

Efficacy of Strategic Environmental Assessment in Canada

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ABSTRACT

Strategic environmental assessment (SEA) has been practiced in Canada since the early 1970s. However, its added value to policies plans and programs (PPPs) has yet to be fully realized. Consequently, many planners and decision makers are skeptical about the benefits of SEA, in part because of the lack of cases to indicate its added value to PPP development or downstream assessment. Much of the SEA evaluation research to date has focused on the procedural requirements and process elements of SEA rather than on its outputs and outcomes. The overall purpose of this research was to examine the efficacy of SEA and “SEA like” processes in Canada. The research examined how SEA practices have influenced PPP development, decision-making and subsequent actions in Canada. Data were collected using SEA efficacy evaluation criteria through semi-structured interviews with experts and non-experts across Canada based on their experience with and perspectives on the ‘impact’ of SEA. There has not been any study into the efficacy of SEA that is based on its added value. Most studies so far have focused on SEA inputs and process rather than outputs and broader outcomes in Canada. This research contributed not only to SEA efficacy studies, but also to improved SEA application and value added for PPP development in Canada.

Keywords: strategic environmental assessment; efficacy; evaluation criteria; policies, plans and programs.

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TABLE OF CONTENTS

PERMISSION TO USE STATEMENT.....	i
ABSTRACT.....	ii
ACKNOWLEDGEMENT.....	iii
TABLE OF CONTENTS.....	iv
LIST OF TABLES.....	vi
LIST OF FIGURES.....	vi
LIST OF ABBREVIATIONS.....	vii
CHAPTER ONE: EFFICACY OF STRATEGIC ENVIRONMENTAL ASSESSMENT IN CANADA.....	1
1.1 Introduction.....	1
1.2 Research purpose and objectives.....	3
1.3 Thesis Format.....	3
CHAPTER TWO: STRATEGIC ENVIRONMENTAL ASSESSMENT.....	4
2.1 SEA.....	4
2.2 SEA efficacy.....	6
2.2.1 SEA outputs.....	8
2.2.2 SEA outcomes.....	8
2.2.2.1 Learning and SEA.....	9
2.3 SEA Evaluation in Canada.....	10
2.3.1 Evaluating outputs and outcomes.....	10
2.3.1.1 Learning as a means for evaluation.....	11
2.3.1.2 Institutional learning.....	12
CHAPTER THREE: RESEARCH METHODS.....	15
3.1 Development of SEA evaluation criteria.....	15
3.2 Data collection.....	20
3.2.1 Participants Profile.....	22

3.3 Data Analysis.....	24
3.4 Limitations.....	25
CHAPTER FOUR: RESULTS.....	26
4.1 Direct impacts	26
4.2 Indirect impacts	29
4.3 Synthesis of qualitative responses to questions.....	36
4.3.1 Reported SEA benefits or value added.....	36
4.3.2 Limitations or challenges to SEA	38
4.3.3 Most important Learning outcomes	40
CHAPTER FIVE: DISCUSSION.....	43
5.1 Overview of results.....	43
5.2. Achievement of SEA outputs and outcomes.....	46
5.3 The need for improved SEA evaluative practices.....	49
5.4 How SEA outputs can enhance the achievement of outcomes.....	51
5.5 Challenges to the achievement of outcomes.....	53
5.6 Learning outcomes in Canadian SEA.....	56
CHAPTER SIX: CONCLUSION.....	61
6.1 Challenges to SEA efficacy in Canada.....	61
6.2 Recommendations.....	63
REFERENCES.....	66
APPENDIX A.....	81

LIST OF TABLES

Table 2.1 Overview of key SEA developments in Canada.....	5
Table 2.2 Characteristics of SEA outputs and outcomes.....	7
Table 3.1 Preliminary criteria for evaluating SEA efficacy.....	17
Table 3.2 Final criteria for evaluation of SEA efficacy.....	19
Table 3.3 Research Participants by Organization.....	22
Table 4.1 Direct impacts of SEA for PPPs.....	27
Table 4.2 Indirect impacts of SEA for PPPs.....	30
Table 4.3 Participants comments on the realized benefits or value added of SEA application	37
Table 4.4 Participants comments on the realized challenges and limitations to SEA application	39

LIST OF FIGURES

Fig 4.1 Box Plots showing the median and distribution of participants responses on the direct impacts of SEA.....	28
Fig 4.2 Box Plots showing the median and distribution of participants responses on the indirect impacts of SEA.....	32

LIST OF ABBREVIATIONS

CEAA	Canadian Environmental Assessment Agency
CESD	Commissioner of the Environment and Sustainable Development
CIDA	Canadian International Development Agency
EARP	Environmental Assessment and Review Process
IAIA	International Association for Impact Assessment
NEPA	National Environmental Policy Act
PPP	Policies Plans and Programs
SEA	Strategic Environmental Assessment

CHAPTER ONE

EFFICACY OF STRATEGIC ENVIRONMENTAL ASSESSMENT IN CANADA

1.1 Introduction

Strategic Environmental Assessment (SEA) is broadly defined as a systematic process for identifying, predicting, reporting and mitigating the environmental impacts of policies, plans and programmes (PPPs) (Reid, 2004). There are various interpretations of SEA in the academic literature and opinions vary as to what SEA stands to achieve (Bina, 2007; Wallington et al., 2007; Zhou and Sheate, 2011; Gunn and Noble, 2011). According to Noble and Bronson (2007:2) for example, SEA seeks “to integrate environmental and social issues into higher-order PPP decision making processes”. Gunn and Noble (2011) similarly suggest that SEA is about integrating environment into higher-order decision-making processes; and Brown and Therivel (2000) suggest that SEA is a tool for decision making towards achieving sustainable development. Common to all these definitions is that SEA ultimately aims to facilitate the development of more environmentally sensitive PPPs in support of sound decision making for sustainability (see also: Therivel, 2004; Morrison-Saunders and Fischer, 2006; Wang et al., 2009; Song et al., 2011; Zhou and Sheate, 2011).

Now adopted in many developed and developing countries (Wang et al., 2009), strategic forms of assessment in Canada date back to the 1970s, though these did not carry the SEA name tag. However, it was in 1990 that SEA was introduced at the federal level and is required for all federal departments and agencies under the Cabinet Directive on the Environmental Assessment of Policy, Plan and Programme Proposals (Canada, 2004). At the same time, however, the efficacy of SEA in ensuring improved, environmentally sustainable PPPs is not well understood (Fischer and Seaton, 2002; Fischer, 2002; Dalal-Clayton and Sadler, 2004; Noble, 2009; Gunn, 2010). As indicated in the CESD 2004 and 2008 reports, SEA is inconsistently applied at the federal level and is falling short of its expectations. Further, according to Noble (2009), there is often skepticism in Canada about the benefits of SEA, at both the federal and provincial levels, and whether it is contributing to ‘better’ PPPs. Noble attributes this to, among other things, the

lack of clear requirements and supporting frameworks for SEA application and the limited number of reported cases to clearly demonstrate the added value of SEA to PPP development and down-stream assessment and decision-making.

At the most basic level, the efficacy of SEA is a function of its inputs (i.e., institutional requirements), process (i.e., assessment methodology), outputs (i.e., results and PPP recommendations), and outcomes (i.e. longer-term change as a result of PPPs and learning). There have been several studies of SEA performance; however, most of these studies have focused on SEA inputs and process rather than outputs and, in particular, SEA outcomes. For example, in an assessment of five SEA cases in the Shandong Province of China, Wang et al. (2009) focused on the process, procedures and legal support systems of SEA. Similarly, in an analysis of SEA performance in South Africa, Retief's (2007) study was limited to process principles and process elements of SEA, further illustrating that SEA evaluations have been more about the process than about product. Lastly, in assessing the effectiveness of Austrian SEAs, Arbter's (2003) study also focused on the process and procedural requirements of SEA, prompting Aschemann (2004) to argue that SEA will need some time in order to develop into an effective decision support instrument in Austria. Common to all these cases, the focus of evaluation research in SEA has been on SEA input and process rather than on output and outcomes. Subsequent sections present other evaluation studies that focused only on inputs and processes of SEA.

Although an understanding of SEA process effectiveness is important, several scholars suggest that the outputs and outcomes¹ of SEA are the ultimate measures of its value added to PPPs and environmental sustainability (Partidario, 2000; Therivel and Minas, 2002; Stoeglehner et al., 2009). Noble (2003), for example, asserts that effective SEA requires quality inputs and processes, but the outputs and longer-term outcomes are the ultimate measure of SEA's impact. Runhaar and Drissen (2007) go a step further and categorize the impacts of SEA as both direct and indirect. Direct impacts are defined as the immediate outputs and influence of SEA that can be identified in the formulation of a PPP (Therivel and Minas, 2002; Morrison-Saunders and Arts, 2004; Runhaar and Drissen, 2007). The indirect impacts of SEA refer to the longer-term

¹ See Chapter Two for description of outputs and outcomes of SEA

influence of SEA on institutional learning or behaviour and ultimately sustainability. Such indirect impacts may include new ideas used in subsequent PPPs or rounds of decision-making, and impacts on processes and situations other than those of which the SEA forms a part (Therivel and Minas, 2002; Bina et al., 2011). Understanding the efficacy of SEA thus requires that both the direct and indirect impacts be considered. As Partidario (2000:1) suggests: “The value of SEA is a function of the extent it influences, and adds value, to decision-making”.

1.2 Research purpose and objectives

More than a decade ago, Partidario (2000) argued that identification of the added value of SEA to decision making be at the forefront of SEA efficacy studies. The problem, however, is that the majority of studies on SEA efficacy have been more concerned with SEA requirements or processes than with outcomes and influence (see Arbter, 2003; Retief, 2007; Wang et al., 2009). If SEA is to be adopted as a valuable process to help ensure more sustainable PPPs, there is a need for evaluation studies of SEA’s influence and value added. As such, the overall purpose of this research is to advance current understanding of the efficacy of SEA based on its immediate output to PPP decisions and broader outcomes. More specifically, this research will examine the efficacy of SEA in the context of policy and planning in Canada. The specific objectives are to:

- i) identify SEA output and value added to plans, policies and programs in Canada;
- ii) determine how SEA outputs enhance the achievement of outcomes; and
- iii) contribute to advancing SEA efficacy studies.

1.3 Thesis Format

The thesis is organized into six Chapters, including the introductory Chapter. Chapter Two provides a general overview and evaluation of SEA, focusing in particular on its outputs and outcomes. Chapter Three presents the research methods, specifically the design of SEA efficacy evaluation criteria. Results of the application of the SEA efficacy criteria to a set of Canadian PPPs, based on an expert-based survey, are presented in Chapter Four. Research implications and observations are discussed in Chapter Five, and Chapter Six concludes with recommendations for further research.

CHAPTER TWO

STRATEGIC ENVIRONMENTAL ASSESSEMENT

SEA is a tool designed to support the consideration of environment into PPP development and decisions in support of sustainability. This may be achieved, in the short term, through the outputs of SEA application, and in the long term through the outcomes of improved PPPs. This chapter provides an overview of SEA and its key developments in Canada. The purpose and efficacy of SEA follow, in which the characteristics of SEA and its outputs and outcomes are addressed. Learning as an evaluative tool for SEA efficacy is also examined.

2.1 Strategic environmental assessment

The origins of SEA date back to the 1970s and late 1980s, when the legal and policy precedents for environmental assessment were established under the US National Environmental Policy Act (NEPA) (Dala-Clayton and Sadler, 2004; Noble and Bronson, 2007; Jha-Thakur et al., 2009). In Canada, strategic approaches to EA began in the 1970s with the Environmental Assessment and Review Process (EARP) and the subsequent Guidelines Order of 1984 (Noble, 2009) (see Table 2.1). It was not until 1999, however, that SEA was formally introduced as a separate process from project based environmental assessment by way of a federal Cabinet Directive (see Noble, 2003), requiring that all federal departments and agencies undertake SEAs for their PPPs that have the potential for environmental impact (Canada, 2004).

Table 2.1. Overview of key SEA developments in Canada

1984: Environmental Assessment and Review Process Guidelines Order defined “proposal” as including any initiative, undertaking or activity for which the federal government has a decision-making responsibility.
1991: Federal government reform package introduced Canada’s first initiative in the development of a system of strategic environmental assessment: Environmental Assessment in Policy and Program Planning: A Sourcebook.
1993: Cabinet Directive for strategic level environmental assessment of policies, programs, the requirements and plans is published, but documents confined to internal Cabinet secrecy.
1995: Amendments to the Auditor General Act requiring that all federal departments and agencies prepare a sustainable development strategy. Federal government released Strategic Environmental Assessment: A Guide for Policy and Program Officers.
1999: Canadian Environmental Assessment Agency released its revised Cabinet Directive on SEA and guide to the SEA process.
2004: Commissioner of Environment and Sustainable Development to report on the state of SEA within federal government departments and agencies.
2007: Agency identifies SEA, in particular the integration of regional and cumulative effects assessment, as a research and development priority for 2007–8. Minister of Environment’s Regulatory Advisory Committee, Sub- committee on sea, commissions report on the state of sea models, principles, and practices in Canada.
2008: Canadian Council of Ministers of Environment commissions a report to produce guidelines for SEA methodology and good practice.

Source: Based on Noble 2003, 2009

SEA aims to facilitate early and systematic consideration of potential environmental impacts in strategic decision-making (Finnveden et al., 2003). According to the EU Directive (2001/42/EC), SEA aims to provide a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation of PPPs with a view to reduce their environmental impact. The Canadian Cabinet Directive presents a similar view of what SEA aims to achieve, namely to incorporate environmental considerations into the development of public policies (Canada, 2004).

However, notwithstanding SEA’s adoption in international guidelines, directives and legislation, the underlying purpose of SEA is still open to debate (Zhou and Sheate, 2011). For some, SEA has added nothing new to the concept and purpose of impact assessment that was first introduced under NEPA (Bina, 2007, cited in Zhou and Sheate, 2011). A further point of departure among SEA scholars and practitioners is whether SEA should focus on the biophysical environment or on broader sustainability concerns (Bina, 2007; Wallington et al., 2007). The sustainability

agenda has dominated impact assessment and SEA literature since the 1990s (Zhou and Sheate, 2011), and Dalal-Clayton and Sadler (2004) observed that SEA's emergence as a separate process from project-based assessment was largely driven by sustainable development concerns. Various authors, including Gibson (2000), IAIA (2002) and Dalal-Clayton and Sadler (2005) advocate that SEA should focus foremost on sustainability. Morrison-Saunders and Fischer (2006), however, argue that considering social and economic aspects on a par with the biophysical environment in the impact assessment process would ultimately favour trade-offs towards socio-economic benefits and cause potentially adverse environmental impacts. But, as Runhaar and Driessen (2007) note, the general expectation of SEA is to promote environmental improvements toward sustainable development, regardless of the focus of each PPP application.

2.2 Strategic Environmental Assessment Efficacy

There has emerged in recent years a growing interest in the evaluation of SEA efficacy (Bina et al., 2011). Broadly speaking, the efficacy of SEA is the extent to which it influences PPPs towards the achievement of sustainable development goals and objectives (Dalal-Clayton and Sadler, 2005; Wang et al., 2009; Song et al., 2011; Zhou and Sheate, 2011). Noble (2003:132) defines SEA efficacy as “the degree of influence of SEA on decision-making and environmental quality.” According to Partidario (2000), efficacy of SEA is a function of the extent it influences and adds value to decision making. Similarly, Therivel and Minas (2002) argue that SEA is effective when the strategic course of action selected as a result of SEA application is sustainable and environmentally benign.

To date, most scholars and regulators interested in SEA efficacy have concerned themselves with the input and process requirements of SEA (see Arbter, 2003; Retief, 2007; Wang et al., 2009). Inputs refer to the systems components, procedures and institutional requirements for SEA (Noble, 2003). Such input components include: provisions or requirements to undertake SEA, tiering requirements, SEA objectives, and guiding principles (Noble, 2009). Process components of SEA are the procedures and their application and focus on evaluations of the validity of assessment analysis, responsibility and accountability, alternatives assessment, impact

evaluation, cumulative effects consideration, monitoring programs, participation and transparency (Noble, 2009).

Lawrence (1997) argues that there is a distinction between the quality of an impact assessment process and its effectiveness. Inputs and process do not directly and independently indicate the effectiveness of SEA (see also Noble, 2003); a quality SEA based solely on input and process parameters might not mean an ‘effective’ SEA based on influence and outcome. As a result, Stoeglehner et al. (2009) have argued for a shift in focus of SEA research from the development of legislation, guidelines and methodologies towards improving the effectiveness of SEA. Thissen (2000) also stresses the need for an increased focus on the ultimate effects of SEA rather than on SEA processes alone.

Part of the challenge, however, is that the ultimate impact of SEA may be indirect, long term and not easy to identify. Scholars such as Thissen (2000), Therivel and Minas (2002), Hilden et al. (2004), Runhaar and Driessen (2007), Stoeglehner et al. (2009) and van Buuren and Nooteboom (2009) have therefore categorized measures of SEA effectiveness into: ‘direct impacts’ (i.e. outputs), referring to the immediate results of SEA application and its influence that can be identified in the formulation of a PPP; and indirect impacts (i.e., outcomes), referring to the longer- term influence of SEA on institutional learning or behaviour and ultimately sustainability (Table 2.2). Although an understanding of SEA process effectiveness is important, arguably the outputs and outcomes of SEA are the ultimate measure of its value added (Partidario, 2000; Therivel and Minas, 2002; Noble, 2003; Stoeglehner et al., 2009).

