Contributions of Strategic Environmental Assessment to planning and decision making:
The case of York Region, Ontario

by

Denis Kirchhoff

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Author's declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

I understand that my thesis may be made electronically available to the public.

Abstract

Strategic Environmental Assessment (SEA) has a prominent position in the ongoing search for instruments that can help governments and other organizations to pursue the goal of sustainability. SEA is presented here as a decision-making supportive approach that is meant to improve strategic initiatives, rather than just analysing them. As an approach to planning (as opposed to a mechanical technical instrument that is done on the side and 'might' inform the big decisions), SEA has been promoted as a promising instrument expected to be able to provide better informed, more credible and more broadly beneficial strategic initiatives, as well as more timely and clearer guidance for subsequent undertakings. As such, by adjusting and improving planning, governance, and decision-making processes, SEA has a major role in contributing to sustainability.

One of the many different planning and decision-making contexts in which SEA can be used is growth-related planning – the object of interest of this research. Planning in a growth context is typically driven by a mix of biophysical, social and economic concerns, and is unavoidably complex, with many independent agents interacting with each other in many ways, all of this involving the full range of intersecting sustainability issues. In this research I explore the concept of sustainability as an overall planning goal, as it relates to a particular approach to planning, i.e., strategic environmental assessment. In addition, this research acknowledges the importance and need to address the context in which SEA applications occur, and therefore, it highlights the need to specify the application for particular areas.

This research was guided by an interest in improving understanding of how SEA can help to contribute to sustainability through planning/EA processes and activities, especially in the context of growth-related planning. Above all, this research addressed how SEA best practices can be used to improve regional planning and decision making, including its link to the project level, and how regional planning experience can help illuminate possible means of strengthening SEA practice. As such, this research presents how a sustainability-based SEA approach could contribute to growth-related planning in a rapid growth setting, using York Region, Ontario as the empirical case study. While York Region was not using the SEA nametag, some essential characteristics of SEA were found in a few planning initiatives, in

accordance with what some scholars have called a SEA-type approach, i.e., an approach that does not meet formal specifications or definitions of SEA, but which has some of the SEA characteristics or components.

This research presents three main scholarly contributions. First, it develops a SEA best practice framework based on the international literature and, as a result, it provides SEA practitioners with a useful generic framework that they can use as guidance and a starting point for SEA studies. In addition, this research brings to light the importance of paying attention to contextual issues in order to make successful use of SEA best practice frameworks. The context of application will always be unique, so the particularities of the case will still need to be carefully considered and incorporated, so that application can be customized to the particular case. Second, this research further develops the discussion about what SEA can achieve, or more specifically, how SEA can help to contribute to sustainability. As such, this research contributes to the discussion about how SEA can help planning and decision-making approaches through a more in depth look at three main components of SEA: sustainability-centred decision making, tiering and communication. The third contribution relates to how SEA adoption becomes a priority or how governments become interested enough in SEA application to actually give it a shot. The concept of a policy window was borrowed from the policy sciences field to provide the framework of analysis for this part of the research, and shows how problem, policy and political streams converged to provide the necessary conditions for the adoption of an SEA-type approach in York Region.

In sum, the results of this research suggest that SEA has potential to play an important role in planning and decision making, with particular attention to growth-related planning. In this context, SEA can contribute to planning and decision making that is more integrated, farsighted, open, efficient, credible and defensible, and ultimately brings desirable and durable benefits. Moreover, by providing clearer guidance to the subsequent undertaking, SEA has potential to serve as a bridge to the planning of project-level undertakings.

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It is a pleasure to thank those who made this thesis possible such as my supervisor, Professor Jean Andrey, who gave me the moral support and encouragement I required to complete this degree. Your knowledge and questioning of "taken for granted" issues in the literature has made this thesis a lot more robust. Without you, things would have been quite different! I am also thankful to my supervisor, Professor Brent Doberstein, whose supervision and support from the preliminary to the concluding stages of this research enabled me to develop a better understanding of the subject, and made things move a lot smoother throughout the whole process. I would also like to thank the members of my PhD committee, Professor Bob Gibson and Professor Dan McCarthy, and my external examiner Professor Virginia Maclaren. Bob, thank you for being both a mentor and a friend; your scholarly input as well as your sense of humour have made my graduate experience much more enjoyable and fun. Dan, you've been a good friend and a mentor. Thanks for your scholarly input, support, and sense of humour. I would also like to acknowledge and thank my external examiner, Professor Virginia Maclaren, for her very professional but friendly approach to providing constructive criticism and recommendations.

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List of Acronyms

CEAA – Canadian Environmental Assessment Agency

EA – Environmental Assessment

EARP – Environmental Assessment and Review Process (Canada)

EIA – Environmental Impact Assessment

ENGO – Environmental Non-Governmental Organization

ORMCA – Oak Ridges Moraine Conservation Act

ORMCP – Oak Ridges Moraine Conservation Plan

MNR – Ontario Ministry of Natural Resources

MOE – Ontario Ministry of Environment

MP – Master Plan

NEPA – National Environmental Protection Act (USA)

PPP – Policies, Plans or Programmes

SA – Sustainability Assessment

SEA – Strategic Environmental Assessment

STORM Coalition – Save the Oak Ridges Moraine Coalition

Chapter 1: Introduction

1.1 Framing the research

Environmental challenges are present in our everyday life. To deal with them, we have developed approaches to mitigate the damage, prevent developments and undertakings likely to cause serious problems and (in some processes) compare alternatives and identify most desirable options. One of the main ways of doing this is through assessment processes of various kinds, and the most entrenched form of assessment is a project-level environmental assessment (EA), which is now common is virtually every part of the world. Since its formal introduction through the USA National Environmental Protection Act (NEPA) in 1969 and later the Canadian Environmental Assessment and Review Process (EARP) in 1973, environmental assessment has evolved quite substantially. However, of particular importance to the foundation of this research is the growing interest in the environmental implications of initiatives above the project level. This has been evidenced through influential works such as the Brundtland Report in 1987 (and subsequent Summits) and the 1997 Kyoto protocol on climate change, which reflect the growing importance of addressing the potential environmental implications of the strategic level decisions we make, as an essential requisite to move towards sustainability.

In recent years, strategic environmental assessment (SEA) has received considerable attention as a means of integrating, in the earliest stages of decision making, environmental and sustainability considerations in the formulation, planning, approval and implementation of policies, plans and programmes (PPP), as well as other strategic initiatives. Although SEA

application has grown in numbers worldwide, the ways in which it has been applied has varied greatly, from SEAs being more narrowly focused on biophysical concerns to SEAs including broader considerations of social and economic aspects (Dalal-Clayton and Sadler, 2005a). SEA application has varied in its integration with planning and decision-making processes. On the one end of the spectrum are SEAs that are essentially mechanical or technical instruments conducted separately from the planning process and then used as an information piece in the decision-making stage; in contrast are those SEAs that are broader, contributing to a new approach to planning (Eggenberger and Partidário, 2000; Thérivel, 2004b; João, 2005a). As an approach to decision making, SEA has been promoted as a promising instrument expected to be able to provide better informed, more credible and more broadly beneficial strategic initiatives, as well as timelier and clearer guidance for subsequent undertakings.

SEA evolved in part as a response to the identified limitations of environmental assessment processes focused at the project level alone. While project-level assessment processes have led to more environmentally informed and generally more transparent and participative decision making on many undertakings, they have, in general, not been able to deal well with broader concerns (e.g., cumulative effects, broad objectives and alternatives, underlying policy conflicts and longer term options). Project assessments are usually reactionary, rushed, narrowly mandated and come too late in decision making to be generally effective vehicles for examining strategic concerns and options. As discussed in Benevides et al. (2008), where strategic concerns have emerged in project assessments, it has rarely been possible to address them adequately or efficiently.

Therefore, SEA emerged as a promising means of dealing directly with strategic issues in a way that has the advantages of project EA processes (e.g., integration of environmental concerns in planning and decision making, a more transparent, open and participative process, etc.), but also has the necessary scope and mandate to influence higher-level decisions (such as plans or programmes that set the stage for subsequent projects). In addition, SEA happens at a time and level that can provide guidance to subsequent lower-tier strategic undertakings as well as project planning.

Strategic undertakings have important implications for sustainability. Increasing awareness of, and concern about, some of these implications has encouraged greater use of SEA, both to ensure better attention to environmental and sustainability considerations in the development of PPPs and to address environmental and sustainability issues through new strategic initiatives at a sectoral or regional level. Examples of these include SEAs (although not always under the SEA label) applied to the transportation sector, land use planning, energy sector, and water and wastewater (for example, Fischer, 2002; Hildén et al., 2004; Jay and Marshall, 2005; Sánchez-Triana and Enriquez, 2007).

SEA can be used in different planning and decision-making contexts including growth-related planning, which is the object of interest of this research. Many argue that initiatives to manage growth can be among the most comprehensive and integrative approaches currently available for potentially incorporating sustainability considerations into planning (Zovanyi, 1998; Smart Growth Network, 2002). In fact, growth management planning is typically driven by a mix of biophysical, social and economic concerns. Such planning is unavoidably complex, in the sense that a great many independent agents are interacting with each other in many ways, all of this involving the full range of intersecting sustainability issues. Because of this complexity, major challenges are created for planners and decision makers, with numerous interacting variables to be accounted for and multiple agencies and groups, at multiple scales, bringing different values and concerns to bear. An important component then is an appreciation for understanding and focusing attention on issues and pressures influenced by all the different scales. Furthermore, as complexity has implications for both the biophysical and social realms, it also has the potential to provide innovative insights into the structures and processes that planners and decision makers use to manage human activities in terms of their implications for the environment.

Accordingly, the idea of having a sustainability-based SEA applied to growth-related initiatives is a promising one. It addresses SEA as an approach to decision making – as opposed to a mechanical technical instrument that is done on the side and 'might' inform the big decisions – that takes into consideration substance as well as process design issues, and is informed by a broader conceptual foundation of sustainability considerations.

In this context, I developed a sustainability-based SEA framework that is based on SEA best practice and is informed by sustainability requirements. This sustainability-based SEA framework is intended to be broad and it represents the essential SEA components for making better, more effective decisions that are centred on sustainability. The main advantage of this framework is that it can be applied everywhere. But different places have different problems and opportunities, and "sustainability needs and options always depend heavily on the particular circumstances involved" (Gibson, 2006:10). As such, while a generic SEA framework provides a valuable starting point, it still needs to be specified in ways that recognize the particular context of the case (conditions, pressures, issues, priorities, etc.). Therefore, in this research I explore the concept of sustainability as an overall planning goal, as it relates to a particular approach to planning, i.e., SEA. In addition, this research acknowledges the importance and need to address the context in which SEA applications occur, and therefore, it highlights the need to specify the application for particular areas.

1.2 Research Gap

Despite the recent advances in knowledge about and experience with SEA, and considering the important role that SEA could play in facilitating better informed, more credible and more broadly beneficial strategic initiatives, in practice, the story is less impressive. In reality, the application of sustainability-based SEA has been rare. Even though some of the principles for SEA better practice call for a sustainability-led assessment process (e.g., IAIA, 2002), most applications have been narrow in scope and have not paid attention to how a sustainability-based process should proceed.

In addition, many SEA conceptualizations are focused on a discrete, formal assessment of PPPs that generates a report that is to be used to help make decisions, following a project-EA-style protocol (e.g., Bass, 2005; Fischer, 2007; EC, 2008). By contrast, the current research addresses SEA as an approach to decision making – as opposed to an information piece used (or not) to make the final decisions. As such, SEA is addressed as a dynamic, on-going process (as opposed to a static, one-time study) that is informed by a broader conceptual foundation of sustainability considerations.

