCT mainland ERs with specific assessment topics are SM1, SM3, SM9 and SM12. In the case of SM1, the report added to the assessment topics from the Directive, social issues (crime and social exclusion), hence, it was categorised as “other type assessment topic” (type 3). In the other three ERs, the assessment was developed based on the SEA objectives.

This is consistent with the findings from the previous section, where the majority of the Portuguese ERs used a mix of national and international guidelines, while the Scottish ERs largely used the SEA template (see Scottish Executive, 2006). This follows a Directive-based approach. It was therefore expected that these reports would use environmental issues stated in the Directive, but the SEA teams aggregated the topics into sets of complementary information (e.g., biodiversity, fauna and flora; air and climatic factors, population and human health).

Of the 14 Portuguese mainland ERs, 11 used assessment topics related with vulnerabilities and risks (T2.16), 10 ERs used assessment topics related with spatial planning (T2.15), 8 ERs with Biodiversity (T2.2), socio-economic sustainability and competitiveness (T2.3), and governance (T2.9).

In the three Azorean ERs that used type 2 assessment topics (A1, A6 and A7), the most used topics (3 out of 3 reports) were issues related with socio-economic sustainability and competitiveness (T2.3) and with vulnerabilities and risks (T2.16). Following, in 2 out of 3 reports, there are assessment topics related with energy and climate change (T2.7), environmental quality and sanitation (T2.8) (ERs A1 and A6), governance (T2.9), and spatial planning (T2.15) (ERs A1 and A7).

Despite the Azorean low sample number, it is noted that, these reports focused more than the PT mainland ERs on (i) climate change and energy (only 4 out of 14 PT mainland reports: PM1, PM2, PM4 and PM5), and (ii) environmental quality and sanitation related topics reports (2 out of 14 PT mainland reports: PM1 and PM5). Furthermore, the two Azorean ERs focusing on these topics are related with regional spatial planning and coastal management, and the PT mainland ERs are related with regional spatial planning.

As for the SCT mainland ERs and Orkney ERs, all used similar assessment topics, which covered all issues from the Directive, even though with some different designations. However, it is noted that issues related with climatic factors (T1.8) are used in all Orkney ERs, while in the SCT mainland ERs only 8 out of 13 use it, and air quality related issues (T1.1, T1.2 and T1.3) are less used in the SCT mainland ERs (only present in 4 out of 13), while in the Orkney ERs it is present in 3 out of 5 ERs. Even though, as happens with the Azorean and PT mainland ERs, there is a lower

representation of Orkney ERs proportionally to the SCT mainland reports, these differences are easily highlighted.

3.4.3 Assessment techniques and methodological approaches

The Portuguese reports, with the exception of PM4, presented a section with the establishment of context and objectives. The most used technique was “sustainability framework and indicators”. However, in the A2, A3, A4, A5, PM5, PM11, PM12 and PM13 cases a complementary technique was used: “expert or team judgement”. In the Azorean ERs, it is noted that these ERs are those that used an “SEA team own approach” in “Guidelines” (see Section 3.4.1). As for the Scottish case, only four SCT mainland (SM3, SM5, SM6, SM9) and two Orkney ERs (O1 and O3) presented the context and objectives. The ERs O1, O3, SM6 and SM9 used “sustainability framework and indicators” and SM3 and SM5 used “stakeholders” to define the context and objectives.

In the “Baseline information and likely evolution without the PPS”, the majority of the reports used the “trend analysis” technique. However, the four Azorean ERs that had an “SEA team own approach” in the “Guidelines” (see Section 3.4.1) (A2, A3, A4, and A5), O5 and SM8 did not present this phase in the report. The ER O5 did not present this phase because it was already a second assessment. One report (SM7) presented the trend analysis through an impact matrix. However, it is not clear how this matrix was achieved. SWOT analysis (strengths, weaknesses, opportunities and threats) was used as an additional technique in some PT mainland ERs (PM1, PM3, PM4, PM9, PM10, and PM14) and only OT (opportunities and threats) in two SCT mainland ERs (SM9 and SM11).

As for the assessment of alternatives, it is noted in the Portuguese case that only two PT mainland ERs (PM9 and PM10) presented them using “stakeholders” as the technique for their assessment. Contrasting with these results is the Scottish ERs, where 13 out of 22 assessed alternatives using an “impact matrix” assessment technique (assumed for the following reports: O2, O4, SM6, SM7, SM9, and SM12, because they do not present the matrix, only describe the results). Of these 13, four are Orkney ERs, where only O5 did not assess alternatives. In the SCT mainland ERs, four did not assess alternatives (SM2, SM8, SM15, and SM16). Furthermore, four SCT mainland reports, relating to transport strategies, used the Scottish Transport Appraisal Guidance (STAG) (see Transport Scotland, 2013, 2008) (SM1, SM3, SM4, and SM5) to assess them.

In the assessment of the effects phase in the ERs, it is found that a more diverse set of techniques are used, mainly for the Portuguese ERs. The “impact matrix” was the most used technique, only six PT ERs did not use it (A1, A7, PM1, PM3, PM4, and PM5). Also, some reports used other techniques to complement the analysis; this is the case of A2, A3, A4, and A5, which used “expert judgement” and “stakeholders”. An “*ad-hoc* expert judgement technique”, because it is implicit but not evident, was used in other, seven, PT ERs (A1, A7, PM2, PM5, PM9, PM10, and PM14). The technique “SWOT analysis” was used in A1 and A6 and a shorter version of this technique (OT) was used in other, nine, ERs (A7, PM1, PM3, PM4, PM5, PM9, PM10, PM11 and PM12).

To complement the assessment compatibility matrices and scenario analysis were also used: Compatibility analysis was used in 9 out of 14 PT mainland ERs (PM1, PM3, PM4, PM6, PM7, PM8, PM11, PM12, and PM13), 2 out of 7 Azorean ERs (A6 and A7), and 8 out of 17 SCT mainland ERs (SM1, SM3, SM4, SM9, SM12, SM13, SM14, and SM17). Scenario analysis was only present in Portuguese ERs (A7, PM1, PM4, PM9, and PM10).

In the framework for a proposed follow-up, when present, “indicators” were the assessment technique preferred. The detailed findings for the “proposed follow-up” phase will be presented in the following section.

Comprehensively, it is possible to say that the Portuguese ERs (from the mainland and Azores) develop and present the context and objectives of the assessment through “sustainability framework and indicators”, the baseline information and likely evolution without the PP is grounded by “trend analysis”, and follow-up relies on “indicators”. However, in the assessment of effects the Azorean ERs rely highly on “impact matrices”, “expert judgement”, and “stakeholders”, while the PT mainland ERs mainly use “impact matrices”, “SWOT”, and “compatibility analysis”. Alternatives, as defined in the Regulations, were not assessed.

As for the Scottish case, both Orkney and mainland, the baseline information and likely evolution without the PPS was accomplished through “trend analysis”, alternatives were assessed based on “impact matrices”, the assessment of effects were addressed through “impact matrices”, and in a few mainland cases “compatibility matrices” were used to complement the analysis. When present, follow-up used “indicators” as the main technique.

Overall, all ERs used a mixed set of methods throughout the assessment, and the types of assessment technique and methodological approach mainly depends on the SEA system and the phase of the ER in which they are applied.

3.4.4 Follow-up

Using the definitions of different types of follow-up by Partidário and Fischer (2004): conformance, performance, uncertainty, and dissemination, it was possible to differentiate the different proposed follow-up patterns in the environmental reports analysed. As seen in the previous section, when the ERs proposed a framework for follow-up, indicators were used as the assessment technique. However, this is mainly associated with the “performance” type of follow-up, which was also the most frequently proposed (used in 34 of 43 ERs). With the exception of ER SM13 which identified “indicators” for “uncertainty” follow-up, the other types of follow-up were described or had recommendations associated with them. Some ERs proposed more than one type of follow-up: in the Portuguese case, six ERs (A7, PM1, PM5, PM11, PM12, PM13), besides using performance follow-up also used conformance follow-up; and A1 and A6 proposed a framework that included all types of follow-up. As for the Scottish reports, SM10 and SM12 used performance and uncertainty follow-up, SM11 used performance and dissemination follow-up, and SM17 used performance, uncertainty and dissemination. Overall, there were four Azorean ERs (A2, A3, A4, and A5) and two

SCT mainland (SM5 and SM8) that did not present a follow-up framework, and the Orkney ERs only presented a performance follow-up framework.

The attribution of responsibilities in the follow-up framework varies highly from the Portuguese ERs to the Scottish ERs. In the PT mainland cases, 12 out of 14 PT ERs (the exceptions are PM2 and PM14), present a list of entities responsible for follow-up beyond the “responsible authority”. This list is associated with the “governance framework” referred to in the Portuguese guidelines (see Section 3.2), which intertwines also with stakeholder engagement in the SEA process. The “governance framework” usually has other authorities and stakeholders, including the public. From these 12 ERs PT mainland, 8 used the “governance framework” for the attribution of follow-up responsibilities. In the Azorean ERs, only two ERs make reference to the need to go beyond what is mandatory (A1 and A7), but in these cases, none of the reports show a specific list of entities with monitoring responsibilities.

In the Scottish mainland cases, only 4 out of 17 presented the entities beyond the “responsible authority” and their duties (SM2, SM6, SM9, and SM12), while in the Orkney ERs, 3 ERs denote specifically which entity and their duties, beyond the “responsible authority” (O1, O2 and O3). These third parties are organisations which are generally in charge of a specific indicator.

It was possible to identify a draft framework for future follow-up in 10 out of 14 PT mainland ERs, 3 out of 7 Azorean ERs, 10 out of 17 SCT mainland ERs, and 4 out of 5 Orkney ERs.

3.4.5 Stakeholder engagement

Overall, 13 Portuguese ERs presented a “governance framework” or the list of entities with environmental responsibilities, 12 PT mainland ERs (exceptions are PM2 and PM5) and one from Azores (A6). Nonetheless, ERs A1, A7 and PM5 made available the comments received during the ERs phase, which partially indicates which stakeholders were contacted. In the Scottish case, the ERs generally state that the “Consultation Authorities” will be consulted as well as the public. In the specific case of SM2, the plan steering group and the partnership responsible for the plan as additional stakeholders are identified, and were involved in different phases of the process.

As seen in Section 3.2, the Portuguese regulations give an illustrative list of entities to be consulted on the ER and therefore the number of entities with environmental responsibilities varies widely. This is in contrast to the three “Consultation Authorities” specified in SEA Scotland Act (2005). However, it is also noted that the participation of organizations, other than those with environmental responsibilities, is higher in the Portuguese case than in the Scottish one. Table 3.4 presents the number by type of stakeholders which responded to the ER consultation. Only one Scottish ER is included in the table because it was the only report with comments beyond the “Consultation Authorities”.

Table 3.4 – Number by type of stakeholders which responded to consultation on the SEA environmental report

	Entities with environmental responsibilities	Public or Private organizations	ONG and other civic organizations	Individuals	Total responses
A1	14	2	1		17
A6	3				3
A7	2	1			3
PM5	29	2	18	4	53
PM6	13	2	1		16
PM7	12	7			19
PM8	15	6	1		22
PM9	15	2	1		18
PM10	33	1	1		35
PM11	9	2			11
PM12	23	3			26
PM13	12	3			15
PM14	23	1			24
SM13	3	2			5

Note: the Table only shows the 13 PT ERs which provided the list of entities which responded to the consultation. Furthermore, only one Scottish report was considered because it was the only report with comments beyond the three statutory “Consultation Authorities”.

The most used technique to engage with stakeholders is consultation, where the public is informed and invited to comment on the ER. However, some ERs mention different types of techniques used or foreseen. In three PT mainland ERs addressing the Water Framework Directive (PM11, PM12 and PM13) the teams used different types of public engagement for the plan (sectorial workshops and regional forums). Additionally, in A1 it is stated that three public meetings took place to discuss the plan and the SEA, while A2, A3, A4 and A5 state that it was expected to undertake public forums. In the Scottish case, beside the “Consultation Authorities”, only two SCT mainland ERs made reference to steering group and partnership meetings, forums and workshops (SM2 and SM5). McLauchlan and João (2012) previously identified the poor participatory process in the Scottish case. Overall, there is little evidence on what was done specifically for the SEA consultation in both systems.

It needs to be highlighted that the information analysed for this paper encompasses only information within the ERs. However, the stakeholder engagement process may not be fully reflected in the ERs, and additional documents and investigation could be needed to understand the full stakeholder engagement process.

3.5 Cross-case integrated analysis and discussion

The Portuguese system, including the Azores, is more diverse in the types of guidelines used, contrasting with the Scottish SEA system, which has a strong predominance of the national guidance, and a regulation-based approach. The choice of using a certain type of guideline will necessarily influence the choice of the assessment topics, assessment techniques and methodological approaches. Similarly to what Noble et al. (2012) identified, the type of guidance, assessment topics, assessment techniques and methodological approaches used seems to be unrelated to the type of Plan, Programme or Strategy assessed, or the type of territory addressed, and is more dependent on the team that prepared the ER.

Additionally, McLauchlan and João (2012) found that ERs done by the same practitioners' teams are more prone to be uniform, which is also noted in the ERs studied in this research where the approaches used, the issues studied and even the indicators used in the assessment were systematically identical. This may reflect the practitioners' inability to do critical thinking which should be present in SEA, as demonstrated by McLauchlan and João (2012). It could also be due to the practitioners' lack of sufficient skills to develop such kinds of assessment, or of the time and resource constraints under which SEA system operates, as noted by João and McLauchlan (2014). This shows that the approaches used are based on the knowledge of the practitioner and not on the different SEA contexts (Noble et al., 2012). This may be even more noticeable in territories such as small islands, due to their relatively small populations, which may reveal a dearth of specific SEA expertise and experience, as discussed by McIntyre (2004) and Crossley and Sprague (2014). These findings are in line with what has been recently debated about the enhancement of the wider concept of sustainability in small islands (e.g., Crossley and Sprague, 2014). There is still need for further development of specific SEA capacity-building initiatives in these territories, even though there are already some positive signals, such as the SEAs done by the University of Azores' team, showing progress towards such capacity enhancement.

The use of the different guidelines would suggest different types of assessment topics selected and used in the ERs. Indeed, the Portuguese ERs presented types of assessment topics distinct from those used for the Scottish ERs, indicating topics built from a mixed approach, including, in some cases, stakeholder inputs as opposed to Directive-based assessment topics *per se*. As suggested by Ramos et al. (2009) topics chosen for the assessment should reflect small islands, and this was often found in the study. The subjects of the topics used in the small islands case studies are in line with the priority areas and inherent concerns for small islands, as highlighted by the international community for small islands (see United Nations, 2005, 1994), even though there are some priority areas missing from the ERs (e.g. regional institutions and technical cooperation, transport and communication, science and technology).

Also, the additional findings of Noble et al. (2012) have an echo in the Portuguese and Scottish reports analysed from mainland and islands, where there is a predominance of qualitative methods, such as expert judgement, and SWOT analysis, even the impact matrices were mainly done

qualitatively. However, while the Portuguese system presents the use of multiple methods among the different sections of the ERs, being the “Assessment of effects” section that uses the greater range of methods, the Scottish system uses a lesser range of methods, usually using just one method *per* assessment phase. From the analysis made to the methods used, the lack of context specificity of the approaches in these small islands was verified. Furthermore, these findings also underscore what was previously recommended by Ramos et al. (2009); assessment techniques and methods must weight variables according to the small islands’ particular criteria and thresholds. However, it needs to be noted that recent legislation and guidelines give signs that future assessment may include a greater diversity in the approaches used, such as climate proofing (see Azorean Regional Decree-Law 30/2010/A) and ecosystems (see Scottish Government, 2013). This is in line with recent trends for SEA approaches concerning resilience (e.g., Sloatweg and Jones, 2011), and ecosystem services (e.g., Baker et al., 2013).

It is necessary to point out that although “indicators” might not have been explicitly stated in most SEA phases (except in “establishing the context”), indicators were used within the technique “sustainability framework and indicators”, and in “follow-up”. Indicators were also used across the full assessment to support the different techniques used, such as, “impact matrices” and “trend analysis”. Indicators by themselves are an assessment technique (Fischer, 2007), as they may operationalise themes and objectives set out for the SEA (Therivel, 2004). Also, the findings are consistent with what was confirmed by Therivel (2004) and Fischer (2007): indicators can be used in all assessment situations and SEA stages, to describe and monitor the baseline information or to predict impacts. In the ERs analysed, the information was not always clear and systematized, rendering it difficult to understand the concepts and approaches associated with the use of those indicators. In the majority of the reports, the indicators used to characterise the baseline situation constitute the core indicators proposed for the follow-up. Due to their cross-cutting characteristics and influence in all SEA stages, Donnelly et al. (2006) recommends their consideration, starting from the early stages, in order to achieve an effective SEA.

Concerning the follow-up stage, the results show that the majority of the reports presented a follow-up framework, where the most common technique in the performance follow-up framework was “indicators” (see Section 3.4.4). However, these frameworks do not differ much between the small islands and the mainland reports. As recommended by Nilsson et al. (2009), follow-up strategies should be developed according with the PPS context, taking into account appropriate indicators and other techniques. It can thus be suggested that specific follow-up strategies are needed for small islands. Furthermore, and as demonstrated by Nilsson et al. (2009), it is important to have a systematic framework in order to separate direct environmental effects from indirect long-term effects, and to understand what the cumulative effects are.

Additionally, Nilsson et al. (2009) showed the importance of the inclusion of participatory approaches to access specific knowledge and experiences concerning impacts in the follow-up stage. In this research, only the Portuguese mainland ERs presented a “governance framework” which listed different stakeholders and their responsibilities within the follow-up framework. These

findings highlight the need to enhance SEA follow-up frameworks to go beyond what is currently done, to include further stakeholder engagement in this stage, and the need to take into account the different contexts of the SEA, as recommended by different authors (e.g., Morrison-Saunders et al., 2014; Nilsson et al., 2009).