Table: 2.2 Characteristics of SEA outputs and outcomes

Output characteristics (direct)	Outcome characteristics (indirect)
Short term (Partidario, 2000; Fischer, 1999; Therivel and Minas, 2002)	Long term (Runhaar and Driessen, 2007)
Realized through PPP development or modification and improvement (van Buuren and Nooteboom, 2009)	Realized through social organizational and institutional learning (Jha-Thakur et al., 2009)
Benefits relate to specific objectives (Thissen, 2000)	Benefits relate to longer-term environmental management (Thissen, 2000).
Can be ‘measured’ (Thissen, 2000)	Are implicit and not easily identified (Thissen, 2000; Owens and Cowel, 2006)

2.2.1 SEA output

Outputs or the direct impacts of SEA (Runhaar and Drissen, 2007; Stoeglehner et al., 2009) are the immediate or short-term effects of an SEA on the final PPP. According to Noble (2009), these concern whether the SEA analysis informed and affected the PPP development or decision; the degree of influence of SEA on the PPP decision; and whether and how mitigation identified in the SEA was included in the PPP (Noble, 2003). Thissen (2000) similarly suggests that outputs are the achievement of identified goals, and actual realization of positive impacts and effective management of adverse impacts because of the SEA. Common to these definitions is that outputs are short term or immediate, possibly measurable, and realized through PPP development, modification and improvement (van Buuren and Nooteboom, 2009). Most scholars agree that outputs are an important measurement of SEA efficacy, if SEA is to be a valuable tool for integrating environmental considerations into PPPs (Partidario, 2000; Therivel and Minas, 2002; Noble, 2003; Stoeglehner et al., 2009).

2.2.2 SEA outcomes

Outcomes or the indirect impacts of SEA (Runhaar and Drissen, 2007; Stoeglehner et al., 2009) are the longer-term changes or influences on institutional and management practices that occur as a result of SEA. Such indirect impacts may include new ideas used in subsequent PPPs or rounds of decision-making, and impacts on processes and situations other than those of which the SEA forms a part (Bina et al., 2011). These are the eventual contributions of SEA to environmental improvement, management principles, changes or improvements in administrative structures, or the initiation of environmental research and development programs (Thissen, 2000, cited in Noble, 2003). According to Thissen (2000), SEA outcomes are often not easily identified due to their implicit nature. SEA outcomes are realized not necessarily in the PPP emerging from the SEA, but indirectly in making the act of learning play a valuable longer-term role in transforming individual, professional and organizational norms and practices in support of sustainable development (e.g. Kornov and Thissen, 2000; Nitz and Brown, 2001; Fitzpatrick, 2006; Sinclair et al., 2008; Jha-Thakur et al., 2009). Owens and Cowell (2006) suggest that outcomes may be longer-term, even unintended and less instrumental ways by which sustainable and environmentally conscious patterns of development emerge due to an SEA exercise. This makes the evaluation of SEA efficacy in the context of its outcomes a complex task. It is on this

basis that Jha-Thakur et al. (2009) propose individual, social, organizational and institutional learning as ways of approaching and better understanding SEA outcomes.

2.2.2.1 Learning and SEA

The nexus between environmental assessment and learning is not a new concept; Caldwell (1982) (cited in Jha-Thakur et al., 2009) notes that the concept of learning has been intertwined with environmental assessment since the early stages of its development. Previous studies reveal different types of learning in SEA. While some scholars emphasize experiential and social learning gained through public participation (Sinclair et al., 2008), others, such as Stinchcombe and Gibson (2001), argue for a progressive learning approach to remove conventional purposes and initiatives that impede the achievement of sustainability; and Jha-Thakur et al. (2009) propose individual and organizational learning for SEA. A shortfall of these types of learning is that none of them explicitly establishes the horizontal and vertical linkages associated with learning within and outside an organization.

There are many different types of learning that occur in impact assessment, but most attention has been on individual and in particular public participation in the assessment process (Sinclair et al., 2008; Jha-Thakur et al., 2009). Arguably, there is an important institutional learning dimension that is relatively under investigated but important to understanding SEA outcomes. This is partly, learning based on knowledge gained from SEA evaluation. According to Watts (2001), evaluation in impact assessment offers opportunities for learning and provides feedback on what works and what doesn't and the reasons for success or failure. Institutional learning allows for a lateral dissemination of such knowledge within and outside the organization (Brabant, 1997). The advantage of institutional learning is that it combines individual and organizational learning (Brabant, 1997). It allows for individuals and the organizations to learn by interpreting and understanding their own experiences, since effective learning takes place through working together (Watts, 2001). For a successful learning system in SEA, institutional learning must be encouraged. This research employs institutional learning theory to examine learning outcomes both within and among federal agencies and departments in SEA, with the view that each has its own unique culture. An example of such learning dimension is an agency

learning from another's failures and successes with regards to SEA practice and how knowledge gained from SEA evaluations studies is disseminated.

2.3 SEA Evaluation in Canada

Efficacy evaluation in impact assessment generates new knowledge by allowing individuals and organizations to reflect on their work, revisit their understanding of PPP goals, assess their effectiveness and take ownership of their decisions (Watts, 2001). Aside from the four-year evaluation of the general performance of SEA in federal departments and agencies, there have not been any evaluation studies focused on the added value of SEA to PPPs. The evaluation studies conducted for the whole of the Government of Canada so far, based on practice under the federal Cabinet Directive, indicate poor performance of SEA – this includes the Auditor General's reports of 2004 (CESD 2004) and 2008 (CESD 2008). However, both evaluations of SEA conducted by the Auditor General's office have focused predominantly on compliance with the Directive itself and not on the outputs and value added of SEA to PPPs per se- value added indicates effectiveness or influence of SEA on the final decision (Partidario, 2000). As Fischer and Gazzola (2006) suggest, the presence of certain context criteria is a necessary framework condition for effective SEA. Efficacy evaluation criteria of SEA may therefore differ from compliance and procedural evaluation criteria, such as those applied in the 2004 and 2008 Auditor General reports.

2.3.1 Evaluating SEA outputs and outcomes

In order to understand the aggregate value of SEA, both outputs and outcomes must be considered. There have been several evaluations of SEA outputs, and well-established frameworks for evaluation. For example Noble's (2009) review of Canadian SEA systems and practices critically analyzed a set of past and present SEA and SEA-like process based on input, process and output evaluation criteria – but stopped short of outcomes. Also, Fischer's (1999) study focused on the extent to which transport infrastructure PPPs benefit from SEA in the European Union using an evaluation criteria based on SEA frameworks and procedures. Similarly, Gachellidaize et al. (2009) explored the practice and utility of SEA follow-up for

twenty-year forest management planning and assessment in Saskatchewan. Though all these are evaluative studies, and all attempt to capture SEA outputs, there has been much less attention to evaluating outcomes. The distinction between outputs and outcomes is important because both are achieved at different time scales. Perhaps, abrupt discontinuation of SEA process after a few immediate outputs have been achieved may prevent the achievement of outcomes. According to Partidario, (2007), continuity is crucial to SEA because the object of assessment, a PPP, is itself an on-going and iterative process. Again, because SEA outcomes are implicit in nature (see Thissen, 2000; Owens and Cowel, 2006) a distinction between outputs and outcomes may make their identification easier than grouping both together, thus preventing a situation where SEA is denied its benefits because its added value to PPP is too implicit to be seen or measured.

It must also be noted that creating a particular threshold of where an output ends and an outcome begins maybe difficult to practice because both may occur simultaneously. Again, selecting a particular number of criteria to be met before SEA is declared effective may equally be impracticable. As Noble (2002) states, there is no consensus across Canadian systems on the nature of SEA, how it functions, and what it is expected to deliver. Similarly, there may not be consensus among practitioners on the criteria selected by this research.

2.3.1.1 Learning as a means for evaluation

One way to assess outcomes is through learning. The challenge is often that learning is subtler, longer term, and often unintended when compared to SEA outputs (Owens and Cowell, 2006). Jha-Thakur et al. (2009), for example, suggest that emphasis on learning in SEA must shift from general process considerations to consideration of the outcomes of SEA. Learning is therefore important in SEA to help evaluate all changes, both direct and indirect, that occur as a result of an applied SEA. Watts (2001) sees such learning as the acquisition of knowledge or skills through experience or study to enhance change.

Multiple forms of learning have been explored in environmental assessment. Among them are transformative learning and experiential learning. Transformative learning refers to learning that emerges from adult interaction (Fitzpatrick, 2006). When adults are engaged in a social process, they are exposed to alternative perspectives; critical engagement in these perspectives may lead

to learning (Fitzpatrick, 2006). Experience and critical reflection are thus central elements of transformative learning (Merriam and Cafferella, 1999) as one's initial experience influences the existing perspective and new experience allows for ideas that may affect one's initial perspective. Such learning, for example, may emerge as a result of public and stakeholder's participation in SEA processes. As Sinclair et al. (2008) state, public participation in environmental assessment provides fertile ground for examining the learning implications of participation. Such learning gained through public participation in SEA (see Fitzpatrick and Sinclair, 2003, Sinclair et al., 2008) may help foster a more collaborative approach to PPP development and reduce the inherent uncertainties and conflicts in resources and environmental decisions to achieve sustainable development.

In addition to transformative and experiential learning, environmental assessment research has also focused on instrumental learning based on the acquisition of knowledge and skills (Fitzpatrick, 2006; Mezirow, 1991); and communicative learning, which focuses on understanding what others mean and to make oneself understood as new ideas are generated and shared (Mezirow, 1991). Instrumental learning involves the process of learning to control and manipulate the environment and involves engaging in how to do something, perform a task or solve a problem (Mezirow, 1990). While communicative learning involves at least two persons striving to reach an understanding of the meaning of an interpretation or the justification for a belief (Mezirow, 1997). Ideally, communicative learning involves reaching a consensus (Mezirow, 1997).

2.3.1.2 Institutional learning

Although the above types of learning are important to understanding environmental assessment outcomes, they are not without limitations. In particular, none explicitly stipulate how organizations, and not individuals, may learn from one another. Institutional learning is a process in which individuals or collective actors acquire knowledge that leads to a change in their behavior and results in a new or amended institutional design in a given policy arena (Siebenhuner and Suplie, 2005). It is a system wide learning between and across agencies (Brabant, 1997) and refers to changes taking place in the quality of interactions between organizations that relate to each other in a given context. The need for constant quality

interactions and institutional innovation (Sinclair et al., 2008) arguably underlies institutional learning in SEA.

Evaluation processes provide an important opportunity for institutional learning and provide useful feedback on what works and what does not, and the reasons for success or failure (Watts, 2001). The knowledge created and the lessons learned through evaluation subsequently provide a basis for better project planning and implementation (Watts, 2001). According to Mostert et al. (2007), learning enhances the determination of knowledge acquired and the level of understanding of key issues of SEA for improved performance. The objective of learning is to ensure important mistakes are not repeated (Brabant, 1997; Mazutis and Slawinski, 2008), by analyzing and assessing the causes of mistakes and unexpected outcomes as well as their implications for current and future decisions (Watts, 2001).

In a similar context, institutional learning itself can serve as an important tool for evaluating the success or influence of SEA, by facilitating recognition of success and opportunities emerging from SEA, and helping to identify institutional or policy changes and realizations as a result of SEA. Such learning can stimulate institutions and agencies to do more than simply revise plans, it encourage questioning of fundamental actions by encouraging effective SEA practice (Kidd et al., 2008). It can provide target groups, in this case SEA practitioners and evaluators, with information and insight for self-development as well as social change (Russ-Eft and Preskill, 2009), enabling them to engage in reflective dialogue with colleagues and feel comfortable with questioning the prevailing routines, values and traditions of their organization (Kidd et al., 2008).

Institutional learning is adopted by the research to examine the extent to which SEA has led to an amendment in an agency's institutional design in a given policy arena (Siebenhuner and Suplie, 2005). Again, it assesses how often federal agencies and departments under the same context interact during SEA processes to learn from each other's successes and mistakes? As Sinclair et al. (2008) suggest the need for constant quality interactions and institutional innovation underlies institutional learning in SEA. Knowledge gained from SEA practice over the years can facilitate better project planning and implementation (Watts, 2001). According to Mostert et al. (2007), learning enhances the understanding of key issues of SEA for improved performance. The

objective of learning is to ensure important mistakes are not repeated (Brabant, 1997; Mazutis and Slawinski, 2008). How has SEA achieved these objectives among agencies?

CHAPTER THREE

RESEARCH METHODS

This research examines the efficacy of SEA in PPP development in Canada. The research methods consist of two parts: first, the development of evaluation criteria for measuring SEA output and outcomes; second, application of the criteria using an on-line expert-based survey to examine recent SEA cases. The study methods are described in the following sections.

3.1 Development of SEA efficacy evaluation criteria

Scriven (1967) defines evaluation as judging the worth or merit of something. Some scholars equate evaluation with research or measurement. To others, evaluation is an assessment of the extent to which specific objectives have been attained (Worthen et al., 1997). Evaluation criteria for SEA must therefore assess the worth or merit of carrying out SEA for PPPs, and the extent to which specific sustainability objectives and longer term broader impacts are being met.

Though there is an increasing interest in the evaluation of SEA efficacy (Bina et al., 2011); there is no universally accepted set of SEA evaluation criteria (Bina, 2007; Noble, 2009). As noted by Retief (2007), there is no systematic approach to SEA effectiveness evaluation and, therefore, it is challenging to design a research strategy and methodology to do so. However, Noble (2009) argues that using a set of normative criteria for SEA evaluation can help identify the state of practice across SEA systems, enable the identification of underlying SEA constraints and opportunities, and provide an opportunity to refine SEA principles and criteria to fit PPP decision contexts.

This study adopted Noble's (2009) framework of SEA systems, process and results criteria and refined it first based on: i) other criteria derived from a review of SEA evaluation and institutional learning literature (Table 3.1); and ii) feedback from a panel of Canadian SEA academic experts. The draft criteria in Table 3.1 were sent to a select set of eleven SEA academic experts from Canadian universities to solicit their views on the adequacy and

comprehensiveness of the criteria. The SEA experts were selected based on their published research on SEA and related environmental assessment research and evaluation studies. The SEA experts were asked to review the draft criteria and to consider whether there were criteria that should be deleted, combined or revised or whether new criteria need to be added.

The proposed criteria (see Table 3.2) differs both in content and focus from other previous criteria such as Noble's (2009) evaluation criteria that focuses on the system, process and results components of SEA but it omits some specific SEA contributions. For example its results components are too narrow and fail to assess elements of SEA such as the stimulation of new research within agencies which is essential for knowledge gathering and learning. The criteria used in this research go a step further to assess outcomes in the form of new research stimulated within agencies as a result of SEA (see Table 3.2). Noble's criteria also fail to evaluate changes that emerge in organizational norms or management practices due to the conduction of SEA as well as the raising of environmental and socioeconomic standards within an organization due to SEA. Again, the process components of his criteria lack certain specifics. For example though it included transparency and accountability in SEA process, the creation of public awareness of agency or department due to SEA was not captured. SEA is also to create public awareness of agencies' activities as well. Also, the concept of sustainability used in the proposed criteria is better explained and the criteria offer a more flexible view on SEA providing alternatives (see Table 3.2); because it is not on every SEA conducted that alternatives must be provided.

Overall, Nobles' (2009) criteria are too narrow and needed to be refined. Partly, because his criteria was designed to assess specific SEA cases unlike those proposed by the research which are more general and not limited to specific cases. These among others differentiate the criteria used in the research (see Table 3.2) from Noble's criteria; ideas on the design of outcomes were drawn from much broader evaluation literature. For instance the OECD (2006) criteria go a step further to focus on outcomes such as knowledge gaps and new research emerging from SEA. Similarly, unlike Fischer and Gazzola's (2006) criteria that focuses on a context and methodological criteria or van Buuren and Nooteboom's (2009) criteria that focuses much on the nature of the SEA itself and its immediate impacts, the criteria proposed by this research goes

further to assess long term changes and influences of SEA both within or outside the department, agency or organization.

A unique contribution of the proposed evaluation criteria (see Table 3.2) therefore lies in its ability to assess outcomes of SEA not only on PPPs but on the department, agency or organization itself. Again, the proposed evaluation criteria may be applicable to different SEA cases and assesses efficacy more comprehensively.