It is through this perspective that this research explores the potential contribution of a sustainability-based SEA as an approach to decision making that can contribute to improved planning and decision making that is more integrated, farsighted, open, efficient, credible and defensible, and ultimately brings desirable and durable net benefits. Moreover, by providing clearer guidance to the subsequent undertaking, this approach can serve as a bridge to the planning of the project undertaking.

Finally, within the SEA literature, few have attempted to understand how SEA adoption becomes a priority (see for example Fischer, 2004), as most SEA scholars have focused their research on procedural and methodological issues, as well as governance and decision making. This research addressed this gap by looking through the lens of a policy window, a concept popularized by John W. Kingdon (Kingdon, 1995). The following section presents the goals and objectives of this research.

1.3 Research Goal and Objectives

1.3.1 Goal

The overall goal of this research is to contribute to academic and practical knowledge of strategic environmental assessment, as well as to extend our knowledge of the potential contribution of SEA to regional planning processes in Canada, especially in the context of growth-related planning.

The purpose of the research is to gain a better understanding of the value of SEA and its possible implementation challenges in a Canadian municipal context. Above all, this research addresses how experience with SEA can be used to accomplish two goals: first, to improve regional planning and decision making, including its link to the project level; and second, to understand how regional planning experience can help illuminate possible means of strengthening SEA.

1.3.2 Objectives

This research was guided by an interest in improving understanding of how SEA can help to contribute to sustainability through planning/EA processes and activities, especially in the context of growth-related planning. A number of more specific research objectives were derived:

1 Produce a synthetic review of the guidelines for SEA best practices with particular attention being paid to context issues;

- 1.i Review the literature and identify the essential components of SEA best practice;
- 1.ii Produce a framework based on SEA best practice that is informed by sustainability considerations;
- 1.iii Identify a case study;
- 1.iv Illustrate how components from the framework relate to the specific case, particularly in terms of their importance for planning and environmental assessment processes.

2 Analyse and describe in what way SEA can contribute to regional infrastructure planning in a particular case;

- 2.i Identify key events that highlight project-EA limitations in a particular case's planning/EA approach;
- 2.ii Identify the motivations for change towards a more strategic approach to planning/EA.
- 2.iii Analyse what SEA helped to achieve and the implications associated with it.

3 Describe and analyse how SEA gains momentum and becomes a governmental priority;

- 3.i Through a policy windows lens, use the identified key events to better understand how interest in applying SEA gains prominence.

1.4 Significance of the research

This research was designed to contribute to the theoretical and empirical discussions about SEA. On a broad scale, this research contributes to the pragmatic application of sustainability

thinking in assessment of undertakings, with an emphasis on strategic initiatives, including PPPs. More specifically, this research contributes to the SEA best practice literature by developing and testing a SEA framework that is based on SEA best practices and is informed by sustainability considerations.

This research also contributes to understanding of how interest in SEA may gain prominence in governmental agenda. By using the policy windows concept, this research examines how a SEA-type process entered the agenda when a policy window opened in York Region, Ontario as a result of a focusing event and the convergence of the three steams of problems, solutions and politics. The policy window approach proved useful as an evaluation instrument to identify windows of opportunities for SEA adoption. Empirically, the study contributes to the body of knowledge surrounding growth-related planning and assessment initiatives that have an official commitment to sustainability, and highlights the importance of context for customizing the application of SEA.

1.5 Research design and methods

This research is qualitative in methodology. Its goals are exploratory, descriptive and explanatory. Babbie (2004) describes exploration, description and explanation as the three general purposes of social research, and adds that most studies have a combination of more than one of the three.

> Exploration is conducted to explore a new topic, and it typically occurs when a researcher examines a new interest or when the subject of study itself is relatively new. Description is a major purpose of many social scientific studies, that is, to describe situations and events. The researcher observes and then describes what was observed. The third general purpose is to explain things. Descriptive studies answer questions of what, where, when and how; explanatory questions, of why (Babbie, 2004).

In this context, this research is:

- Descriptive, as it presents specific details of the Regional Municipality of York's planning system, especially on the Infrastructure Master Plan update process and to what extent it has adopted SEA best practice components;
- Exploratory, as it attempts to produce a SEA framework based on SEA best practice and informed by sustainability considerations; and,
- Explanatory, as it attempts to explains the reasons why York Region becomes interested in a more strategic approach to planning and environmental assessment.

1.5.1 Selection of case study

A case study approach was selected to illustrate the sustainability-based SEA framework and examine the model of SEA emerging in the Regional Municipality of York, Ontario, Canada. It is important to note that this research has been conducted in conjunction with a Canadian Environmental Assessment Agency (CEAA)-funded project. Although data collected for the CEAA project were also used in the dissertation research, the focus of the two projects differed. While the CEAA project focused on developing a set of principles and procedures for SEA based on two different models (EA-based and non-EA-based), the focus of my research was on exploring how a sustainability-based SEA approach to decision making could potentially contribute to growth-related planning in a rapid growth setting. Although this provided an 'opening door' to selecting York Region as a case, York Region was selected mainly because it satisfied the following criteria:

1. The Region is one of the fastest growing regions in Canada;
2. The Region showed an apparent internal commitment to start using a sustainability-based approach to planning and decision making as a means to improve their overall growth management planning and project-level environmental assessment practice;
3. The Region provided evidence of key events that emphasize the importance of a more strategic approach to environmental assessment and planning;

4. The Region was involved in attempts to strengthen planning/EA approaches;
5. There was availability of funding; and,
6. The Region is fairly close to the University of Waterloo.

York Region faces particular planning challenges that go well beyond its administrative boundary limits, with multiple directions of influence and multiple scales of operation (i.e., municipal, regional, provincial, federal, and even global). There are Ontario provincial policies guiding growth at the regional and municipal levels; there is population increase from immigration influenced by Canadian federal policies; there is climate change and associated policy discussions at the international level. As well, there is urban expansion in a global community; and there is the recent financial crisis and a number of other issues over which York Region has no control.

In association with growth and development pressures, York Region has converted approximately 160 square kilometres (62 square miles) of countryside to urban uses since 1971 (York Region, 2009). The Region grew from 169,000 people in 1971 to 759,000 people by 2001, and is expected to reach 1.5 million by the year 2031 (Ministry of Public Infrastructure Renewal, 2006). Growth has led to enormous pressure for new and updated infrastructure, especially for transportation, water and wastewater.

All of this makes York Region an excellent candidate for exploring the potential contribution of a sustainability-based SEA framework to growth-related planning initiatives, especially in terms of infrastructure planning. The following section describes how data were collected.

1.5.2 Data collection

Data were collected from multiple sources. As identified by Midgley (2000: 174-176), three interlinked problems are associated with the use of only one method, or even a very narrow set of methods. These are that the intervener/researcher is likely to be unresponsive to diverse understandings of issues arising out of the different perspectives of those affected by them; the

intervener is unlikely to address how the issues of relevance may change as people's understandings evolves, and; the intervener may see all issues and perspectives through the same lens. Therefore, for the purposes of this research, data collection and verification used multiple sources:

i. Literature reviews from academic journals, books, websites and research reports;
ii. Semi-structured interviews (n=28);
iii. Review of relevant government documents; and
iv. Participant observation.

A review of the international literature was performed to identify SEA best practice components. A number of governmental documents related to the case study were reviewed to obtain greater detail of information as well as to check information gathered during interviews. In total, 28 interviews were conducted from November 2007 to October 2010. The first 21 were conducted in 2007/2008 and the last 7 interviews were conducted in 2010 as follow-up to the initial interviews. The initial set of interviews helped to develop a better understanding of the history of environmental assessment in York Region, as well as a growing interest in a more strategic, sustainability-based planning and assessment approach. The purpose of the follow-up interviews was to clarify information collected during the first set of interviews and to obtain additional information that was judged to be missing from the initial conversation. More importantly, follow-up interviewees were asked to rate the importance of SEA best practice components, in the context of York Region.

In addition, throughout the development and implementation of this research, I was able to attend various fora and engaged in active participant observation to complement the interviews and documentary analysis. As such, I attended various York Region internal and public meetings, as well as project-related workshops involving York Region staff and involved consultants (Table 1). It should be noted that my role as participant observer ranged from just observation to a more active participant role. Whereas during Public Consultation Centres (PCC) my role was more of an observer, during other workshops and especially Technical Advisory Committee (TAC) meetings I had a more active participant role. Reflecting back to

how much influence I had as participant observer, it would be naïve to say that I influenced anything more than just thought sharing. While I have seen changes in regards to comments I made during these activities (such as the adoption of different language in the development of the Sustainability Strategy), it is clear to me at this point that these activities were potentially more valuable to my research than it was to York Region staff.

Table 1: Meetings and Workshops attended

Date	Meeting / Workshop Attended	Description
June 2007	Workshop: Sustainability Strategy and Sustainability Criteria for Transportation and Water and Waste Water Master Plans	Workshop held at the University of Waterloo focused on the development of the York Region Sustainability Strategy. It involved York Region staff and members of the academic community with expertise in sustainability, environmental assessment, transportation and infrastructure planning
October 2007	York Region Sustainability Focus Group	Session held with various stakeholders to get feedback on the Draft Sustainability Strategy, the Natural Heritage Discussion Paper and the Infrastructure Master Plans Sustainability Principles and criteria.
June 2008	Transportation Master Plan update Technical Advisory Committee Meeting #3	Meeting focused on presenting and discussing the Modeling Network Scenarios used in assessing potential alternatives
September 2008	Transportation Master Plan update Technical Advisory Committee Meeting #4	
October 2008	Workshop: Strategic Environmental Assessment and the Upper York Sewage Solutions (UYSS) Workshop	Workshop focused on the integration of sustainability and SEA principles into a specific York Region environmental assessment process. Participants involved York Region staff, private consultants and academics.
October 2008	Water and Wastewater Master Plan update Technical Advisory Committee Meeting #4	
November 2008	Public Consultation Centre of the Transportation Master Plan update	This was the 4th (out of 5) Public Consultation Centre (PCC) for the final stage of the Transportation Master Plan update. Many questions from the public were left unanswered. Not many people attended (20 – 25).
January 2009	Public Consultation Centre of the Water and Waste Water Master Plan update	
May 2009	Final combined Transportation and Water and Waste Water Master Plan update Technical Advisory Committee Meeting	This was the fifth and last Technical Advisory Committee meeting before York Region sent both Master Plans to Senior Management and then to Council for approval. Both documents were available for public review from June 1, 2009 until September 30, 2009.

The meetings and workshops attended were helpful in developing a better understanding of the current planning and EA approach in York Region. They were useful for identifying procedural components in place that were not fully captured with interviews alone, and they served to reinforce and confirm what was said by interviewees. In addition, these meetings and workshops were important for developing an understanding of the extent to which the Sustainability Strategy was being filtered down to Infrastructure Master Plans. While the documentary analysis helped in identifying the substance covered (i.e., what gets addressed in the recent York Region's sustainability-based planning framework), participant observation helped to uncover the processes through which overall sustainability principles were incorporated into the Master Planning process.

1.6 Thesis format and contribution of authors

This is a version of manuscript-based thesis style. Chapters 4, 5 and 6 were written in academic paper format, consistent with the guidelines of the Department of Geography and Environmental Management, University of Waterloo, Waterloo, Ontario. The work was done by Denis Kirchhoff, author of this dissertation. Professor Jean Andrey and Professor Brent Doberstein are the co-supervisors. Chapter 4 is a single-authored paper, and chapters 5 and 6 are co-authored; co-authors include: Professor Dan McCarthy (University of Waterloo), Debbe Day Crandall (STORM Coalition), Professor Graham Whitelaw (Queens University) and Laura McDowell (Regional Municipality of York). The authorship for the papers is as follows:

1st paper (Chapter 4): Submitted to peer-reviewed journal on March 23, 2011

D. Kirchhoff (under review). The Importance of Context: A Review of SEA Best Practice. *Journal of Environmental Assessment Policy and Management*.