Stakeholder engagement is an SEA cross-cutting issue, and for Noble (2004), assessments should effectively include stakeholders knowledge and values. Additionally, Fischer (2007) states stakeholders may identify different interests in the PPS-making process. These arguments support what was done in four Azorean reports made with an “SEA team own approach”, which used expert judgement and defined a clear strategy for stakeholder engagement. As noted by Polido et al. (2014), community awareness and empowerment need to be effective in small islands. Therefore, there is some evidence that to ensure an effective SEA in these territories, different stakeholders, including the public, should be engaged since SEA early stages. This indicates that stakeholder engagement could be used as an assessment technique, even if combined with other techniques, throughout the full assessment and not only in specific SEA stages, such as after the issuing of a draft SEA report. Furthermore, evidence from this research point to an easier integration of participatory approaches in Azores, which has already inputs from different stakeholders, but less in Orkney where the main external inputs are from the “Consultation Authorities”. Nonetheless, in both cases there should be government-level provisions for the development of these types of approaches, as argued by Bass and Dalal-Clayton (1995) and Zubair et al. (2011) .

3.6 Conclusion

This research set out to profile SEA in European small islands, using as a case study the Azores and Orkney islands, and at the same time to provide insights on what could be improved in SEA of these territories. Despite its exploratory nature and limited sample of Azorean and Orkney ERs, this study offers a background for future research on SEA in context-specific applications.

Overall, the research found no distinct features from SEA of the small islands studied when compared with the corresponding mainland, despite the vast literature referring to the importance of SEA context-specific approaches, including territories with specific features. The guidelines used, the assessment topics, the assessment techniques, and the overall structure of the ER, depends mainly on the team that develops the SEA, instead of the context of the PPS. These findings suggest there is a need for the enhancement of practitioners’ SEA knowledge and capacity, to explore the development of tailored approaches. Enhancing decision-maker, practitioner, and stakeholder capacity, including the public, in context-specific applications in these territories, is a key-issue to take into account when developing SEA sustainability-led approaches.

This study also found that the use of participatory approaches throughout the assessment, in the different SEA stages and as an assessment technique, should be better characterised and supported in the ER, playing a central role when developing approaches for these territories. This should be implemented from the SEA scoping phase, and used in combination with other

assessment tools and techniques. This could entail a deep commitment from national and regional/local governments, through the development and implementation of a tool or process which supports a participative assessment, with different stakeholders, including the public.

Strengthening networks between small islands for the exchange of knowledge and experiences, and cooperation with international agencies could help effectively integrate specific features in these territories. If the debate about small island-specific approaches is to be moved forward, the paradigm must change and collaborative approaches for the development of SEA need to be enhanced.

4 Exploring experts views and perspectives on the enhancement of Strategic Environmental Assessment in European small islands¹¹

Abstract

Small islands have the attention of the international community because they are territories with unique features, and a pressing need for the enhancement of sustainability. Strategic Environmental Assessment (SEA) has characteristics that may promote the development and improvement of sustainability in these territories: (i) changing the mind-set, and the decision-making and institutional paradigm, (ii) facilitating cooperation and coordination between different stakeholders, and (iii) providing a framework for good governance and community empowerment. The scientific literature suggests that there may be a need for context-specific SEA in these territories. However, SEA studies often do not incorporate local contextual information, including intuitive knowledge and sense of place. Therefore, there is a possible gap between what is found in the literature and what local communities think, including different stakeholders and experts. Hence, the main goal of this research was to gain an insight into the views and perspectives of small islands SEA experts about issues related to SEA in European small islands, including context-specific approaches, as well as the contribution of SEA for sustainability in these territories. To achieve the research aim, exploratory research using a questionnaire-based survey was designed, aimed at experts on SEA in European small islands. Findings showed regional cooperation networks may have a fundamental role when developing SEA-specific approaches in these territories. This is because SEA-specific approaches encourage a joint effort among islands within one region to improve SEA capacity-building, develop and share a baseline information system, and to share and exchange resources, overall. Also, guidelines are preferred among experts over more legal frameworks and regulations. Finally, the research showed that experts view SEA as a way to enhance sustainability in small islands. This study highlights the importance of integrating stakeholders, such as territorial experts, to learn and promote the use and improvement of environmental and sustainability tools such as SEA.

Keywords: Context; European small islands; expert survey; local knowledge; regional cooperation networks; strategic environmental assessment; sustainability.

¹¹ Polido, A., João, E., & Ramos, T.B. (2016b). Exploring experts' views and perspectives on the enhancement of Strategic Environmental Assessment in European small islands. *Environmental Impact Assessment Review*.58, 25-33. doi.org/ 10.1016/j.eiar.2016.02.004 (Reproduced with authorization of the publisher and subject to copyright restrictions imposed by them).

4.1 Introduction

There is a pressing need for context-specific Strategic Environmental Assessment (SEA) (Fischer and Gazzola, 2006; Hilding-Rydevik and Bjarnadóttir, 2007; White and Noble, 2013), including in territories with unique characteristics, such as small islands. Small islands have characteristics of closed and bounded systems, being 'hotspots' for biological and cultural diversity (Kelman et al., 2015). Also, they have unique features due to their small size and geographic isolation, such as, a narrow and dependent economic base, limited resources, sensitive and fragile ecosystems, and small populations with possible skills pool constraints (Kerr, 2005; McIntyre, 2004; Ramjeawon and Beedassy, 2004).

SEA is already used in small islands, due to funding agencies or regional regulations (Payet, 2011), but there is evidence that small islands have "context-free" SEA regulations and procedures, as shown by Polido et al. (2016a). Literature focusing on small islands indicates that it is essential to promote and enhance sustainability in these territories (Crossley and Sprague, 2014; van der Velde et al., 2007), where SEA may play a leading role (Hay, 2013; Payet, 2011). SEA may enhance sustainability in small islands due to its educational and mind-set changing capacity (McLauchlan and João, 2012), thereby promoting change in the decision-making and institutional paradigm (Douglas, 2006; Herbert, 1998; Yasarata et al., 2010), which is paramount for sustainability in these territories. Also, SEA facilitates cooperation and coordination between different stakeholders (Bina, 2007), providing a framework for good governance and community empowerment, as stressed for the development of small islands sustainability (Bunce, 2008; Herbert, 1998; Tran, 2006). However, it is yet unclear what sustainability means for these territories, due to its complexity and in some cases can even be paradoxical (Kerr, 2005; Zubair et al., 2011). Nonetheless, these territories may provide an opportunity to influence the debate on SEA and sustainability (Bass and Dalal-Clayton, 1995; Crossley and Sprague, 2014) as they have international community interest and attention, as highlighted by different initiatives for the case of Small Island Developing States (see UNCED, 1992; United Nations, 2014, 2005, 1994), and specifically in the case of European small islands (see CPMR, 1980; CPRM Islands Commission, 2015; ESIN, 2007).

There are still some challenges to overcome in the application of SEA in these territories for the enhancement of sustainability (Polido et al., 2014). However, SEA is in constant change, and new approaches are emerging, which may help overcome these challenges. Approaches requiring context-specific consideration, such as the integration of ecosystems services in SEA (Baker et al., 2013), resilience thinking linked with SEA (Slootweg and Jones, 2011), and, more recently, evolutionary resilience (Bond et al., 2015), are examples of leading initiatives in this domain. Concerns about ecosystems directly linked with ecosystem services in small islands have been discussed in academic and institutional literature (e.g., Aretano et al., 2013; Petrosillo et al., 2013; UNEP, 2014a), linking the importance of its integration within small islands SEA (Madhoo, 2010). Additionally, resilience is a key-issue addressed in small islands literature (Campbell, 2009; Hay, 2013), where building resilient territories and communities through the improvement of *"risk knowledge, governance, coastal resource and land use management, disaster prevention,*

emergency response and crisis recovery, while also strengthening socio-economic systems and livelihoods" (Hay, 2013, p. 324) is paramount for these territories. These emerging approaches may provide a valuable SEA framework for sustainability management and assessment in these specific territories.

The development and improvement of SEA in small islands may also be enhanced through specific key-issues to be addressed (Payet, 2011). The review prepared by Polido et al. (2014), highlights the need to raise awareness about SEA in small islands, targeting different stakeholders, such as decision-makers, practitioners, scholars, and the general public. Polido et al. (2014) also identified the need for stakeholders to effectively engage with the SEA process, develop SEA capacity, and start early in the decision-making process. Additionally, Ramos et al. (2009) propose recommendations for environmental assessments (both SEA and Environmental Impact Assessment (EIA)) in the small islands context. They emphasize the role of stakeholders (namely local knowledge and cultural settings), and policy-makers in disseminating advice and guidance on impact assessment among all stakeholders. Furthermore, different authors identified that for small islands it is important to have a strong network within the regional context, overall, in linking the different small islands through knowledge, experiences and cultural specificities (Kelman et al., 2015; Pelling and Uitto, 2001).

Also, as generally identified for SEA, it is necessary to define and integrate sustainability and adopt its objectives in the specific context of the decision-making, while developing assessment criteria linked to sustainability goals (White and Noble, 2013). Particularly for small islands, there may be a need to adopt specific guidelines, involving key stakeholders, and have assessment methods that weight variables according to specific island criteria and assess the decision-making against appropriate themes or issues and indicators reflecting island realities (Kerr, 2005; Ramos et al., 2009), as the priority areas developed by United Nations (2014, 2005, 1994) for Small Island Developing States. To explore a small island's specific approach to SEA, it may be necessary to take these arguments into consideration, but as noted by Kelman (2015), scientific literature may not incorporate local contextual information, including intuitive knowledge and sense of place. This indicates a possible gap between the literature and what local communities, including local decision-makers, scholars and practitioners actually think. Different authors also noted gaps in the literature related to SEA-specific issues, where different stakeholders, namely local experts, were consulted to obtain their views and perspectives on cumulative effects (Bragagnolo et al., 2012), such as the role and value of SEA in Estonia (Peterson, 2004), if Scottish stakeholders would engage with SEA if they did not have to (João and McLauchlan, 2014), and SEA practice in Germany (Weiland, 2010).

Set against this background, the main goal of this research was to gain an insight into the views and perspectives of small island SEA experts on issues related to SEA in European small islands, including context-specific approaches, as well as the contribution of SEA to sustainability in these territories. To achieve the research aim exploratory research, using a questionnaire survey, was designed aimed at experts on SEA in European small islands. The paper starts by reviewing the

key concepts associated with sustainability in small islands intertwined with SEA (Section 4.1), it then explains and justifies the research design, including how experts were chosen, and unfolds the questionnaire survey (Section 4.2). The relevant results from the empirical studies are presented in Section 4.3, then follows a discussion on the views and perspectives of experts, together with the contribution of SEA for sustainability in small islands (Section 4.4). The final section contains the conclusions, and suggests possible ways to forward the research and practice of SEA in small islands.

4.2 Methods

Due to the exploratory nature of this research a self-administered questionnaire survey was sent to SEA experts on European small islands. The questionnaire survey is commonly used to assess expert opinions on a particular question for which there are still no answers (Ghiglione and Matalon, 1993). This research strategy is also often used in SEA research for data collection (see Bragagnolo et al., 2012; Peterson, 2004; Rega and Baldizzone, 2015; Weiland, 2010).

The questionnaire was conducted between 2 April and 21 September 2015 and was sent by e-mail to 46 experts from European small islands SEA. These experts were identified through a non-probabilistic purposive sample which allows the selection of participants based on specific criteria (Saunders et al., 2009; Sharp et al., 2012). The criteria used to find SEA experts in European small islands were: (i) collaboration in SEA processes of European small islands, (ii) inclusion as European Union Commission SEA National Experts¹² within small islands member states and member-states with small islands, and (iii) referenced by another expert in SEA from European small islands. One of the main limitations associated with this type of survey is the low response rate due to the possibility that the survey cannot reach people without a computer (Bhattachajee, 2012). Due to the specificity of the criteria used to find experts, it was not expected the experts contacted did not have a computer with internet connection available, and three reminders were sent to the identified SEA experts in European small islands to overcome a possible low response rate limitation.

In order to allow comparable answers and to enhance the level of response, the questionnaire was developed using a majority of closed-ended questions (Rea and Parker, 1997). The questions were numbered and grouped by topic into five sections (see Table 4.1 for section rationale), as recommended by Lietz (2010). At least, one optional open-ended final question was added to each topic group to avoid a monotonous and manipulative questionnaire, allowing the respondents to express their opinion freely by adding information to what was previously stated (Ghiglione and Matalon, 1993). For the closed-ended questions, nominal or ordinal response scales were used with a predominance of a five response option Likert scale, including a “No opinion/Do not know” option (Giles, 2002). The questionnaire was developed to be easily understood, but at the same

¹² The SEA Directive is a well-established system with 10 to 15 years of practice, which gives its practitioners ‘know-how’, as pointed out by the SEPA (2011) (see Directive 2001/42/EC).

time, detailed and relevant for the research. Additionally, a pre-test was conducted, to assess its comprehensiveness, acceptability and to estimate the time for its completion, as recommended by Rea and Parker (1997). General questions were placed before specific ones and demographic questions were placed at the end, as suggested by Lietz (2010). The questionnaire clearly stated the answers should be based on the respondents' opinion grounded on their experience, expertise and knowledge. Anonymity of the respondents and confidentiality of the answers was assured.

Table 4.1 – Rationale used for the different questionnaire sections

Questionnaire section topic	Rationale	Based on
1. General issues concerning SEA in small islands	Wide-ranging questions about small islands and SEA development in these territories to establish the overall opinions of the respondents on the subject. Constitutes an introduction to the main topics of the survey.	Bass and Dalal-Clayton, 1995; Crossley and Sprague, 2014; Fernandes et al., 2015; Griffith and Oderson, 2011; Kelman et al., 2015; Kerr, 2005; Pelling and Uitto, 2001; Polido et al., 2014; van der Velde et al., 2007; Zubair et al., 2011.
2. Enhancement of small islands SEA	This set of questions introduced issues considered as priority areas for small islands by international community. The aim was to understand the degree of match between these priority areas with the views and perspectives of local experts while developing SEA systems and approaches for small islands.	Bass and Dalal-Clayton, 1995; Hay, 2013; Kerr, 2005; Payet, 2011; Ramos et al., 2009; United Nations, 2005, 1994 ¹³ .
3. Ecosystem Services-inclusive SEA in small islands	Due to an increasing attention given to Ecosystem Services in SEA and small island literature, this emerging approach was introduced to understand what experts thought about the integration of ES into SEA for these territories.	Aretano et al., 2013; Baker et al., 2013; Geneletti, 2011; Hassan et al., 2005; Hauck et al., 2013; MA, 2003; Petrosillo et al., 2013; UNEP, 2014a.
4. Sustainability through SEA in small islands	These questions were chosen to enhance knowledge of how SEA may contribute to sustainability in these territories.	Bina, 2007; Bunce, 2008; Douglas, 2006; Hay, 2013; Herbert, 1998; Polido et al., 2014; Tran, 2006; Yasarata et al., 2010.
5. Personal Information	Demographic information	

¹³ United Nations (2014) was not considered because this research started before the final document was available.

The data retrieved from the questionnaires was analysed through (i) descriptive statistics, and (ii) for the open-ended questions a qualitative content analysis was performed, when possible, as suggested by Mayring (2000) and Ghiglione and Matalon (1993). Qualitative content analysis was aimed at systematizing what was reported in open-ended questions, trying to eliminate as far as possible, subjectivity and interpretation of the evaluator. An inductive and deductive (when possible) coding system was used (Elo and Kyngäs, 2008; Schilling, 2006), using an iterative approach, done case-by-case where no pre-categories of analysis were established, depending on the open-ended question and number of responses. The method allows replicable and valid inferences from texts (Krippendorff, 2004). The limitations of content analysis are usually associated with the documents analysed, which can pose problems of credibility, authenticity, representativeness and availability (Bryman, 2012). However, these are the views and perspectives of the experts surveyed which minimizes these limitations. A code was given to each respondent/questionnaire (E1 to E16) with no specific order. The code was used throughout the paper when necessary, and to ensure anonymity of the respondents. The full questionnaire is available in Appendix II.

4.3 Results and findings

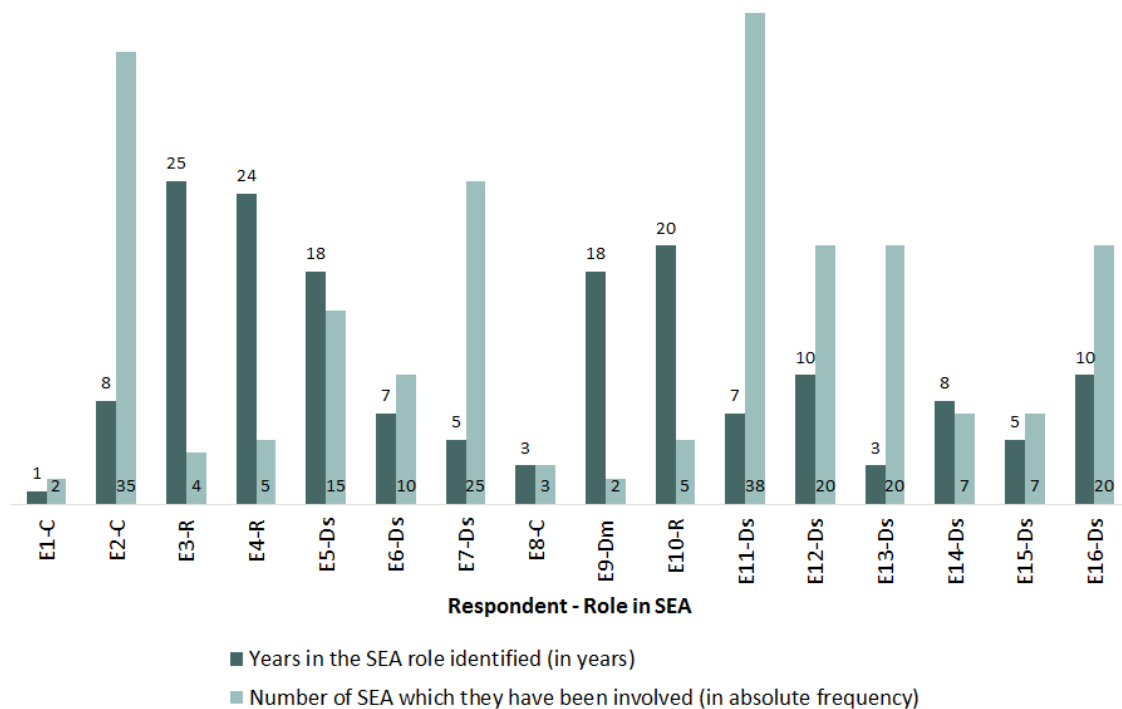
This section presents the results and findings from the questionnaire completed by European small islands SEA experts. A total of 16 questionnaires were filled out, representing a response rate of 35%, which is higher than a typical response rate for a self-administered mail survey (15 to 20%) (Bhattachjee, 2012). Furthermore, in similar studies, where expert opinions were surveyed through questionnaires, a small number of responses were also used: Bragagnolo et al. (2012) surveyed a total of 12 experts; and Peterson (2004) obtained 26 responses. The response number could be linked to the fact the questionnaire was delivered in English, while from the 46 experts contacted, 38 were from non-English speaking countries (six of the responses obtained were from English speaking countries and ten from non-English speaking countries). Nonetheless, the main goal of this study was to conduct exploratory research to understand what experts in European small islands SEA think about what constitute specificities for the SEA approach in small islands, and at the same time, to understand what they think about the possible contribution of SEA for sustainability of these territories, with no specific need of adopting a statistical model.