Table 3.1: Preliminary criteria for evaluation of SEA efficacy¹

Criteria for evaluating the direct impacts of SEA on a PPP	Criteria for evaluating the indirect impacts or influence of SEA
<p>The SEA:</p> <ol style="list-style-type: none"> 1. Identified the potential impacts (positive or negative) of the management plan. 2. Provided assessment results/ information early on to inform the development or approval of the PPP. 3. Incorporated sustainability considerations into the plan or plan approval/decision-making process. 4. Ensured that stakeholder interests were represented in the final PPP. 5. Helped ensure compliance of the plan with the agency’s mandate, regulations or higher-level policy commitments. 6. Identified viable alternatives to the proposed or existing management plan. 7. The proposed or existing plan was modified (improved) as a result of the SEA. 8. Provided clear direction guidelines, or environmental standards to facilitate implementation of the plan. 9. Helped ensure greater transparency and accountability in the development/ implementation of the management plan. 10. Contributed to improved efficiency (timeliness) in the planning development and/or implementation process. 	<p>The SEA:</p> <ol style="list-style-type: none"> 1. Provided sound information (e.g. baseline data, thresholds, etc) to be used in subsequent planning process, monitoring programs or project based impact assessment. 2. Helped realize broader organizational or institutional goals and objectives. 3. Improved environmental conditions or raised environmental standards. 4. Identified or stimulated new research directions or research needs. 5. Changed or influenced institutional norms or management practices. 6. Improved overall awareness of the institution or agency’s actions, policies, or programs. 7. Enhanced public image of the institution or agency as a result of SEA application (e.g., transparency, and accountability) 8. Led to the emergence or discovery of new management needs or policy requirements not previously known. 9. Highlighted deficiencies and gaps in other existing policies, plans or programs. 10. Helped save time and money spent on individual project evaluations.

¹ Draft criteria developed based on Noble (2009) and refined based on: Abaza et al. (2004); Alshuwaikhat (2005); Arce and Gullon (2000); Arts and Voogt. (2005); Banister (2002); Bina et al. (2011); Brown and Therivel (2000); Cashmore et al. (2008); Chalker et al. (2006); Conley and Moote (2003); Dusik et al. (2003); El-Jourbagy and Harty (2005); Finnveden et al. (2003); Fischer (1999); Fischer (2002); Fischer (2003); Fischer and Gazzola (2006); Fischer (2007); Greenland Development (2010); Hedo and Bina (1999); Hilden et al. (2004); Innes and Booher (1999); Jha-Thakur et al. (2009); Jones et al. (2005); Koontz and Thomas (2006); Kornov and Thissen (2000); Landry et al.

(2009); Leroy (1996); Mandarano (2008); Marsden, (1998); Mitchell (2002); Morrison- Saunders and Arts (2004); Nguyen and Coowanitwong (2011); Noble (2003); Noble (2009); OECD (2006); Owens and Cowell (2002); Parkhurst and Richardson (2002); Partidario (1998); Partidario (2000); Partidario and Arts (2005); Rauschmayer and Risse (2005); Retief (2007); Runhaar and Drissen (2007); Sadler and Verheem (1996); Sandham and Pretorius (2008); Scrase and Sheate (2002); Sheate et al. (2001); Sheate et al. (2003); Stinchombe and Gibson (2001); Stoeglehner et al. (2009); Therivel (1998); Therivel and Minas (2002); Therivel (2004); Therivel et al. (2009); Thissen (2000); van Buuren and Nooteboom (2009); Vicente and Partidario (2006)

All experts provided feedback on the draft criteria. For example, on the direct impacts, criteria 1 to 8 and criterion 10 were modified based on experts' recommendations (see Tables 3.1 and 3.2). For instance, an expert suggested that more details be added to criterion 1 to make it more specific, and explained "I would add and strategies for avoidance or reduction." Similarly, on the concept of sustainability, experts suggested that a few examples be added to criterion 2 because it was "too vague" (see Tables 3.1 and 3.2). One expert commented: "Could you provide an example or explain what you mean by sustainability?" or "differentiate between ecological integrity...and agency's sustainability." On the concept of stakeholders' interest, a similar recommendation was made to criterion 4. An expert suggested that the criterion be split into two parts: "one dealing with 'expert' stakeholders and one with 'lay' stakeholders." Criterion 5 to 10 were also modified based on expert recommendations (see Tables 3.1 and 3.2 respectively). It was also suggested that two additional criteria (criterion 11 and criterion 12) be added to the direct impacts (see Table 3.2).

Draft indirect impact criteria 9 and 10 were deleted based on the experts' recommendations (see Table 3.2). Criterion 9 was said to be a repetition of criterion 8. It was recommended that criteria 1 to 3, and criterion 6 be modified. For example, on criterion 6 one expert suggested that more detail be added to make it more specific, as the expert questioned: "whose awareness is this aimed at, within the agency or beyond?" Similarly, it was also noted that criterion 2 was vague and needed clarification. Reconciling suggestions and recommendations were not as smooth as presented above; to one expert a criterion was good and should be maintained, and to the other it was vague and should be deleted. Apart from the recommendations made by the 11 SEA experts, the research objectives further guided the decision on criteria that should be deleted, combined or revised or whether new criteria need to be added. For instance concerning criterion 4, the identification or stimulation of new research directions or research needs (see Table 3.1), most experts suggested it was vague and should be deleted. But because this criterion is important to

the achievement of the second objective of this research, it was revised and maintained (see Table 3.2). The final, revised evaluation criteria are presented in Table 3.2.

Table 3.2. Final criteria for evaluation of SEA efficacy¹

Criteria for evaluating the direct impacts of SEA on a PPP	Criteria for evaluating the indirect impacts or influence of SEA
<p>The SEA:</p> <ol style="list-style-type: none"> 1. Identified the potential impacts (positive or negative) of the PPP. 2. Identified strategies for avoidance or reduction of potentially adverse impacts, or strategies for enhancement of positive impacts enhancement of positive impacts. 3. Was either integrated with the development of, or provided assessment results/ information early enough to inform the development of the PPP. 4. Incorporated sustainability considerations (e.g., relationships between human-ecological systems; intra- and inter-generational equity; precaution and adaptation) into the PPP development or PPP approval/decision-making process 5. Ensured that stakeholder interests, including public and Aboriginal interests (if applicable), were represented in the final PPP. 6. Ensured compliance of the PPP with the agency's/ organization's mandate, regulations or higher-level policy commitments. 7. Gave sufficient consideration to viable alternatives, if applicable, to the proposed or existing PPP. 8. Resulted in modifications and improvements to the PPP. 9. Provided clear direction or standards to facilitate implementation of the PPP, including guidance for post-implementation monitoring or evaluation. 10. Ensured greater transparency and accountability in the development/ implementation of the PPP 11. Did not cause undue delay, without good reason, to decisions or PPP processes. 12. Contributed to improved efficiency (timeliness) in the PPP's development and/or implementation process. 	<p>The SEA:</p> <ol style="list-style-type: none"> 1. Provided easily accessible information (e.g., baseline data, thresholds, etc.) for use in subsequent PPP processes, monitoring programs or project based impact assessment 2. Helped realize broader organizational or institutional goals and objectives within the agency, beyond the scope of the PPP itself. 3. Improved actual environmental or socioeconomic conditions or raised environmental or socioeconomic standards. 4. Identified or stimulated new research directions or needs (e.g., policy or program gaps) within your agency or organization. 5. Changed or influenced institutional norms or management practices within your agency or organization. 6. Improved overall awareness within your agency or organization of your agency's or organization's actions, policies, plans or programs. 7. Improved public awareness of your agency or organization as a result of SEA application (e.g., transparency, and accountability) 8. Led to improved efficiencies on 'next level' assessments or decisions (e.g. time or cost savings on subsequent plans or project assessments).

¹Based on Table 3.1 and refined based on feedback of the expert panel.

As indicated in the earlier sections of this research, creating a particular threshold or time frame of where/ when a direct impact ends and an indirect impact begins may be difficult to practice because both may occur simultaneously. Again, it is not constant that all direct impacts must be achieved in a short time, though that is the expectation among scholars and practitioners. Some direct impacts may take a longer time to emerge depending on the conditions within the agency. Perhaps, the extent of SEA's influence on the PPP may better be used to delineate direct and indirect impacts of SEA, when an SEA's influence on a PPP is immediate and limited it is a direct impact but when it is long-term and broad it is an indirect impact.

Again, creating a benchmark on how many criteria should be met before SEA is declared effective may be impracticable. Because the main objective of SEA is to achieve sustainable PPPs; it is therefore difficult to know the specific number of criteria that must be met before a sustainable PPP is achieved. The overall end state of the criteria is to achieve a sustainable PPP.

3.2 Data collection

The criteria in Table 3.2 above were sent to a sample of SEA practitioners across Canada in the form of an on-line survey (see Appendix A) administered using Fluid Surveys. An initial list of participants was identified based on recent SEA reports and, using a snowball sampling design (Bryman, 2012), participants were asked to identify other potential participants whom they thought might be interested in participating. A total of 33 participants participated in the study, 21 from federal and provincial government departments and agencies and 12 were impact assessment consultants/ practitioners (see Table 3.3).

Participants were first asked to indicate their experience with SEA regulation/management and consulting/practice, and to identify the most recent SEA(s) with which they were involved. Then, drawing upon their most recent SEA experience(s), participants were asked to evaluate the extent to which the SEA satisfied each of the direct (output) and indirect (outcome) criteria using a nine-point Likert scale from 1, 'strongly disagree' that the criterion was satisfied, to 9, 'strongly agree' that the criterion was satisfied. Participants were also provided with an opportunity to provide qualitative comments following each criterion evaluation. Following quantitative

assessment, participants were asked a number of open-ended questions. The advantage with this is that it gives the researcher an opportunity to probe for new paths, views and opinions of the participant (Gray, 2004) as well as participant's perspectives on the value of SEA. Specifically, participants were asked the following open-ended questions:

1. Based on your experience, what would you identify as the primary benefits (value added) that you have realized from completing, or being involved in, an SEA or SEA-like processes?
2. Based on your experience, what would you consider as the primary limitations of or challenges to SEA or SEA-like processes within your agency or organization?
3. What would you identify as the most important learning outcomes from your experience with SEA? For example, aside from the PPPs in question, have there been other new ideas, innovations, or lessons that emerged from your (or your agency's or organization's) experience with SEA?
4. Are there any additional comments or observations that you wish to share?

The survey remained on-line from April to August

3.2.1 Participants Profile

Table 3.3 Research Participants by Organization

Organization	Number of participants (n)	SEA involvement (n)	Most recent SEA experience
Government			
1. Parks Canada	3	5	SEA of a management plan (unspecified) Yoho National Park Management Plan, 2010 Kootenay National Park Management Plan, 2010
2. Canadian Environmental Assessment Agency	3	4	Public statement of an initiative in 2012 (unspecified).
3. Agriculture and Agri-Food Canada	1	3	Analysis of upcoming AAFC program 2012 (unspecified due to confidentiality reasons)
4. Aboriginal Affairs and Northern Development Canada	2	2	Modernizing existing policies and processes for environmental assessments to better align with a changing CEA Act. (ongoing)
5. Newfoundland and Labrador Department of Environment and Conservation	1	1	Old Harry Oil Exploration project in the Gulf of St. Lawrence, 2008
6. Fundy Ocean Research Center for Energy	1	1	Bay of Fundy Tidal Energy Strategic Environmental Assessment 2008
7. Canadian International Development Agency	2	10	SEA of a \$70 million NGO program in Asia and Africa, 2012 (unspecified due to confidentiality reasons) SEA of Partnerships with Canadians Branch, International Development Assistance Program, 2012.
8. Environment and Natural Resources, GNWT	1	1	Beaufort Regional Environmental Assessment (ongoing)
9. Fisheries and Oceans Canada	1	1	SEA like process; Water Management Framework for the Athabasca River 2007
10. Canada-Newfoundland and Labrador Offshore Petroleum Board (C-NLOPB)	1	1	Southern Newfoundland. Strategic Environmental Assessment, 2010
11. Alberta Environment and Sustainable Resource Development	1	1	Alberta Land Use Framework 2008
12. Nova Scotia Department of Energy	1	1	SEA of Nova Scotia's Bay of Fundy Marine Renewable Energy Strategy, 2007/2008
13. Saskatchewan Ministry of Environment	1	1	Great Sand Hill Regional Environmental Study, 2007-2009
14. Transport Canada	1	3	Unspecified
Total	21	33	
Impact assessment practitioners			
1. Stratos Inc. strategies to sustainability	3	10	Mvanna. Mineral Resource Development Blueprint for Nunavut Review of funding models for SEAs in Canada South Athabasca In situ Oil Sands Strategic Regional Assessment. Federal preliminary screenings for trade and international development programs.

2. Environmental & Management Consulting	2	2	Unspecified
3. AECOM Canada Limited	1	1	Strategic Environmental Assessment (SEA) to facilitate the potential development of tidal energy projects within the Bay of Fundy (2008)
4. CEF Consultants Ltd.	1	1	Misaine Bank SEA, 2005 (Canada-Nova Scotia Offshore Petroleum
5. Environmental Division, CBCL Limited	1	1	Strategic environmental assessment for Rustico Bay, PEI, for DFO and Parks Canada -2009
6. Private consultant (self-employed)	1	5	Nile Joint Multi-Purpose Project - 2011
7. Ventus Development Services Inc.	1	2	South Saskatchewan Regional Plan, ongoing.
8. Aura Environmental Research	1	3	Great Sand Hills Regional Environmental Study, 2007-2009 (not most recent, but reported as most relevant)
9. Academic (private consultant)	1	4	Strategic Environmental Assessment on Shale Gas 2011
Total	12	29	

3.3 Data analysis

Results of the first part of the survey, government and practitioner evaluation of recent SEA practices based on the criteria, were analyzed quantitatively using Exploratory Data Analysis (EDA) in the Statistical Package for Social Sciences (SPSS) software. Exploratory data analysis is a set of statistical techniques designed to enhance pattern recognition in data sets and to uncover data structure (Beherens, 1997). There are no restrictions on data distribution or sampling approach for EDA, and allows for the identification and inclusion of data outliers. It enables a researcher to scan complex data efficiently and to understand data structure and find hidden patterns (Politser, 1991). According to Kelder et al. (2010), EDA and associated visualization tools lead to simpler descriptions of fundamental concepts and can reveal unexpected but interesting aspects of the data. This method was chosen among others because unlike conventional statistical methods which begin with testing to either prove or disprove a hypothesis, EDA may rather be used to come up with hypothesis. Similarly, this research did not begin with a specific hypothesis and so EDA was more suitable. Again, responses were so similar that statistical patterns in data may have been difficult to unveil with other methods such as Frequency Tables. The aim was to identify data patterns and make comparisons as to which direct and indirect criteria were met or not met and the reasons. This enabled conclusions to be made on SEA's outputs and outcomes to PPP with a fair degree of precision. Simple box-plots (box-and-whiskers) thus stand out among EDA tools because of their ability to capture outliers in the distribution, which is useful for comparing distributions, and also because they allow for a visual inspection of the distribution of data and comparison of data sets (McGill et al., 1978).

The medians and 95% confidence intervals were calculated for participant responses to each criterion. The 95% confidence interval for the median is a distribution free statistic derived based on the median $\pm (1.58 * H\text{-spread}/\sqrt{n})$, where the H-spread is the difference between Tukey's upper and lower hinges in the data set or approximately the 75th and 25th percentiles (see Tukey, 1977). The median and confidence interval provide an indication of both the 'typical' response and the amount of deviation (or consensus) about that response. For example, on a response scale from 1 (strongly disagree) to 9 (strongly agree), a median response of 7 would indicate agreement with the criterion being assessed, and a narrow confidence interval about the median

would indicate strong consensus. To test for significant differences in responses between government and practitioner participants, a nonparametric test, Mann-Whitney U test, was used to compare the medians. It makes inferences about the population medians (see Kasuya, 2001). A non-parametric statistical approach was adopted because it helps solve underlying assumption of normality in parametric tests (Choudhury, 2009). Apart from that, the two samples (criteria) do not need to have same number of observations. The statistical difference is important because sample size can affect results and may lead to wrong conclusions it is therefore necessary to analyse specific responses from the two participant groups critically.

Open-ended questions captured broad lessons, learning opportunities and outcomes from SEA. Open-ended questions allow participants to answer from their own frame of reference rather than being confined by the structure of the pre-arranged criteria in the first part of the survey (see Bogdan and Bilken, 1982). With open-ended questions, participants have some degree of flexibility to express their thoughts more freely (Bogdan and Bilken, 1982), and such an approach is useful when exploring complex issues that do not have a finite or predetermined set of responses (Carey et al., 1996). The open-ended question were examined qualitatively, based on participants comments regarding: primary benefits of SEA; primary challenges/limitations of SEA; and what they reported as the most important learning outcomes of SEA application. Specifically, the qualitative responses were analysed thematically, data was examined thoroughly from each participant and grouped together by regular themes and participant groups.

3.4 Limitations

However, there were certain limitations associated with the research methods. First, the research relied on a small sample size of 33 participants. Also, participants were limited to only regulators and so views from industry were missing. Finally, snowball sampling adopted by research does not allow for statistical extrapolation because the total population of SEA practitioners in Canada is not known, results therefore only represent the views of few participants.

CHAPTER FOUR

RESULTS

This chapter presents the results of the expert-based evaluation of SEA outputs and outcomes. The results are presented in three major sections. First, participant responses concerning the ‘direct impacts’ of SEA are presented; second, participant responses concerning the ‘indirect results of SEA are presented. The third section presents what participants identified as broader lessons or learning opportunities and outcomes from SEA.