- I am the single author of this article.

2nd paper (Chapter 5): Peer-reviewed journal article

D. Kirchhoff, D. McCarthy, Debbe Crandall and Graham Whitelaw (2011). Strategic Environmental Assessment and Regional Infrastructure Planning: the Case of York Region, Ontario. *Impact Assessment and Project Appraisal*. 29(1): 11-26.

- As the first author, my contribution to this chapter accounted for approximately 70% of the work including literature review, data acquisition, data analysis and writing.

3rd paper (Chapter 6): Peer-reviewed journal article

D. Kirchhoff, D. McCarthy, Debbe Crandall, Laura McDowell and Graham Whitelaw (2010). A Policy Windows Opens: Strategic Environmental Assessment in York Region, Ontario, Canada. *Journal of Environmental Assessment Policy and Management*. 12(3): 333-354.

- As the first author, my contribution to this chapter accounted for approximately 70% of the work including literature review, data acquisition, data analysis and writing.

1.7 Outline of chapters

This dissertation has 7 chapters. Chapter 1 introduces the research topic, highlights the goals and objectives, and describes the research methods used, as well as the format and outline of the dissertation. Chapter 2 reviews the literature on SEA and sustainability and discusses the overlaps with concepts of governance and planning. As this dissertation follows a manuscript-based format, chapter 2 reviews the international literature to inform the reader about what has been learned. More focused and specific literature reviews are presented in each of chapters 4, 5 and 6 (papers #1, 2 and 3, respectively).

Chapter 3 presents background information and relevant legislation for the case study. Chapter 4 addresses research objective 1, and is the first manuscript in the thesis. First, it reviews the SEA best practice literature and summarizes the key components. The pool of guidance,

however, is not intended to be exhaustive, but large enough to provide working material for the research. Second, Chapter 4 illustrates how context influences the importance of each best practice component, in regards to a specific case study in York Region, Ontario, Canada. In addition, this chapter provides a rationale for the focus on SEA components from the SEA best practice framework in chapter 5.

As such, Chapter 5 addresses research objective 2 by describing and analysing three key components of the SEA framework in the context of York Region, Ontario, Canada (i.e., sustainability-centred decision making, communication and tiering). Chapter 6 addresses objective 3 by utilizing insights from the policy window literature to discuss how interest in SEA can become a priority for governments, again using the case of York Region for illustration purposes. Finally, chapter 7 ties all the chapters together and draws final overall conclusions from this research and makes recommendations for further research.

Chapter 2: Sustainability and Strategic Environmental Assessment: Reviewing theory and practice

2.1 Introduction

This chapter draws upon literature from two main themes relevant to the research topic: sustainability and strategic environmental assessment. The literature from each theme is critically reviewed in the context of the research objectives (section 1.3.2). In addition, the literature on SEA is reviewed in relation to concepts of planning and governance.

2.2 Sustainability in Decision Making

It could be argued that sustainability, as put by Gibson et al. (2005), is an "old wisdom", where, since the dawn of time, most "people in most human communities had the main earthly objective to continue. And the core strategy was to stick with what worked, which meant maintaining the traditional practices that ensured viable relations with nature and other people and the realm of spirits, gods or God" (Gibson et al., 2005: 39). Gibson calls this the old sustainability, a view that was supposedly "shared by virtually all hunters and gatherers, by almost everyone in the early agricultural societies, in the ancient civilizations and in feudal arrangements" (Gibson et al., 2005: 40). For the most part, change was generally not seen as desirable as it would disrupt the customary ways of these traditional societies.

The ever-changing world we live in today is a very different one from what ancient societies were used to. With technology advancement, rapid material progress and development, change has become an important factor to be addressed so that humankind can continue. In fact, living

with permanent technological innovation and changes in social organizations requires that sustainability be a dynamic process. The emergence of sustainability, as we currently understand the term, can be traced back almost 40 years to the 1972 United Nations' Stockholm conference on the human environment. Growing concerns about patterns of development and consumption culminated with the coining of the term 'sustainable development' in 1987 when the Brundtland report was published. However, almost 20 years after the Rio Summit in 1992, the challenge of moving economic development forwards, without compromising the availability of resources for future generations and at the same time protecting the environment and cultural heritage has become more urgent than ever (Marshall and Fischer, 2005). The following section reviews the theoretical literature on the sustainability theme.

2.2.1 The emergence of sustainability

The sustainability agenda emerged in the early 1970s as a response to the two previous decades' deepening worries about damages and risks, development failures and evident growth limits (Gibson et al., 2005). It emerged and evolved within the general discourse about the future of the world, under which a number of sub-themes fall such as: limits to growth (Meadows et al., 1972), steady state economy (e.g., Daly, 1973), conserver society (e.g., Schumacher, 1973), eco-development and environment and development (e.g., Francis, 1976; Sachs, 1977), and finally ecology and ecologism (e.g., Bookchin, 1980; Lovelock, 1982). Gibson et al. (2005) argue that the concept of sustainability can be understood in at least three ways, as:

- A critique of and response to decision making practices and results that failed consistently because the interconnections among key factors were not recognized;
- A set of principles implying positive objectives; and,
- A focus for strategies for change.

However, it was not until the 1987 Brundtland Report produced by the World Commission on Environment and Development (WCED, 1987) that sustainable development, as a term and as

a priority, became popularised and began to enter the political arena (Noble, 2002). The Brundtland Commission (1987) defined sustainable development as development that "meets the needs of the present generation without compromising the ability of future generation to meet their own needs". At the time, the main idea was to identify a "pathway" through which people could create sustainable policies and practices rather than to develop a blueprint for action.

Since its emergence, the concept of sustainability has created much dispute and discussion about conceptual meanings and practical implications. Gradually, it has been embraced by government bodies and other influential organizations around the world. However, actual behaviour of institutions that have claimed devotion to sustainability has been much criticized (Gibson et al., 2005). As argued by Gibson et al. (2005: 49), the "enormous popularity of the notion [of sustainability] … has been accompanied by more verbal adherence than practical implementation". Whether this is related to implementation difficulties (i.e., how to translate the concept into practice) or to the use of sustainability language for image-building purposes by politicians and decision makers, the reality is that, in practice, "sustainability remains an idea with more potential than effect".

One of the often-cited drawbacks of sustainability as a concept is the lack of agreement on its definition, although this is also argued by some to be a reason why the term has lasted for such a long time and has become so widely accepted and debated. In a historical and conceptual study focusing on the analysis of the metaphorical and epistemological basis of the different definitions of sustainability, Mebratu (1998: 518) concludes that this diverse spectrum of definitions and interpretations is a result of the influence of institutional and group interest as "most of the effort of interpreting the concept is, to a large extent, influenced by the fundamental tenets of the specific group or organization."

However one may choose to define it, sustainability stands as a critique; it is a challenge to prevailing assumptions, institutions and practices (Gibson et al., 2005). It relates to the basic non-viability of current development trends and practices and, therefore, it implies a need for significant change. Sustainability requires the capacity to adapt to constantly changing conditions, as well as the flexibility to work with uncertainty, and with differences in local

conditions and in public expectations shaped by culture, values and experience. Above all, it is participatory, ensuring that local communities and individuals have substantive input into designing and implementing development programs and projects (CIDA, 2004). In this sense, sustainability is a challenge to conventional thinking.

In addition, sustainability is more than setting up a system of compatible relations among biophysical, social, and economic aspects. It implies considering:

> "both the present and future, the incorporation of economic, environmental and social considerations into planning and management, the recognition that our institutions must evolve so that they can deal with the linkages and complexity of the world, the combination of technical and local knowledge systems, and to seek to change underlying values, beliefs and attitudes" (Mitchell, 1998: 51).

However, the lack of agreement as to what sustainability implies for planning and decision making has lead to numerous variations in practical applications. One of the most well known depictions of sustainability is the pillars-based approach, which is the focus of the next section.

2.2.2 The pillars-based approach to sustainability

There still exists considerable difficulty in moving sustainability from a potentially good concept to widespread and enduring practice. One common depiction of sustainability is the pillars-based approach (sometimes used as intersecting circles). Suggested by the Brundtland Commission (WCED, 1987), the two-pillar version (environment and development) has been popular since its emergence, and later versions of the intersecting pillars grew to be three (ecological, social and economic) or even five (ecological, social, economic, cultural and political) interconnected pillars.

The pillars-based approach to sustainability brings some advantages, but it also has some drawbacks. Proposed in the 1980s, the two-pillar version was a powerful metaphor implying that each pillar had equal importance. It was perhaps a good starting point in order to stress the importance of all the relevant factors that were not being properly considered during the early years of the sustainable development concept. However, for assessment purposes, integration

issues arise when each pillar is addressed separately and then only later attempts are made to combine the separate findings of each.

Although the conception of sustainability as a set of pillars has generated much criticism, approaches to sustainability such as the Triple Bottom Line (or three pillars approach) are still common practice. And they do have some advantages. This pillars-based approach to sustainability:

> "fits well with established capacities of experts trained in the specific constituent fields (social, economic and ecological), with the organization of much of the relevant information (e.g., data sets collected separately under these categories), and with the usual division of social, economic and ecological mandates among government bodies. However, this convenience also makes the pillars-based approach more suited to neglect the interdependence of these factors, and to see them as more likely to be conflicting than potentially complementary" (Gibson, 2005: 4).

Therefore, in practice, this separation into pillars ends up encouraging conflicts, especially between the ecological and economic pillars, given all the different values, established capacities, assumptions and perspectives from each of the separate disciplines.

For assessment practice, it is always a struggle to integrate and understand the overall implications of separate social, ecological and economic reports. As argued by Gibson et al. (2005), the pillars approach to sustainability has proved more useful for categorizing and separating than for linking and integrating. Similarly, Devuyst (2001: 148) warns that aggregating separate findings of ecological, social, and economic impacts faces many methodological problems. Pope et al. (2004: 610) criticise the pillars approach for being reductionist and suggest that "dividing the holistic concept of sustainability…invariably runs the risk of the sum of the parts being less than the whole." Likewise, Partidário (2005b: 156) argues that "splitting the concept of sustainable development is not only subverting the integrity of the concept, but also making the advance of this new development paradigm more difficult, by cutting it into slices and allowing business as usual to continue."

If sustainability is crucially about linkages and interconnections, the separation into pillars is problematic because it does not facilitate and may discourage consideration of these important interrelationships. As argued by Gibson (2005: 6):

> "the genius of the sustainability concept is its insistence on interconnections and interdependencies. It consequently demands planning and decision making that look for the links, and seek mutually reinforcing gains on all fronts. It is not about balancing or making trade-offs. It is about integrating and avoiding trade-offs to the extent possible."

2.2.3 Principles-based approach to sustainability

In response to this gap between sustainability as an idea and sustainability application on the ground, scholars and experts in the field of sustainability studies have turned to the idea of sustainability principles (e.g., Gardner, 1989; George, 1999; Sadler, 1999; Gibson, 2000; Devuyst et al., 2001; George, 2001; Pope et al., 2004), which "must be those that lie at the core of the idea and that should inform its application anywhere" (Gibson et al., 2005: 59). Instead of having a number of circles where sustainability would rest only in the intersecting area, the idea would be to take sustainability as an essentially integrative concept that embraces a list of key considerations or changes needed in human arrangements and activities.

Derived from the broad sustainability literature, Gibson et al. (2005: 115) propose eight generic sustainability principles or requirements that "should serve as the objectives underpinning every serious strategy for enhancing future well-being and should inform the planning and review of every undertaking with potentially significant sustainability implications" (Table 2). These principles are not grouped neatly into the pillars and they encourage attention to interconnections among them.