This section is structured according with the “Questionnaire section topic” (see Table 4.1) used to develop the analysis. However the characteristics of respondents instead of coming last, are placed first in the results section to establish the context of the responses. This section unfolds as follows: (i) characterisation of the respondents (demographic information); (ii) general issues for SEA in small islands; (iii) enhancement of small islands SEA; (iv) Ecosystem Services inclusive SEA in small islands; and (v) sustainability through SEA in small islands.

4.3.1 Characteristics of the respondents

The majority of European small islands SEA experts that responded to the questionnaire were practitioners: three from private companies; and nine from public authorities. However, one decision-maker and three academics also returned their questionnaires. Respondents are

heterogeneous concerning their work experience varying between 1 and 25 years (an average of 10.8) with a range between 2 to 38 (an average of 13.6) SEA processes where they have been involved (Figure 4.1). There is a low geographic diversity: eight respondents were from Portugal; five from the United Kingdom; and the remaining three from Cyprus, Greece and Jersey. Jersey is the only small island within this set without the legal enforcement of the European SEA Directive (Directive 2001/42/CE). The other respondents belong to countries where the Directive is in force. Finally, eight respondents showed interest in receiving the results of the questionnaire, as well as to participate in future initiatives of the research project.



Note: E1, E2, ..., E16, refers to the code given to respondents to ensure anonymity.

Figure 4.1 – Respondents characterization: (i) Role in SEA (C – Practitioner/Consultant in a private held company, R – Researcher/Academic, Ds – Practitioner/Decision-supporter in a public authority, Dm – Decision-maker), (ii) years in the SEA role identified (in years), and (iii) number of SEA they have been involved (in absolute frequency).

4.3.2 General issues for SEA in small islands

The first questions were general and tried to introduce the main points focused on in the survey, to establish a context of the survey for the respondents. In a five-point rating Likert scale from “strongly agree” to “strongly disagree”, including the option “no opinion/do not know”, the majority of respondents agreed or strongly agreed with the four statements associated with the uniqueness of small islands, underpinning the importance of (i) identifying sensitive and fragile ecosystems (16 out of 16), (ii) having trained staff on sustainability-related issues (15 out of 16), (iii) encouraging cooperation networks with other small islands (13 out of 16), and (iv) having a legal framework

reflecting islands uniqueness (13 out of 16). However, some concern linked with more legal requirements was expressed by experts (E10, E11 and E15) in the open-ended questions (three in a total of four answers), due to the perceived difficulty of updating the legislation. Additionally, these experts stated a preference for guidelines to reflect island uniqueness, and referred to the need to have *“technical resources and mechanisms for spreading good practice and maintaining and developing skills among practitioners”*.

When asked about the needs faced by SEA in small islands, all respondents agreed or strongly agreed that SEA in small islands requires reflecting themes appropriate to small island realities. As for adopting scale guidelines, 13 out of 15¹⁴ agreed or strongly agreed that it is necessary to take it into account in small islands SEA. Also, experts find that there is a need to have assessment methods that weight variables according to specific island criteria (13 out of 16 agreed or strongly agreed with this option), and to have a strong component of governance and institutional framework, reflecting island specificities (14 out of 15¹⁵ agreed or strongly agreed). Even though *“customized methods and institutional frameworks”* are a need for SEA in small islands, they *“should allow comparison with other territories”*, as stated by respondents in the open-ended question (E7, E10 and E14).

As for small island SEA systems challenges compared with other territories, namely mainland, there is an overall perception of lack of resources (10 out of 16 respondents agreed or strongly agreed with the statement). Financial issues could be one of the main deficiencies, as pointed by one respondent (E11). For issues concerning “baseline data” and “skills and training”, an ambiguity in the responses was noted. Seven (out of 16) respondents agreed or strongly agreed that there is a lack of baseline data in small islands, but a specific example was given by a respondent (E1) about the difficulties in gathering baseline data for a small island SEA, stating the data was only available for the mainland or for the whole country, undifferentiating the territories. Additionally, it was underscored by other respondents that the availability of baseline data may depend on different issues (E7, E10 and E14), namely, the wealth of the islands (E7), their history of development and environmental assessment (E7), proactivity (E10 and E14), and past studies developed by relevant local organisations (E10). Regarding “skills and training”, only six respondents agreed or strongly agreed with the statement. However, in the open-ended questions, one respondent highlighted that “skills and training” depends on the SEA team (E10). Figure 4.2 presents the opinions of respondents while comparing challenges faced by small island SEA systems as oppose to other territories’ SEA systems (question 1.3.).

¹⁴ In this sub-question there was one nonresponse. The nonresponse was treated according with the guidelines from Rea and Parker (1997).

¹⁵Idem

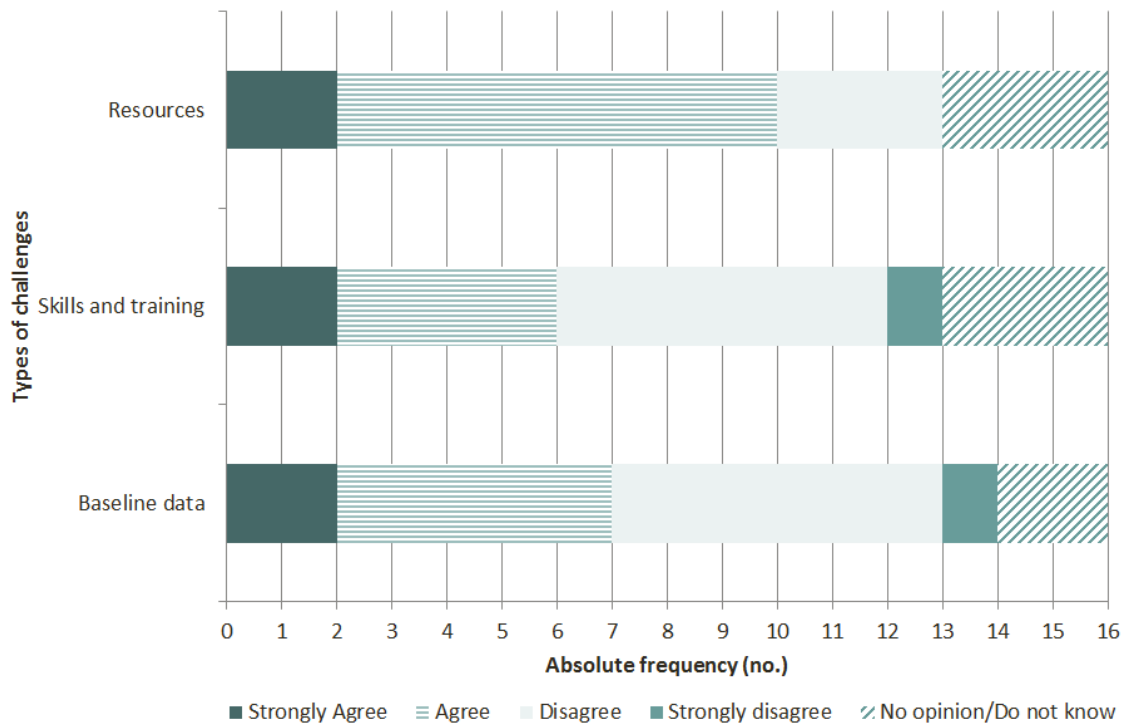


Figure 4.2 - Opinions of respondents while comparing challenges faced by small islands as oppose to other territories’ SEA systems (in absolute frequency).

4.3.3 Enhancement of small islands SEA

In the second set of questions, experts were introduced to issues considered as priority areas for small islands, as defined by the United Nations (2005, 1994). From these priority areas, experts were asked which they considered to be of most importance for study in an SEA of small islands. All respondents selected “Biodiversity” as the main theme to be addressed in SEA for these territories, followed by “Climate Change”, and “Sea-level rise”, by 15 out of 16 selections. In Figure 4.3 can be found, in absolute frequency, how many experts choose each priority area to be included as a theme of assessment in the SEA of small islands. Other themes, beyond the pre-determined themes presented to the experts, were referred to by respondents in an open-ended question, namely, “air quality”, “demographics”, “economic sustainability”, “ecosystem services”, “seascape”, “soil resources” and, “soil sealing”. Also, issues of regional specific features, such as “biophysical conditions”, “resilience”, “life quality”, “legal regional framework”, “governance models”, “landscape”, and “mobility and accessibilities” were also highlighted by the experts.

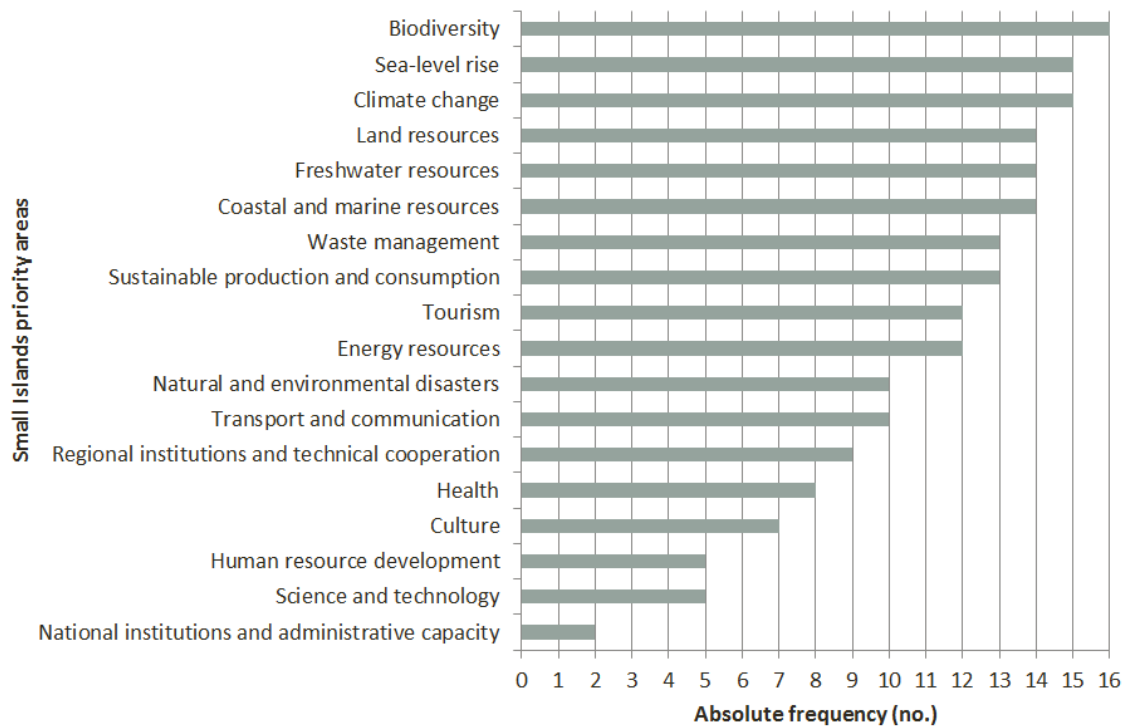


Figure 4.3 – Experts’ opinions about which priority areas/themes should be included in the SEA of small islands (in absolute frequency).

As for issues important to take into account while developing an SEA system in small islands (respondents had to select all topics they found appropriate), 15 out of 16 respondents selected “Baseline information system”. Furthermore, as stressed by one respondent, it may happen that a small island does not have sufficient baseline data. Following, 11 out of 16 respondents selected “Technical staff with specific training in small island environmental and sustainability issues, and 10 out of 16 experts selected “Specific indicators for the assessment of small islands”. Generally, one respondent (E15) noted the probability that the themes may apply to all types of territories, but *“there needs to be specific understanding of the environment and culture you are working within to carry out high quality SEA”*. In Figure 4.4 is presented, in absolute frequency, the full results concerning experts’ opinion about the issues to take into account while developing SEA in small islands.

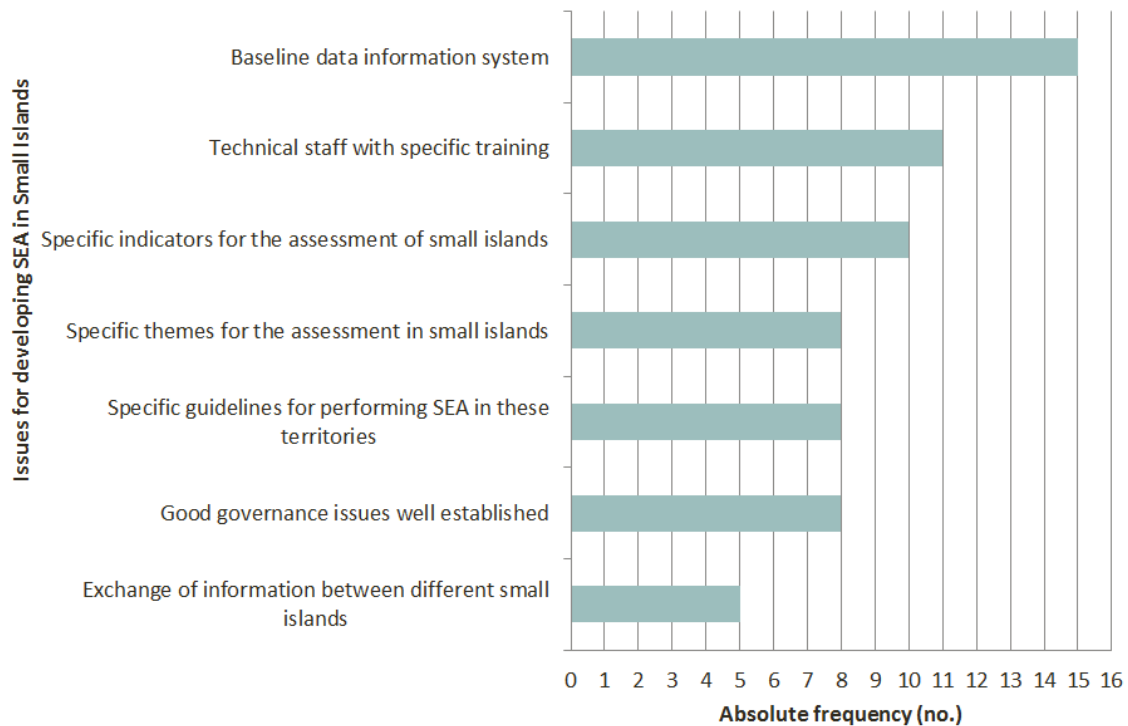


Figure 4.4 – Experts’ opinion about paramount issues to take into account while developing SEA in small islands (in absolute frequency).

4.3.4 Ecosystem Service-inclusive SEA in small islands

This part of the questionnaire focused on Ecosystem Services (ES) approaches in order to understand if it could play an important role in the SEA of small islands, due to the increased amount of attention it has been given (Aretano et al., 2013; Petrosillo et al., 2013). Overall, 13 out of 16 respondents consider Ecosystem Service-related approaches important enough to be included in the SEA of small islands, since it could help enhance the SEA. Additionally, four experts (E8, E10, E11 and E15) considered ES important because it may help provide links between: (i) economy and ecosystems safeguard; (ii) human well-being and the assessment framework; and (iii) outputs from ecosystems for different industries, namely, food, pharmaceutical and construction. However, one respondent (E15) showed concern about how the concept is applied; monetizing the environment as a commodity.

Also, the experts perceive that enhancement of the SEA in small islands, through ES, could be done via the provision of themes for the assessment (10 out of 16 respondents), and to a lesser extent, through a change in the decision-making paradigm (8 out of 16). Only 6 out of 16 experts think that ES may serve as baseline information for the assessment, or help change SEA approaches, through a holistic process that integrates SEA into an ES framework. However, it needs to be noted that 5 respondents do not know any specific Ecosystem Service framework, which may bias these results. Figure 4.5 shows the full responses concerning the experts’ perspectives on how Ecosystem Services frameworks could enhance SEA in small islands.