4.1 Direct impacts of SEA

Participants evaluated the direct impacts of SEA based on 12 criteria (Table 4.1). There were no significant differences in responses between government and practitioner participants ($p \geq 0.05$; for all U test statistics). Overall, based on their recent experience(s) with SEA application, participants agreed with the statement that SEA helped identify the potential impacts, both positive and negative, of the PPP at hand (criterion 1); identified strategies for avoidance or reduction of potentially adverse impacts, or strategies for enhancement of positive impacts (criterion 2); ensured compliance of the PPP with the agency’s / organization’s mandate, regulations or higher-level policy commitments (criterion 6); and did not cause undue delay, without good reason, to decisions or PPP processes (criterion 11) (see also Figure 4.1). One practitioner, for example, reported on SEA for offshore oil and gas in Atlantic Canada, noting that SEA “facilitated project-specific approval processes.”

There was also relative consensus amongst participants on the effectiveness of SEA based on these criteria, as depicted by the percentage distribution of responses and the narrow confidence interval about the median for responses to criteria 1, 2, 6 and 11. However, there were some individuals who differed from the majority response. For example, four individuals (12.1%), including two practitioners and two individuals from government, disagreed with criterion 2, that the SEA was effective in helping identify strategies for avoidance or reduction of potentially adverse impacts, or strategies for enhancement of positive impacts. Also, on criterion 11, six

individuals (18.2%), four from government and two practitioners disagreed with criterion 11, that the SEA did not cause undue delay, without good reason, to the decision or PPP process. One practitioner, for example, reported that the SEA was “a process add-on with few visible benefits.”

Table 4.1 Direct impacts of SEA on PPPs¹

Evaluation criteria	Somewhat to strongly disagree ² (1-3)	Neutral (4-6)	Somewhat to strongly agree (7-9)	Median response (95% CI) ³
	n (%)	n (%)	n (%)	
1 Identified the potential impacts (positive or negative) of the PPP.	3 (9.1%)	3 (9.1%)	27 (81.8%)	7.00 (+/- 0.28)
2 Identified strategies for avoidance or reduction of potentially adverse impacts, or strategies for enhancement of positive impacts.	4 (12.1%)	6 (18.2%)	23 (69.7%)	7.00 (+/- 0.55)
3 Was either integrated with the development of, or provided assessment results/ information early enough to inform the development of the PPP.	11 (33.4%)	11 (33.3%)	11 (33.3%)	6.00 (+/- 1.10)
4 Incorporate sustainability considerations (e.g., relationships between human-ecological systems; intra- and inter-generational equity; precaution and adaptation) into the PPP development or PPP approval/decision-making process.	7 (21.9%)	16 (50%)	9 (28.1%)	5.00 (+/-0.83)
5 Ensures that stakeholder interests, including public and Aboriginal interests (if applicable), were represented in the final PPP.	11 (34.4%)	9(28.1%)	12 (37.5%)	5.00 (+/- 1.38)
6 Ensure compliance of the PPP with the agency’s/ organization’s mandate, regulations or higher-level policy commitments.	4 (12.1%)	12 (36.4%)	17 (51.5%)	7.00 (+/- 0.83)
7 Gave sufficient consideration to viable alternatives, if applicable, to the proposed or existing PPP.	9 (27.3%)	15 (45.4%)	11 (27.3%)	5.00 (+/- 1.10)
8 Resulted in modifications and improvements to the PPP.	7 (21.3%)	15 (45.4%)	11 (33.3%)	5.00 (+/- 0.83)
9 Provided clear direction or standards to facilitate implementation of the PPP, including guidance for post-implementation monitoring or evaluation.	8 (24.3%)	14 (42.4%)	11 (33.3%)	6.00 (+/- 0.83)
10 Ensure greater transparency and accountability in the development/ implementation of the PPP.	8 (24.3%)	18 (54.4%)	7 (21.3%)	5.00 (+/- 0.55)
11 Did not cause undue delay, without good reason, to decisions or PPP processes.	6 (18.2%)	7 (21.2%)	20 (60.6%)	7.00 (+/- 0.55)
12 Contributed to improved efficiency (timeliness) in the PPP’s development and/or implementation process.	8 (24.3%)	19 (57.6%)	6 (18.1%)	5.00 (+/- 0.28)

¹n = 33 participants, but response rates varied by questions as shown by the participant numbers on the basis of each criterion

²Questions were asked on a 9- point scale from 1 (strongly disagree) to 9 (strongly agree). Analyses were completed based on results generated from the full range of responses. For ease of presentation, results are condensed in the Table to three categories: 1-3 (somewhat to strongly disagree); 4-6 (neutral or indifferent); 7-9 (agree to strongly agree).

³The 95% confidence interval for the median is a distribution free statistic derived based on median+/- (1.58*H-spread/√n), where the H-spread is the difference between Tukey’s upper and lower hinges in the data set.

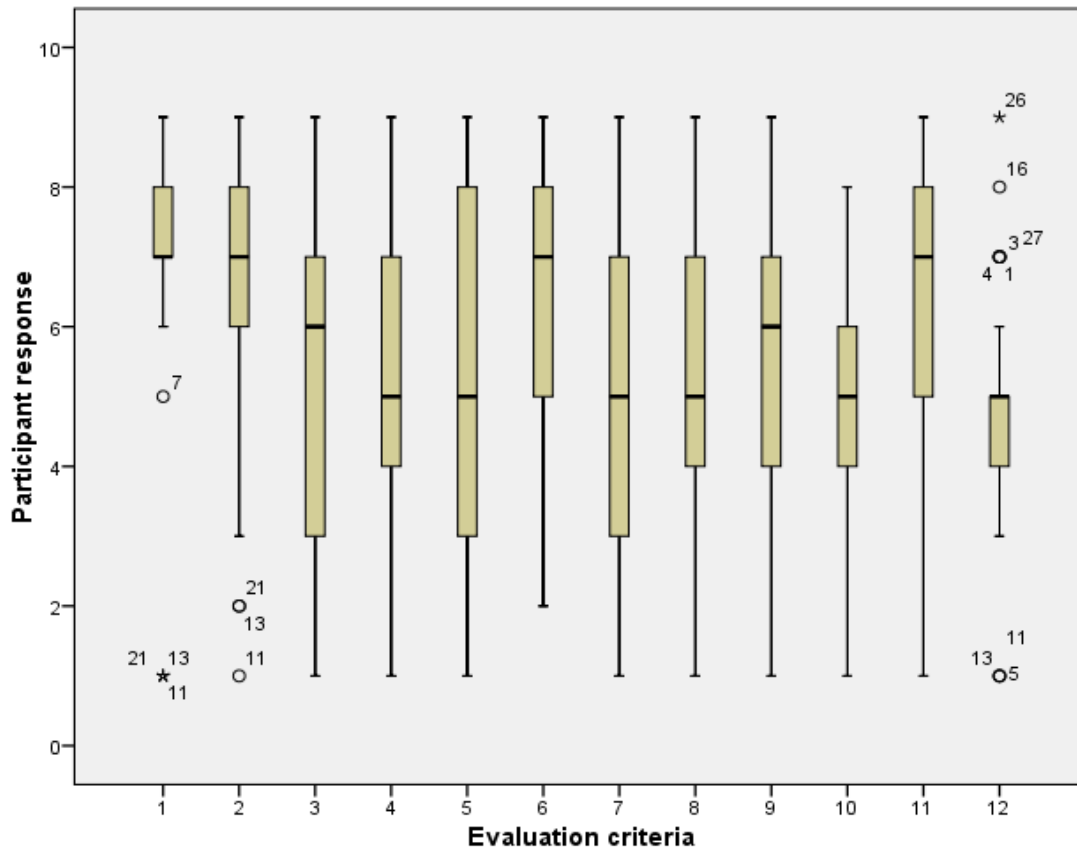


Fig 4.1 Box plots showing the median and distribution of participant’s responses on the direct impacts of SEA

Note: A box plot displays five batches of data, the extremes, the upper and lower hinges or quartiles and the median. The shaded area of the box plot represents the H-spread or inter-quartile range, containing 50% of the data; the horizontal bar represents the median and its position in the box indicates skewness. The horizontal bar inside the shaded area indicates the median response (also second quartile). The upper and lower ends (hinges) of the box are the 75th and 25th percentiles, respectively, and the end of the vertical lines (whisker) are the upper and lower extremes. Any value that lies beyond the extreme values is an outlier (McGill et al. 1978).

Participants were much more neutral on their evaluations of whether SEA helped: incorporate sustainability considerations into the PPP development or PPP approval/decision-making process (criterion 4); resulted in modifications and improvements to the PPP (criterion 8); provided clear direction or standards to facilitate implementation of the PPP, including guidance for post-implementation monitoring or evaluation (criterion 9); ensured greater transparency and accountability in the development/ implementation of the PPP (criterion 10); and contributed to

improved efficiency in the PPP's development and/or implementation process (criterion 12) (see Table 4.1, Figure 4.1). Concerning transparency and accountability (criterion 10), for example, one government participant noted that it is difficult to tie such matters to the SEA process since transparency and accountability have more to do with the policies and practices of the agency than SEA. The participant explained: "ensuring greater transparency wasn't necessary through SEA because the PPP was already transparent and accountable." Overall, there was also little deviation in reported experience with SEA based on criteria 4, 8, 9 to 10 and 12, as illustrated by the narrower confidence interval about the median.

Participants indicated relatively diverse experiences based on whether the SEA was integrated with the development of, or provided assessment results/ information early enough to inform the development of the PPP (criterion 3); ensured that stakeholder interests were represented in the final PPP (criterion 5); and gave sufficient consideration to viable alternatives to the proposed or existing PPP (criterion 7) (see Table 4.1, Figure 4.1). For example, on criterion 3, approximately 33% of participants reported that SEA was integrated with the development of, or provided assessment results and information early enough to inform the development of the PPP, and approximately 33% disagreed with this statement. For example, a practitioner noted: "often SEA input is very limited because it is not sufficiently integrated upstream in the decision process." Similarly, 27.3% of participants agreed with the statement that the SEA gave sufficient consideration to viable alternatives to the proposed or existing PPP (criterion 7); but 27.3% disagreed, and 45% were neutral in their responses. One participant reported that "the SEA provided a clear analysis of trade-offs under each alternative, including the environmental cost of an economic driven option and the economic cost of an environmental driven option." Results show considerable variation based on criteria 3, 5 and 7.

4.2 Indirect impacts

In the second part of the survey, participants evaluated the indirect impacts of SEA based on 8 criteria (Table 4.2). There were no significant differences in responses between government and practitioner participants, with the exception of criterion 2 ($p = 0.036$; $U = 73.5$). Government participants agreed that SEA application helped realize broader organizational or institutional

goals and objectives within the agency, beyond the scope of the PPP itself (median response = 7 +/- 0.83). Practitioners, on the other hand, tended to disagree with this statement (median response = 3 +/- 0.31).

Table 4.2. Indirect impacts of SEA for PPPs¹

Evaluation criteria	Somewhat to strongly disagree ² (1-3)	Neutral (4-6)	Somewhat to strongly agree (7-9)	Median response (95% CI) ³
	n (%)	n (%)	n (%)	
1 Provided easily accessible information (e.g. baseline data, thresholds, etc) for use in subsequent PPP processes, monitoring programs or project based impact assessment.	8 (27.5%)	12(41.3%)	9 (31.0%)	5.00 (+/- 0.83)
2 Helped realize broader organizational or institutional goals and objectives within the agency, beyond the scope of the PPP itself.	9 (29.0%)	9 (29.0%)	13(42%)	6.00 (+/- 1.10)
3 Improved actual environmental or socioeconomic conditions or raised environmental or socioeconomic standards.	5(17.2%)	15 (52%)	9(31.0%)	5.00 (+/- 0.55)
4 Identified or stimulated new research directions or needs (e.g., policy or program gaps) within your agency or organization.	3(10%)	13(43.3%)	14(47%)	7.00 (+/-0.83)
5 Changed or influenced institutional norms or management practices within your agency or organization	9(30%)	17 (56.7%)	4 (13.3%)	5.00 (+/- 0.83)
6 Improved overall awareness within your agency or organization of your agency's or organization's actions, policies, plans or programs	5 (16.7%)	16(53.3%)	9(30%)	6.00 (+/- 0.55)
7 Improved public awareness of your agency or organization as a result of SEA application (e.g., transparency, and accountability)	9 (30%)	15 (50%)	6 (20%)	5.00 (+/- 1.10)
8 Led to improved efficiencies on 'next level' assessments or decisions (e.g. time or cost savings on subsequent plans or project assessments).	5(17.2%)	17 (58.7%)	7(24.1%)	5.00 (+/- 0.55)

¹n = 33 participants, but response rates varied by questions as shown by the participant numbers on the basis of each criterion

²Questions were asked on a 9- point scale from 1 (strongly disagree) to 9 (strongly agree). Analyses were completed based on results generated from the full range of responses. For ease of presentation, results are condensed in the Table to three categories: 1-3 (somewhat to strongly disagree); 4-6 (neutral or indifferent); 7-9 (agree to strongly agree).

³The 95% confidence interval for the median is a distribution free statistic derived based on median+/- $(1.58 * H\text{-spread} / \sqrt{n})$, where the H-spread is the difference between Tukey's upper and lower hinges in the data set.

Overall, participants agreed with only one indirect criterion, that SEA helped identify or stimulate new research directions or needs (e.g. policy or program gaps) within the agency or organization (criterion 4) (see Table 4.2, Figure. 4.2). One government participant, for example, reported on the 2008 SEA for the Labrador Shelf, noting that SEA identified data gaps in knowledge and resulted in new information gathering on marine birds and mammals. There was relative consensus amongst participants on the effectiveness of SEA based on this criterion, as depicted by the percentage distribution of responses and the relatively narrow confidence interval about the median. One government respondent was neutral based on criterion 4, and noted that new research directions may emerge from management planning within an organization for any assessment and planning process, and not necessarily because of SEA. There were some participants (9.1%), including a government participant and two practitioners, who disagreed with the statement that the SEA was effective in helping identify or stimulate new research directions or needs within their agency or organization (criterion 4). The government participant, for example explained that aside from some minor research spin-offs, the agency did not have a mandate for research; thus, there was no real opportunity for SEA to stimulate new research directions within the organization itself.

Responses were relatively neutral based on participant's evaluations of whether SEA: provided easily accessible information (e.g. baseline data, thresholds, etc.) for use in subsequent PPP processes, monitoring programs or project based impact assessment (criterion 1); improved actual environmental or socioeconomic conditions or raised environmental or socioeconomic standards (criterion 3); changed or influenced institutional norms or management practices within your agency or organization (criterion 5); improved overall awareness within the agency or organization of actions, policies, plans or programs (criterion 6); and led to improved efficiencies on 'next level' assessments or decisions (e.g. time or cost savings on subsequent plans or project assessments) (criterion 8) (see Table 4.2, Figure 4.2). There was also relatively little deviation about the median responses for these criteria, as illustrated by the narrow confidence interval about the median, when compared to other criteria.

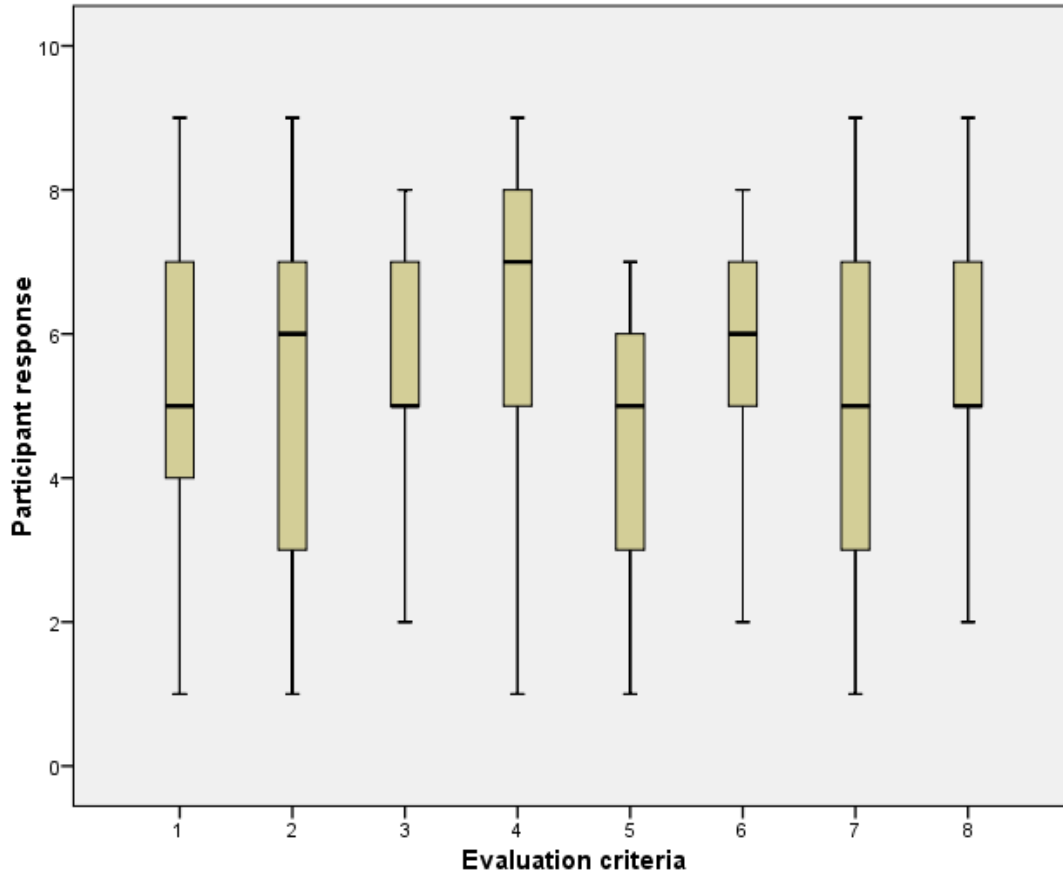


Fig 4.2 Box Plots showing the median and distribution of participants responses on the indirect impacts of SEA

Note: A box plot displays five batches of data, the extremes, the upper and lower hinges or quartiles and the median. The shaded area of the box plot represents the H-spread or inter-quartile range, containing 50% of the data; the horizontal bar represents the median and its position in the box indicates skewness. The horizontal bar inside the shaded area indicates the median response (also second quartile). The upper and lower ends (hinges) of the box are the 75th and 25th percentiles, respectively, and the end of the vertical lines (whisker) are the upper and lower extremes. Any value that lies beyond the extreme values is an outlier (McGill et al. 1978).