Table 2: Essential requirements for progress towards sustainability

Principles	Requirements
Socio-ecological system integrity	Build human-ecological relations to establish and maintain the long term integrity of socio-biophysical systems and protect the irreplaceable life support functions upon which human as well as ecological well-being depends.
Livelihood sufficiency and opportunity	Ensure that everyone and every community has enough for a decent life and that everyone has opportunities to seek improvements in ways that do not compromise future generations' possibilities for sufficiency and opportunity.
Intragenerational equity	Ensure that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc) between the rich and the poor.
Intergenerational equity	Favour present options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably.
Resource maintenance and efficiency	Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long term integrity of socio-ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit.
Socio-ecological civility and democratic governance	Build the capacity, motivation and habitual inclination of individuals, communities and other collective decision-making bodies to apply sustainability requirements through more open and better informed deliberations, greater attention to fostering reciprocal awareness and collective responsibility, and more integrated use of administrative, market, customary and personal decision-making practices.
Precaution and adaptation	Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise, and manage for adaptation.
Immediate and long term integration	Apply all principles of sustainability at once, seeking mutually supportive benefits and multiple gains.

Source: (Gibson et al., 2005)

It could be argued that these principles are not profoundly different from the pillars-based approach, since they cover the main substance of key ecological, social and economic considerations. In a different way though, the principles-based approach also stresses the importance of considering interconnections and interdependencies (Gibson et al., 2005), and they also incorporate themes that are not clearly defined within just one of the pillars. As argued by Gibson (2006a), these would have to be supplemented by and integrated with more particular considerations appropriate to specific cases and contexts, but would provide a consistent common base.

How we go about making decisions is central to sustainability and how we apply sustainability principles in practice. In this context, there have been attempts to apply sustainability

principles in practical decision making. However, the vagueness of the concept of sustainability, coupled with its increasing importance in international, national and regional policies, has resulted in a multitude of definitions and interpretations, which in turn, lead to numerous variations in practical applications. Therefore, applications of the sustainability concept have ranged widely, for example, from national sustainability strategies to regional planning; from green building standards to blueprints for corporate sectoral reform; and from implementation of poverty reduction projects to urban growth management plans.

In addition, quasi-formal sustainability planning and assessment processes (integrated assessment, sustainability appraisal, triple-bottom-line evaluation, etc.) have been spreading rapidly in planning and assessment initiatives, both at the project as well as at strategic levels. More and more, what is seen is a continued proliferation of official commitments to sustainability. Attempts to apply sustainability-focused decision making have been made around the world, including Hong Kong (HKSDU, 2002),the United Kingdom (UK ODPM, 2005), Australia (Pope and Grace, 2006). In Canada, examples include the Voisey's Bay nickel mine on the north Labrador coast (Gibson, 2002) and the Growth Management Strategy in Vancouver Island (Boyle et al., 2004).

2.3 Strategic Environmental Assessment

This section begins by briefly reviewing the origins of environmental assessment and its evolution into an instrument that can be applied above the project level as well. The need for SEA as well as its links and suitability with the concept of sustainability is later discussed. Finally, the links between SEA and concepts such as governance and land use planning are highlighted and described.

Strategic environmental assessment (SEA) has been in use for over 20 years and it has gone through considerable change in its conception. Early definitions saw SEA as a tool for extending related processes and procedures upstream from the project to the strategic level, and focusing on the environmental impacts of PPPs that are already proposed. More recent definitions take a broader, more complex and varied perspective, and see SEA (and project

EA) as including the social (and sometimes the economic) dimension. In addition, SEA is promoted not just as a means to upstream impact assessment, but also as a diagnostic tool to help integrate environmental and social considerations during the formulation of policies and development plans and programmes (Dalal-Clayton and Sadler, 2005a); all in the interest of long term multiple and overall gains.

2.3.1 The origins of environmental assessment

EA can be considered the outcome of debates in the planning arena of the 1960s when the failure of major development projects highlighted the need to consider potential environmental impacts in advance (Ortolano and Shepherd, 1995). In their book about sustainability assessment, Gibson et al. (2005) describe the origins and evolution of environmental assessment and contend that the first steps in response to this recognition of major development projects' failures were in basic environmental protection and resource management (e.g., stronger efforts to control air pollutants, improvements to waste management and sewage treatment facilities, additional efforts to protect natural and heritage areas). Environmental assessment *per se* came a little later, and it emerged in most jurisdictions from environmental regulation. "It was an outgrowth of pollution abatement law. Or, more precisely, it was a response to the failures of environmental laws that focused on responding to particular, identified abuses" (Gibson et al., 2005: 18).

These environmental regulations were to a large extent reactive and concerned with corrective measures (mitigation) as opposed to prevention. While this can be considered an improvement from past approaches, but is nevertheless insufficient. The introduction of a more integrated and anticipatory process began to seem more reasonable, and emphasis started being placed on permitting and licensing of new undertakings, with hopes to prevent or minimize later problems. Typically, the permitting and licensing decisions were centred on determinations of 'acceptability' – whether undertakings meet established environmental criteria or standards – rather than on promotion of most desirable or even least negative options (Gibson et al., 2005). But gradually, as argued by Gibson et al. (2005), more "anticipatory controls were expanded

and strengthened, and in this the introduction of environmental assessment processes played a large role."

Many early environmental assessment processes were quite narrowly focused on biophysical concerns, technically oriented and discretionary. But an ambitious initial standard was set by the first process – the environmental impact assessment (EIA) obligations introduced in the US National Environmental Policy Act (NEPA) of 1969 – and assessment processes ever since have been gradually expanding their scope and coverage and becoming more demanding (Gibson et al., 2005: 20). At that time, the basic purpose of EIA was to "broaden and strengthen the role of foresight in governmental planning and decision-making" (Caldwell, 1989: 7). One of the catalysers of NEPA – and the introduction of EIA – in the USA was the rise of public pressure for action to correct minimal government environmental emphasis (Clark, 1997). Therefore, the development of EIA under USA-NEPA was a political response (Cashmore et al., 2004) that can be usefully seen as a context- and time-specific reaction to problems identified within one country's development planning context (Doberstein, 2004).

Section 102 of NEPA contains procedural requirements, including the provision for a detailed statement to accompany "proposals for legislation and other major federal actions significantly affecting the quality of the human environment." Lynton Keith Caldwell, one of the architects of NEPA, argued that this provision was to be an "action-forcing" measure, intended to "reform and redirect federal policymaking" (Caldwell, 2000). The required actions were "meant to change the nature of the proposal development process so that environmental factors were habitually integrated with the usual economic and technical considerations. And the law made such action mandatory" (Gibson et al., 2005: 20). However, this intention to produce changes in the decision-making processes of the federal agencies encountered some limitations. In practice, policy and other strategic decisions were excluded from review, other than for programmatic activities that could be grouped together (Dalal-Clayton and Sadler, 2005a).

2.3.2 Evolution of environmental assessment processes

The evolution of environmental assessment can be broadly traced through four generations or 'paradigms' (see Table 3). Project EA represents the 'first generation' and now considers a range of effects including social, health, economic and other aspects in its assessment of alternatives. The most striking trend of the last decade is the development and adoption of a 'second generation' process of SEA for policy, plan and programme proposals (Dalal-Clayton and Sadler, 2005b). The 'third generation' is still at an early stage and represents the use of project-EA and SEA as tools to implement sustainability principles and integrate social, economic and environmental considerations at the PPP levels (McCarthy et al., 2008). Dalal-Clayton and Sadler (2005b) argue that increasing reference is being made in the EA and SEA literature to sustainability-based assessment or to near-equivalent terms. These include sustainability analysis, sustainability assurance, sustainability impact assessment and sustainability assessment. Hence, the fourth or 'next' generation of environmental assessment would represent a fairly fundamental shift to environmental assessment that is informed by sustainability concerns or, as Gibson et al. (2005) refer to it, sustainability assessment.

Table 3: Evolution of EA/SEA/SA

Paradigm/level/stage	Key Characteristics
1st Generation – Project EA	Includes social, health and other impacts, cumulative effects and biodiversity
2nd Generation – SEA	Applies to PPP and legislation
3rd Generation – towards environmental sustainability assurance	Use of EA and SEA to safeguard critical resource and ecological functions and offset residual damage; plus environmental accounting and auditing of natural capital loss and change
Next Generation – towards sustainability appraisal / assessment	Integrated or full cost assessment of the economic, environmental and social impacts of proposals

Source:(Dalal-Clayton and Sadler, 2005b)

Gibson et al. (2005: 22) present four different stages in the evolution of environmental assessment since the 1960s from its regulatory roots (Box 1). They state that "the stages are a considerable simplification of what has been a messy, uneven and still incomplete global process, but they illustrate the basic character and direction of change involved".

Box 1: Four stages in the development from environmental regulations to advanced environmental assessment

• *Stage 1:* reactive pollution control through measures responding to identified, local problems (usually air, or water, or soil pollution), with solutions considered technical matters to be addressed through closed negotiation of abatement requirements between government officials and the polluters.

• *Stage 2:* proactive impact identification and mitigation through impact assessment and project approval/licencing, still focused on biophysical concerns (though now integrating consideration of various receptors) and still treated as a largely technical issue with no serious public role (but perhaps expert review).

• *Stage 3:* integration of broader environmental considerations in project selection and planning through environmental assessment processes with
- consideration of socio-economic as well as biophysical effects,
- obligatory examination of alternatives, aiming to identify the best options environmentally as well as economically, and
- public reviews (that reveal expert conflicts and uncertainties, and consequently the significance of public choice).

• *Stage 4:* integrated planning and decision making for sustainability, addressing policies and programmes as well as projects, cumulative and global effects, with review and decision processes
- devoted to empowering the public
- recognizing uncertainties and favouring precaution, diversity, reversibility, adaptability, etc.
- expecting positive steps toward sustainability.

Source: (Gibson et al., 2005)

Haq (2004) has traced a similar evolution in the history of EA and SEA (Box 2), describing three phases in the evolution of EA towards SA.

Box 2: Phases in the evolution of EA

- Adoption of EIA worldwide since its U.S. origins;
- Innovations in law, method and procedure, resulting in the development of the environmental assessment of policies, plans and programmes , usually called Strategic Environmental Assessment; and,
- Expansion in the scope of assessment in response to new challenges and issues, namely the move towards integrated sustainability assessments.

Source: (Haq, 2004: 5)

Reflecting Haq's (2004) third trend in EA moving towards sustainability-based assessment, Stinchcombe and Gibson (2001: 344-345) offer the following definition: "a particular tool for analyses that contribute a sustainability component to existing decision making processes and, more ambitiously, as an approach to decision making at the strategic level that focuses on sustainability considerations". Gibson et al. (2005) and Gibson (2006b) have built on the concept of SEA and developed a practical approach for undertaking sustainability assessment.

It can be argued then that sustainability assessment emerged as an evolution of environmental assessment that is focused on being "a more effectively comprehensive, farsighted, critical and integrated approach to decision-making on important policies, plans, programs and projects" (Gibson, 2006b: 171), and its basic demand is that all significant undertakings must make a positive contribution to sustainability (Gibson et al., 2005).

2.3.3 The need for SEA

As argued by André et al. (2004), after 30 years of practice, project-EA has been mainly helpful in minimizing or compensating for a project's environmental impacts, but it has rarely provided the opportunity for constructive debate on the justification of the choices made about the paths of development. Project assessments are usually reactionary, rushed, narrowly mandated and come too late in decision making to be generally effective vehicles for examining strategic concerns and options. As discussed in Benevides et al. (2008), where strategic concerns have emerged in project assessments, it has rarely been possible to address them adequately or efficiently. In response, SEA has been proposed as an essential next step in addressing environmental concerns above the project level (i.e., into PPPs), improving decision making and helping to promote sustainability.