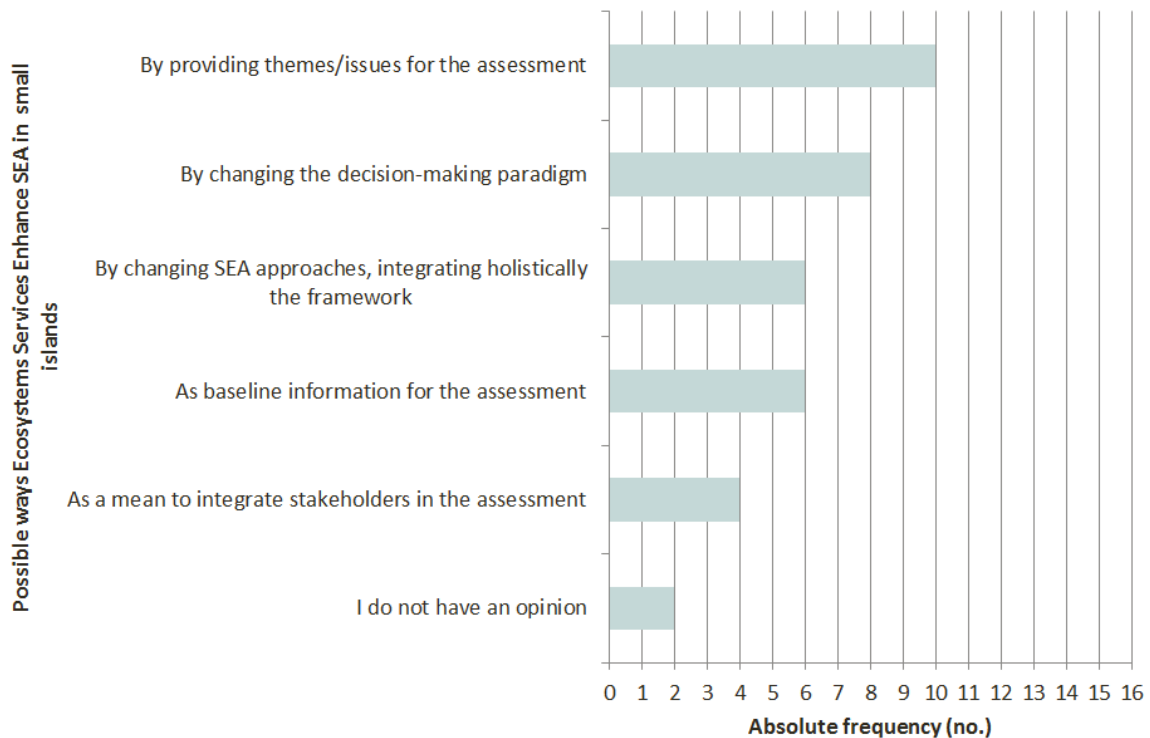


Figure 4.5 – Experts’ perspectives on how Ecosystem Services frameworks could enhance SEA in small islands (in absolute frequency).

As for the question focusing on how ES frameworks could enhance SEA in small islands, only two respondents gave their opinions. One of the respondents focused again on how the concept is applied (E15) and the other stated that “[t]he SEA process should be holistic already, through its very nature - it doesn’t rely on bringing ecosystem services into play to achieve this.” (E7).

4.3.5 Sustainability through SEA in small islands

This group of questions sought to understand the experts’ views about the role of SEA in helping improve the sustainability of small islands. Overall, the majority of respondents agreed or strongly agreed that SEA may help enhance sustainability in these territories by (i) helping change the decision-making paradigm (15 out of 16), (ii) providing a framework for good governance and community empowerment (13 out of 16), and (iii) helping build resilient territories and communities (12 out of 16).

Additionally, the open-ended question asking additional ways in which SEA intertwines with sustainability in these territories, a total of 11 usable answers were received. The answers were categorized in two types, how SEA already enhances sustainability (E1, E2, E3), and how this could be achieved (E4, E5, E7, E8, E9, E10, and E11). Table 4.2. presents the findings of these categories. Furthermore, one of the answers falls out of both categories, presenting an opinion about what SEA is to decision-makers and presenting some current problems associated with SEA. The respondent states that “[t]he reality of SEA, not just in small islands, is generally that it is seen by decision makers as an add-on additional burden, rather than as a tool to assist in making better-

informed decisions, particularly when (financial and technical) resources are limited. It is also currently very remote from the general public/electorate.” (E15).

Table 4.2 – Ways in which SEA may help enhance sustainability in small islands (answers to open-ended question 4.2.)

Types of answers (categories)	Main idea within respondents opinions
Perspectives on how SEA <u>already</u> enhances sustainability in small islands	SEA enhances sustainability through stakeholders' consultation. Furthermore, stakeholders' consultation within the SEA process yields a transparent assessment throughout the planning process and helps improve the PPP due to the comments collected. Also, SEA provides alert about the effects and consequences of a PPP which influences future decisions.
Perspectives on how SEA <u>may</u> enhance sustainability in small islands	SEA may further enhance sustainability in small islands by ensuring all pillars of sustainability are covered in the assessment and influence planning, including the involvement of local people and knowledge. Additionally, SEA may enhance the development of specific information for these territories, good baseline data and monitoring indicators, and a good network of key stakeholders. Integrating SEA with cost-benefit analysis and ensuring an effective SEA follow-up are also perceived as being paramount for the enhancement of sustainability through SEA, in small islands.

4.4 Exploring views and perspectives of European small islands SEA experts

Regional cooperation networks are encouraged by the majority of the experts surveyed. These results corroborate the ideas found in the literature (e.g., Bass and Dalal-Clayton, 1995), which suggested that development and use of regional cooperation networks may be important for small islands. This could indicate the need for a joint effort among islands within the same region to develop a regional SEA system, as recommended by Alshuwaikhat (2005), for developing countries. Contrasting with these findings is the low importance given by the experts' surveyed to the development of mechanisms for exchange of information, including technology, innovation and methods, which differs from Kelman et al. (2015), and Pelling and Uitto (2001). However, further results and findings support the idea that cooperation networks are paramount for these territories while establishing an SEA system. The regional cooperation and partnerships, according to different authors, may help promote and strengthen regional legal frameworks (Griffith and Oderson, 2011), develop and establish networks for human resources training on sustainability-related issues (Crossley and Sprague, 2014), and identify and characterize existing regional ecosystems (Fernandes et al., 2015).

While acknowledging that there are specificities that should be considered in a context-specific small islands SEA system, some experts showed a concern about having new or different SEA

legal frameworks to better reflect island uniqueness. Even though establishing legal frameworks may help support and differentiate islands features, it does not mean it will be effectively implemented, as suggested by Griffith and Oderson (2011). This could be an added difficulty if there are already in place established regulations, as is the case for European Union small islands, due to the enforcement of the SEA Directive. The results indicate that experts prefer having resources, human and financial, for the development of good practices and skills among practitioners. This preference intertwines with the importance given to topics considered in the questionnaire, such as guidelines, including scale guidelines, themes, assessment methods and indicators, which is consistent with what was previously suggested by Ramos et al. (2009) and Kerr (2005).

These findings link to the views and perspectives of experts which highlighted resource deficiencies when comparing SEA in small islands with the mainland (see Section 4.3.2). While one respondent stressed that the resource deficiencies are mainly financial, the literature focuses on both human and financial resources deficiencies (McIntyre, 2004). It could be argued that the lack of human resources might reflect a lack of skills and training, issue paired with small population size, and identified in the literature as one of the main constraints of these territories (Kerr, 2005). However, when compared with the mainland SEA systems, respondents largely disagreed with the statement. In addition, as highlighted by respondents, there is the possibility that “skills and training” depend on the SEA team. Though this could occur where the SEA system relies on consultants to develop the SEA process, as is the Portuguese case identified by Polido et al. (2016a), if the SEA is mainly developed by in-house practitioners, as observed by McLauchlan and João (2012) for the Scottish case, probably these practitioners may perceive the need for “skills and training”. Nonetheless, the majority of the respondents stated that to have trained staff on SEA and sustainability-related issues is important in small islands, as suggested by Bass and Dalal-Clayton (1995) and Ramos et al. (2009).

Additionally, respondents stated that while developing an SEA system it is important to have a baseline data information system, but, in contrast to mainland territories, the majority perceives there is sufficient small island baseline data. The literature argues that there is a dearth of baseline data in these territories when compared with mainland territories (Ramos et al., 2009), and one respondent stressed the difficulties of gathering baseline data for a small island SEA. Other respondents stated that the availability of baseline data may depend on: the financial resources of the territory, the proactivity of the overall human resources, and their background in development and environmental assessment. Different authors highlight the importance of having a baseline information system when developing SEA (Fischer, 2007; Therivel, 2004). These results suggest that in these territories there is a need for a systematized and centralized information structure, as evidenced by Trujillano et al. (2005) and Virtual Observatory of Sustainability for the Macaronesian Region (2005), which may use a regional cooperation network for its development, as discussed previously.

Regarding the uniqueness, fragility and sensitivity of the ecosystems of small islands, widely acknowledged in the literature (e.g., Aretano et al., 2013; Petrosillo et al., 2013), the responses of

the experts surveyed reflected an overall concern with the subject. The experts go even further, stressing the need to have an Ecosystem Service (ES) inclusive SEA, through the ES provision of themes for the assessment. This contrasts with the recent trends in SEA, where a full integration of ES in SEA is considered (UNEP, 2014b). Furthermore, respondents perceived that an ES inclusive SEA may help change the decision-making paradigm, which is recurrently viewed in literature as one of the main features of SEA (Hauck et al., 2013).

It was assumed for the research that an European small island specific SEA approach demanded specific themes and indicators, as indicated by Kerr (2005) and Ramos et al. (2009). Building on Polido et al. (2014), experts had to consider the United Nations (2005, 1994) priority areas for small islands. The respondents selected “Biodiversity” followed by “Climate Change” and “Sea level-rise”, which is in line with the recent concerns of international institutions, including the European Union, that developed SEA guidance for climate change and biodiversity integration (see European Commission, 2013). Although small islands are considered biodiversity “hotspots” (Kelman et al., 2015), and are vulnerable to climate change and sea-level rise, previous research showed that biodiversity, as well as climate change and sea-level rise, are sparsely addressed in the scientific literature concerning small islands (Polido et al., 2014). Furthermore, Polido et al. (2016a), while analysing SEA reports from the Azores (Portugal) and Orkney (Scotland), found that the assessment topic “biodiversity” does not stand out, while climate factors are consistently addressed. It is noted that “Tourism”, which is the most addressed issue in scientific literature, according to Polido et al. (2014), scored 12 out of 16 selections. A possible explanation for this could be that the experts are being influenced by international institutional trends rather than any context-specific influences. Additionally, there is a possibility that different themes could have emerged if the priority areas developed and addressed by United Nations (2014) were included in the present research. Nonetheless, they should be taken into account in future research to understand how these may influence SEA in these territories.

Concerning the views and perspectives of small islands SEA experts on the contribution of SEA to sustainability in these territories, they further support the recommendations of Polido et al. (2014), who suggested that a change in the decision-making paradigm, good governance, and community empowerment and resilience, are the three key features that link SEA with sustainability in small islands. Additionally, the findings showed that experts think that by promoting decision-making transparency, and public awareness enhanced through consultation, SEA is already improving sustainability in small islands. For the further development of sustainability in these territories, the experts surveyed highlighted the need for the effective involvement of local people and the use of local knowledge, the development of networks with key stakeholders, and the establishment of a baseline and monitoring information system. These answers are in line with what is discussed in the scientific literature - SEA provides a platform for learning through its process (White and Noble, 2013), has an educational and mind-set changing capacity (McLauchlan and João, 2012) and facilitates cooperation and coordination between different stakeholders (Bina, 2007).

4.5 Conclusions

This paper set out to gain an insight into the views and perspectives of small island SEA experts about issues related with SEA in those territories, and at the same time to understand what they thought about the contribution of SEA for sustainability in small islands. These goals were achieved through the use of a questionnaire survey submitted to 16 experts. Respondents represented heterogeneous SEA experience, and the fact that there is a lack of geographical diversity could have implications for the results. But due to the exploratory nature of the research, their responses play a fundamental role in understanding the mind-set of small island experts and, at the same time, provide a background for future research on SEA in small island applications. Overall, the experts surveyed have similar opinions and perspectives to those presented in the scientific and institutional literature.

The research found that the development of regional networks for cooperation among small islands is encouraged by the experts surveyed. These cooperation networks may enhance legal and institutional frameworks that promote SEA specific features, while taking into account the constraints associated with these territories, by providing a joint effort to: (i) capacitate staff in sustainability-related issues; (ii) develop a shared baseline information system, including the identification of ecosystems and their services; and (iii) share and exchange resources. However, from the open-ended question answers received, it needs to be taken into account that cooperation networks might be easier to put in place in small islands without already established SEA systems. In territories with existing SEA legal requirements it might be more difficult to change, as is the case of the European Union small islands, where guidelines may provide a better option.

It was also found that when building an SEA system in small islands, legal enforcement may be counterproductive, and thus the development of specific guidelines is encouraged. However, these guidelines need to take into account the environmental and cultural settings of the small islands, such as themes and indicators appropriate for the specific territory, and assessment methods which allow benchmarking between members of a regional cooperation network or with other territories. Additionally, when developing best practices, it is necessary to state specific responsibilities and interveners.

Furthermore, this research showed that by taking a SEA specific approach, there is potential for changing the decision-making paradigm, enhancing good governance and community empowerment and shaping resilient communities. However, results suggest that this needs to: (i) include an effective assessment and follow-up, instead of an added step in a planning procedure; (ii) ensure a network of key stakeholders, including local people; and (iii) engage the authorities in the development of an information system easily available for the baseline, assessment, and follow-up. Overall, it was found that the experts view SEA as enhancement of sustainability in small islands.

Drawing on this paper, further research might explore these data through focus groups or workshops with different stakeholders (experts and local communities), and at the same time,

explore if the experts' years of experience and geographic location influences their answers. Also, it is necessary to compare, and learn from, those tools that are well established in these territories (e.g. environmental impact assessment). Overall, the findings of this study may have a role in enhancing future practice, helping institutions, practitioners and decision-makers understand that there is a need for island-specific approaches in these territories, and that there is a potential to integrate scientifically objective resources with other types of social and economic factors in the decision-making processes.

5 Transitioning towards sustainability through Strategic Environmental Assessment context-specific applications: a conceptual framework for small islands ¹⁶

Abstract

The lack of research on context-specific Strategic Environmental Assessment (SEA) approaches to enhance transitions towards sustainability is widely acknowledged in academic literature. Territories with specific natural and human features, such as small islands, provide an opportunity to influence the debate on SEA and sustainability, and context tailored approaches. The research goal was to develop a conceptual framework to support and improve an SEA context-specific application towards transitions for sustainability in small islands and give provision for its operationalization for stakeholders (decision-makers, practitioners and intermediate decision-makers) to implement mind set changing SEA practices in small islands context. The application was conceptualized for the Azores and Orkney archipelagos due to their well-established SEA systems, with similar legal background – the European Union SEA Directive (Directive 2001/42/EC). The framework developed provides the identification of the main clusters for transitioning to sustainability in small islands through SEA: key actors, islands cooperation and information exchange networks, and tailored assessment issues. These clusters are interlinked through the actors and a continuous feedback loop, as well as a continuous learning and improvement process. In the Azores, the SEA panorama may promote an easier transition towards new models of thinking, but more challenges are expected for Orkney practitioners and intermediate decision-makers which may need to use creative solutions to overcome them. Overall, this research concludes that a mind-set changing capacity is needed, enhancing future practice and influencing different stakeholders for the need of specific small islands approaches. The proposed framework is dynamic and should be adjusted iteratively with practice.

Keywords: Community empowerment; Decision-making; Resilience; Small islands; Strategic Environmental Assessment (SEA); Sustainability.

¹⁶ Polido, A., João, E., Ramos, T.B. (*submitted*). Transitioning towards sustainability through Strategic Environmental Assessment context-specific applications: a conceptual framework for small islands. Preliminary version presented at the 22nd International Sustainable Development Research Society Conference, held 13 to 15 July, 2016, in Lisbon, under the title “*Framework for SEA enhancement in small islands*” (Abstract Proceedings).

5.1 Introduction

Strategic Environmental Assessment (SEA) is argued to promote transitions towards sustainability by enabling institutional openness and transparency, and enhancing different stakeholders coordination and capacity, influencing the decision-making process (Noble and Nwanekezie, 2016). In the past these arguments have been often debated by different authors which identified hindrances to overcome in SEA research and practice towards sustainability (see Bina, 2007; Tetlow and Hanusch, 2012; White and Noble, 2013). Similarly, the context-specificity of SEA is viewed as one of the issues impeding SEA for sustainability (Bina, 2007; Hilding-Rydevik and Bjarnadóttir, 2007; Runhaar, 2009). SEA context-specificity is often argued to be related to the political and planning system, type of decision-making, practitioners and intermediate decision-makers SEA capacity, and the specific natural and human features (Bina et al., 2011; Fischer, 2002; Fischer and Gazzola, 2006). Additionally, Jiliberto (2011) argues that SEA context specificity needs to focus in changing the rationale of the SEA methodology towards deliberative models.

Territories with specific natural and human features such as small islands may provide an opportunity to influence the debate on SEA and sustainability, and context tailored approaches (Bass and Dalal-Clayton, 1995; Crossley and Sprague, 2014). Small islands have characteristics of closed and bounded systems, and unique features of biological and cultural diversity (Kelman et al., 2015; Kerr, 2005) and have the international community attention due to the urgency in integrating sustainability in decision-making processes (Campling and Rosalie, 2006; Crossley and Sprague, 2014; Douglas, 2003). However, sustainability in small islands is often viewed as paradoxical, where specific approaches towards sustainability are needed (Kerr, 2005). The international community recognized different priority (sectoral) areas for small islands developing states (see United Nations, 2005, 1994), and the scientific literature took this into account while studying sustainability issues for small islands (Polido et al., 2014). Yet, it is necessary to go beyond those priority areas established by the United Nations, enhancing the definition and scope of sustainability in these territories, tackling the core issues towards sustainability.

Previous studies showed that SEA may positively contribute to the advancement of sustainability in these territories (e.g. Payet, 2011; Ramos et al., 2009). Polido et al. (2014) found three key sustainability issues in the small islands sustainability discourse: i) change in the decision-making paradigm, ii) good governance and community empowerment, and iii) resilience. These key sustainability issues are linked with SEA discourse (see Slootweg and Jones, 2011; Tetlow and Hanusch, 2012; White and Noble, 2013), and SEA may provide the means to put forward sustainability in these territories.