On criterion 1, for example 41.3 % of participants were neutral in their response; but 27.5% agreed with the statement, and 24.3% disagreed. One government participant, who disagreed with criterion 1, commented that it was too early to assess whether the information generated by the SEA was accessible to other users, as “it will be 2 years before the complete understanding of benefits will be known.” Another practitioner reported that, in theory, “SEAs are useful for baseline and in some cases environmental monitoring data collection,” but “the results are

seldom readily available or accessible in a useful and analyzed form” when needed. Credibility of data provided by SEA was said to be a major factor hampering SEA’s contribution in this regard. A government participant explained that some federal agencies and departments already have a well-functioning system in place for gathering and distributing information. The participant reported that “most data/information is already easily available so there isn't an opportunity for SEA to contribute significantly to the organization of it...it can provide thresholds for future project assessment, but currently this happens in some SEAs and not all.” The credit, therefore, cannot be attributed to SEA.

However, a second government participant noted that it was important to give some consideration as to what developments preceded the SEA, explaining that: “In the case of the recently-completed SEA, there has been virtually no activity in the SEA area since its completion, so actual use so far has been low to non-existent. It remains as a reference for baseline info for use in future project-specific EAs and/or a high-level overview of potential effects of, and mitigations for, typical offshore petroleum related activities.” A practitioner participant neither agreed nor disagreed with criterion 1, explaining that in his experience the SEA was conducted late after the programs had been designed. In his view, the SEAs were “shoe-horned” to meet formality rather than to provide easily accessible information. The participant went on to explain:

“The SEAs were done after the programs had been designed and the program documents were being finalized. That is, the SEAs were shoe-horned in after the fact in the design process.I did 9 SEAs and all the government officials did...not commit to anything in the SEA...all but one of the SEAs that I did was very welcomed by the government officials responsible for the programs. That is, they were eager to have my SEA as they were committed to doing a good program - and the SEA would assist them form.”

Concerning criterion 3, improvement in environmental and socioeconomic conditions, a government participant noted that it was difficult to tie such matters to SEA. The participant explained that such “improvement is not usually the goal of SEA due to the nature of the setting; the goal is usually to prevent impacts.” A consultant commented concerning changes to or the

influence of institutional norms or management practices within an agency or organization as the result of SEA (criterion 5), noting that the success of SEA to a greater extent is dependent on the internal structure and mechanisms of the department or agency involved. He went on to explain that “the SEA culture is stronger in some federal organizations as opposed to others” and that “in the federal context, SEA is self-directed; therefore it's up to each department and agency to establish the proper institutional structure to deliver SEA within their respective organizations.” A government participant asserted that SEA’s contribution in this regard remains to be seen. He explained that a change in institutional norms to a greater extent is “subjected to social and political pressure and I think that is where the problem lies.” Approximately 30% of participants somewhat to strongly disagreed that SEA changed or influenced institutional norms, noting that a change in government may prevent SEA from achieving this objective. The participant referred to a case where a change in government, just following SEA completion, largely prevented implementation and “it was clear that the institutional norms and practices from one government certainly would not carry forward to the next.” Concerning whether SEA improved overall awareness within an agency or organization of the organization’s actions, policies, plans or programs (criterion 6), a government participant noted that in terms of focus SEA is narrow within his agency, and its impacts therefore limited in terms of creating general awareness or new policies. He reported: “SEA isn't widely distributed and wouldn't likely raise new policies etc. that people weren't already aware of.”

Responses were similar on criterion 8, with 58.7% of the respondents neutral as to whether SEA led to improved efficiencies at the next level of PPP or project decision-making. For example, a practitioner explained that it was simply too early to tell if SEA results have informed next level decision or assessment. But, the participant went on to explain that, in principle, SEA can lead to improved efficiency, noting that “for programs that are proposed to be renewed, if an SEA was completed previously and done well, there is no need to complete a new SEA, therefore efficiencies are gained in-terms of the proposal approval process and its potential for identifying potential adverse environmental effects.” A government participant stated that, in principle, this was one of the aims of the SEA they conducted; however, implementation was a problem. The participant explained that influencing the next level of planning and decision making was “part one objective - a better planning and decision making process; best management practices were

identified...such that these issues would not have to be addressed in subsequent project assessments, but... the plan was never fully implemented.” Another government participant reported that the SEA he was most recently involved with was intended to largely improve subsequent planning and development activities by “providing baseline information and determining best mitigation practices to assist in expected assessments for multiple projects.”

Some participants (17.2%), however, did disagree with criterion 8. For example, one government participant explained that the degree of actual influence of SEA on improving efficiencies on next level assessments or decisions was “spotty.” He commented: “the degree of actual success has been spotty to date because there seems to be resistance, for some project-specific EA participants, to having anything other than a large “stand-alone” EA document - even though the SEAs typically involve numerous entities in their development and review, and are readily available on the Web.” A practitioner noted that part of the problem was the initial perception that “...the SEAs were generally used to avoid doing anymore studies at a project level - rather than improve the next level of efficiencies.”

Participant responses were quite diverse on whether the SEA helped realize broader organizational or institutional goals and objectives within the agency, beyond the scope of the PPP itself (criterion 2); and improved public awareness of the agency or organization as a result of SEA application (e.g., transparency, and accountability) (criterion 7) (see Table 4.2, Figure 4.2). For example, on criterion 7, 20% of participants reported that SEA improved public awareness of their agency or organization. A government participant commented that “public consultation and engagement with the government was positive and a learning experience for the [department]. The early engagement has fostered healthy stakeholder relationships.” A practitioner stated:

“There was definitely a greater awareness of the ministry... and of the academic institutions leading the independent assessment. That the assessment was conducted independent from government certainly added to transparency and accountability in the process, and in how the SEA results were derived. There was a lot of community and First Nations engagement as a result of the SEA process. In my view it definitely built some bridges that go beyond the SEA itself. ”

However, 30% disagreed with criterion 7. One government participant noted that it was difficult to assess criterion 7 because “there is no indication that the publication of Public Statements, as mandated by the Cabinet Directive on SEA, is actually read by the public.” A second government participant commented that it was difficult to attribute accountability and transparency to SEA, explaining that “the management planning process improved public awareness, not the SEA process.”

Similarly, 29% of participants disagreed with criterion 2 – whether the SEA helped realize broader organizational or institutional goals and objectives within the agency, beyond the scope of the PPP itself. A government participant stated that some PPPs already incorporated these goals and objectives; SEA’s contribution was therefore limited. As he commented, “usually the broader goals are already set and SEA processes work around it. However, 42% agreed with criterion 2. One government participant reported that the SEA helped in the “allocation of funding to projects with the likely greatest benefit and incorporated community interests in PPPs.” A practitioner commented that “the role of SEA is to follow the agency’s mandates in relation to specific types of projects or other PPP, unless it is an SEA carried out on the agency itself.”

4.3 Synthesis of qualitative responses

In the final part of the survey, participants were asked three broad questions. The questions focused on: i) the overall benefits or value added of SEA; ii) limitations or challenges to SEA; and iii) learning outcomes.

4.3.1 Reported SEA benefits or value added

Participants identified several benefits that emerged as a result of SEA being applied to PPPs (Table 4.3). Only practitioners reported that SEA assisted with subsequent PPP and project assessments. For example, one practitioner explained that SEA served as a broader level of

impact assessment to provide general environmental data on PPPs to assist assessments, and that SEA was "...a first step in decision making to be followed by more detailed project specific EAs." Similarly, a second practitioner explained that SEA helped address broader policy issues at a higher level to facilitate subsequent PPP approval processes. The participant went on to report that SEA facilitated "...subsequent regulatory review, approval, and decision-making processes by addressing higher-level policy issues in a broader context than is possible or appropriate for specific development proposals."

Table 4.3. Participant’s comments on the realized benefits or value added of SEA application

Benefits or value added ¹	Participant comments ²
Facilitated public and stakeholder engagement	<ul style="list-style-type: none"> ▪ helped identify community concerns and stakeholder’s priority interests (G) ▪ helped focus discussion about the nature and scope of the plan (G) ▪ helped in bringing government agencies and local interests together early in the planning process, thus facilitating early public engagement and transparency in planning (G) ▪ addressed Aboriginal people's perspectives better than a project specific EA (P)
Improved knowledge of potential PPP issues and impacts	<ul style="list-style-type: none"> ▪ increased awareness and understanding of current and future issues of participants and recipients of the SEA (G) ▪ increased knowledge of existing policies and how they can be more aligned for greater efficiency and to reflect social, environmental, and economic trends (G) ▪ helped in the identification of positive environmental opportunities (G) ▪ identified potential implications of decisions and recommendation of mitigation options prior to completion, approval and implementation of the plan/ policy (G) ▪ helped develop baseline data and identified knowledge gaps (P)
Assisted subsequent PPP and project assessment	<ul style="list-style-type: none"> ▪ provided a first step in decision making to be followed by more detailed EAs (P) ▪ facilitated subsequent regulatory review, approval, and decision-making processes by addressing higher-level policy issues in a broader context than is possible or appropriate for specific development proposals (P)
Helped broaden policy and planning approach	<ul style="list-style-type: none"> ▪ helped shift focus of environmental assessment / regulation from being exclusive to the project-specific stage of activity to an earlier point in the planning process (G) ▪ provide a valuable insight to the merits of a policy, plan or program before significant time and expenditures were made on specific proposals related to it (P)

¹Derived based on qualitative survey responses (n = 33) received on the question: “Based on your experience, what would you identify as the primary benefits (value added) that you have realized from completing, or being involved in, an SEA or SEA-like processes?”

²G = government participant; P = practitioner participant

Both practitioners and government participants reported that SEA facilitated public and stakeholder engagement. A government participant, involved in the Beaufort Sea regional environmental assessment (BREA) (see <http://www.beaufortrea.ca/>), explained that the BREA process, although not a formal SEA, facilitated focused discussion on community and stakeholder priority interests - in this case emergency preparedness, specifically concerning oil

spills, for offshore energy exploration in the Beaufort Sea. A second government participant noted that SEA, unlike project level environmental assessment, more effectively addressed the interest of stakeholders. Specifically, in the case of the Western Newfoundland and Labrador Offshore Area Strategic Environmental Assessment (C-NLOPB, 2013), the SEA process was reported to have helped in bringing government agencies and local fishing interests, including First Nations, together to discuss common interests and concerns about offshore development and marine sensitive areas early in the planning process. In this regard, SEA was said to have led to an improvement in public engagement in policy and planning and greater transparency.

4.3.2 Limitations or challenges to SEA

Participants identified several challenges to the current practice of SEA (Table 4.4). Though both groups of participants encountered similar challenges, some were specific to either practitioners or government participants. For example, only government participants reported on the lack of baseline data and the difficulty in harmonizing multi-jurisdictional authorities in SEA. For example, in the context of the Bay of Fundy tidal energy SEA (Nova Scotia Department of Energy, 2008) a government participant explained that "...gathering baseline data and sharing information for a purpose other than what it was intended for" was a major challenge. Specifically, "if research was completed on fish migration for breeding ground identification, it was difficult to get the information and have it be useful for the SEA on tidal energy." In a similar context, a second government participant explained that for meaningful environmental thresholds to be identified to support decisions there must be sufficient and meaningful data. Currently, however, there was a "...lack of data so that the most meaningful SEAs can rely on multi-year information gathering etc. so that thresholds are meaningful." The third challenge to SEA raised only by government participants was the difficulty in harmonizing provincial authorities to manage natural resources that cross boundaries, particularly when dealing with offshore hydrocarbon resources, watersheds, or other broad trans-boundary resources issues. The participant reported: "By nature, federation does pose challenges to the management of our natural resources. Multi-jurisdictions with varying authorities present challenges to all types of environmental assessment, including SEA."

Table 4.4. Participant’s comments on the realized challenges and limitations to SEA application

Challenges to SEA ¹	Participants’ comment ²
Time and resource constraints	<ul style="list-style-type: none"> ▪ consultation process delayed PPP formulation and implementation, especially when there were many actors involved (G) ▪ the agency rarely undertakes SEAs because ensuring SEAs are incorporated in a timely manner is a challenge (G) ▪ there is not often enough time to do SEAs as comprehensively as would be ideal (G) ▪ no experts to conduct the SEAs within some agencies (G) ▪ no time and resources to long-term SEA commitments (G) ▪ budget limitations limit the scope of effort possible for SEAs (P)
Limited baseline data	<ul style="list-style-type: none"> ▪ useful baseline data to support SEA was a problem (G) ▪ there is a lack of a multi-year data to make thresholds meaningful in SEA (G)
Lack of clear and common vision	<ul style="list-style-type: none"> ▪ no shared vision among departments or agencies which hampered the implementation of SEA recommendation (P)
Lack of knowledge about SEA’s purpose, process, methodology and reporting	<ul style="list-style-type: none"> ▪ difficulty in arriving at a consensus on what the term SEA meant (G) ▪ SEA is not common in Canada and so its acceptability and application varies (P) ▪ balancing the final report for different audiences is complex; keeping a balance of volume, explanation, tabular compliance, necessary data review were all problems (P) ▪ there was a poor understanding of the distinction between SEA and EIA partly because SEAs are carried out by EIA practitioners (G) ▪ a lack of understanding of the benefits of SEA vis a vis project specific assessments made most prefer EIA (P)
Lack of commitment and political will to either conduct SEA or implement results	<ul style="list-style-type: none"> ▪ some agencies lacked the political will to adopt SEA legislation or practice (P) ▪ no legislative means to ensure that the results of the SEA are used to inform specific actions or decisions on the landscape (P) ▪ lack of commitment to undertake SEA in concert with PPP process, usually the SEA is undertaken after PPP decisions have been taken (G) ▪ organizations without strong leadership for SEA do not take the process seriously and SEAs are completed after a PPP is already developed (P) ▪ there was unwillingness also to act on the SEA recommendations (G) ▪ SEAs are done to meet requirements, not to integrate environment into the decision-making process (P) ▪ limited influence on decision-makers to conduct SEA (G) ▪ institutional framework is not adapted to SEA and often SEA is under the authority of the Minister of Environment which is the less powerful among ministries (P) ▪ the Cabinet Directive focuses on compliance more than on decision aiding (P) ▪ there is no institutional framework in the Cabinet Directive to enforce implementation of SEA results (G) ▪ The Cabinet Directive lacks the appropriate oversight and accountability (P)
Multi-jurisdictional cooperation	<ul style="list-style-type: none"> ▪ SEA decisions on the management of multi-jurisdictions resources with varying authorities was a major challenge (G)

¹ Derived based on qualitative survey responses (n = 33) received on the question: Based on your experience, what would you consider as the primary limitations of or challenges to SEA or SEA-like processes within your agency or organization?

² G = government participant; P = practitioner participant

Only practitioners reported on the challenges of a lack of clear and common vision for SEAs. For example, one practitioner explained that if SEA is to influence decisions then the specific government department or agency conducting the SEA must share a similar vision with other departments and agencies who are either involved in the SEA or in the PPP implementation. As he commented: “One thing I learned was the need for a shared vision at the outset. If there is not a shared vision then the SEA process may unfold good enough, but implementation will be challenging.”

Both groups of participants reported the lack of sufficient time and resources dedicated to effectively conduct SEA, and to realize its benefits, as a challenge to its efficacy. For example, a government participant reported: “It will take some time before the clear benefits of SEA are realized in some agencies. Speedy demands exerted by federal government for agencies to meet SEA objectives outlined in the Cabinet Directive and in the Federal Sustainable Development Strategy may need to consider time.” Similarly, a second government participant explained that resources needed to maintain long-term commitments to SEA outputs simply were not available. One consultant also explained there were no sufficient funds allocated to agencies to successfully conduct SEAs, and that recent federal budget cuts amongst environmental departments and agencies will be a threat to the future of SEA and to other forms of impact assessment. The participant noted: “...there is uncertainty whether budget limitations eventually will translate to a limit on the scope and/or level of effort possible for future SEAs.”