Generally speaking, while project-EA has led to more environmentally informed and generally more transparent and participative decision making on many particular undertakings, they have, in general, not been able to deal well with broader concerns, such as cumulative effects, and broad objectives and alternatives. More strategic initiatives such as policies, legislative initiatives, trade agreements, subsidies, privatization and sectoral PPPs are major strategic actions that can create far more pervasive impacts. From the experience with NEPA in the

USA, Andrews (1997: 91) concludes that a fundamental limitation of project-EA has been the rarity of its influence on truly major federal decisions at the policy, programmatic and legislative levels. Andrews cites government policies with perverse environmental results like agriculture crop payment formulas, below-cost timber sales, fossil fuel and mining subsidies, and differential investments in highways as opposed to mass transit. In this context, SEA has been promoted as a means to counteract these identified limitations that project-EA cannot address on its own.

Nevertheless, the need for SEA did not derive solely from project-EA limitations. In fact, counteracting limitations of project-EA and promoting sustainability principles and practice have been presented as the two great motivations behind the evolution of SEA (Thérivel and Partidário, 1996; Petts, 1999; Bina, 2003). Dalal-Clayton and Sadler (2005a) add to that list that SEA can also enable a better context for the consideration of cumulative and large scale effects[1]. Therefore, the concept of SEA has been evolving, strongly linked to the concept of sustainability and the consideration of cumulative effects.

Wood and Djeddour (1992) observe that the term SEA first appeared in the second half of the 1980s[2]. At that early time of use, its understanding did not differ largely from that of project-based environmental assessment. According to Fischer and Seaton (2002), SEA was originally used to describe the assessment of spatial and land-use PPPs above the project level. SEA has been referred to as a second-generation process (Sadler, 1999) – one that moves EA principles 'upstream' in the decision-making process. Actual SEA application continues to proliferate rapidly as does experience with the benefits of SEA, especially for sustainability purposes. As argued by Sheate et al. (2003), integrating the environment into strategic decision making is an essential pre-requisite for moving towards sustainability.

[1] Which can be seen as one of the limitations of project EA.

[2] Although it might be argued that NEPA was the first to consider the environmental effects of "proposals for legislation and major federal actions" (which, in theory, would include both project- and strategic-level initiatives).

2.3.4 SEA and sustainability: suitable mates

As argued by Gibson et al. (2005: xi), environmental assessment is a particularly suitable partner for sustainability efforts. In fact, numerous authors and practitioners have recognized SEA as an important instrument that can enhance the integration of sustainability concerns into strategic planning and decision-making processes (Fischer, 1999; Partidário, 1999; Sheate et al., 2003; Thérivel, 2004b). As observed by Brown and Thérivel (2000), SEA aims to provide a perspective by which the strategic initiative[3] is developed on a much broader set of perspectives, objectives and constraints…and all the dimensions of sustainable development.

Arguably, the pursuit of sustainability in development processes requires a strategic approach. At the national level, a strategic approach implies linking long-term vision to medium-term targets and short-term action; 'horizontal' linkages across sectors, so that there is a coordinated approach to development; 'vertical' spatial linkages, so that local, national and global policy, development efforts and governance are all mutually supportive; and genuine partnership between government, business, and community and voluntary organizations since the problems are too complex to be resolved by any group acting alone (Dalal-Clayton and Bass, 2002). For SEA, strategic approach implies "a set of principles and objectives that shape the visions and development intentions incorporated in a set of alternatives, policy, plan, or programme" (Noble, 2000: 206). And it is in this context that SEA has potential to contribute to sustainability in planning and decision making processes.

For the purposes of this research, an important rationale for the adoption of SEA is planning and decision making that contribute to sustainability. Thérivel and Partidário (1996) observe that SEA could contribute to making policy, plan and programme by incorporating the principle of sustainability to be carried down from policies to individual projects, also called the "trickle down" effect. When a policy, plan or programme precedes and influences a project decision, the PPP and the project decision are supposed to be "tiered". In practice, this does not just work in a strict top-down manner (i.e., from policy to plan to programme to project). Rather, lower tier SEAs and project-EAs can also have a "trickle up" effect, which in turn may lead to an increased awareness of some of the limitations of prevailing policies, plans and

[3] The term 'strategic initiative' or 'strategic action' is used in this dissertation when jointly referring to policies, plans and programmes (PPP).

programmes and, as a result, point to improvements (see for example Hildén et al., 2004).

As a practical example of a trickle up effect, consider a public consultation meeting regarding an EA process for a new road, and participants in that meeting question the validity of the purpose of this new undertaking. Questions raised could include: Why not invest in public transit or High Occupancy Vehicle (HOV) lanes instead of building a new road? Questions such as this one are not properly addressed at the project level, since the project-EA evaluates a predetermined option: a new road. Essentially, other reasonable solutions to the problem, such as public transit, are foreclosed when you get to the project level. Therefore, this project-EA highlights the need to go back to a higher level of decision making (e.g., a master plan or an official plan) and re-evaluate all potentially reasonable solutions to address a perceived problem.

As an approach to decision making that is informed by sustainability concerns applied above the project level, SEA "is a vehicle for clarifying the commonly recognized [sustainability] principles and applying them in specific contexts" (Stinchcombe and Gibson, 2001: 7). Therefore, SEA application is expected to assist in the selection of more sustainable policies and strategies. This in turn demands changes in the way decisions are made and implemented.

Moving towards sustainability implies extending the scope of concern into the long-term. This in turn puts great strain on the traditional decision-making process. In democratic systems, for example, the pace of electoral cycles (often 4 to 5 years) impairs a long-term planning perspective (OECD, 2002). Stinchcombe and Gibson (2001: 5) observe that "serious attention to long-term ecological and socio-economic implications has been discouraged by the prevailing structures and ideologies of policy making and planning." They suggest that one advantage of SEA is that it can incorporate sustainability objectives and provide a process for policy and plan decision making using these objectives. In this context, Partidário (2005a) argues that SEA has a major role to play in creating and facilitating new thinking in decision making: one that promotes longer-term strategic and integrative thinking.

Moreover, the sustainability concept implies that "assessments should encourage a turnaround from unsustainability" and that, "the test of acceptability for new undertakings should be more demanding than mere mitigation" (Gibson et al., 2005: 62), since the long-term "mitigation

only" strategy is doomed to fail sustainability aspirations. Moving towards sustainability requires that SEA attempts to avoid, eliminate and minimise negative impacts and also enhance/optimise positive ones. Therefore, SEA is seen as having the potential to adjust and improve the conventional planning and decision-making approaches, providing a means of transition towards sustainability. The following section provides some of the definitions of SEA found in the literature and ends with a definition of SEA that is used throughout this dissertation.

2.3.5 Definitions of SEA

SEA is meant to improve the strategic action by changing the nature (scope and ambitions) of decision making (Thérivel, 2004b). As an example in practice, Rumble and Thérivel (1996) argue that the Hertfordshire County Council in the UK incorporated the principle of sustainability into its structure plan through an SEA process. Rather than dealing with 'traditional' specific policies (e.g., on employment or housing), the updated plan focused on broader issues concerning the quality of life through sustainable development. In this sense, SEA was used to integrate sustainability goals and objectives into higher-level decision making in order to identify sustainable strategies for action.

SEA has been described as a second-generation process, one that moves advanced EA principles upstream in the decision-making process. Various definitions have been proposed and, among them, several are widely cited in the literature.

Box 3 presents SEA definitions drawn from leading scholars in the field. These definitions also illustrate how interpretation of the concept of SEA has evolved over the past two decades.

Box 3: Definitions of SEA

SEA is...

... the formalized, systematic and comprehensive process of evaluating the *environmental impacts* of a *policy, plan or programme* and its *alternatives*, including the preparation of a written report of the findings of that evaluation, and using the findings in publicly accountable decision making (Thérivel et al., 1992: 19).

... a systematic process for evaluating the *environmental consequences* of proposed policy, plan or programme initiatives in order to ensure they are fully included and appropriately addressed at *the earliest* appropriate stage of decision making *on a par* with economic and social considerations (Sadler and Verheem, 1996: 27).

... a systematic, on-going process for evaluating, at the earliest appropriate stage or publicly accountable decision making, the environmental quality and consequences, or *alternative visions and development intentions* incorporated in policy, planning, or program initiatives, ensuring full *integration* of relevant *biophysical, economic, social and political* considerations (Partidário and Clark, 2000: 4).

... a process directed at providing the proponent (during policy formulation) and the decision maker (at the point of policy approval) with a *holistic* understanding of the *environmental and social* implications of the policy proposal, *expanding the focus* well beyond the issues that were the original driving force for new policy (Brown and Thérivel, 2000: 184).

... a decision making support instrument for the *formulation* of sustainable spatial and sector policies, plans and programmes (PPP), aiming to ensure an appropriate consideration of the environment (Che et al., 2002; Fischer, 2003; Liou and Yu, 2004; Alshuwaikhat, 2005: 155).

... a *participatory* approach for upstreaming environmental and social issues to influence development planning, decision making and implementation processes at the strategic level (Ahmed et al., 2005: 2).

As noted by Dalal-Clayton and Sadler (2005a), early definitions saw SEA as a tool extending its processes and procedures upstream from the project to the strategic level, and focusing on the environmental impacts of PPPs that are already proposed. More recent definitions, which derive from a broad international trend, take a broader, more complex and varied perspective. As argued by Bina (2003), SEA in its latest stage of evolution is regarded as a mechanism for improving governance for sustainability. These more recent definitions promote SEA not just as a means to upstream impact assessment, but also as a diagnostic tool [or more importantly, a tool for institutional reform] to help integrate environmental and social considerations during the formulation of policies and development plans and programmes; all in the interest of long term multiple and overall gains. In other words, SEA is seen as a key instrument for the design of sustainable development.

2.3.5.1 SEA application: a family of approaches

SEA has been adopted in a wide range of different forms as it has been evolving over time. While the rationale and general aim is essentially the same, these different forms of SEA result fundamentally from the development of evaluation tools according to particular policy-making and planning processes and needs (Partidário, 2003). In this perspective, Verheem and Tonk

(2000) argue that SEA should be seen as a concept with multiple forms. Indeed, several approaches to SEA have been developed around the world, differing on issues regarding their scope, openness, comprehensiveness, duration, and the degree of integration (Rossouw et al., 2000; Verheem and Tonk, 2000; Hacking, 2004). In this sense, SEA has been referred to as being a 'family of approaches' (Goodland, 1997; Verheem, 2003; Dalal-Clayton and Sadler, 2005a).

Differences in SEA application stem from the specific contexts in which the SEA processes are meant to be used, for example, in drafting legislation, in designing broad policies, in preparing concrete programmes and in either developed or in developing countries (Verheem and Tonk, 2000). In addition, the variations in SEA approaches are also associated with the promotion of "particular branded approaches" by its owners, who ignore, dismiss or even discredit other approaches (Dalal-Clayton and Sadler, 2005a: 12).

It has been recognized that no universal best approach to SEA exists (Partidário, 2003) and that one important feature of SEA is that it has to be tailor-made so that the context in which it is used is considered. Specific SEA needs depend on country-specific cultural and decision-making contexts, and as argued by Partidário (2005a), difficulties in implementation are strongly related to the socio-cultural, economic and political characteristics of the decision-making contexts. If SEA does not address the context, at least to the level of identifying and incorporating external forces and factors that could affect the outcome, it is likely to prove to be deficient in giving strategic direction. Therefore, the process for SEA should be informed by the context (e.g., the political, institutional, social and biophysical environment) in which the PPP is being developed.