In order to advance SEA for sustainability, generally the SEA process needs to clearly state the scope of sustainability and the purpose of SEA in a specific decision-making process (Bina, 2007; Tetlow and Hanusch, 2012; White and Noble, 2013), to define and establish operationalization approaches to sustainability in SEA, including provisions for its implementation (Bina, 2007; Noble and Nwanekezie, 2016; White and Noble, 2013), understand and ensure institutional continuous

learning process (Noble and Nwanekezie, 2016; White and Noble, 2013), and take into account what is well known by practitioners and public administrators (Noble and Nwanekezie, 2016). Similarly, studies linking SEA and sustainability with small islands found the need to involve decision-makers in the enhancement of the SEA process, develop specific guidelines for these territories, include local knowledge in the decision-making processes, and take the experience of the different stakeholders into account when revising the processes (Keller, 1997; Ramos et al., 2009).

Despite the importance of SEA for the advancement of sustainability in small islands, there remains a paucity of research about context-specific approaches in these territories (Polido et al., 2016a). There is evidence that specific approaches for small islands must take into account stakeholders engagement and capacity building (including decision makers) and establish collaborative approaches within small islands regions (Polido et al., 2016a, 2016b). Drawing on these works, this research aims to develop a conceptual framework to enhance an SEA context-specific application towards transitions for sustainability in small islands and give provision for its operationalization for stakeholders, namely decision-makers, practitioners and intermediate decision-makers.

Small islands, specifically those small islands within the European Union, have well established SEA systems, with the same legal framework (the EU SEA Directive¹⁷). In previous research the Azores and Orkney archipelagos were used as case studies (see Polido et al., 2016a). The Azores are a Portuguese autonomous region and European outermost region, isolated in the North Atlantic with specific SEA legislation, while the Orkney are a Scottish council area located 32 km north from the Scottish mainland, using the same legislation as the mainland. In the present research these case studies are also being used to discuss the challenges and opportunities faced by these territories if implementing the SEA context-specific conceptual framework proposed for small islands.

The paper starts by briefly summarizing the theoretical background of the framework (Section 5.2). It then unfolds the research design and the development of the proposed conceptual framework (Sections 5.3 and 5.4). The operationalization and discussion of the main opportunities and challenges of the proposed framework for the Azores and Orkney islands is presented in Section 5.5. The final section concludes and suggests possible ways to forward the research and the practice of SEA for sustainability in small islands.

5.2 Theoretical premises for the conceptual framework

The theoretical premises used for the development and operationalization of the proposed conceptual framework can be divided into three main streams. The first stream introduces the debate about sustainability and small islands, the second stream demonstrates the importance of

¹⁷ “SEA Directive” refers to the Directive 2001/42/EC of the European Parliament and the Council of 27 of June 2001 on the assessment of the effects of certain plans and programmes on the environment.

stakeholders in small islands sustainability and SEA, and the last stream elaborates on the main lessons learnt about SEA practice and experts from previous research results. The main rationale of each stream is summarized in the following subsections.

5.2.1 Existing debates about sustainability in small islands

Sustainability is in itself a difficult concept to grasp. There are many authors debating what sustainability is and there are different discourses associated with it (Springett, 2013). Hugé et al. (2013) identifies three discourses on sustainability, where the boundaries are not strict: (i) the integration of development and environmental goals, often attributed to the weak sustainability discourse, (ii) limits of resources, linked with the strong sustainability discourse, and (iii) transitions, a discourse towards new types of learning and management practices. Adding to this turmoil of the sustainability debate, in small islands the definition of sustainability may be paradoxical, as noted by Kerr (2005), because of their high dependency on international trade and markets which may result in unsustainable patterns of global consumption contrasting with possible sustainable practices within the small island organizational and cultural settings.

The international community recognizes the importance of sustainability for small islands while focusing on Small Islands Developing States (SIDS), which are still treated sector by sector, emphasizing topics such as climate change, energy, disaster risk reduction, and biodiversity (see United Nations, 2014, 2005, 1994). Additionally, these documents point out to the importance of partnerships at the national, regional and international levels, technology transfer, data and statistics, and capacity building to implement these sectorial sustainability topics. However, Polido et al. (2014) found that for small islands, sustainability should be driven by concepts of good governance and community empowerment, change in the decision-making paradigm and resilience, going beyond the sectorial view for sustainability for these territories. These drivers are interlinked, being reliant on each other. This is in line with the need reported in the international sustainability agendas as the entry point being the decision-making process (Drexhage and Murphy, 2010; Kerr, 2005), intertwining with what is envisaged by SEA.

There are many understandings about what good governance means but the OECD (2006) defines good governance within SEA as way to increase stakeholder engagement and to promote accountable and transparent decisions. Community empowerment through knowledge and understanding linked with the enhancement of participation leads to social transformation, innovative learning experiences and processes (Bina, 2007), particularly in small islands (Tran, 2006). Effective involvement of local communities and the use of local knowledge will help transitioning the communities towards sustainability (Hugé et al., 2013; Polido et al., 2016a, 2016b; Rotmans et al., 2001).

While developing good governance and community empowerment, stakeholders, such as decision-makers, planners, practitioners and intermediate decision-makers, also develop SEA knowledge and learning envisaged in the academic literature (McLauchlan and João, 2012; White and Noble, 2013), transparent decisions, and public administration openness and awareness, which may lead

to the change of the decision-making paradigm in different contexts, including small islands (White and Noble, 2013; Yasarata et al., 2010). Good governance and community empowerment similarly enables resilience, the ability of a system to return to its original state after suffering different pressures (Walker and Salt, 2006). Resilience is linked with SEA through the encouragement of developing new systems, enabling response diversity and adaptive capacity (Slootweg and Jones, 2011).

5.2.2 Importance of stakeholders' ownership and local knowledge in SEA of small islands

Besides context (see Hilding-Rydevik and Bjarnadóttir, 2007; Jiliberto, 2011), the characteristics of the different stakeholders, including the existing power relations, influence the way SEA contributes to decision-making (Runhaar, 2009). Power relations may have significant impacts on the small islands community (Hampton and Jeyacheya, 2015). A decision-maker has the responsibility of deciding the outcomes of the SEA process and/or the strategic action where their environmental and sustainability values and openness to power sharing affects these outcomes (Runhaar, 2009; Tetlow and Hanusch, 2012). Academic literature points to the need for decision-makers to develop capacity on SEA and sustainability issues (Bina, 2008; Tetlow and Hanusch, 2012; White and Noble, 2013). Additionally, collaboration between decision-makers, practitioners and intermediate decision-makers is fundamental for the development of an SEA approach (White and Noble, 2013).

Practitioners and intermediate decision-makers, actors involved directly in the SEA process, including planners, play a central role in the SEA implementation through their discretionary power (Kørnøv et al., 2015). These actors influence the outcomes of the SEA process and Stoeglehner et al. (2009) argues that SEA effectiveness depends on the ownership by practitioners and intermediate decision-makers. This ownership is related to the practitioners and intermediate decision-makers' perception of their specific influence to change paradigms and their capacity about sustainability issues, SEA techniques and process outcomes (Stoeglehner et al., 2009). Limited resources may limit this ownership, resulting in SEA processes done customarily impeding the development of new perspectives in the assessment and innovation (McLauchlan and João, 2012; Stoeglehner et al., 2009). This may even be amplified in small islands due to their inherent lack of different resources (Hein, 2010; McIntyre, 2004). However, practitioners and intermediate decision-makers have the capacity to reflect and review the SEA system, abandoning these routines, being open to innovation (Hilding-Rydevik and Bjarnadóttir, 2007; Kørnøv et al., 2015). There is a clear message from academic literature towards the enhancement of the SEA learning process, as referenced in Section 5.2.1. Practitioners and intermediate decision-makers are important in the SEA learning process because of their capacity to link different stakeholders, types of knowledge and networks, ultimately achieving an effective information exchange and knowledge transfer amongst these system (Sheate and Partidário, 2010).

The involvement of local stakeholders in these information exchange and knowledge transfer will enable SEA towards more deliberative models as envisaged by Jiliberto (2011). In small islands,

due to their specificity, local stakeholders (e.g. experts, civil organizations, general public), due to their 'islandness' (Conkling, 2007), are key to these environmental and sustainability related processes (Fernandes et al., 2015; Purnama, 2003).

5.2.3 Strategic Environmental Assessment features towards sustainability in small islands

Small islands SEA experts, surveyed by Polido et al. (2016b), believe that SEA already improves sustainability in those territories by promoting transparency and public awareness, but sustainability may be further enhanced through cooperation and information exchange. Networks with key stakeholders and the use of local knowledge are also encouraged by SEA practitioners and experts and are seen as a way to enhance sustainability in small islands (Alshuwaikhat, 2005; Polido et al., 2016b). Furthermore, there is evidence that stakeholder engagement may be used as an assessment technique throughout the SEA process, including follow-up stages (Polido et al., 2016a), to incorporate local knowledge and empower communities (see Section 5.2.1).

The existing SEA guidelines and the team that develops the assessment influence practice independently from the type of decision-making being assessed (Noble et al., 2012; Polido et al., 2016a). This indicates a dearth of specific capacity and approaches for small islands SEA, reflected by uniformity in SEA reports, including the topics assessed, the techniques for the assessment and methodological approaches which seem to be related with the knowledge of the practitioner – the ownership issues tackled in Section 5.2.2 (McLauchlan and João, 2012; Polido et al., 2016a; Stoeglehner et al., 2009). Even though it is necessary to use what the different stakeholders already know, and avoid drastic changes at once (Noble and Nwanekezie, 2016), there must be some advancements in SEA practice and knowledge, and in the institutional frameworks and paradigms. The exploration of tailored approaches, set of guidelines showing specificities and enhancement of SEA knowledge and capacity are key for the development of sustainability-led approaches (Polido et al., 2016a).

5.3 Research design

This paper proposes a conceptual framework to support and improve an SEA context-specific application towards transitions for sustainability in small islands. Additionally, it proposes guidelines for its operationalization. The framework main aim is to help decision-makers, practitioners and decision-supporters identify, develop and implement key-concepts through their interlinkages. The conceptual framework was developed iteratively based on the results from previous research phases and comprehensive literature reviews which established the theoretical premises for the conceptual framework.

The key-concepts that emerged from the *results from previous research phases* (see Polido et al., 2016a, 2016b, 2014) have been used (see Box 5.1). The *comprehensive literature reviews* (see Section 5.2 for the main rationale) used the key-concepts as keywords in combination with “environmental assessment” and “sustainability assessment”, broadening the search to overall SEA

practice in order to find papers covering a combination of the topics. The database used for the research was Scopus® from Elsevier. The authors used this database to restrict the review to academic literature.

Box 5.1 – Key-concepts that emerged from the results from previous research phases

- | | |
|--|--|
| <ul style="list-style-type: none"> • Good governance and community empowerment • Guidelines, assessment topics, methods and follow-up • Resilience • Decision-makers • Practitioners • Intermediate decision-makers • Small islands specific (local) stakeholders | <ul style="list-style-type: none"> • Baseline and monitoring information system • Change in the decision-making paradigm • Small islands cooperation networks |
|--|--|

A concept map was sketched to integrate the different information and analyse the data. Concept mapping is a technique that supports the visualization of abstract conceptual knowledge, and related information (Lanzing, 1998; Tergan, 2005). Concept maps can be sketched in different ways, but generally they represent concepts and linkages between the concepts forming propositions, however, depending on the type of information they may be presented differently, be formal or free-form (Kinchin and Streatfield, 2010; Wheeldon and Faubert, 2009). They can be used in different contexts (see Kinchin and Streatfield, 2010; Kolkman et al., 2007; Nilsson et al., 2009) to enhance knowledge and understanding by helping aggregate and linking different sources of information, providing a systematic and conceptual framework (Ceulemans et al., 2015; Lozano and Lozano, 2014). Additionally, the guidelines for operationalization of the framework were developed, grounded also by the results from previous research phases and the comprehensive literature reviews, deriving from the concept map.

The Azores and Orkney archipelagos were used to explore the conceptual framework operationalization challenges and opportunities due to the well-established SEA system and their specific characteristics. The Azores is a Portuguese autonomous region with its own political-administrative statutes and government bodies. It is constituted by nine inhabited islands with a total land area of 2,322 km² and 246,746 inhabitants (DGT, 2014; SREA, 2012), distributed along 600 km with an Exclusive Economic Zone (EEZ) of approximately 984,300 km² and a coastline of 690 km (Borges et al., 2009). Azores have high biologic and geologic diversity, reflected by 123 protected areas (terrestrial and marine) (DRA et al., 2014). Orkney is a Scottish council area, located 32 km north from the Scottish mainland, made up of more than 70 islands and islets (Orkney Islands Council, 2012) but only 20 islands have full-time residents (National Records of Scotland, 2013a). Overall, Orkney as an area of 990 km² and 21,349 inhabitants (National Records of Scotland, 2013b). The biologic and geologic diversity is reflected in the 73 international and national protected areas (Orkney Islands Council, 2012). Both archipelagos are part of the European Union

and have a well-established SEA system. Azores is a European Outermost Region¹⁸ with specific SEA legislation and Orkney is a Scottish council area, with the smallest area and the highest population density within the Islands Council areas of Scotland (see Polido et al., 2016a, for further details).

5.4 Development of a conceptual framework for small islands SEA context-specific applications

The proposed conceptual framework, resulting from the concept map, is organized in different clusters (actors; small islands cooperation and information exchange; and, SEA specific issues for small islands) and their linking words, encompassed by key-sustainability issues for small islands (Figure 5.1). In the following sub-sections is presented the rationale and characterization for the different components, concepts and linkages of the proposed approach.

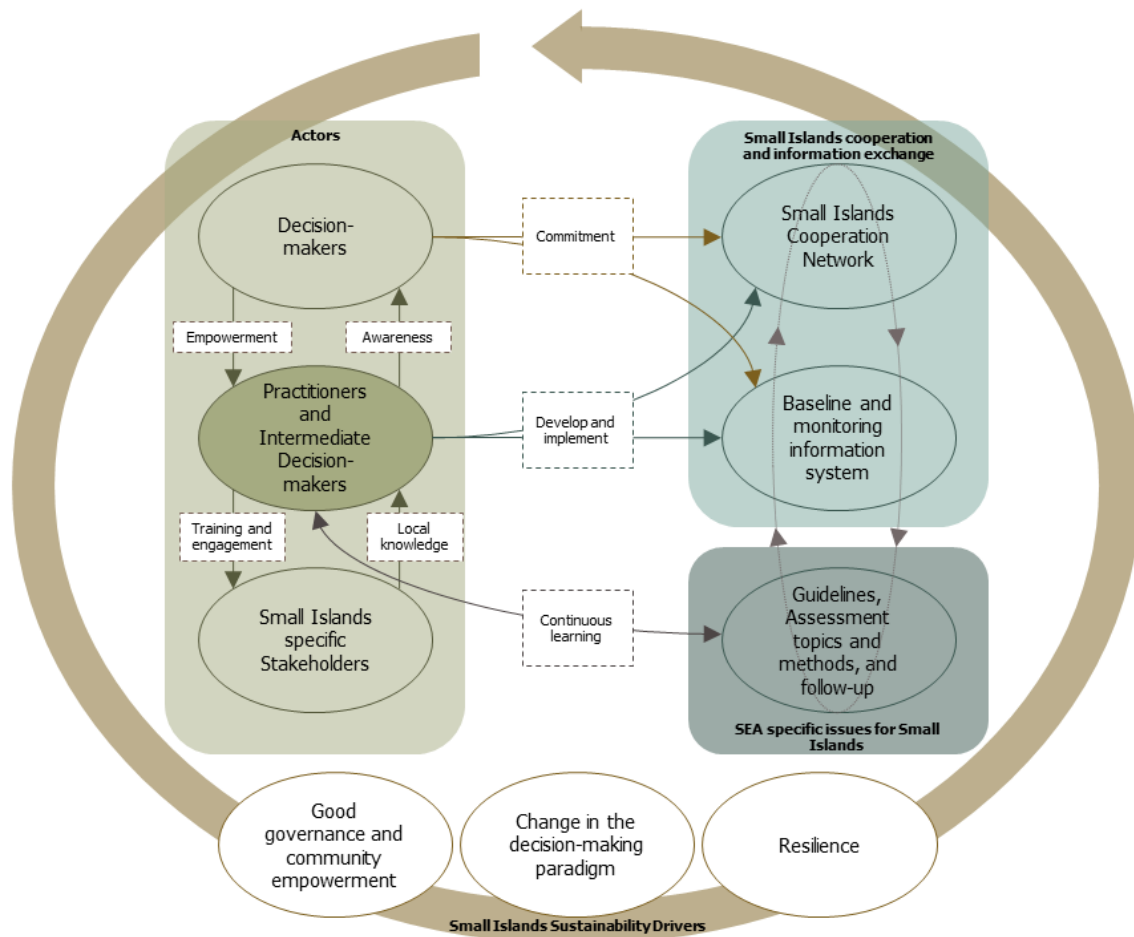


Figure 5.1 – Conceptual framework to support Strategic Environmental Assessment (SEA) context-specific applications for small islands transitioning towards sustainability.

¹⁸ The European outermost regions are addressed in the Treaty on the Functioning of the European Union (TFEU), articles 349 and 355.

5.4.1 Drivers for transition towards sustainability in small islands

The conceptual framework represents the three main drivers for transitioning towards sustainability in small islands: i) *good governance and community empowerment*, ii) *change in the decision-making paradigm*, and iii) *resilience* – encompassing the different components. These drivers aim at transforming the political, institutional and cultural context influencing small islands decision-making outcomes and are translated through the clusters presented in the conceptual framework (Actors, Small islands cooperation and information exchange, and SEA specific issues for Small Islands). The driver *good governance and community empowerment* can be directly linked with the cluster *Actors* through the coordination and cooperation between the different stakeholders, the use of insular local knowledge throughout the decision-making process and the stakeholders' ownership of the SEA process, whereas *change in decision-making paradigm* and *resilience* are promoted through the proposed framework and its clusters which enhance different mental models.