4.3.3 Most important learning outcomes

Participants identified several learning outcomes based on their experience with SEA, most of which were focused on lessons to improve SEA practice and influence in the future. First, participants noted that SEA should not be a stand-alone process; it requires integration with other forms of impact assessment. Specifically, participants reported on the need for an integration of SEA with other forms of impact assessment, particularly cumulative effects assessment. For example, a government participant explained that instead of assessing individual impacts, which involves a lot of time and resources, the integration of SEA and cumulative effects assessment enables the analysis of all effects on an area from one or more activities as they accumulate over

time and space. The participant, drawing on his recent experiences with SEA and cumulative effects integration, reported: "...we have tried to develop a more common sense approach to this matter than currently exposed in the literature. The intent is to build on some past efforts in the region to identify key VCs/VSCs [valued ecosystem components] applicable for assessment and to apply thresholds previously reviewed by communities and industry. If it works, it could greatly simplify the project by project."

Second, SEA was said to require legislative support, backed by institutional reform. Several participants commented that strong legislation for SEA was needed, backed by institutional reforms, if SEA is to effectively act as a tool for sustainability. A government participant explained, "without really clear and powerful legislative support...it is difficult to act on the outcomes of an SEA." One participant mentioned his experience with SEA at the provincial level, namely the Great Sand Hills (GSH) assessment (see GSH SAC, 2007, Noble, 2009), noting that since so few SEAs had been completed in the province "...there was significant push back on recommendations," specifically those that bridged multiple government agencies. The participant went on to explain that multiple government agencies were needed "to come on board to fully implement recommendations made in relation to the GSH" and that "some recommendations (e.g. taxation issues) would be beyond control of even those agencies and were used to de-rail the items that could have been acted on."

Third, and closely related to the above, was the importance of a shared vision among departments and agencies involved in SEA and implementation of its recommendations and PPPs. For instance, a practitioner explained that if SEA is to influence decisions then the department or agency conducting the SEA must share a similar vision with other departments of agencies who need to be involved in PPP implementation. He commented: "One thing I learned was the need for a shared vision at the outset. If there is not a shared vision then the SEA process may unfold good enough, but implementation will be challenging."

Fourth, participants reported that the added value of SEA was reduced when not integrated early into the PPP planning stage. For example a government participant commented concerning the timing of SEA, noting that, "SEA needs to begin early in the planning and policy development

process [and] SEA practitioners should be a member of the team.” A second government participant explained that, based on his experience, most SEAs are conducted too late to have an influence. He commented “SEAs are usually undertaken too late in the approval process to have a real impact on decision making in the end.”

Finally, it was reported that SEA’s outcomes need sufficient time to manifest. Some participants noted that it takes some time before most SEA outcomes will be achieved. Others added that not only is SEA a relatively new concept in Canada, but some agencies are only now conducting it for the first time. A government participant explained that speedy demands exerted by the federal government for agencies to meet SEA objectives outlined in the Cabinet Directive and in the Federal Sustainable Development Strategy need to give greater consideration to the time often required to see the actual results or influence of an SEA process on a PPP. Referring to the BREAs in Canada’s western Arctic, one participant commented that it was “a work in progress” and the first reports “are only now being released but the majority will not come for a year to two years...it is likely 3 to 5 years could be required for important SEAs ... not likely a scenario to fit the newer speedy requirements for EAs.” A consultant reported that SEA is a new and uncommon concept in Canada, and that some agencies are just now learning how to conduct it. He noted that the best applications are where the provinces or territories are undertaking longer-term, regional land use planning and adopting SEA frameworks or principles.

CHAPTER FIVE

DISCUSSION

Canada is acknowledged internationally as a country that has contributed significantly to SEA development (Noble, 2002, 2009). Federally, Canada has committed to SEA as a key analytical tool used by the federal government to support environmentally sustainable decision-making (Environment Canada, 2012), and this commitment was illustrated by adoption of the Cabinet Directive on the Environmental Assessment of Policy, Plan and Programme Proposals in 1990, revised in 1999 and 2004 (Canada, 2004; CIDA, 2012). SEA has also been adopted outside the federal Directive, as a means to ensure the integration of environment in PPP development provincially and regionally (see CCME, 2009). However, there has only been limited attention to understanding SEA's added value to PPPs. The few SEA evaluation studies that have tried to assess SEA's added value or influence on PPPs, in Canada or internationally, have either focused primarily on SEA requirements and processes (see Arbter, 2003; Retief, 2007; Wang et al., 2009), or on its outputs (see Fischer, 1999; Noble, 2009; Gachellidaize et al., 2009) rather than on its outcomes and long-term impacts. In an attempt to understand the added value of SEA to PPPs in Canada, this research, following the suggestions of several scholars that the outputs and outcomes of SEA are the ultimate measure of its added value to PPPs and environmental sustainability (Partidario, 2000; Therivel and Minas, 2002; Noble, 2003; Stoeglehner et al., 2009), developed and applied a set of criteria to evaluate SEA based on its outputs and outcomes (see Table 3.2, Chapter 3). In the sections that follow the results and their implication are discussed, and learning outcomes that can be deduced from the research findings identified.

5.1 Overview of results

The proposed output and outcome criteria for SEA were not fully met for any of the SEA cases reported on by study participants, indicating that the added value of SEA to PPPs in Canada has not been fully realized.

For example, out of a total of 20 SEA evaluation criteria, 12 of which focused on direct impacts and 8 on indirect impacts, only 5 criteria were reported on by participants to have been met based on their recent SEA experience. These included four direct impact criteria, namely that SEA: identified the potential impacts (positive or negative) of the PPP; identified strategies for avoidance or reduction of potentially adverse impacts, or strategies for enhancement of positive impacts enhancement of positive impacts; ensured compliance of the PPP with the agency's/ organization's mandate, regulations or higher-level policy commitments; and did not cause undue delay, without good reason, to decisions or PPP processes. Only one indirect impact criterion was met: that SEA identified or stimulated new research directions or needs (e.g. policy or program gaps) within the agency or organization (see Tables 4.1 and 4.2, respectively). According to Noble (2009), SEA systems and practices in Canada vary considerably and are designed to meet different objectives. Therefore, the level at which any individual criterion will be met may also vary from one application or jurisdiction to the next. However, though it may not be necessary that any one SEA meet every single criterion before it is declared 'effective,' it is expected that influential SEA demonstrate a substantial number of these conditions.

Participants were neutral in their evaluation of 10 of the direct and indirect criteria. This included 5 direct impact criteria, namely whether SEA helped: incorporate sustainability considerations into the PPP development or PPP approval/decision-making process; resulted in modifications and improvements to the PPP; provided clear direction or standards to facilitate implementation of the PPP, including guidance for post-implementation monitoring or evaluation; ensured greater transparency and accountability in the development/ implementation of the PPP; and contributed to improved efficiency in the PPP's development and/or implementation process (see Table 4.1, Figure 4.1). This also included 5 indirect impact criteria, whether SEA: provided easily accessible information (e.g. baseline data, thresholds, etc.) for use in subsequent PPP processes, monitoring programs or project based impact assessment; improved actual environmental or socioeconomic conditions or raised environmental or socioeconomic standards; changed or influenced institutional norms or management practices within the agency or organization; improved overall awareness within the agency or organization of actions, policies, plans or programs; and led to improved efficiencies on 'next level' assessments or decisions (e.g. time or cost savings on subsequent plans or project assessments) (see Table 4.2, Figure 4.2).

Participants expressed relatively diverse experiences based on 5 direct and indirect impact criteria. This included 3 direct impact criteria, namely whether the SEA: was integrated with the development of, or provided assessment results/ information early enough to inform the development of the PPP; ensured that stakeholder interests were represented in the final PPP; and gave sufficient consideration to viable alternatives to the proposed or existing PPP (see Table 4.1, Figure 4.1). The two indirect impact criteria were whether SEA: helped realize broader organizational or institutional goals and objectives within the agency, beyond the scope of the PPP itself; and improved public awareness of the agency or organization as a result of SEA application (e.g., transparency, and accountability) (see Table 4.2, Figure 4.2).

Overall, based on their recent experience with SEA, participants remained neutral on many criteria. That is, they neither agreed nor disagreed that SEA added value in that direction. Part of the reason was that participants said they did not have sufficient evidence to indicate SEA's added value. This perhaps confirms Owens and Cowel's (2006) point that SEA's added value, especially its outcomes, are implicit and difficult to measure and may even go unnoticed. It could therefore be that most impacts went unnoticed by participants. Further, for some criteria, participants could not confidently say whether changes, such as improved accountability and transparency, were as a result of SEA or of broader policy management practices of the agency. For example, it was reported by some participants that transparency and accountability in some agencies could not be attributed directly to SEA because they could have emerged as a result of overall changes or improvements in agency operations. When SEA is integrated with agency practices, undertaken as part of an agency's mandate, it may be difficult to clearly attribute PPP improvements to the SEA itself.

This makes an outright conclusion difficult. On one hand, it could be argued that most of the criteria were not fully met and so SEA has added little value. On the other hand, it could be argued, since participants simply said that it was too early to fully understand the impact of the SEA and that it may take a long time before the outcomes of SEA manifest on the final PPP, that the impacts of SEA are simply too indirect and changes to PPPs may never be noticed to have resulted from the SEA. Runhaar and Drissen (2007) suggest that impacts of SEA are best

measured by comparing the final PPP to what would have happened without the SEA. This may be an impossible task, or one difficult to undertake in practice.

Participants did report a number of benefits to SEA, including that SEA: facilitated public and stakeholder engagement; improved knowledge of potential PPP issues and impacts; assisted subsequent PPP and project assessment; and helped broaden policy and planning approach (see Table 4.3). But, several challenges to SEA were also identified, including: time and resource constraints, limited baseline data; lack of clear and common vision; lack of commitment and political will to either conduct SEA or implement results; and multi-jurisdictional cooperation (see Table 4.4). Several participants commented that strong legislation for SEA was needed, backed by institutional reforms, if SEA is to effectively act as a tool for sustainability, and that the added value of SEA was reduced when not integrated early into the PPP planning stage.

5.2 Achievement of SEA outputs and outcomes

Several scholars note that the outputs and outcomes of SEA are the ultimate measure of its value added (Partidario, 2000; Therivel and Minas, 2002; Noble, 2003; Stoeglehner et al., 2009).

Outputs, or the direct impacts of SEA, are the immediate or short-term effects of an SEA on a PPP (Runhaar and Drissen, 2007; Stoeglehner et al., 2009). Thissen (2000) suggests that outputs are the achievement of identified goals, and actual realization of positive impacts as well as the effective management of adverse impacts because of the SEA. Outcomes, or the indirect impacts of SEA, are the longer-term changes or influences on institutional and management practices that occur as a result of an SEA (Runhaar and Drissen, 2007; Stoeglehner et al., 2009).

Arguably, part of the reason why participants identified more direct impacts or outputs of SEA is that outputs require a relatively shorter time to be realised in comparison to outcomes (Partidario, 2000; Fischer, 1999; Therivel and Minas, 2002), and they are often explicit and can be measured (Thissen, 2000; Runhaar and Drissen, 2007). For example, although many SEAs identified and reported on by study participants were relatively recent SEAs, or still in progress, participants still noted in many cases that the SEA helped identify the potential impacts, both positive and negative, of the PPP at hand. In the case of the Beaufort Sea regional assessment (see

<http://www.beaufortrea.ca/>), for example, although still ongoing the assessment was said to have already identified potential PPP impacts. Similarly, in the case of SEA in Atlantic Canada for the Western and Gulf of St. Lawrence region, under the CNLOPB (Archambault, 2012), that SEA was said to have helped identify strategies for avoidance or reduction of potentially adverse impacts, even though it is not expected to be completed until 2013.

Unlike outputs, SEA outcomes require a longer time to be realised; they are often implicit, difficult to measure and may easily go unnoticed (see Thissen, 2000; Owens and Cowel, 2006; Runhaar and Drissen, 2007; Stoeglehner et al., 2009). This was noted also by study participants, with some indicating that it could be months to years before a complete understanding of the benefits of an SEA are possible. This may partly explain why those few SEA evaluation studies that have tried to capture its added value have focused primarily on its outputs (see Noble, 2009; Fischer, 1999; Gachellidaize et al., 2009); SEA's conducted on PPPs by agencies and organizations need to be given sufficient time to metamorphose into outcomes.

Outcomes may often go unnoticed (see Owens and Cowel, 2006), hence many outcomes in this research were also difficult to identify by participants. However, it was observed from the results that some federal agencies that have conducted multiple SEAs on their PPPs (e.g. Parks Canada) are beginning to realize certain outcomes, but they cannot clearly say whether these changes are a result of SEA or of agency management and planning practices more broadly – this was particularly the case concerning whether the SEA process itself contributed to improved agency accountability and transparency, or whether this was more a result of improvements in agency practices more broadly. It was reported on criterion 7, for example, that increased accountability and transparency were a result of the management planning process and not the SEA. However Landry et al. (2009) note that SEA does help achieve transparency and accountability.

Further, unlike outputs most outcomes are not planned for; sometimes outputs of SEA are outlined as identifiable objectives and goals that SEA seeks to achieve (Thissen, 2000). They are therefore easier to identify once these pre-planned objectives are achieved. But, outcomes may emerge due to the achievement of these outputs without being recognized. It may take several years before such indirect benefits are realized. Because outputs need only a relatively short time

to be realized (during or immediately following an SEA), even agencies conducting SEA for the first time may recognize them. Outcomes need continuity and well-functioning environmental structures within agencies before they can be achieved. Outcomes require that the outputs of SEA are influential over the longer-term.

It may also be that more outcomes are often not identified because SEA is often an ad hoc or one time application (see Noble, 2009). In such a system, without a follow-up program to assess any long-term impacts, outcomes are difficult to recognize. This was confirmed by the qualitative feedback received from participants, with some noting that there had been no activity in relation to the SEA since its completion. This confirms Noble's (2009) assertion that Canadian SEA is too often a yardstick against which the acceptability of PPPs is measured rather than a decision support tool for PPP improvement over the long term. It appears that the short-term objective to enhance the approval of an agency's PPPs is the norm; after that, all activities are discontinued because the outlined objective has been achieved.

The findings of this research do not necessarily mean general failure of SEA, but there were no clear cases to indicate that SEA is indeed influential over longer term PPP outcomes – at least based on the reported experiences and knowledge shared by the study participants. Findings support the assertion made by Noble (2009) that there is often skepticism in Canada about the benefits of SEA, at both the federal and provincial levels, and whether it is contributing to 'better' PPPs, partly because there are few cases to show SEA's added value to or influence on PPPs and subsequent decision processes. The situation is compounded by most of the evaluation studies that have so far focused on SEA requirements or processes rather than outcomes and influence (see Arbter, 2003; Retief, 2007; Wang et al., 2009). According to (Watts, 2001), efficacy evaluation in impact assessment generates new knowledge by allowing individuals and organizations to reflect on their work, revisit their understanding of PPP goals, assess their effectiveness, and take ownership of their decisions.

5.3 The need for improved SEA evaluation practices

Agencies and organizations have so far focused too much energy solely on meeting the inputs and processes of SEA, and too little on ensuring good outputs and outcomes. This is not in any way undermining the significance of SEA inputs and processes to good SEA, but SEA has sufficiently matured and it is time to shift focus. Kapos et al. (2008) conclude that in measuring success and establishing what works requires a change in the focus of practitioners. Similarly, Stoeglehner et al. (2009) argue that there must be a shift in focus of SEA research from the development of legislation, guidelines and methodologies towards improving the effectiveness of SEA. Effectiveness is concerned with the degree of influence of SEA on decision-making and environmental quality (Noble, 2003). But, Noble (2003) again cautions that though outputs and outcomes are the ultimate measure of SEA's added value to PPP, quality SEA inputs and process are necessary to ensure quality outputs and outcomes. Agencies must therefore be careful not to put the 'cart before the horse'.

Evaluation studies conducted on SEA so far for the Government of Canada, including the Auditor General's reports of 2004 and 2008 that indicated SEA is underperforming, have focused predominantly on compliance with the Cabinet Directive itself and not on the outputs and value added of SEA to PPPs. Therefore, agencies conducting SEA's often aim at meeting procedural requirements, which does not necessarily emphasize achieving quality outputs and outcomes. This creates a condition where SEA is conducted as a requirement; not necessarily to assess environmental impacts of PPPs or to influence decisions or institutional practices in support of sustainability. This supports the assertion made by several scholars that the efficacy of SEA in ensuring improved, environmentally sustainable PPP's is still not well understood (Fischer and Seaton, 2002; Fischer, 2002; Dalal-Clayton and Sadler, 2004; Noble, 2009; Gunn, 2010).