Drawing from examples of SEA application in the Netherlands, Verheem and Tonk (2000) concluded that specific design for specific use actually increases the effectiveness of SEA processes. The downside of this situation is that it can lead to some confusion with non-SEA experts such as politicians and other senior decision makers (i.e., groups that decide whether or not SEA should be implemented) about what SEA is. This confusion has been recognized as a potential impediment to the acceptance and introduction of SEA in situations in which currently no obligation to do so exists. What people do not know, they do not like (Verheem

and Tonk, 2000). This ultimately leads to a lack of 'political commitment' to SEA, a vital condition to the introduction of environmental assessments at strategic levels of planning and decision making. One way of avoiding this is to make potential users – especially policy and planning decision-makers – aware of SEA benefits. To do this, an agreement on the basic principles, standards and terminology is needed.

A critical task, then, is to find the arrangement that is most appropriate respecting the specifics from case to case. In this regard, Verheem (2003) observes the importance of having generic principles that underlie all forms of SEA This 'standardised' set of principles could then be used to clarify what SEA is to those who may decide on its introduction (Verheem and Tonk, 2000). However, the context in which SEA is applied is fundamental. It is important to note that while certain SEA principles may have general validity, the concrete SEA methodology will vary from case to case. Therefore, the SEA process in a specific situation should be dependent on its social-ecological, political/institutional and decision-making contexts.

2.3.5.2 Adopted definition: SEA as an integrated approach to decision making

For the purposes of this dissertation, SEA is seen as an essential instrument for integrating sustainability concerns into policy, plan, and programme development. Arguably, SEA has, for a long time, been associated with sustainability objectives (Sadler and Verheem, 1996; Partidário, 1999; DEAT/CSIR, 2000). However, the overall concept of SEA is a fuzzy one, and many see it in fairly different ways. In fact, the trend in SEA has mirrored project-EA, in that in many jurisdictions the coverage of SEA is still predominantly focused on biophysical aspects (Dalal-Clayton and Sadler, 2005). There are, therefore, big differences between (i) SEA that focuses only on biophysical considerations in the hope that these will later be incorporated in overall decision making, and (ii) SEA that itself adopts a sufficient scope and agenda such that integrated attention to sustainability objectives are incorporated into decision making.

For the purposes of this research, SEA is conceived as an approach to decision making (i.e., not a separate process/study) that brings sustainability principles and requirements into the

comparative assessment of various options and the justification of choices made in the formulation of PPPs. The following section discusses the potential benefits associated with SEA application that have been reported in the international literature.

2.3.6 The expected benefits of SEA

Many experts in the field have catalogued the main benefits of SEA (Wood and Djeddour, 1992; Sadler, 1996; Thérivel and Partidario, 2000; Dusik et al., 2003) and most, if not all, have seen SEA as a valuable means of pursuing sustainability. Moreover, SEA is seen by some scholars as providing an adequate context and rationale for sound and integrated decision making, able to address synergistic and long-term effects (Partidário, 1999). As stated by Thérivel (2004b: 7), the ultimate aim of SEA is to "help to protect the environment and promote sustainability, making the world a greener and more liveable place."

In traditional project EAs, "by the time an analyst is looking at 'alternative routes or locations' many decisions have foreclosed options. This approach is too late to discuss alternative means of providing transport or energy, frustrates the public, and has too little influence" (Partidário and Clark, 2000: 21). SEA allows for options or alternatives that are often beyond the scope of project EA. This can result in a broader, more systemic suite of alternatives considered at strategic levels providing a more comprehensive approach to addressing environmental concerns and making project-level EA more efficient. For example, a project-level question such as, should the highway traverse or bypass a wetland might be avoided by the strategic-level question of whether the need for the highway can be addressed through the construction of a light rail connection or another form of public transit (CEAA, 2008).

Drawing from an analysis of cases in the European Union of tiered decision making and environmental assessment, Nooteboom (2000) concluded that SEA can adjust and improve the decision-making system. It can also strengthen the PPP-making process, thereby providing a number of immediate and longer-term benefits for development agencies, planning authorities and governments, and the public. The procedural benefits of SEA include efficiency of planning processes and improved governance (Dusik et al., 2003), as SEA is able to extend public involvement into the policy realm, creating a number of opportunities for increased

overall transparency and legitimacy of strategic decision making. Table 4 provides a compilation from the literature of the ten most compelling advertised benefits that may arise from SEA application, several of which are interconnected by some degree.

Table 4: Perceived Benefits of SEA

Benefits	Possible implications
1. Wider consideration of effects and alternatives	Addresses and evaluates PPP impacts that are *indirect, induced* (resulting from stimulation of other developments by a certain activity, e.g., transport), *synergistic* (taking into account that impacts of several projects may exceed the sum of individual impacts), *long range, delayed*, and *global* impacts (e.g., greenhouse gas emissions).
2. Operationalises sustainability principles	As an approach to sustainability applied above the project level, SEA serves as a vehicle for clarifying the commonly recognized sustainability principles and applying them in specific contexts. Therefore, SEA application can potentially assist in the selection of more sustainable policies and strategies. Furthermore, SEA could contribute to PPP making by incorporating the principle of sustainability to be carried down from policies to individual projects
3. Proactive assessment	SEA should address the *causes* of environmental impacts rather than simply treating the *symptoms* of environmental deterioration. Being proactive, SEA needs to be applied as early as possible in the planning process.
4. Strengthening project EA	Establishes an appropriate context for project EA making it more efficient, including the pre-identification of issues and impacts that warrant detailed examination; Screens out many environmentally unfriendly alternatives and guide many projects before irreversible decisions are taken; Increases efficiency in decision-making, and reduces the burden of work for project EA.
5. Systematic consideration of the environment at higher tier levels of decision making	Environmental objectives and considerations may be built into all levels of decision-making.
6. Facilitates greater transparency and more effective public involvement at the strategic level	SEA can extend public involvement into the policy realm. Early consultation helps to determine possible problems in connection with SEA-related issues at the beginning of the planning process, which in turn, prevents future unnecessary delays of actions due to public opposition. By increasing overall transparency of strategic decision-making, SEA helps planners and decision-makers to create public trust in the planning process. By considering opinions of key stakeholders early in the planning process, the risk of deadlock during decision-making on individual projects is reduced. Properly undertaken and accountable SEA will enhance credibility of PPPs and may mobilize support of key stakeholders for their implementation.
7. Improves the strategic action	SEA can change the way decisions are made, improving the strategic action, with different objectives, different means of achieving these objectives, and different forms of implementation.
8. Improves the planning process	Effective SEA helps to coordinate planning processes and helps to manage information. While trying to integrate a structured and systematic assessment

	process like SEA in an existing planning process, the weaknesses and deficiencies of the planning process may become evident and may accordingly be improved, which can make the whole planning process more efficient and reliable. SEA has the potential to not only set individual projects in the context of broader policy decisions they can also be used to set the terms of reference for a resulting EIA and assist in its scoping (i.e. tiered planning and decision making).
9. Improves communication across bureaucratic silos	SEA can play a valuable role in providing a vehicle for impact assessors, decision makers and the public to share perceptions of a given policy problem and to develop a shared solution.
10. Saves time and money	SEA helps to warn decision-makers at an early stage about unsustainable development options. Ultimately, this saves time and money as problematic options are disregarded at a point in time when only few resources have been spent on their development. By strengthening EIA, there is the potential for time and cost savings in the whole process.

Sources: (Sadler and Verheem, 1996; Fischer, 1999; Nooteboom, 2000; Stinchcombe and Gibson, 2001; Bina, 2003; Dusik et al., 2003; Fischer, 2003; Thérivel, 2004b; Alshuwaikhat, 2005; Dalal-Clayton and Sadler, 2005a; Jones et al., 2005; Partidário, 2005b; Fischer, 2006; Vicente and Partidário, 2006)

In a succinct way, Thérivel (2004b: 18) expresses the potential benefits of SEA as being able to "help achieve clearer, more environment-friendly and more publicly acceptable strategic actions that are approved more quickly." In terms of SEA official adoption/introduction, the most powerful reasons for government authorities to adopt strategic-level assessment is the expectation of more efficient decision making at the project level, including less effort, difficulty and expense for project level environmental assessments and licensing/approval processes.

2.3.7 Challenges and barriers to SEA implementation

Different places face a range of challenges and barriers for the implementation of SEA regarding their particular cultural, political and institutional contexts. In most cases, however, "difficulties seem to derive from the uncertainty and vagueness associated with SEA, and from its potential role in environmental decision-making" (Partidário, 1996a: 18). Although SEA can play an important role in improving strategic decision making, it also has the potential to be "a dreary and resource-intensive formality, applied in a grudging minimalist fashion by

people who just hate having to do it, adding still further to some great useless administrative burden paid for by hapless taxpayers" (Thérivel, 2004b: 3).

Literature on SEA identifies several constraints on implementation, with most being attributed to legislative, procedural, and knowledge issues (Brown and Thérivel, 2000; Nitz and Brown, 2001; Noble and Storey, 2001).

Box 4 presents the main challenges and constraints to SEA implementation found in the literature (Glasson and Gosling, 2001; Stinchcombe and Gibson, 2001; Thérivel, 2004b; Dalal-Clayton and Sadler, 2005a; Ghanimé, 2005; Noble, 2005; Palerm, 2005; Schmidt et al., 2005; Gauthier et al., 2011).

Box 4: Challenges to SEA implementation

- Insufficient political will and commitment from responsible agencies (institutional resistance)
- Lack of awareness of the need for and benefits of SEA
- Lack of awareness and training by civil servants
- Lack of resources (money, information and expertise)
- Lack of expertise within the general public on PPP issues
- Lack of public interest in a rather abstract character of PPPs
- Lack of guidelines or mechanisms to implement SEA (lack of a structured framework that addresses SEA requirements)
- Institutional and organizational difficulties (lack of coordination among key actors)
- Inadequate/absent follow-up activities
- Insufficient incentives/motivation for effective implementation (legal obligations, enforcement of obligations, penalties for non-compliance, accountability of responsible agencies, public opinion…)

Political commitment is arguably the opening door to SEA adoption and implementation (and probably the most important[4]) since, without a supportive political culture, SEA is unlikely to progress at all (Marsden, 1998). Typically, however, the political commitment comes late and grudgingly in response to irresistible public pressures. A lack of awareness of the need for and the benefits that arise from SEA application is probably the main reason for insufficient political will and support. This may come also from a concern that SEA will increase the time frame for decision making or delay development, and a perception that SEA will add significant costs and increase the work load (Dalal-Clayton and Sadler, 2005a). In addition, resistance may be founded in fears that the SEA will challenge preferences and undermine arbitrary authority, or at least shift power away from those who hold it now.

Although conducting SEA inevitably involves new expenditures from government agencies, research suggests that these costs are small relative to the undertaking in question (Stinchcombe and Gibson, 2001) and, as argued by Thérivel (2004b: 18), much of the costs "could be recouped in easier, faster approval and implementation of the strategic action". In addition, indirect cost recovery could come through the strengthening of project-EA (i.e.,

[4] Briffett (1999: 163) contends that lack of political will is undoubtedly the biggest constraint to making project-EIA effective. Arguably, SEA as well demands political will to be effective.

making it more efficient) and its consequent cost and time savings related to approval/licensing processes.

Partidário (2005a: 655) observes that special attention must be given to what she calls "marketing for SEA" – raising awareness of those who must implement and use the results of SEA. Partidário points out that "it is crucial…to convince potential users, particularly high-levels governmental senior officials in sectoral decision-making, of the benefits and added value that SEA can bring into decision processes…It needs to turn out as an incentive rather than an obstacle".