The change in the decision-making paradigm will occur through the development and enhancement of SEA knowledge by the different institutions and actors involved in the process, where SEA is a continuous learning process with insular cooperation networks and baseline information and monitoring system having a fundamental role providing awareness about different methodologies and approaches to decision-making. Also, engaging all different stakeholders and promoting *good governance and community empowerment* will enable transparency in the small islands SEA process and openness from public administration, as well as accountability to all stakeholders, key to the change of the paradigm. The conceptual framework itself may provide a way towards resilient territories and small islands communities. Communities engaged and empowered, which take ownership of the SEA, may develop capacity to overcome vulnerabilities, embracing complexity and uncertainty. The circular outer arrow that encompasses the framework represents its iterative facet, showing the need for a continuous evaluation of the sustainability drivers as well as the framework itself.

5.4.2 Actors

The terminology "Actors" used in this conceptual framework defines all stakeholders that can be involved in the SEA process. The term "Actors" is further unfolded in three main concepts in this research: i) *decision-makers*, high-level policy-makers, top-level managers in public agencies, and any actor that has the responsibility of deciding the outcomes of the SEA process and/or the strategic action; ii) *practitioners and intermediate decision-makers*, actors involved directly in the completion and implementation of the SEA process. Practitioners refers to in-house practitioners or private consultants contracted to develop the SEA, including planners, and intermediate decision-makers to public officers involved in the planning and SEA process, which review and influence their outcomes; and, iii) *small islands specific stakeholders* are islanders individuals or insular organizations that may influence the planning and SEA process but are not part of the other two concepts. They can be researchers, experts, civil organizations, private companies, or the general public.

The cluster shows the three abovementioned concepts and their interlinkages, developing relationships between the different actors. It is central for the proposed conceptual framework the joint effort from the multiple actors: the commitment and awareness from decision-makers, to advance with SEA in a way it will effectively help these specific territories to transition into sustainability, the integration of local knowledge through the engagement of the local stakeholders, and the effective implementation, engagement and continuous learning from the practitioners and intermediate decision-makers.

Decision-makers need to empower practitioners and intermediate decision-makers on SEA and sustainability issues. This empowerment should take the form of provisioning the necessary resources for the ownership of the process by the practitioners and intermediate decision-makers. These resources can be multiple, such as, *human resources* to avoid an overload of SEA processes for each practitioners and public administrators, *financial resources* to implement different methods of assessment, to engage the small islands specific stakeholders (local stakeholders), or to put in place an effective follow-up framework, and *time*, real timeframes for the conclusion of the process, including the different consultation processes and assessment procedures. Also, practitioners and intermediate decision-makers need to make the decision-makers aware of the importance of the SEA processes for the integration of sustainability issues in the policy and planning system. However, the decision-makers need to be receptive to the awareness training.

The “small islands specific stakeholders” are critical for the framework because they will provide the local knowledge needed for the SEA process to be conducted effectively. Practitioners and intermediate decision-makers (public administrators) need to engage and train them on the SEA process and on sustainability issues.

This cluster is linked through specific connectors with the clusters *SEA specific issues* and *Cooperation and information exchange* (see section 5.4.3). The rationale of the flows between these clusters is also presented in section 5.4.3. The main actors in the interface between clusters are the decision-makers and the practitioners and intermediate decision-makers.

5.4.3 Small islands SEA specific issues and cooperation and information exchange

The improvement of existing guidelines for SEA (instead of additional regulatory burden), the use of topics and methods used regularly by the practitioners and understood by the decision-supporters are an asset. However, in order to effectively advance with SEA, this knowledge needs to be enhanced, which may happen through a continuous learning process. The proposed framework introduces the link between practitioners and intermediate decision-makers, and the assessment issues through a continuous learning process. This continuous learning process is based on the lessons learned from previous SEA cases, the local knowledge, the cooperation networks and the centralized baseline and monitoring system. In effect, the concepts in *Small Islands SEA specific issues* and *Cooperation and information exchange* clusters are linked through a continuous feedback loop.

Small islands cooperation networks are envisaged as partnerships between small islands within the same region to facilitate a forum where participants may learn from others about the different SEA thinking and practices happening in similar territories. These islands networks may also have a central role in the development and implementation of a baseline and monitoring information system. The baseline and monitoring information system will work as an aggregator of information related with baseline data within the region, including the identification and characterization of ecosystem services and the monitoring practices and results.

The small islands cooperation networks and the baseline and monitoring information system must start as a commitment from decision-makers within islands where partnerships need to be developed. These cooperation networks and information systems are passed from the decision-makers to the practitioners and decision-supporters to develop and implemented them. It is here recovered (iteratively) the relation between decision-makers and practitioners and decision-supporters shown in cluster *Actors* – the decision-makers need to empower the practitioners and decision-supporters. The local knowledge will enter the process through the practitioners and intermediate decision-makers.

5.5 Operationalization and discussion of the conceptual framework: the case of Azores and Orkney islands

The proposed framework is intended to have a mind-change capacity, introducing a complexity in its operationalization which should be carried out through different phases, iteratively, in a medium to long period of time (5-10 years), be continuously evaluated and improved. The operationalization is set out in five phases:

- i. Awareness for decision-makers;
- ii. Empowerment and ownership of practitioners and intermediate decision-makers;
- iii. Small islands exchange networks;
- iv. Tailored assessment issues, and
- v. Small islands specific stakeholders' engagement (local knowledge).

Table 5.1 characterizes the operationalization phases, including their rationale, main tasks, actors involved in the main tasks, and the possible results and outcomes of each phase.

The first two phases presented (i. Awareness for decision-makers and ii. Empowerment and ownership of practitioners and intermediate decision-makers) are the ground breaking phases, once implemented successfully will enhance the other three phases. However, the fourth and fifth phase (iv. Tailored assessment issues, and v. Small islands stakeholders' engagement) are possible to be conducted independently from these initial phases, if there are already appropriate provision of resources and mandate in place. "Awareness for decision-makers" and "Empowerment and ownership of practitioners and intermediate decision-makers" phases operationalize the links between decision-makers, practitioners and intermediate decision-makers; to raise awareness to the former about the importance of SEA for decision-making and to improve overall sustainability,

and to empower the latter, providing the necessary resources to advance the SEA process towards sustainability.

The “Awareness for decision-makers” phase is broken down into two different tasks: preparation of information and awareness training. The first task within the first phase (prepare information about SEA, what has been done, its results, importance for sustainability and for the decision-making process) might be challenging for the Azorean practitioners and intermediate decision-makers due to the decentralized information system as explained by Polido et al. (2016a), while the second task (awareness training for decision-makers) due to the administrative autonomy of the Azores, it is expected to be easily implemented, because of the proximity between institutions. In contrast, in Scotland it is in place a centralized system within the government (see Jackson and Illsley, 2007), which on one hand may result in a easy access to information, but on the other it may accentuate the challenges in raising awareness to decision-makers, which may be less open to it. Overall, this phase will mainly depend on the decision-makers willingness to accept this awareness training.

For the second phase (ii. Empowerment and ownership of practitioners and intermediate decision-makers), it is expected that practitioners, planners and decision-supporters from both Azores and Orkney advance with the tasks envisaged without it being an additional burden to the routine responsibilities. Assessing the needs for the advancement of SEA in these territories may be well understood by these actors, the establishment of priority actions and reporting to decision-makers, as suggested by Kørnøv et al. (2015) in their study about the influence of street level bureaucracy on the implementation of SEA in Denmark. Additionally, it is necessary to put in place a mechanism for the continuous evaluation and improvement of these tasks, and specifically in the establishment of priorities, in later stages of the framework implementation and operationalization. Additionally, small islands specific stakeholders may be involved in these later stages when the framework has matured, to help with the establishment of the priority actions.

The “Small islands exchange networks” phase depends highly on decision-makers to make the appropriate provisions and commitments with other insular regions. Sufficient resources need to be allocated to this phase to develop the islands networks and the baseline information and monitoring system for archipelagos or separated islands. The baseline information and monitoring system is recommended to be developed with the help of the different partners. These exchanges of cooperation and information through island networks are a way of introducing a type benchmarking in SEA system, ensuring a continuous learning process to different SEA stakeholders, mainly to practitioners and intermediate decision-makers. Using islands networks from the same biogeographical region may be an added asset for the baseline information and monitoring system envisaged in the proposed framework: Madeira and Canarias for Azores, and other islands belonging to the Atlantic region for Orkney (see European Environment Agency, 2016).

Concerning the phase “Tailored assessment issues” is grounded by an in depth study of the existing situation and the development of guidelines and lessons learned from practice. A similar feature was suggested by Douglas (2003) for Health Impact Assessment (HIA) in small islands. For Azores

and Orkney there is already some work done in this regard (see Polido et al., 2016a), however, the analysis need to be complemented by exploring the findings through focus groups, interviews or workshops with the different stakeholders involved in past SEA processes. The guidelines and lessons learned developed from the analysis should give highlights on the methods, the topics, the type of follow-up and its outcomes, the stakeholder engagement developed for each SEA conducted (sector-specificity), giving clues about what should be enhanced, what should be avoided and recommendations for future practice. Even though it is important to keep what practitioners know in a first stage of the framework as suggested by Noble and Nwanekezie (2016), gradually and with the information resulting from the different tasks, innovative guidelines addressing different issues, namely methods, assessment techniques and follow-up need to be further developed. It is expected more challenges to implement this phase for the Orcadian practitioners due to their centralized system and uniformed process (McLauchlan and João, 2012; Polido et al., 2016a) and openness from the Azorean practitioners and intermediate decision-makers to try methods, assessment topics and do specific guidelines because the system is more flexible at this time (Polido et al., 2016a). Furthermore, in later implementation and operationalization stages of the framework, it should be considered the involvement of small islands specific stakeholders to help with the baseline information and monitoring system (e.g. civil organizations, general public), enhancing civil/citizen participation in these processes.

As for the “Small islands specific stakeholders’ engagement” phase, it aims at establishing a solid base of stakeholders to introduce local knowledge in the SEA processes. This phase does not intend to limit public participation to these stakeholders but to have a pool of stakeholders pre-engaged and informed about SEA and sustainability issues. The systematic introduction of local knowledge in the SEA process is envisaged in the framework through the establishment of a solid and informed base of stakeholders, which may be effectively engaged in the SEA process as suggested by Jiliberto (2011). In the Azores it is expected to be easier to put this phase in place and to have a pool of engaged stakeholders because the existing public participation is broader (more people and organizations participate in SEA process). In Orkney, there is few public participation (Polido et al., 2016a) and the effort to engage local knowledge may be a challenge for practitioners and intermediate decision-makers. The Orcadian practitioners and decision-supporters will need to enhance unusual (for this type of processes) forms of engagement, thinking creatively as suggested by different authors addressing ways to foster sustainability (e.g. Lozano, 2014). A possibility is to use school and higher education population to start a solid base of engaged insular stakeholders, similarly to what is suggested by Douglas (2003) in the case of HIA in small islands.

Table 5.1 – Operationalization phases of the conceptual framework for small islands SEA context-specific applications: the case of Azores and Orkney archipelagos.

Phase	Rationale	Main tasks	Actors involved	Possible results and outcomes
<i>i) Awareness for decision-makers</i>	Practitioners and decision supporters need to create awareness in decision-makers about the importance of SEA for the enhancement of sustainability and the decision-making process. For Azores, it will be at the regional level – Regional Government and Regional Institutions. For Orkney it is necessary to go further in the institutional hierarchical level with the need to involve the Scottish Government and consultation authorities (Scottish Environmental Protection Agency (SEPA), Scottish Natural Heritage (SNH) and Historic Environment Scotland (HES)), as well as the local council and institutions. The awareness may be achieved through workshops, meetings or other means deemed appropriate where practitioners and decision supporters show what is already done and what could be achieved with suitable resources, emphasizing the need for island specific SEA approaches.	Prepare information about SEA, what has been done, its results, importance for sustainability and for the decision-making process; Awareness training for decision-makers.	Decision-makers (e.g. Azores Regional Government, Regional Secretariat for Agriculture and Environment for Azores or Scottish Government, SEPA, SNH, HES, Orkney Islands Council for Orkney); Practitioners and decision supporters (e.g. network of in-house practitioners, planners, decision supporters and consultants for Azores or in-house practitioners, planners and decision supporters for Orkney).	Systematization of lessons learned from previous experience; Commitment from the decision-makers; Mandate to practitioners and decision supporters for further analysis (see following phase).
<i>ii) Empowerment and ownership of practitioners and decision supporters</i>	After the awareness training is expected that decision-makers give a mandate to practitioners and decision supporters to assess further information and needs in order to advance SEA. This will create empowerment and ownership on SEA by practitioners and decision supporters. At the same time, priority actions need to be established to advance SEA towards sustainability. Decision-makers must be kept informed of the outcomes of the different tasks, give feedback and further mandate to practitioners and decision supporters so they may effectively develop and implement the priority actions established.	Assessment of the situation (including capacity-building for human resources and need for financial and time resources); Establishment priority actions; Report back to decision-makers about the outcomes of the previous tasks; Feedback from decision-makers to practitioners and decision supporters.	Decision-makers (e.g. Azores Regional Government, Regional Secretariat for Agriculture and Environment for Azores or Scottish Government, SEPA, SNH, HES, Orkney Islands Council for Orkney); Practitioners and decision supporters (e.g. in-house practitioners, planners and decision supporters from the Regional Secretariat for Agriculture and Environment Azores or Orkney Islands Council for Orkney). Due to the iterative facet of the framework it is expected that small islands specific stakeholders may be involved in later stages when the framework has matured, to help with the establishment of the priority actions (e.g. civil organizations, general public).	Strategy for next phases and implementation of priority areas; Assignment of resources needed as identified in the assessment of the situation; Definition of responsibilities of the practitioners and decision supporters.

Table 5.1 – Operationalization phases of the conceptual framework for small islands SEA context-specific applications: the case of Azores and Orkney archipelagos (Cont.).

Phase	Rationale	Main tasks	Actors involved	Possible results and outcomes
<i>iii) Small islands exchange networks</i>	Decision-makers, practitioners and decision supporters need to work together to identify and establish the most suitable partnerships for the development of small islands cooperation networks and baseline information and monitoring systems. The decision-makers develop a commitment between different partner regions and define a plan of action (what is going to be exchanged – e.g. knowledge, technology), with the inputs from practitioners and decision supporters. For Azores this networks may be accomplished with Madeira and Canary islands, and for Orkney with other islands belonging to the Atlantic region.	Identify small islands suitable for partnerships; Establish an action plan where it is envisaged the full cooperation among the regions; Develop a baseline information and monitoring system within the network region.	Decision-makers (e.g. Regional Secretariat for Agriculture and Environment for Azores or Orkney Islands Council for Orkney); Practitioners and decision supporters (e.g. in-house practitioners, planners and decision supporters from the Regional Secretariat for Agriculture and Environment Azores or Orkney Islands Council for Orkney). In later stages of the framework, once it has matured, it is expected that small islands specific stakeholders may be involved in this phase to help with the baseline information and monitoring system (e.g. civil organizations, general public).	Small islands cooperation networks; Baseline information and monitoring system.
<i>iv) Tailored assessment issues</i>	It is proposed the preparation of an in depth study to understand how the different SEA assessment stages have been conducted for different type of plans and programmes. A thorough study must be conducted to link best practices and type of decision-making addressed with methodological approaches, methods, follow-up strategies, and stakeholders' engagement practices. Following this analysis, it is possible to develop practical guidelines for future practice to help the different actors be involved in the SEA processes. Additionally, the development of lessons learned by the different actors involved in each SEA process is encouraged for future analysis.	In depth study analysing the SEA practices, including focus groups, interviews or workshops with the different actors involved in each SEA process; Development of practical guidelines for future practice based on what was learned from the previous task; Development of a systematized lessons learned database (past and future practice) for continuous learning.	All stakeholders involved in past SEA processes, including decision-makers, practitioners, planners, consultants, decision supporters, civil organizations, private companies, general public, etc.	Detailed knowledge about SEA practice; Guidelines for future practice; Implementation of lessons learned database.

Table 5.1 – Operationalization phases of the conceptual framework for small islands SEA context-specific applications: the case of Azores and Orkney archipelagos (Cont.).

Phase	Rationale	Main tasks	Actors involved	Possible results and outcomes
<i>v) Small islands specific stakeholders' engagement (local knowledge)</i>	<p>Creating a solid base of insular local knowledge is paramount for the development of SEA, but it is necessary to engage this knowledge before the SEA processes starts. In Azores is possible to contact stakeholders that were involved in past SEA processes as well as Environmental non-governmental organizations. For Orkney, schools and higher education institutions may be used as a starting point for the engagement.</p> <p>It is recommended to train willing civil society stakeholders on the SEA processes and sustainability issues, so when it is necessary the stakeholders inputs on a specific SEA processes, they are already aware about the overall aim of the process. This may also help the participation process focus on the most important matters for the development of the SEA and decision-making, improving the outcomes.</p>	<p>Identify interested civil society organizations and general public;</p> <p>Train the identified stakeholders on the SEA process and sustainability issues generally prior to a specific SEA process;</p> <p>Engage these stakeholders in specific SEA processes.</p>	<p>Practitioners and decision supporters (e.g. in-house practitioners, planners and decision supporters from the Regional Secretariat for Agriculture and Environment Azores or Orkney Islands Council for Orkney);</p> <p>Small islands specific stakeholders (e.g. islands experts and researchers – University of Azores for Azores and International Centre for Island Technology for Orkney; islands civil organizations; islanders, including school population)</p>	<p>Engaged and informed stakeholders;</p> <p>Effective inclusion of island knowledge in SEA process.</p>

5.6 Conclusions

This research set out to develop a conceptual framework to support and improve an SEA context-specific application towards transitions for sustainability in small islands and give provision for its operationalization for stakeholders. The framework encompasses the three drivers for sustainability in small islands: good governance and community empowerment, change in the decision-making paradigm, and resilience. The framework is operationalized through five phases. These phases tackle training for decision-makers on SEA and sustainability issues, empowerment and ownership by practitioners and intermediate decision-makers, exchange of cooperation and information through small islands networks, different SEA issues (guidelines, methods and follow-up), and islanders' knowledge integration in the SEA processes. These phases are partially independent from each other, because if practitioners and intermediate decision-makers already have sufficient resources and mandate they may operationalize all phases except the awareness training to decision-makers, which needs decision-makers willingness to be developed.