As indicated by Fischer and Gazzola (2006), the presence of certain context criteria is a necessary condition for effective SEA. In other words, SEA evaluation criteria must take into consideration the conditions within which SEA is applied. Similarly, Dalal-Clayton and Sadler (2005) suggest that there is a need to develop evaluation criteria according to the national

practices and legal framework. Guided by the view that what makes SEA effective differs according to the context within which it is applied (Tetlow and Hanusch, 2012), an assessment of SEA's evaluation criteria in Canada is worth considering. Part of the reason why evaluation criteria are typically process oriented is that the international state of the art and practice of SEA to a significant extent influences Canada's SEA practice and understanding of its performance. According Tetlow and Hanusch (2012), at the initial stages of SEA, scholars were of the view that SEA's effectiveness was its impact on the PPP decision. But with time, the understanding of effectiveness shifted from 'change in PPP' point of view to 'process oriented' point of view, which has been enhanced by the publication of the IAIA quality criteria in 2002. In accordance with this, the Cabinet Directive of 2004 incorporates similar SEA quality process principles. But as to whether the criteria are able to empirically assess the added value of SEA in terms of its direct and indirect impacts on PPPs is yet to be seen.

The Auditor General's reports of 2004 and 2008 (CESD 2004, 2008), which adopted the set of principles in the Cabinet Directive, both declared that SEA was performing below expectations in Canada. But these two evaluative studies do not demonstrate whether SEA has failed (or succeeded) in either its short-term direct impacts or longer-term indirect impacts. Saterson et al. (2004) suggest that effectiveness evaluation that focuses on the final action is a more credible measure of achievement than those that focus on inputs and processes, because they measure the real impact of actions. Most of the current SEA evaluation criteria have so far failed to empirically capture these direct and indirect impacts of SEA on PPPs. Based on a review of literature and the results of the proposed survey criteria, it is evident that there is the need for other SEA efficacy evaluation criteria than what have been used in evaluation studies thus far – criteria focused not solely on process, but also on outputs and longer-term outcomes.

Though both the Auditor General's reports (CESD, 2004/2008) and the results of this research indicate that the expected benefits of SEA are not fully realized, this research later goes a step forward by suggesting where energies should be directed in terms of SEA performance evaluations. Based on the above findings, the main suggestion for Canadian SEA is that to empirically assess the added value of SEA to PPPs there is a need for additional evaluation

criteria. However, it must be noted that these criteria are not intended to be a replacement but a supplement to already existing criteria.

5.4 How SEA outputs can enhance the achievement of outcomes

An organization or agency must understand the differences between outputs and outcomes before pursuing to achieve them. As per earlier chapters, this research tried to create that distinction by indicating that outputs are the direct product of SEA on PPPs and outcomes long-term change or benefits of SEA (Runhaar and Drissen, 2007). In addition to the need for clarity in linking outputs to outcomes, conditions existing within an agency or organization also have an influence on the level at which outputs can either enhance or translate into outcomes.

First, for outputs or the direct impacts of SEA to metamorphose into long-term, broad changes in agencies or organizations, there must be consistency, continuity as well as innovation in the SEA process. Outputs need sufficient time to translate into outcomes. Continuity is crucial to SEA because the object of assessment, a PPP, is itself an on-going and iterative process (Partidario, 2007). According to OECD (2006), an effective SEA depends on an adaptive and a continuous process. The capacity of institutions must be strengthened to cope with this continuity so as to ensure realization of long-term SEA outcomes.

Second, for SEA outputs to translate into outcomes the recommendations emerging from an SEA must actually be implemented. The results of SEA must be incorporated into the final PPP not only for realization of outcomes, but if any added value is to be realised at all. However, Nilsson and Dalkmann (2001) note that in real practice most SEA results are not taken into account in the final decision. This was also found to be the case in this research, where some participants noted that SEA recommendations are not taken serious, especially if the recommendation limits economic growth or development. Outputs may not translate into outcomes under such a condition.

Third, although gradual, learning plays an important role in translating outputs into outcomes. Just like outcomes, learning seeks to achieve ultimate change in an organization or agency (Jha

Thakur et al., 2009), and involves the dissemination of knowledge gained from experience (Watt, 2001). According to Nilsson (2006), agencies and organizations may tend to accept knowledge that confirms their principles and resist such knowledge that challenges them. Similarly, an immediate SEA result or output may not be completely accepted by agencies if it goes against certain long-held principles or practices. There is therefore the need for a cautious approach like learning to help disseminate and enhance the assimilation of new knowledge gained from SEA. This will ultimately help in the translating of outputs into outcomes.

Fourth, institutional capacity plays a major role in transforming outputs into outcomes.

Institutional capacity here implies a broader focus of empowerment, social capital, and an enabling environment, as well as the culture, values and power relations within an agency or organization (Segnestam et al., 2002). There is the need for SEA capacity building and training of more expertise as well as resource provision to support the transformation of outputs into outcomes, because institutions play a vital role in integrating environmental issues into policies (Slunge et al., 2009). According to Willems and Baumert (2003), training individuals and strengthening organisations can only succeed in the long term if it is consistent with existing institutions or if it helps transform these institutions that can be sustained through time.

Institutions, as the source of authority, structure the interactions within and between agencies and organizations. There must be an enabling environment for these interactions. Thus, for SEA outputs to transform into outcomes, there is the need for an enabling environment, which is dependent on strengthening institutional capacity. However, building capacity to meet SEA outcomes is closely tied to an agency's or organization's environmental priorities, and there must be commitment to meet those priorities. According to Perrin (2006), strong support from the top political and administrative levels is essential to provide legitimacy and priority to an outcome orientation.

Finally, there must be a shift in monitoring and evaluation studies to focus not only on process and compliance but on ensuring that SEA outputs and outcomes are realized. Evaluation is required to assess the continuing relevance and appropriateness of strategies and programs and to provide information about unintended or unexpected impacts (Perrin, 2006). Evaluation capacity of agencies and organizations will have to be enhanced to enable the monitoring and

transforming of outputs into outcomes. Evaluation must be based on the impact of SEA on PPPs. This will help ascertain the extent to which outputs and outcomes have been achieved in the first place.

5.5 Challenges to the achievement of SEA outcomes

The results revealed a number of factors, not all of which are independent, which impeded the attainment of most outcomes or indirect impacts of SEA. First, results indicated that most indirect impacts of SEA were not achieved or recognized because participants did not have sufficient evidence to make any conclusions about SEA's added value in that direction. This was said to be due to a number of reasons, including the lack of time from SEA completion to present to realize indirect impacts, and the difficulty in interpreting some indirect impacts - partly because of the complexities associated with the concept of SEA itself. Speedy demands are exerted on agencies and organizations by the federal government to meet SEA objectives outlined in the Cabinet Directive and in the Federal Sustainable Development Strategy without the realization that outcomes may require sufficient time before they are achieved (Runhaar and Drissen, 2007). Aside from it being too early a time for some agencies and departments to realise the outcomes of SEA, many participants noted that it was also difficult to assess if a specific longer-term change was as a result of SEA or of the agency's internal policies and programs. Kornov and Thissen (2000) for instance note that the link between SEA and the PPP making process is difficult to clearly identify and explain. According to Jha-Thakur et al. (2009), if SEA is part of a wider, well-developed planning context, it is difficult to assess its added value in certain levels which may already be well developed. Though the added value of SEA may be difficult to separate, this does not diminish its added value.

A second factor that seems to impede the achievement of SEA outcomes is that SEA is often a onetime process with no follow-up. According to Gachechiladze et al. (2009) SEA follow-up plays a major role in helping improve SEA practice through feedback and learning among others. However, most scholars conclude the significance of SEA follow-up is not given adequate attention in practice (Partidario and Fischer, 2004, Partidario and Arts, 2005; Gachechiladze et al., 2009). Similarly, Noble (2009) concludes that outside the federal process, SEA is practiced

on an ad hoc basis and with less assessment experiences. But the same situation exists within some federal agencies. Outcomes of SEA sometimes occur in a smaller dimension or need a longer time to be realized (Owens and Cowel, 2006). Perhaps, they may easily have gone unnoticed in an ad hoc system. It was reported on whether SEA provided easily accessible information (e.g. baseline data, thresholds, etc.) for use in subsequent PPP processes, monitoring programs or project based impact assessment (criterion 1) that the lack of follow up and SEA evaluation studies hampered the harnessing of SEA information for subsequent decision making.

Third, changes in political leadership to a significant extent can prevent the achievement of longer-term impacts (Bowling and Wright, 1998; Harrison, 2007). For an effective SEA, there is the need for political commitment and organizational support (Sadler, 1996). Benevides et al. (2009) argue that at the federal level the Cabinet Directive is dependent on political commitment. When a new government comes into power, with different commitments, previous SEAs may not receive the necessary support. For example, with regard to criterion 5, whether SEA changed or influenced institutional norms or management practices within the agency or organization, one participant reported that a change in government, just following SEA completion, largely prevented this from occurring; it was clear that the institutional norms and practices from one government certainly would not carry forward to the next maybe due to shifting priorities in governmental spending (see Jacob and Volkery, 2004). In addition to change in government, the nature of PPP decisions themselves may even serve as a barrier to SEA achieving its outcomes (Fischer and Gazzola, 2006; Gazzola et al., 2004), particularly when the PPP issue at hand involved sensitive political negotiations and limit the amount of transparency and openness governments are willing to commit (see Gazzola et al., 2004).

Fourth, some indirect impacts were not realized because participants did not understand the scope and purpose of SEA and what it aimed to achieve within their agency or department. Many SEA authors and practitioners are divided on its scope (Zhou and Sheate, 2011). To some, SEA should mainly focus on environmental issues rather than integrating social and economic issues (Morrison-Saunders and Fischer, 2006; Wallington et al., 2007). Whilst to others, for SEA to act as a tool for achieving sustainability, it must integrate environmental, social and economic issues (Gibson, 2000; Dalal-Clayton and Sadler, 2004; Runhaar and Driessen 2007). Similarly,

Benevides et al. (2009) state that there must be a clear statement of SEA's purpose, which should be centred on a strong commitment to sustainability. Benevides et al. (2009) further note that SEA must be encouraged to address not only long-term and short-term effects but also socio-economic and biophysical factors as a whole. Several scholars have therefore concluded that SEA suffers from a crisis of identity in both its concept and methodology (Gunn and Noble, 2011; Noble, 2009; Fischer, 2007). Gunn and Noble (2011) note that there are varying interpretations of what SEA is and how it should unfold in practice. Noble (2000) concludes that one of the issues inhibiting SEA practice is agreement on what SEA aims to achieve and what it should deliver. This makes it difficult for SEA practitioners within agencies and departments to clearly understand how best to conduct SEA and ensure its influence on PPPs.

Fifth, the late application of SEA in the PPP process may limit the achievement of certain SEA outcomes (Noble, 2002; Therivel and Walsh, 2006; Fischer, 2007). It was reported on criterion 1, SEA identified the potential impacts (positive or negative) of the PPP, for example, that most SEAs were conducted late, after PPPs had already been designed. Similarly, according to the CEAA final report of 2009, most SEAs are conducted late in the PPP development process. In such cases, the SEAs were to meet formality rather than to provide easily accessible information. For instance, it was said most SEAs were done after the programs had been designed and the program documents were being finalized. For SEA to achieve added value, then it must start early in the PPP decision process (Brown and Therivel, 2000).

Finally, and related to the above, is that SEA's final results and recommendations are not always integrated into final PPPs (Aschemann, 2004; Benevides et al., 2009). Benevides et al. (2009) conclude that the need for SEA processes to be properly integrated into the particular nature of federal and multi-jurisdictional decision making in Canada was still a major challenge. They further stated that effective integration into decision-making has not been a characteristic of Canadian EA practice so far. Noble (2009) observes that where SEA has demonstrated some level of success in Canada it has been integrated into the PPP development. Similarly, Kornov and Thissen (2000) conclude that a proper integration of SEA into policy-making processes is critical to the success of SEA. Stoeglehner et al. (2009) state that not only must there be an integration of SEA results into PPPs but also ownership is an important factor to consider in SEA

if outcomes are to be achieved. No matter how well an SEA has been conducted, it fails to add value to PPP if the recommendations are not integrated into the final decisions.

5.6 Learning outcomes in Canadian SEA

According to Jha-Thakur et al. (2009), in a first encounter with SEA one might learn through the acquisition of knowledge, such as the procedures and legal requirements for implementing SEA. Similarly, Fitzpatrick (2006) notes that when adults are engaged in a social process they are exposed to alternative perspectives; critical engagement in these perspectives may lead to transformative learning. Institutional learning is another subset of learning, which emphasizes individuals and organizations learning from their own and one another's experiences with SEA (Brabant, 1997). Individuals and organizations learn by interpreting and understanding their experiences (Watts, 2001). Through their engagement in SEA in various departments and agencies, participants expressed different learning experiences. According to Jha-Thakur et al. (2009), learning implies an ability to articulate a conceptual understanding of an experience. No matter the form, learning aims at effecting change within an organization or agency (Watts, 2001; Jha-Thakur et al., 2009). What has changed or can be changed in agencies and organizations as a result of SEA?

A first and a unique contribution of the research is that it explicitly examines the crucial role an organization's or agency's culture plays in advancing institutional learning in SEA. Organizational culture refers to the values and behaviours that contribute to the unique social and psychological environment of an organization (Business Dictionary, 2013). These include an organization's expectations, experiences, philosophy, and values that hold it together, inner workings, interactions with the outside world and future expectations. Previous works on learning in SEA have demonstrated how individuals or organizations learn (see Fitzpatrick, 2006; Jha-Thakur et al., 2009) but none explicitly emphasizes on the role the culture of the organization or agency plays in enhancing institutional learning. Segnestam et al. (2002) for instance state that the culture of an agency or organization determines the success of institutional learning either within or among organizations. They further state that an agency's culture creates

the environment for either acquiring knowledge or training. Similarly, Brabant (1997) suggest that individual learning only becomes significant when it emerges as a product of organizational or agency learning. Thus, agencies' culture will determine individual learning. A learning organization is an organization that is skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge (Garvin, 1993). SEA as a tool aims at creating environmental knowledge and disseminating it within and among agencies to achieve sustainable PPPs. But the culture of the agency will determine how this knowledge is either created or disseminated. This partly depends on the level and quality of interaction within and among organizations under the same context (Sinclair et al., 2008), as well as how knowledge created is put into practice. However, research findings indicate that sometimes there is minimal interaction within and among some federal and provincial agencies in regards to SEA practice. Again, participants indicated that sometimes environmental knowledge in the form of SEA results may not be efficiently disseminated and integrated into the final PPP. How can SEAs learning dimension be achieved when agency's culture does not encourage the sharing, dissemination and implementation of SEA experiences?

The second general learning outcome that emerged from the research was that SEA practice in Canada *can* achieve added value. In all, 5 criteria were achieved, 4 on direct impacts and 1 on indirect impacts. Efforts can be made to enhance the achievement of more direct impacts of SEA, whilst structures are put in place to transform those outputs into outcomes. Though it may take some time, added value *will* eventually emerge from SEA if this transformation takes place. Agencies, organizations and departments conducting SEA need more time and support to realize SEA's added value; relative to project-based environmental assessment, SEA is still a new and an unfamiliar concept in Canada. It was said, for instance, that most Federal agencies and departments are under pressure to meet federal environmental objectives without the necessary support or realization that some agencies are conducting SEA on their PPPs for the first time. Bregha (2011) observed that most of these agencies do not get the necessary support to effectively implement SEA, yet they are constantly subjected to evaluations that indicate poor performance.

A third reported learning outcome was the recognized difficulty in distinguishing between the added value of an agency's or organization's 'normal' policies and management practices and those benefits emerging due to SEA. Jha-Thakur et al. (2009) caution that if SEA is part of a wider, well-developed planning context, it may not necessarily enhance certain levels of learning which may already be well developed. According to Partidario (2000), SEA is different from policy-making and planning procedures; these have failed over the years to systematically incorporate environmental issues and assess the environmental effects of PPPs. However, the inability to separately assess SEA's added value from management practices may not diminish its efficacy. Indeed, much of the literature indicates that SEA is most effective when the process of SEA is an integral part of the PPP development and decision making process (Brown and Therivel, 2000; Nilsson and Dalkmann, 2001).

There was also a recognized need for a stronger legislative support for SEA, backed by institutional reforms and sufficient policy to ensure implementation of SEA recommendations. The implementation process, which involves translating SEA results into action, is vital if effectiveness is to be achieved (Zhang et al., 2013). It was said by many participants that without clear legislative support it is difficult to ensure the influence of SEA on PPPs and decisions. Noble et al. (2013) argue that supporting legislation is necessary to ensure that SEA procedural obligations are followed and recommendations implemented; however, legislation may not anticipate all needs for SEA or provide sufficient flexibility for the range of PPPs to which it might apply (Gibson et al., 2010). A combined law- and policy-based approach may be best, where the requirements to apply SEA to PPPs and to implement SEA results through PPPs and decisions is legislated, but flexibility in SEA application is provided through policy to accommodate different PPP contexts (see Gibson et al., 2010; Noble et al. 2013).