In regards to the lack of public involvement in SEA, Dalal-Clayton and Sadler (2005a: 27) contend that one of the constraints is the "little interest by many government agencies in subjecting policy and planning proposals to assessment, reinforced by fear of losing control, power and influence by opening up such processes." They argue that this constraint could be overcome by addressing SEA as a transparent and a participatory process that helps to realise good governance and that reinforces accountability and builds public trust and confidence. In this context, expert consultation and public participation in SEA is a necessary condition in terms of providing information for planning and decision making, as well as for enabling social learning.

Overcoming limited public involvement is therefore seen as an important issue to be addressed if SEA is to be an effective venue for progress towards sustainability. Having a broader range of participants in the process of governing can improve credibility, accountability and legitimacy by facilitating external scrutiny of decisions, especially because, as argued by Banister (2002: 131), "many of the decisions are not matters of expertise but matters of opinion and values rather than facts". For these reasons, it is essential that governance structures foster engagement of stakeholders to work together towards an agreed upon vision, and meaningfully consider the importance of public involvement and its influence on the planning process. In addition, by increasing the transparency and accountability of the decision-making process, the influence of political considerations in decision making is expected to diminish (Chaker et al., 2006).

Despite two decades of experience, SEA practitioners are still learning to use and develop SEA methodologies and techniques. Guidance, therefore, has an important role in SEA application and its adaptation to different contexts (Jones et al., 2005). Lack of guidelines on SEA basic requirements hinders the framework within which the SEA process operates, ultimately influencing the quality and effectiveness of the SEA process and its outcomes. In addressing SEA requirements (e.g., principles, process rationale, roles, screening and scoping procedures, tiering, responsibilities, consideration of alternatives, involvement of the public, follow-up, etc.), guidelines can assist in forming the overall foundation for a SEA process. Jones et al. (2005: 31) suggest that guidance can be "based upon regulatory requirements that are in force or upon broader, evolving, principles of SEA. It can take the form of official guidance, produced by government departments, or may be produced by practitioners, academics, agencies, etc."

Another important SEA barrier is the compartmentalised organizational structures that tend to be poorly coordinated. Effective SEA demands coordination and cooperation across and within institutions (Partidário, 1996b), and therefore requires frameworks that can facilitate information flow and decision coordination. Regarding lack of information issues, João (2005b) argues that there are two sides to the SEA barrier caused by the lack of the 'right data': it can prevent particular assessments being done and it can be a poor excuse for certain assessments not being done. She contends though that it is crucial that SEA be done irrespective of the data available. For example, if there are no specific health data, but the strategic action will potentially impact human health, then this will still need to be assessed even if only qualitatively. The environmental report should then identify any data gaps that will need to be sorted out in the follow-up and monitoring stage (João, 2005b: 694). She concludes that it is more important that the SEA be done, even if quickly and with little data, than not done at all for lack of data. However, she recognises that "everything should be done to ameliorate this situation which is far from ideal."

Since the emergence of SEA, there has been a growing recognition of the need for SEA follow-up, potentially fine-tuning the predictions and recommendations from the PPP formulation stage, in light of new information obtained during the implementation of the PPP (e.g., Lee and Walsh, 1992; Sadler and Verheem, 1996; Thérivel and Partidário, 1996; DEAT/CSIR, 2000;

Fischer, 2002; Noble, 2003). Simply put, SEA follow-up is about life after the approval of a policy, plan or programme, from the initiation of operations to their completion (Partidário and Arts, 2005); it is a key mechanism for feedback, learning from experience and adaptive management (Caldwell, 2004). Although follow-up has been recognized as a fundamental element of SEA, attention to the issue of what happens to SEA once the related PPP is approved and implemented is still limited mainly to the identification of monitoring indicators (Partidário and Fischer, 2004).

Finally, SEA requires effective motivations in place so that decision makers meaningfully use SEA before they begin planning. In terms of encouraging effective SEA, many authors have suggested that SEA systems should be based on clear legal provisions, which could be enforced in order to ensure compliance (e.g., Partidário, 1999; von Seht, 1999). Incentives for decision makers to meet assessment obligations (e.g., legal requirements, enforcement of obligations, penalties for non-compliance) and encourage meaningful SEA application are, therefore, crucial in order to have an effective SEA process that contributes to PPP formulation (Benevides et al., 2008).

2.3.8 Overlaps with governance

Governance and government refer to differing views of the relationships and dependencies between the state and society (Pierre and Peters, 2000). In contrast to government, governance covers the whole range of institutions and relationships involved in the process of governing (Holford and Edirisingha, 2000), all of which are essential to making and legitimizing societal purposes and alternatives. And it is in this sense that "good government" is not enough, since fundamental actors are left out of the planning and decision-making process of governing (i.e., governments cannot do enough on their own). Therefore, governance is about the way that decisions are made.

However, governance is not a topic that easily lends itself to neat and precise definitions. And some confusion exists about the meaning of the term, especially because it has been used in several different fields, such as economics, cultural geography and politics, and in many contexts (Kjaer, 2004). Drawing from political science and economics literature, Pierre and

Peters (2000) contend that governance has become an umbrella concept covering a wide variety of phenomena, such as policy networks, public management, public-private partnerships, corporate governance, and good governance.

From a review of the literature on governance, it can be said that the concept entails a system that engages more than just agencies of the state in planning and decision-making processes. It also implies concern for the capacities of civil society and the private sector to take on or participate in governance responsibilities (Holford and Edirisingha, 2000; Pierre and Peters, 2000; Kemp et al., 2005). Therefore, governance is about how government, civil society and the private sector work together.

In an attempt to define the concept, Kjaer (2004: 12) asserts that "governance is the setting, application and enforcement of the rules of the game", and recognizes that, although the definition is broad and quite abstract, it provides a common basis for all of the different perceptions of governance. Rhodes (1997) argues that governance refers to self-organizing, inter-organizational networks characterized by interdependence, resource exchange, rules of the game and significant autonomy from the state. One of the core ideas of governance is that it implies a concern with the interactions among a host of actors. It is about the choices we make and the way in which we carry them out. From this perspective, governance can be understood as a mode of social coordination (Kemp et al., 2005). Governance "links values and interests of citizens, legislative choice, executive and organizational structures and roles, and judicial oversight in a manner that suggests interrelationships among them and significant consequences for their organizational ability and performance. Accordingly, governance is the institutional framework that steers the realization of democratic ideals" (Jreisat, 2002: 4).

For the purposes of this research, governance is defined as the collective processes of decision making and the processes by which decisions are implemented (or not implemented). This entails that decision making goes beyond government. Although government's role has diminished giving room for other actors, as Jessop (2003: 108) asserts, government's contributions to governance processes can still be significant (see Box 5).

Box 5: Government's contribution to governance processes

i. Setting the ground rules for governance;
ii. Ensuring compatibility of different rules;
iii. Organizing collaborative processes;
iv. Resolving disputes arising within governance;
v. Re-balancing power differentials; and
vi. Assuming political responsibility in the event of governance failure.

Source: (Jessop, 2003)

While government normally has the final say when it comes to public policies, programmes, laws and regulations, citizens, civil society organizations and the private sector also have an important role to play in terms of contributing to institutional arrangements that are more accountable, adaptive and fair. The shift from govern*ment* to govern*ance* has clear implications for decision making and for the pursuit of sustainability. Because sustainability "is ultimately about radical changes in the systems of production and consumption, governance for sustainability is, by implication, about working through formal and informal institutions to bring about societal change" (Kemp et al., 2005: 19). Research indicates that no governance structure works best for all situations (Brewer and Stern, 2005); therefore the critical task is to find the arrangement that is most appropriate respecting the specifics of context from case to case.

2.3.8.1 The link between better governance, sustainability and SEA

The pursuit of sustainability requires (and may as well be affected by) improvements in governance. As will be discussed throughout this paper, SEA (as a participatory approach for upstreaming sustainability issues to influence infrastructure planning and decision making at the strategic level), has the potential to play a significant role in improving governance and in contributing to sustainability.

Key elements related to governance (or better governance), sustainability and SEA include, for example, equity, public involvement in open deliberations, transparency and accountability in decision making. Even though better governance can be seen as an essential means to facilitate

development that contributes to sustainability, there is still the need to better understand how to achieve this. Nevertheless, much is expected from improved governance in relation to the pursuit of sustainability. As argued by Gibson et al. (2005), better governance is seen as a prerequisite for, and probably also a product of, steps towards sustainability.

In fact, good governance was identified at the World Summit on Sustainable Development in Johannesburg as a critical factor for ensuring successful sustainable development (United Nations, 2002: 8). Notably, better governance cannot be achieved by governmental or intergovernmental activity alone. It requires cooperation and partnerships between government and civil society, including global corporations and local firms, and NGOs (trade unions, voluntary and educational bodies, religious organisations, etc.), which represent the broad diversity of interests in any given society (WHAT, 2000).

In addition, one important concern in governance and decision-making processes is how to legitimise the "rules of the game" and decisions in order to have the appropriate endorsement of a host of actors, and therefore, their cooperation in achieving desired outcomes. Kjaer, 2004) notes that such rules must be legitimized if they are to be stable, and engaging citizens is an important step towards legitimation. For SEA, this has important implications for process design issues in regards to who gets involved and how. This is further discussed in the following section.

2.3.8.2 The significance of public participation for better governance and sustainability

Engaging citizens has been recognised as a key requirement in the pursuit of sustainability (Palerm, 2000; Fitzpatrick and Sinclair, 2003; Dalal-Clayton and Sadler, 2005a; Sinclair et al., 2008). In turn, a key aspect of better governance is to enable the general public to participate and influence decision-making processes. Furthermore, having a broader range of participants in the process of governing is thought to improve credibility and accountability by facilitating external scrutiny of decisions. It is now accepted that decision-making processes can gain legitimacy by adopting participatory approaches. For example, Dalal-Clayton and Bass (2002) argue that participation is needed because current inequities, improper land management,

stakeholder stalemate and other problems persist, often because of misunderstandings and lack of knowledge among stakeholders of each others' perspectives and powers.

Another selling point for more public involvement in decision-making processes is that it can be beneficial not just in terms of providing additional information, but it also enables social learning in the shared understanding of values (Connely and Richardson, 2005; Sinclair et al., 2009). Drawing from the Canadian experience with environmental assessment, Jacobs et al. (1993: 24) argue that the social learning aspect of environmental assessment is one of its most important but also overlooked benefits. They state that, in Canada, "over the past two decades, developers have learned about environmental impacts, environmentalists have learned about development [and] governments have learned about consultation…" Therefore, this multi-party social learning process needs to be considered in decision making, and the views of affected groups must be taken into account.

Despite recognition of the benefits of public involvement, very extensive participation is neither possible nor necessarily desirable – it would be extremely costly and time-consuming (Dalal-Clayton and Bass, 2002: 193). The costs of participation depend on various factors. While a participatory approach may extend the time needed during the initial stages of analysis and planning, such investment is normally "returned" later in the process by avoiding or minimizing conflict (Mitchell, 2002). It is worth noting the importance of timely participation. Late participation can be frustrating if, for example, key options have been foreclosed. That is one of the special advantages of SEA versus project level assessment, but timely participation applies also within the strategic level.

While the concept of sustainability "represents a critique of conventional purposes and initiatives, and a call for alternatives that will be more attractive and viable over the long term" (Stinchcombe and Gibson, 2001: 9), better governance offers the possibility of contemplating future development options, lifestyle choices and resource uses that are sought by all actors involved in the process of governing. Therefore, the views of affected groups need to be taken into account. Ultimately this should lead to avoiding later confrontations and delays, and lead to increased public support for strategic planning and decision making due to enhanced transparency. Furthermore, useful information may be obtained in participation and

consultation exercises, and the social learning among stakeholders should not be underestimated.