The framework proposes that awareness is raised on decision-makers about SEA and sustainability issues in small islands in order for them to understand the potential of this tool for the sustainability of these territories, and at the same time, when they have to make decisions about the outcomes of SEA or the strategic action they have the capacity to integrate the small islands sustainability drivers into decision-making. It is also proposed the empowerment and ownership of practitioners and intermediate decision-makers on the SEA process, including the provision of the appropriate resources so they are able to advance SEA towards sustainability innovatively. Islands exchange cooperation and information networks and the provisioning of guidelines established through a continuous learning process are also envisaged by the framework. Furthermore, the proposed framework includes the integration of islanders knowledge through the systematic engagement and training of a solid base of willing island stakeholders. Stakeholders are an important feature in these type of territories as well as in SEA processes. Moreover, stakeholders have a central role in the proposed framework, where practitioners and intermediate decision-makers are paramount for the development of the different links between stakeholders and other clusters.

The framework was conceptualized for the Azores and Orkney archipelagos. In Azores, the SEA panorama may promote an easier transition towards new models of thinking. This is because there are several actors, including external practitioners with insular knowledge and intermediate decision-makers, as well as a wide pool of local stakeholders participating in the SEA process. However, it is expected more challenges for Orkney practitioners and intermediate decision-makers due to the lack of sufficient human resources in that territory. The proposed framework may have a mind-set changing capacity, helping these territories transition towards sustainability. There is complexity mainly due to the relations between different stakeholders, which are bounded by power relations.

Drawing on this research, future developments need to validate this framework against a specific implementation case, to better understand its limitations and to adjust it. Additionally, it would be

interesting to understand if this framework is valid for other contexts, and future research may tackle this issue by testing it in other territories with specific geographical features (e.g. mountainous regions, sparsely populated regions, border regions). Overall, the findings of this study may have a role in enhancing future practice, helping change the mind-set to effectively transition small islands through SEA towards sustainability. It also may influence institutions, practitioners, intermediate decision-makers and decision-makers understand that there is a need for context-specific approaches in these territories. It is important that this framework is continually evaluated, iteratively, to understand what should be changed and what should be maintained. The framework is therefore envisaged as a dynamic framework, which should be adjusted with practice.

6 Conclusions and recommendations

This research set out to be a contribution for the enhancement of SEA research and practice by *exploring SEA context-specific application for sustainability in territories with specific natural and human features, such as small islands*. The overall research goal was further developed in five research questions which derived into seven specific objectives, addressed through an exploratory and inductive approach using a mixed methods design. Generally, the research contributed for the advancement of SEA research and practice with (i) a literature review about the role of SEA in the integration of sustainability into decision-making of these territories, (ii) two empirical studies, the first, addressing SEA practices and procedures used in small islands, using Azores (Portugal) and Orkney (Scotland) archipelagos as case study and comparing them with the respective mainland, and the second, identifying the views and perceptions of SEA experts of small islands about key issues for sustainability integration through SEA, and (iii) a conceptual study establishing a framework for SEA context-specific application towards transitions for sustainability in small islands and provision for its operationalization using Azores and Orkney archipelagos as case studies.

In the literature review it was found that for small islands sustainability needs to go beyond a sectoral approach through the promotion of governance and community empowerment, changes in the decision-making paradigm and resilience, where SEA may play a key role through the development of mind-set changing approaches. These drivers for sustainability through SEA in small islands guided the subsequent research phases. The empirical studies showed that SEA of small islands use the same approaches as the ones used in the mainland, and it was suggested the need for the development of tailored SEA approaches for these territories leading to best practices instead of additional regulations. Additionally, these studies indicated the necessity to enhance SEA capacity-building among different stakeholders and to promote collaborative approaches and explore networks of cooperation and knowledge between small islands regions. Furthermore, SEA is viewed by small islands experts as a way to enhance sustainability in these territories. The conceptual framework developed through the results of previous research phases and additional literature review indicated that small islands stakeholders are the catalysts in SEA for sustainability. This concluding chapter unfolds into the summary of key findings, followed by recommendations for future practice and future research.

6.1 Summary of key findings

SEA for sustainability in small islands needs to promote effective changes in the decision-making paradigm, governance and community empowerment, enhancing resilience. These three sustainability drivers for small islands guided the research. Governance and community empowerment entailed the engagement of different stakeholders including small islands experts, civil organizations and islanders, through different phases of SEA. Change in the decision-making

paradigm may be developed through the enhancement of SEA small islands knowledge, where a systematized and continuous learning process needs to be in place. Resilience is promoted by community that are effectively engage and empowered, with capacity to overcome vulnerabilities and uncertainty, where tailored SEA approaches pose a paramount aspect. From the research developed three key findings were found: (i) the willingness of practitioners and intermediate decision-makers are crucial for the promotion of SEA for sustainability in small islands, (ii) there is a need for collaborative approaches in small islands, and (iii) there is a need for a systematized continuous learning process in SEA of small islands as well as tailored assessment issues. These key findings interlink, and following they are further developed.

6.1.1 Practitioners and intermediate decision-makers as promoters of SEA for sustainability in small islands

Practitioners and intermediate decision-makers¹⁹ are paramount for the promotion of SEA towards sustainability in small islands. The willingness of practitioners and intermediate decision-makers is the first driver for change. It was found that practitioners and intermediate decision-makers are motivated for change and to advance SEA for sustainability (see Chapter 4), however, they perceive that there is a lack resources, mainly financial, which is linked with the characteristics of small islands – narrow and dependent economic base and limited resources. It is necessary that these key stakeholders go further and take ownership of SEA, creating awareness in the decision-makers about its importance and, at the same time, be creative and proactive in involving small islands stakeholders (e.g. small islands experts and researchers, small island civil organizations, islanders).

This ownership is paradoxical, and can be described as a two layered process. The first layer of ownership is the existing mandate and resources. Practitioners and intermediate decision-makers need to use what they already have, to break barriers and create awareness, reaching to decision makers, and engaging small islands stakeholders. The second layer of ownership is delivered by decision makers through empowerment and specific resources given to practitioners and intermediate decision-makers.

In the first layer of ownership, practitioners and intermediate decision-makers may start by gathering information about SEA in their territory, what has been done, its results, what needs to be improved and how this can be done (what resources are needed). Additionally, practitioners and intermediate decision-makers may create a database of interested small islands stakeholders (e.g. contacting actors that were previously engaged in SEA or through projects with schools) and train them on the SEA process and sustainability issues, specific to small islands. Engaging different

¹⁹ In this concluding chapter *practitioners and decision supporters* are defined as previously done in section 5.4.2: “actors involved directly in the completion and implementation of the SEA process. *Practitioners* refers to in-house practitioners or private consultants contracted to develop the SEA, including planners, and *decision supporters* to public officers involved in the planning and SEA process, which review and influence their outcomes”.

stakeholders will help address the social dimension of sustainability in these territories. Also, it may be possible to develop detailed knowledge about the SEA practice, implement a lessons learned databased and guidelines for future practice.

In the second layer of ownership, the activities developed will depend on the response given by decision-makers. If decision-makers give sufficient resources and empowerment to practitioners and intermediate decision-makers, as well as the commitment from decision-makers, it is possible to advance with cooperation networks amongst small islands within the same region and develop a baseline information and monitoring system. In contrast, if decision-makers are not open to the SEA awareness, practitioners and intermediate decision-makers may implement informal small islands cooperation networks. However, the existing power relations need to be taken into account.

6.1.2 Need for local, regional and institutional collaborative approaches in small islands

Throughout the different research phases was identified the need for collaborative approaches to enhance SEA for sustainability in small islands which links to the other key findings. These collaborative approaches may take different forms. They can relate to the SEA process (the assessment *per se*) where collaborative approaches are desired. Small islands stakeholders' engagement for the introduction of local knowledge in the SEA process of these territories is paramount because of the often cited specific sense of place of these communities and lead to SEA for sustainability. Additionally, in the follow-up stage collaborative approaches can also be use through different stakeholders, specifically, small islands civil organizations and islanders, coordinated by practitioners and intermediate decision-makers.

The collaborative approaches can also relate to institutional relations between practitioners and intermediate decision-makers while developing SEA, where these actors may work collaboratively sharing the existing capacity and information for enhancement of the outcomes. The characteristics of small islands, such as small populations with possible skills pool constraints and limited resources, urge the need for the optimization of human and financial resources. Additionally, small islands regional networks are highly encouraged by SEA experts (see Chapter 4), which may enable and develop further collaborative approaches and exchange of knowledge and resources. Decision-makers also play a key role for establishing collaborative approaches with other small islands regions while developing cooperation networks. This needs to be done in conjunction with other decision-makers, from the different islands regions as well as with the practitioners and intermediate decision-makers. The practitioners and intermediate decision-makers would work with the decision makers to draft an action plan for these cooperation networks and to develop a baseline information and monitoring system.

6.1.3 Need for a systematized continuous learning process and tailored assessment issues specific for small islands

Research showed that SEA depends mainly on the team that develops it. The reports analysed are similar in content – topics and methods used, as well as similar follow-up frameworks, disregarding

the decision-making or territorial context (see Chapter 3). This may happen due to the need for the enhancement of SEA knowledge and capacity from practitioners and intermediate decision-makers. However, this knowledge and capacity may not entail additional theoretical concepts but information about practice. A documented continuous learning process was suggested (see Chapter 5). This documented continuous learning process requires compilation of previous cases from the small islands, where it is scrutinized the topics and methods used for each type of decision-making, the lessons learned from practitioners with detailed information about what was done in previous cases, the challenges and opportunities for future practice. Additionally, to be continually improving and learning, it is necessary to feed a database with the cases from these territories. This could be achieved through a brief report from the practitioners involved in each SEA where technical information could be collected, systematized and analysed for specificities for small islands.

This continuous learning process also needs to entail small islands knowledge through the documentation of the inputs from small islands stakeholders (e.g. small islands experts, civil organizations, islanders), as well as from the knowledge retrieved from cooperation networks among island regions and a baseline information and monitoring system. Through the lessons learned it would be possible to establish specific guidelines for future practice. These guidelines would also provide small islands tailored assessment issues, including assessment topics, methods and follow-up strategies. Overall, this continuous learning process provides aid for context-specific SEA approaches in small islands, avoiding additional regulatory burden and enhancing good practices and SEA small islands skills and capacity, addressing the insular characteristics of these territories.

6.2 Recommendations for future practice: inputs from Azores and Orkney archipelagos

During this research the Azores and Orkney archipelagos were used as case studies, first to assess SEA practices and procedures in small islands (Chapter 3) and second to operationalize the conceptual framework developed in chapter 5. Additionally, European small islands SEA experts were used to enhance the information obtained previously and to obtain their views and perspectives about SEA for sustainability in small islands. This section provides recommendations for both Azorean and Orcadian SEA practice, as well as for SEA in other European small islands and are mainly directed at practitioners and intermediate decision-makers of the case studies and of European small islands, as the promoters of SEA for sustainability in small islands. This research points to three main recommendations: (i) change the way decision-makers think about SEA in small islands, (ii) go beyond and use creative ways to address traditional problems, and (iii) systematize and report information about SEA practices in small islands.

6.2.1 Change the way decision-makers think about SEA in small islands

As found in chapter 5 and stated in section 6.1.1, practitioners and intermediate decision-makers have a key role in changing the paradigms. This entails also the perseverance to change the

installed mind-set through the development of SEA awareness to decision makers. The practitioners and intermediate decision-makers require to prepare information about SEA, what has been done and its results – how SEA changed or not the sustainability in Azores and Orkney. However, to understand how SEA changed the sustainability in these territories is necessary to understand first how the SEA process and outcomes influenced the decision-making and its importance for sustainability of those territories, which is still underexplored in scientific literature and in practice.

Additionally, these actors need to prepare and offer an awareness training for decision-makers, which may be done through workshops, conferences or meetings. The Azorean practitioners could involve the Regional Government and Regional Secretariat for Agriculture and Environment, and the Orcadian practitioners the Scottish Consultation Authorities as well as Orkney Islands Council.

Additionally, if a commitment from decision-makers is reached with empowerment for practitioners and intermediate decision-makers (e.g. giving the appropriate resources and mandate to go further to assess the situation and what needs to be done for the advancement of SEA for sustainability in small islands, including the establishment of priority areas to address), is important that the latter still report back to the decision-makers about the outcomes of this empowerment, and keep the decision-makers engaged continuously.

6.2.2 Go beyond and use creative ways to address traditional problems

There are two often cited challenges in SEA, which this research has also made an echo: the dearth of baseline information and stakeholders' engagement. The dearth of baseline information on the small islands used as case studies was pointed out by the SEA experts used in the questionnaire survey (see Chapter 4), where one stated data was only available for the mainland or the entire country disregarding those specific territories. It would be desirable that decision-makers became aware of the gaps in SEA knowledge linked with the importance of the tool where baseline information still needs to be available. It is recommended that practitioners and intermediate decision-makers explore the possibility of developing informal networks for collaboration with other practitioners and intermediate decision-makers in the regional government (in the case of Azores) or Orkney Islands Council (e.g. spatial planning, environmental management systems, environment inspectorate).

Small islands stakeholders' engagement was found to be important for the introduction of the local knowledge in the SEA process of these territories, however, little is done in this regard. In the Azorean case, several local institutions and islands participated in the EA process, which may help to establish a pool of interest stakeholders which could be engaged before the SEA process start through training session about SEA and sustainability in small islands. In the Orkney, there is a dearth of participation in SEA process, calling for creative solutions, using atypical population and institutions for this early engagement (which can also be implemented in Azores for diversity). These atypical populations and institutions can be secondary school population (or even younger), higher education population, among others.

6.2.3 *Systematize and report information about SEA practices in small islands*

In order to enhance the SEA knowledge it is necessary to go back and understand what has already been done in these territories. Even though this research already identified practices and procedures used in Orkney and Azores comparing them with the mainland practices (see Chapter 3), it is recommended that further studies are done, including the perceptions of those involved previously in the SEA processes, to identify the challenges faced and the opportunities for future practice. Additionally, systematization of knowledge is needed, and it is suggested that practitioners and intermediate decision-makers put in place a template or guidelines for a brief report to be completed by the SEA team at the end of each SEA process. This report should justify the methods used, how stakeholders were engaged, the main challenges faced and the opportunities for improvements. This should be short and concise. Additionally, and similarly to what is done at the national level in Scotland, an island or regional workshop could be developed for sharing best practices and working groups could detailed recommendations for future practice and guidelines for context-specific applications.

6.3 Recommendations for future research

The main outcome of the thesis is the conceptual framework and its operationalization introduced in chapter 5, which is the result of the different research phases and further literature review, and aims to develop and give provision for SEA context-specific applications, however, it needs to be further explored. The conceptual framework should be fine-tuned by small islands stakeholders, namely practitioners and intermediate decision-makers from Azores and Orkney through participatory workshops or focus groups. Additionally, the framework presented and its operationalization are dynamic and adjustable with practice, therefore, it is necessary to develop applied research to test and validate it. The application of the framework needs a medium to long period of time to be put in place effectively, as well as appropriate human and financial resources. While developing the application of the framework, power relations between different stakeholders also need to be investigated. This is fundamental for the advancement of SEA for sustainability in these territories, with small populations, which may be exposed to different pressures from power groups. Additionally, further research might expand to other small islands or explore the framework for other contexts. Similarly, it can also study if this framework is valid for SEA generally or only for territories with specific natural and human features.

It is also recommended to study the links between this research with other research and practice fields, exploring the experience of mature impact assessment processes and environmental management systems (among other research and practice fields) in small islands, to understand what can be learned for SEA for sustainability in these territories. This may include what practitioners and intermediate decision-makers in those fields of research and practice do to overcome challenges, such as, information gaps and knowledge enhancement, as well as, study existing collaboration networks within the small islands. Additionally, it was found in chapter 2 a

dearth of SEA related research in small islands, and it is recommended that further studies explore how SEA has been developed in other small islands.

While developing research regarding the analysis of environmental reports as done in chapter 3, and because it was found that the outcome depends on the team that develops it, it is suggested that studies involve these practitioners, through questionnaires or interviews, to fill the gaps in the information retrieved from the reports. Issues such as stakeholder engagement, follow-up and the rationale behind the methods used are poorly addressed in the reports and should be further explored. Also, it is recommended that further empirical research be undertaken in SEA context specific applications for sustainability in small islands, in line with what was developed in chapter 4, using additional experts and other stakeholders' views and perspectives, through focus groups or workshops, for additional information collection and further data triangulation.

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APPENDICES

Appendix I – Environmental Reports Characterisation (as referred in Section 3.3.2.)