This, of course, requires political will and commitment – factors that participants identified as essential to ensuring the efficacy of SEA in Canada. It was said that SEA needed not only institutional reforms but also the political will and commitment from government. According to Fischer (2007), there is currently weak political will for SEA and insufficient resourcing for both project SEA and project-based environmental assessment. However, Benevides et al. (2009) suggest that the lack of clear benefits arising from SEA partly accounts for the current

insufficient political will to adopt and implement SEA. Some scholars have concluded that in the Canadian context there is limited institutional capacity to link SEA outputs to PPPs (Noble, 2009, Partidario and Arts, 2005). Bregha (2011) argues that this could be addressed by both federal and provincial governments providing more resources, training of more SEA experts, better guidance on SEA application, supervisory agency to ensure accountability, and redraft the directive to clearly establish SEA roles and responsibilities (see Bregha 2011). Currently, roles and responsibilities for SEA are not clearly stated in the Cabinet Directive (Bregha, 2011; CEAA, 2009), and outside the directive, for SEA applications provincially or regionally, roles and responsibilities for SEA are not well defined (see Noble et al. 2013). This is particularly the case for multi-jurisdictional matters and multi-jurisdictional cooperation through SEA (see Stinchcombe and Gibson, 2001). According to Benevides et al. (2009), irrespective of several efforts to share expertise, link approaches and harmonize procedures among jurisdictions in Canada, the results have been abysmal.

What separates institutional learning from other forms of learning is the emphasis it places on how organizations can learn from one another (Brabant, 1997; Siebenhuner and Suplie, 2005). Several participants, in reflecting on their SEA experience, noted the need to share knowledge gained through research in areas of common interest among agencies (Foss et al., 2010 and Quigley et al., 2007). According to Argote and Ingram (2000) knowledge sharing is an important element in achieving outcomes within an organization, and meanwhile, Slunge et al. (2009) suggest that research has an enlightenment function that slowly creeps into an agency and gradually changes mind set. Some departments and agencies who do conduct SEA do not have research mandates per se, such as the Canadian Internal Development Agency; however, there can be a lateral dissemination of knowledge gained from SEA research to these agencies which either do not have the mandate or funds to do so. Amayah and Nelson (2010) conclude that organizations appear to be more productive when they can successfully create an environment in which employees share knowledge and when the knowledge shared is actually used by the recipients. Some scholars further propose a reward system put in place to enhance knowledge sharing in organizations (Wasko and Faraj, 2005; Zarraga and Bonache, 2005; Lee and Ahn, 2007; Amayah and Nelson, 2010). That is giving awards at both individual and organizational level to encourage the sharing of knowledge gained from SEA practice. Lee and Ahn (2007) for

instance emphasize individual and group based reward systems according to the contribution to valuable knowledge sharing to enhance organizational performance either as a group or an individual.

CHAPTER SIX

CONCLUSION

The majority of studies on SEA efficacy have been more concerned with SEA requirements or processes than with outcomes and influence (see Arbter, 2003; Retief, 2007; Wang et al., 2009). If SEA is to achieve any efficacy there must be a shift in evaluation focus to meeting outputs and outcomes. This thesis set out to advance current understanding of the efficacy of SEA based on its immediate output to PPP decisions and broader outcomes. The thesis specifically examines the efficacy of SEA in the context of policy and planning in Canada. This final chapter briefly discusses the overarching challenges to the achievement of SEA efficacy, and makes recommendation to improve upon the current practice of SEA.

6.1 Challenges to SEA efficacy in Canada

Several factors prevent the practice of SEA from achieving its full added value to PPPs in Canada. One of the greatest challenges is in the area of implementation of SEA recommendations. That there is a Cabinet Directive requiring all federal agencies and organizations to conduct SEA on their PPPs is a major step; but it falls short of a means to enforce the implementation of SEA recommendations. There is also no SEA requirements outside the federal Directive, at the provincial level. According to Zhang et al. (2013), the implementation process involved in translating SEA results into action is vital if effectiveness is to be achieved. A major impediment, however, is the general lack of commitment and political will to conduct SEA on PPPs (Benevides, 2009; Bregha, 2011). Most agencies are not committed to conducting SEAs on PPPs and when some finally do, SEA is conducted late after the PPPs are completed. Late SEA is better than no SEA, but late SEA is less effective than SEA that commences at the start of PPP development (Brown and Therivel, 2000; Noble, 2003). Bregha (2011) suggests that the lack of clear distribution of roles and responsibilities for SEA, and the lack of a central agency to monitor SEA, are major challenges to its effectiveness. Benevides et al. (2009) suggest that the lack of awareness of the benefits that arise from SEA partly accounts for insufficient political will.

Advancing the efficacy of SEA will require institutional change and commitment. According to Slunge et al. (2009), successful SEA requires analyzing institutional capacities to be able to integrate environmental considerations into PPPs. Apparently, in the Canadian context, there is limited institutional capacity to link SEA outputs to PPPs (Noble, 2009, Partidario and Arts, 2005). For instance, in this research it was found that many SEAs lack the appropriate oversight and accountability mechanism to ensure implementation of the results and recommendations emerging from SEA. At the federal level, for example, Bregha (2011) concludes that the Directive does not identify any mechanism for ensuring compliance. The result is uneven application, weak accountability and wide spread non-compliance (see CEAA final report, 2009).

That being said, even with stronger oversight for SEA implementation, SEA cannot succeed without the necessary resourcing, including technical skill and scientific support. Many participants in this research noted the lack of sufficient resourcing to ensure that SEA is a tool that contributes to more sustainable PPPs. According to Brown and Therivel (2000), practitioners need the necessary support in order to be able to implement SEA effectively. However, Bregha (2011) found that the few training opportunities offered on SEA by the Canadian Environmental Assessment Agency focus more on government process than on how to do an SEA. As an assessment process, the success of SEA does depend, to a great extent, on the data available to support assessment decisions (Joao, 2007). However, it was said by study participants that baseline data for PPPs are often not readily available when needed for conducting SEA. This is not unique to Canada; in their review of SEA in 12 countries, including Canada, Chaker et al. (2006) concluded that data regarding SEA procedures are insufficient and often incomplete. Similarly, in their examination of the obstacles to SEA follow-up in England and Canada, Gachechiladze-Bozhesku and Fischer (2012) conclude that the lack of resources was a major obstacle to success.

Finally, evaluation studies on SEA to date have failed to give sufficient direction to SEA so as to ensure greater efficacy. Reviews of SEA have focused more on the inputs and process of SEA, including compliance with policies and directives, rather than on the outputs and outcomes that

indicate its actual added value (Arbter, 2003; Retief, 2007; Wang et al., 2009). According to Jha Thakur et al. (2009), outcomes measurement provides an opportunity for learning and offers findings that can be used to adapt, improve and make SEA more effective. The attention so far has been directed towards meeting SEA process requirements, instead of ensuring its added value.

6.2 Recommendations

Based on the study finding, several recommendations emerged for advancing the efficacy of SEA. First, there is a need for supplementary SEA evaluation criteria to the set of principles currently presented in the Cabinet Directive that focuses on the outputs and outcomes of SEA. The evaluation criteria used in the CESD 2004 and 2008 evaluations of SEA focused predominantly on the procedural requirements for SEA. More efforts have been directed towards meeting inputs and process of SEA rather than examining whether SEA is achieving outputs and outcomes that demonstrate actual added value to PPPs.

Second, and closely related, there must be a general change in the focus of efficacy evaluation. Consistent with Kapos et al. (2008), measuring success and establishing what works requires a change in the focus of practitioners. Evaluations of SEA performance must focus on the extent to which it has added value to the final PPP, and affected longer-term institutional actions and environmental sustainability, rather than the extent to which the SEA has met procedural requirements. Saterson et al. (2004) argue that effectiveness evaluation that focuses on the final action is a more direct measure of achievement than those that focus on inputs and processes. Notwithstanding the mechanisms put in place to strengthen SEA, the challenges are enough that a shift in evaluation focus needs to happen if SEA's efficacy is to be achieved.

Closely related to the above, there must also be a cultural change within and among agencies to effectively enhance institutional learning in SEA. This must be a deliberate effort embarked upon to continuously acquire environmental knowledge through SEA practice and experience as well as the dissemination of that knowledge to all departments and agencies under the same context if efficacy is to be achieved. Off-course this may also involve quality interactions among

departments and agencies. According to Bregha (2011), a characteristic of Canadian SEA at the federal level is that it is a self assessment system. Each federal agency and department develops its own systems to implement SEA. Similarly, each agency and department has its own culture including values, environmental priorities and objectives among others that directly impact how SEA results achieve sustainable PPPs. It is therefore necessary for agencies to learn from each other's SEA experience. Currently most agencies do not learn from one another's SEA experience.

Fourth, legislative mechanisms are required to ensure the adoption of SEA outputs. Sadler et al. (2011) note that the language of the Cabinet Directive is general and permissive and there is no central mechanism for ensuring compliance. Implementation is the only way by which the efficacy of SEA as a sustainability tool can be achieved. No matter the number of directives outlining how SEA should be conducted, if the final recommendations are not implemented then efficacy is limited. Research results indicated that most times SEA recommendations are either not implemented at all or not fully implemented, raising questions as to whether the SEA was even conducted to influence PPP in the first place. There is a pressing need for legislation to ensure that SEA results are implemented and followed-up on over time, thus facilitating the translation of SEA outputs to SEA outcomes.

Five, greater responsibility must lie with both the federal and provincial governments if SEA is to achieve any added value to PPPs. Consistent with Bregha (2011), the federal SEA Directive should be redrafted to clearly define SEA roles and responsibilities and a central agency must be established to monitor SEA performance. This also means greater multi-jurisdictional cooperation between the federal government and the provinces, to ensure that federal PPPs are consistent with, and support the actions of, those PPPs established at the provincial scale.

Finally, effective SEA requires greater effort by both federal and provincial governments to provide easy and accessible environmental data as well as sufficient technical resources. According to Joao (2007), the success of SEA often depends on the data available and on the availability of skilled people to conduct SEAs and ensure the translation of SEA outputs to PPP outcomes. The findings of this research support the conclusion by the CEEA (2009) final report

and Bregha (2011) that agencies are not provided the needed resources and guidance to ensure effective SEA.

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APPENDIX A

SEA Survey

SEA Effectiveness Study

Thank you for agreeing to participate in this study!

This study is focused on the 'impact' of strategic environmental assessment.

The [survey](#) consists of three parts, and should take no more than 30 minutes of your time to complete. Part I focuses on the direct impacts of SEA. Part II focuses on the indirect impacts of SEA. Part III provides you with an opportunity to share your general thoughts and observations on the benefits of and challenges to SEA.

Information on your rights as a participant, including confidentiality, can be found here: http://homepage.usask.ca/~bf571/SEA_Effectiveness.html

You need not be an 'expert' on SEA or the responsible person for SEA in your agency or organization; rather, I am interested in your experience with and perspectives on the 'impact' of SEA.

Operational Definitions

Strategic Environmental Assessment (SEA) is defined as a systematic process for identifying, predicting, reporting and mitigating the environmental impacts of policies, plans and programmes (PPPs).

SEA-like processes refers to policy, plan or program assessment or evaluations that resemble SEA in their methodology, or adopt SEA principles, but do not necessarily carry the SEA name tag. These may include certain land use planning processes or regional environmental assessments.

Background Information

Before you begin the survey, please provide the following background information:

1. Please identify the name of your department, agency or organization:

2. Please provide your email address if you would like me to send you a copy of the study results.

3. How many SEAs (or SEA-like processes) have you been involved in?

1-5 6-10 > 10

Either as the SEA manager, SEA lead, or responsible person for the SEA process:

Either as contributor to the SEA process, or member of / advisor to the SEA team:

In roles other than those defined above:

If you answered 'other' above, please define the role(s):

4. What is the most recent SEA or 'SEA-like' process that you have been involved in (please indicate also the year completed)?

Next

Part I - Direct Impacts of SEA

This section focuses on the 'direct impacts' of SEA on policies, plans and programs (PPPs).

A statement is presented, followed by a scale that ranges from '1' (strongly disagree) to '9' (strongly agree). It is not suggested that SEA must meet all of these criteria to be considered effective in any particular context. Rather, the criteria are a standard set that may be used to evaluate the 'impact' of SEA.

Please respond to these questions based on your most recent SEA or SEA-like experience for a policy, plan or program.

The SEA completed for/on the policy, plan or program:

	strongly disagree		somewhat disagree		neither agree nor disagree		somewhat agree		strongly agree
1. Identified the potential impacts (positive or negative) of the PPP.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. Identified strategies for avoidance or reduction of potentially adverse impacts, or strategies for enhancement of positive impacts.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. Was either integrated with the development of, or provided assessment results/information early enough to inform the development of the PPP.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Incorporate sustainability considerations (e.g., relationships between human-ecological systems; intra- and inter-generational equity; precaution and adaptation) into the PPP development or PPP approval/decision-making process.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. Ensures that stakeholder interests, including public and Aboriginal interests (if	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	strongly disagree		somewhat disagree		neither agree nor disagree		somewhat agree		strongly agree
applicable), were represented in the final PPP.									
6. Ensure compliance of the PPP with the agency's/ organization's mandate, regulations or higher-level policy commitments.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. Gave sufficient consideration to viable alternatives, if applicable, to the proposed or existing PPP.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. Resulted in modifications and improvements to the PPP.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. Provided clear direction or standards to facilitate implementation of the PPP, including guidance for post-implementation monitoring or evaluation.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. Ensure greater transparency and accountability in the development/ implementation of the PPP.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

strongly disagree
somewhat disagree
neither agree nor disagree
somewhat agree
strongly agree

11. Did not cause undue delay, without good reason, to decisions or PPP processes.

12. Contributed to improved efficiency (timeliness) in the PPP's development and/or implementation process.

Are there other areas where, or examples of how, SEA contributed to the PPP, decision-making, or implementation?

Next

SEA Effectiveness Study

Part II - Indirect Impacts of SEA

This section focuses on the 'indirect impacts' of SEA on policies, plans and programs (PPPs).

A statement is presented, followed by a scale that ranges from '1' (strongly disagree) to '9' (strongly agree). Following each question, you are asked to expand by providing examples or illustrations where relevant. These examples or illustrations will help me in understanding the nature of, or reasoning for, your response.

Again, it is not suggested that SEA must meet all of these criteria to be considered effective in any particular context. Rather, the criteria are a standard set that may be used to evaluate the 'impact' of SEA.

Please respond to these questions based on your most recent SEA or SEA-like experience for a policy, plan or program.

The SEA completed on/for the policy, plan or program:

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

1. Provided easily accessible information (e.g. baseline data, thresholds, etc) for use in subsequent PPP processes, monitoring programs or project based impact assessment.

Are there specific examples of how the information generated from the SEA process has been used?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

2. Helped realize broader organizational or institutional goals and objectives within the agency, beyond the scope of the PPP itself.

Are there specific examples of how the SEA helped realize broader organizational or institutional goals or objectives?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

3. Improved actual environmental or socioeconomic conditions or raised environmental or socioeconomic standards.

Are there specific examples or illustrations of how the SEA improved environmental or socio-economic conditions?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

4. Identified or stimulated new research directions or needs (e.g, policy or program gaps) within your agency or organization.

Are there specific examples or illustrations of the types of new research directions or needs identified?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

5. Changed or influenced institutional norms or management practices within your agency or organization.

Are there specific examples or illustrations of changes to institutional norms, or innovations, that resulted from the SEA?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

6. Improved overall awareness within your agency or organization of your agency's or organization's actions, policies, plans or programs.

Are there specific examples or illustrations of improved awareness or learning?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree somewhat disagree neither agree nor disagree somewhat agree strongly agree

7. Improved public awareness of your agency or organization as a result of SEA application (e.g., transparency, and

strongly disagree
somewhat disagree
neither agree nor disagree
somewhat agree
strongly agree

accountability)

Are there specific examples or illustrations of improved public awareness or learning?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

strongly disagree
somewhat disagree
neither agree nor disagree
somewhat agree
strongly agree

8. Led to improved efficiencies on 'next level' assessments or decisions (e.g. time or cost savings on subsequent plans or project assessments).

Are there specific examples or illustrations of improved efficiencies?

If the SEA was seen as less than successful in this regard, are there particular reasons or obstacles?

SEA Effectiveness Study

Part III - General Observations

This final section of the [survey](#) focuses on broad lessons or learning opportunities and outcomes from SEA.

Please respond to these questions based on your 'cumulative experience' with and knowledge of SEA or SEA-like applications.

1. Based on your experience, what would you identify as the primary benefits (value added) that you have realized from completing, or being involved in, an SEA or SEA-like processes?

2. Based on your experience, what would you consider as the primary limitations of or challenges to SEA or SEA-like processes within your agency or organization?

3. What would you identify as the most important learning outcomes from your experience with SEA? For example, aside from the PPPs in question, have there been other new ideas, innovations, or lessons that emerged from your (or your agency's or organization's) experience with SEA?

4. Are there any additional comments or observations that you wish to share?

Back

Next

SEA Effectiveness Study

Thank you for participating in this study!

Please make sure to select **SUBMIT** at the bottom of this page. A summary of the **survey** results will be made available at: <http://homepage.usask.ca/~bf571/Research.html>. You can also contact me at john.bosco@usask.ca should you have any questions. You may contact my research supervisor, Dr. Bram Noble, at b.noble@usask.ca.

Sincerely,

John Acharibasam
Graduate Student
Department of Geography & Planning
University of Saskatchewan