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
A1	PROT Azores	2007	Archipelago	Regional Spatial Planning	Regional Secretariat for the Environment and the Sea – Regional Directorate for Land Planning and Water Resources ²⁰ (SRAM/DROTRH)	Faculdade de Ciências e Tecnologia/Universidade Nova de Lisboa and Universidade do Minho (Academic)	Paula Antunes, Rui Santos (Coordination)
A2	POOC Santa Maria	2008	Island ²¹	Coastal planning	SRAM/DROTRH	Universidade dos Açores (Academic)	Helena Calado, João Porteiro, Margarida Pereira, Andrea Zita Botelho (Scientific Coordination)
A3	POOC Corvo	2008	Island	Coastal planning	SRAM/DROTRH	Universidade dos Açores (Academic)	Helena Calado, João Porteiro, Margarida Pereira, Andrea Zita Botelho (Scientific Coordination)
A4	POOC Flores	2008	Island	Coastal planning	SRAM/DROTRH	Universidade dos Açores (Academic)	Helena Calado, João Porteiro, Margarida Pereira, Andrea

²⁰ Free translation from the Portuguese “Secretaria Regional do Ambiente e do Mar – Direcção Regional do Ordenamento do Território e dos Recursos Hídricos”

²¹ Island coastline with a terrestrial area of maximum width of 500m and maritime area with a maximum limit of 30m bathymetric

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
							Zita Botelho (Scientific Coordination)
A5	POOC Graciosa	2008	Island	Coastal planning	SRAM/DROTRH	Universidade dos Açores (Academic)	Helena Calado, João Porteiro, Margarida Pereira, Andrea Zita Botelho (Scientific Coordination)
A6	POOC Pico	2010	Island	Coastal planning	SRAM/DROTRH	Quatenaire Portugal (Consultancy)	Sérgio Costa, Carla Melo (Coordination)
A7	PGRH Azores	2012	River basin district 9 ²² (Archipelago)	Water resources	SRAM/DROTRH	Paula Antunes (Coordination) (Academic)	Paula Antunes (Coordination)
PM1	PROT Oeste e Vale do Tejo	2008	Oeste, Lezíria do Tejo e Médio Tejo (NUT III)	Regional Spatial Planning	Coordination Commission and Regional Development ²³ (CCDR) de Lisboa e Vale do Tejo	Instituto Superior Técnico (Academic)	Maria Partidário (Coordination)
PM2	PROT Alentejo	2008	Alentejo Region (NUTS II)	Regional Spatial Planning	CCDR do Alentejo	CCDR Alentejo (Public authority)	Not listed
PM3	PROT Norte	2009	Norte Region (NUT II)	Regional Spatial Planning	CCDR do Norte	Instituto Superior Técnico (Academic)	Maria Partidário (Coordination)
PM4	PROT Área Metropolitana Lisboa	2010	Great Lisboa area (NUT III) and Setúbal Peninsula (NUT III)	Regional Spatial Planning	CCDR de Lisboa e Vale do Tejo	Instituto Superior Técnico (Academic)	Maria Partidário (Coordination)

²² According with Law 58/2005 changed and republished by Decree-Law 130/2012

²³ Free translation from the Portuguese “Comissão de Coordenação e Desenvolvimento Regional”

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
PM5	PROT Centro	2011	Centro Region (NUTS II), except the sub-regions NUT III of "Oeste e do Médio Tejo"	Regional Spatial Planning	CCDR do Centro	Faculdade de Ciências e Tecnologia/Universidade Nova de Lisboa and Universidade do Minho (Academic)	Paula Antunes, Rui Santos (Coordination)
PM6	PGRH Ribeiras do Algarve	2012	River basin district 8	Water resources	Portuguese Environmental Agency (APA)/ Hidrographical Region Administration (ARH) of Algarve	Atkins Portugal (Consultancy)	Ana Luisa Ferreira, Ana Roxo (Coordination)
PM7	PGRH Sado e Mira	2012	River basin district 6	Water resources	ARH of Alentejo	Atkins Portugal (Consultancy)	Ana Luisa Ferreira, Ana Roxo (Coordination)
PM8	PGRH Guadiana	2012	River basin district 7	Water resources	APA/ARH of Alentejo	Atkins Portugal (Consultancy)	Ana Luisa Ferreira, Ana Roxo (Coordination)
PM9	PGRH Ribeiras do Oeste	2012	River basin district 5 (river basin Ribeiras do Oeste)	Water resources	APA/ARH of Tejo (delegated by ARH Centro)	DHV, Hidroprojecto, LNEC, IPIMAR, ICCE, Biodesign (combination of consultancy and academia)	Not listed
PM10	PGRH Tejo	2012	River basin district 5 (river basin Tejo)	Water resources	APA/ARH of Tejo	DHV, Hidroprojecto, LNEC, IPIMAR, ICCE, Biodesign (combination of consultancy and academia)	Not listed
PM11	PGRH Minho e Lima	2012	River basin district 1	Water resources	APA/ARH of Norte	Simbiente (Consultancy)	Carla Melo (Coordination)
PM12	PGRH Douro	2012	River basin district 3	Water resources	APA/ARH of Norte	Simbiente (Consultancy)	Carla Melo (Coordination)

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
PM13	PGRH Cávado, Ave e Leça	2012	River basin district 2	Water resources	APA/ARH of Norte	Simbiente (Consultancy)	Carla Melo (Coordination)
PM14	PGRH Vouga, Mondego e Lis	2012	River basin district 4 (river basin Vouga, Mondego e Lis)	Water resources	ARH Centro	Geoatributo (Consultancy)	Ricardo Almendra (Coordination)
O1	Orkney Islands Local Transport Strategy	2007	Archipelago (Orkney Islands Council area) and its links with the Shetland Isles and the Scottish Mainland	Transport	Orkney Islands Council	Orkney Islands Council (Public authority)	Eileen Summers
O2	Community Plan	2007	Archipelago (Orkney Islands Council area)	Community Planning	Orkney Islands Council	Orkney Islands Council (Public authority)	Eileen Linklater
O3	Local Biodiversity Action Plan	2008	Archipelago (Orkney Islands Council area) and its territorial waters	Nature conservation	Orkney Islands Council	Orkney Islands Council (Public authority)	Eileen Summers
O4	Sustainable Energy Strategy	2009	Archipelago (Orkney Islands Council area)	Energy	Orkney Islands Council	Orkney Islands Council (Public authority)	Shona Croy
O5	The Orkney Plan	2012	Archipelago (Orkney Islands Council area)	Town and Country Planning	Orkney Islands Council	Orkney Islands Council (Public authority)	Eileen Summers

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
SM1	Glasgow Local Transport Strategy – ‘Keeping Glasgow Moving’	2006	Glasgow City Council area	Transport	Glasgow City Council	Faber Maunsell (Consultancy)	Not listed
SM2	Dumfries and Galloway Local Biodiversity Action Plan (Second Edition)	2007	Dumfries and Galloway Council area and the marine environment up to 3 nautical miles offshore (or the border with England if closer)	Nature conservation	Dumfries and Galloway Council (on behalf of Dumfries and Galloway Biodiversity Partnership)	Dumfries and Galloway Council, on behalf of the Dumfries and Galloway Biodiversity Partnership (Public authority)	Peter Norman
SM3	North Ayrshire Local Transport Strategy	2007	North Ayrshire Council area	Transport	North Ayrshire Council	Faber Maunsell (Consultancy)	Ewan Walker
SM4	Renfrewshire Local Transport Strategy 2006	2007	Renfrewshire Council Boundary	Transport	Renfrewshire Council	Faber Maunsell (Consultancy)	Ewan Walker
SM5	West Dunbartonshire Council Local Transport Strategy	2007	West Dunbartonshire council area	Transport	West Dunbartonshire Council	Jacobs U.K. Limited (Consultancy)	Ruth Foxon, Gen Cannibal, Ted Keegan
SM6	Review of the Ayrshire Local Biodiversity Action Plan	2008	East, North & South Ayrshire council areas including a number of islands e.g.	Biodiversity	East Ayrshire; North Ayrshire and South Ayrshire local authority via Ayrshire Joint Structure Plan	Ayrshire Joint Structure Plan (Public authority)	Fiona Ross

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
			islands of Arran, Greater Cumbrae, Little Cumbrae and Ailsa Craig				
SM7	East Dunbartonshire Local Plan 2	2009	East Dunbartonshire Council area	Land use and development	East Dunbartonshire Council	East Dunbartonshire Council (Public authority)	Neil Samson
SM8	East Lothian Biodiversity Action Plan 2008 to 2013	2008	East Lothian council area	Nature conservation	East Lothian Council	East Lothian Council (Public authority)	Stuart Macpherson
SM9	East Renfrewshire Council Local Transport Strategy	2008	East Renfrewshire Council area	Transport	East Renfrewshire Council	Atkins (Consultancy)	Not listed
SM10	Highland Coastal Development Strategy	2009	Highland coastal zone ²⁴	Coastal Planning	Highland Council	Highland Council (Public authority)	Shona Turnbull
SM11	Dunbartonshire Biodiversity Action Plan	2009	East and West Dunbartonshire councils excluding the land found within the boundaries of the Loch Lomond	Nature conservation	East and West Dunbartonshire Council	West Dunbartonshire Council (Public authority)	Not listed

²⁴ Coastal zone between 1 km inland and out to 3 nautical miles (5.56 km)

	Plan or Programme title	Year	Spatial Unit	Subject	Responsible Authority	Organisation that prepared the SEA (Type of organisation)	Person that prepared the SEA
			& the Trossachs National Park.				
SM12	Highland wide Local Development Plan	2010	Highland council area except Cairngorms National Park	Town Planning	The Highland Council	The Highland Council (Public authority)	Simon Hindson
SM13	Moray Council Draft Local Transport Strategy	2010	Moray Council area	Transport	The Moray Council	IronsideFarrar (Consultancy)	Not listed
SM14	South Lanarkshire Local Biodiversity Action Plan	2010	South Lanarkshire Council	Nature conservation	South Lanarkshire Council	South Lanarkshire Council on behalf of the South Lanarkshire Biodiversity Partnership (Public authority)	Sian Williams
SM15	Fife Community Plan 2011-2020	2011	Fife Council area	Community Planning	Fife Council on behalf of the Fife Community Planning Partnership	Fife Community Planning Partnership (Public authority)	Tim Kendrick
SM16	East Ayrshire Community Plan	2012	East Ayrshire Council area	Community Planning	East Ayrshire Council	Community Planning and Partnership Unit East Ayrshire Council (Public authority)	Not listed
SM17	Perth & Kinross Council's Community Plan	2013	Perth and Kinross Council area	Community Planning	Perth & Kinross Community Planning Partnership	Halcrow (Consultancy)	Mike Roberts

Note: PGRH – River basin district Management Plan | POOC - Coastal Zone Spatial Plan | PROT - Regional Spatial Plan

Appendix II – Questionnaire survey (as referred in Section 4.2.)

Strategic Environmental Assessment in Small Islands Questionnaire

Welcome!

First of all, I would like to thank you for agreeing to take part in this questionnaire survey. Your answer is essential in order to understand what experts think about specific features to be introduced in Strategic Environmental Assessments (SEAs) of territories with unique characteristics, as small islands.

This questionnaire survey is developed within the PhD research "Strategic Environmental Assessment key-factors and effectiveness in Small Islands" being developed in CENSE - Center for Environmental and Sustainability Research, Faculty of Sciences and Technology of Universidade NOVA de Lisboa, Portugal.

The questionnaire will take approximately 10 to 15 minutes to complete and asks for you to provide your opinion based on your experience, expertise and knowledge.

All the data collected will be kept in the strictest confidentiality and will only be used for the research purpose and presented in an aggregated form, never explicitly identifying the respondents.

Please do not forward this questionnaire, you were chosen specifically because you are an expert in this field. However, if there is someone you know which is an expert in this field, please refer them to me (a.polido@campus.fct.unl.pt), so I may contact them directly.

If you have any questions, please do not hesitate to contact me at a.polido@campus.fct.unl.pt

Thank you!

Alexandra Polido

Note: the questions marked with * are required

1. General issues concerning SEA in Small islands

Keep in mind that the statements are not for SEA in general but for SEA in the specific case of small islands.

1.1. *In general, for small islands, due to their uniqueness it is important to...** (Check only one box per row)

	Strongly agree	Agree	Disagree	Strongly disagree	No opinion/Do not know
1.1.1. encourage cooperation networks with other small islands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.1.2. have a legal framework that reflects islands uniqueness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.1.3. identify sensitive and fragile ecosystems.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.1.4. have trained staff on sustainability-related issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.1.5. Please provide comments on your answers (optional). (You may explain why you gave a certain answer and when appropriate you may give examples, for instance, if you know a cooperation network that works well or if a certain legal framework already reflects islands uniqueness.)

1.2. *SEA in small islands needs to...** (Check only one box per row)

	Strongly agree	Agree	Disagree	Strongly disagree	No opinion/Do not know
1.2.1. adopt scale guidelines.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2.2. reflect themes/issues appropriate to their realities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2.3. have assessment methods that weight variables according to specific island criteria.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.2.4. have a strong component of governance and institutional framework, reflecting islands specificities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.2.5. Please provide comments on your answers (optional). (You may explain why you gave a certain answer and when appropriate you may give examples, for instance, what is for you a strong governance and institutional framework and if it is already in use in the cases you know or if scale guidelines are already in use.)

1.3. When compared with other territories, such as mainlands, SEA in small islands lack... * (Check only one box per row)

	Strongly agree	Agree	Disagree	Strongly disagree	No opinion/Do not know
1.3.1. baseline data.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3.2. skills and training.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1.3.3. resources.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

1.3.4. Please provide comments on your answers (optional). (You may explain why you gave a certain answer and when appropriate you may give examples.)

2. Enhancement of small islands SEA

Please complete this part of the questionnaire considering that you answered "Strongly agree" or "Agree" in the previous set of questions.

2.1. Themes to be introduced in SEA of small islands* (Please select all themes/issues you consider to be of most importance to study in an SEA of small islands.)

- 2.1.1. Climate change
- 2.1.2. Sea-level rise
- 2.1.3. Natural and environmental disasters
- 2.1.4. Waste management
- 2.1.5. Coastal and marine resources
- 2.1.6. Freshwater resources
- 2.1.7. Land resources
- 2.1.8. Energy resources
- 2.1.9. Tourism
- 2.1.10. Biodiversity
- 2.1.11. National institutions and administrative capacity
- 2.1.12. Regional institutions and technical cooperation
- 2.1.13. Transport and communication
- 2.1.14. Science and technology
- 2.1.15. Human resource development
- 2.1.16. Health
- 2.1.17. Culture
- 2.1.18. Sustainable production and consumption
- Other. Specify <insert answer here>

2.2. Define and rank which are the themes you consider paramount to be included in every type of SEA in small islands. * (These themes may or may not be the ones included in the previous question (2.1.)).

2.3. Developing an SEA system in small islands... * (Please select all topics you consider to be of most importance to focus when developing an SEA system in small islands.)

2.3.1. Technical staff with specific training in small islands environmental and sustainability issues

2.3.2. Good governance issues well established (e.g. integrate local languages, cultural patterns and values in the participation process, improve capacity building, interactive participation processes)

2.3.3. Exchange of information between different small islands (e.g. technology, innovation, methods)

2.3.4. Baseline data information system

2.3.5. Specific guidelines for performing SEA in these territories, including scale issues and assessment methods that weight variables according to islands specificities)

2.3.6. Specific themes for the assessment in small islands

2.3.7. Specific indicators for the assessment of small islands

Other. Specify: <inser answer here>

2.3.8. Please provide additional comments for your answers (optional).

3. Ecosystem Services inclusive SEA in small islands

Ecosystem Services inclusive SEA has been discussed in the literature in the past few years and several publications have been considering how to integrate Ecosystems Services in SEA (e.g. UNEP (2014). "Integrating Ecosystem Services in Strategic Environmental Assessment: A guide for practitioners". A report of Proecoserv. Geneletti, D.).

3.1. Do you think it is important to integrate the concept of Ecosystem Services in SEA of small islands?* (Check only one box)

3.1.1. Very Important

3.1.2. Important

3.1.3. Moderately Important

3.1.4. Of Little Importance

3.1.5. Unimportant

3.1.6. I do not know the concept Go to section 4

3.1.7. Please comment your answer (optional).

3.2. Which Ecosystems Services Frameworks do you know? (Check all that apply.)

- 3.2.1. Millennium Ecosystem Assessment – MA
- 3.2.2. Common International Classification of Ecosystem Services – CICES
- 3.2.3. The Economics of Ecosystems and Biodiversity – TEEB
- 3.2.4. None
- Other. Specify: <insert answer here>

3.3. In what way Ecosystems Services frameworks could help enhance SEA in small islands? (Check all that apply.)

- 3.3.1. By providing themes/issues for the assessment
- 3.3.2. As baseline information for the assessment
- 3.3.3. As a mean to integrate stakeholders in the assessment
- 3.3.4. By changing the decision-making paradigm
- 3.3.5. By changing SEA approaches, through an SEA process that integrates holistically the framework
- 3.3.6. I do not have an opinion

3.3.7 Please provide comments on your answers (optional).

4. Sustainability through SEA in small islands

4.1. SEA may help enhance sustainability in small islands by...* (Please indicate your opinion concerning the following statements. Check only one box per row.)

	Strongly agree	Agree	Disagree	Strongly disagree	No opinion/Do not know
4.1.1. helping change the decision-making paradigm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.2. providing a framework for good governance and community empowerment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.3. helping build resilient territories and communities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4.2. Are there other ways in which SEA may help enhance sustainability in these territories? (If you have knowledge about how SEA may help enhance sustainability in small islands, please give examples.)

5. Personal Information

Please provide some information about yourself. This is necessary to understand the background of the respondents.

5.1. Age*

<your age>

5.2. Gender*

Male

Female

5.3. Location (country of activity). * (Please state the country where you are based.)

5.4. How are you currently involved with SEA?*

Practitioner/Consultant in a private held company

Practitioner/Decision-supporter in a public authority

Decision-maker

Researcher/Academic

Other. Specify: <insert answer here>

5.5. How many years do you work in the position above mentioned (in question 5.4)?*

5.6. How many SEA have you been involved in? * (Please provide an estimation if you do not remember the correct number.)

5.7. Please provide your name and email (optional). (Please provide this information if you are available for follow-up and/or to take part in future workshops and focus-groups related with this research. Furthermore, with your details we will be able to send you updates on the research.)

5.8. Additional comments (optional). (If you have any additional comments, let us know.)