2.3.9 Overlaps with land use planning

Hanna (2005) argues that planning is concerned with the process of preparing a program or policy for a course of action. This suggests a proactive process for addressing a goal or need, and it also suggests forward or strategic thinking. Arguably, planning is a means to an end and its ultimate rationale is to be somehow better off afterwards than before (Hanna, 2005). Berzok (1986) argues that environmental impact assessment and planning serve different but complementary functions. SEA has emerged as a tool to be used above the project level and, therefore, is seen as a potential contributor to the way planning and decision making occurs. As has been previously argued, by the time the term emerged, SEA was portrayed as an extension of project EA principles applied to the levels of PPP. Currently, SEA is best conceived as an integral part of policy, plan, and program development rather than as an add-on process (Noble, 2005). In fact, an important rationale for applying both SEA and project-EA has been to act as an "action-forcing" instrument for "reorientation of planning and decision making" (Caldwell, 1982).

More specifically, land use planning is "the development of regulatory, developmental and conservation strategies for land, taking into account the interactions between land; or, more broadly, the built and physical, social and cultural characteristics, and their institutions, norms and values" (Alexander, 1992). The purpose of land use planning is to secure consistency and continuity in the framing and execution of policies with respect to the use and development of land (Jones et al., 2005). Land use planning ranges from general comprehensive planning or policy development to site-specific planning or process planning. Among the instruments available to control land development are the official plan, secondary plan, plan of subdivisions, zoning bylaw, development control limit, and site plan control.

It could be argued that, although (S)EA and land use planning traditions emerged from fairly different origins (i.e., EA from environmental protection law and land use planning from a concern about urban efficiencies), planning and SEA have been gradually merging towards the

same position, i.e., a position in which assessment and decision making embraces a more comprehensive set of sustainability considerations and acknowledges all the different tiers or levels of decision making necessary in a coherent and integrated approach to decision making. After all, SEA is all about good planning. The following section briefly reviews planning theory.

2.3.9.1 Brief overview of planning theory

Planning has been defined as "future-oriented, public decision making directed toward attaining specific goals" (Fainstein and Fainstein, 1996: 265). However, planning theory, as Campbell and Fainstein (2003: 1) indicate, **"**is not easy to define, the subject is slippery, and explanations are often frustratingly tautological or disappointingly pedestrian". In addition, it has experienced a pronounced "theory-practice gap" (for instance, Briassoulis, 1989; Allmendinger, 2002).

Synoptic (or rational comprehensive) is conventionally the dominant tradition in planning practice and the point of departure for most other planning theories. In his seminal work, Hudson (1979) developed a five-part classification of planning theoretical traditions and discussed their relative strengths and weaknesses under the heuristic rubric of SITAR, covering the Synoptic, Incremental, Transactive, Advocacy, and Radical schools of planning thought. The five approaches identified by Hudson built upon the idea of planners as master craftsmen picking the appropriate theory to suit the circumstances. Hudson (1979) asserts that the synoptic planning approach has four basic elements:

1) goal setting,
2) identification of policy alternatives,
3) evaluation of means against ends, and
4) implementation of decisions.

The process is not always undertaken in this sequence, and each stage permits multiple iterations, feedback loops, and elaboration of sub-processes (Hudson, 1979: 388). The main criticism of this theory is that planning is confined to a 'technical, value-free, apolitical

activity' with little or no consideration of the local social-economic and political climate (Beatly, 1989).

Building on the work of Charles Lindblom, incremental planning theory views planning as taking a "baby-steps" or "muddling through" approach to decision-making processes. As such, changes are most of the time evolutionary rather than revolutionary. Incremental planning advocates criticized the synoptic approach as unrealistic and put forth the notion of planning by "mutual adjustment" or "learning by doing". Transactive planning, in contrast to incremental planning, placed more emphasis on process, in particular the process of personal and organizational development and not only the achievement of specific functional objectives. Generally associated with decentralization, transactive planning "consists less of field surveys and data analysis, and more of interpersonal dialogue marked by a process of mutual learning" (Hudson, 1979: 389). Transactive planning theory places a high value on experiential learning and interpersonal dialogue, creation of partnerships, and integration of local knowledge systems and planning. Advocacy planning, as described by Hudson (1979), emerged in the 1960s in response to power inequities in traditional rational comprehensive planning processes. "Rooted in adversary procedures modeled upon the legal profession", it was used to defend the interests of community groups, environmental causes and the poor.

Finally, Hudson describes radical planning as an ambiguous tradition, with two mainstreams of thinking that occasionally flow together. One version is associated with spontaneous activism, guided by an idealistic but pragmatic self-reliance and mutual aid. The other takes a more critical and holistic look at large-scale social processes (Hudson, 1979: 390). Hudson, 1979: 387) argued that while they are "often strongly at odds … parallel application of more than one theory is usually necessary for arriving at valid, three-dimensional perspectives on social issues and appropriate action implications". Using six criteria (public interest, human dimension, feasibility, action potential, substantive theory, self-reflective), Hudson highlighted the strengths and weaknesses as well as the complementary nature of the various planning schools.

In a highly quoted work on planning theory, Friedmann (1987) traces the origins of four traditions of planning thought: planning as policy analysis, social learning, social reform and social mobilization. Social reform focuses on the role of the state in societal guidance, framing

planning as a “scientific endeavour” and seeking to institutionalize it as a process. Policy analysis can be directly linked to Hudson's synoptic tradition as it shares its distinctive method (see above). Social learning can be characterized as, “learning by doing” and can be linked to Hudson's incremental planning. Finally, the social mobilization planning tradition "departs from all the others by asserting the primacy of direct collective action ‘from below’" (Friedmann, 1987: 83).

Briassoulis (1989) provides a systematic analysis of six alternative planning approaches (comprehensive/rational, incremental, adaptive, contingency, advocacy, and participatory/consensual) with a focus on analysing the relative validity of each approach in different environmental problem and decision settings. Fainstein and Fainstein (1996) describe four planning traditions (traditional, democratic, equity, incremental), and link them to facets of political theory: technocratic, democratic, socialist and liberal. Traditional planning, as they see it, would be similar to Hudson's synoptic planning in that the planner describes both the “goals” and the “means” for the plan. Democratic planning, in contrast, called for a more participatory approach to planning, explicitly incorporating the goals of the community into planning. Equity planning can be seen to parallel Hudson’s (1979) advocacy planning, reflecting the need to increase fairness in the planning process. Finally, Fainstein and Fainstein (1996) describe the incremental planning tradition as a series of successive approximations to planning.

As argued by Allmendinger (2002), many of the approaches discussed above acknowledged a fragmentation of planning theory and attempted to represent rather than fully understand what had happened. Especially within the field of urban and regional planning, as Lawrence (2000) contends, planning theory has been a source of analysis and debate for at least the past 40 years. As he puts it, no consensus has emerged over this period regarding a preferred planning theory or even what represent “mainstream” planning theories. In fact, many have suggested that no planning style or approach by itself can be effective without inputs from complementary planning traditions (e.g., Hudson, 1978; Briassoulis 1989). What is seen in practice is usually a blend of the “pure” planning styles described above. It could then be argued that the suitability of a planning theory to a particular context depends on some identifiable factors. For example, incremental planning may be suitable to situations where the

existing approach is essentially sound and simply requires adjustments, but will be unsuitable where the basic approach is no longer viable.

2.3.9.2 Growth-related planning: the emergence of growth management

The beginning of the 1900s saw many people including planners, policy makers and citizens concerned with the effects of rapid urban and industrial growth, which led them to realize that the land use control system in place was not adequate to deal with the newer problems associated with urban growth both in the United States of America and Canada (Cullingworth, 1993). Some of the 'new' problems included (Tansley, 1999: 23):

1. Health concerns, which were now exacerbated by problems of widespread congestion in urban areas and inadequate sewer and water services;
2. Widespread suburbanization and the consumption of land due to increased mobility, particularly within the wealthier class;
3. Desire to protect the new suburbs from the problems prevalent in many of the more established urban areas; and
4. Growing concern over the common neglect of effects on natural resources as municipalities concerned themselves with urban and industrial growth.

In response, two popular land use planning tools emerged: zoning and subdivision control. Cullingworth (1993: 21) argues that zoning was seen as a potential way to ensure "long term security against change". As Smith (1971: 192) puts it, zoning was perceived as "the heaven sent nostrum for sick cities, the wonder drug of the Planners, the balm sought by leading institutions and households alike." Together, zoning and subdivision control were the two principal controls in planning for the first half of the twentieth century. As argued by Tansley (1999), it was believed that, by controlling the division of land and separating incompatible land uses, the problems associated with urban growth such as poor living conditions and public health could be resolved.

Both in the United States and in Canada, two world wars and a widespread economic depression moved attention away from municipal land use planning, leaving zoning and subdivision control as the primary planning tools. In the post-war era, however, many

communities witnessed rapid and uncontrolled growth, which increasingly led to questions about the adequacy of the current planning system to properly manage population, economic and physical growth (Tansley, 1999). This realization did not come rapidly. Porter (2008: 9) describes the burst of development in the post-war era as "unlike any that had gone before". He highlights that automobiles poured onto the highways taking their passengers to find homes in the countryside. In turn, developers "ushered in the era of big projects" with huge subdivisions of new houses on sites scraped clean of vegetation. Development quickly reached beyond city boundaries into areas that were soon incorporated into separate suburbs (Porter, 2008).

Nevertheless, growth was still considered a good thing during this period. "Local progress was equated with the number of new houses built, the number of new jobs created, the increases in local spending and the like" (Porter, 2008: 9). The expected benefits of growth included expanded local tax base, broader range of goods and services, increased income levels and job opportunities, wider choice of housing, and more and better community facilities to be enjoyed by all (Porter, 2008). Increasingly, however, the negative aspects of the amount and kinds of growth that were happening became more visible. Newspapers and magazines in those days began to print photos of the new developments using aerial angles guaranteed to highlight the immensity and bleakness of much suburban development. The usual standard procedure of development was to bulldoze a site into building plots without worrying too much about stands of trees and stream valleys (Porter, 2008).

Growing environmental concern drove desires for managing development in different ways. Around that time, Rachel Carson's work *Silent Spring* (1962) served to open many eyes about global scale chemical contamination and environmental degradation. In addition, the unprecedented resource demands as well as ecological damages and health threats brought by the boom in industry and consumption were both increasingly evident and increasingly unacceptable (Gibson et al., 2005). The environmental movement set in motion saw a proliferation of public interest groups that, often with surprising media support, raised public awareness and pushed governments to address matters such as environmental stewardship in which they had previously shown little interest (Gibson et al., 2005). Local governments and developers came under increasing criticism for their drive for economic prosperity at the cost of the natural environment. The results of the post-war development boom ended up energising

civic activists to demand better regulation of the development process. Around the same time, the first environmental impact assessment regulation in the world was being introduced in the United States through the passage of the National Environmental Policy Act in January, 1970.

By the end of the 1960s, and as a result of growing environmental concerns, growth controls and growth management began to take on a more predominant role in American land use planning (Tansley, 1999). The critics of traditional local land use control, however, began to demand a different system for land use planning and decision making. One major criticism of traditional planning was that it failed to adequately address aspects of growth that are beyond the local level. This is because the majority of land use planning was conducted at the local level by individual communities, which increased the motivation to focus their planning efforts on maximizing their own economic well-being and generating municipal revenue by competing with other localities for development (Tansley, 1999). This competition often led to a disregard for the longer term effects of unmanaged growth, and highlighted the need to more adequately address the regional aspects of growth.

Regional growth problems were not the only impetus for the evolution of growth management. The realization that growth did not pay for itself was also one of the major drivers in the emergence and development of growth management It had been assumed that as physical growth occurred, the increased tax revenues would pay for the costs of supplying the needed urban infrastructure such as roads and sewers (DeGrove 1993: 3). However, because of unmanaged and largely inefficient patterns of growth (e.g. suburban sprawl), the costs of servicing began to outpace municipal tax revenues (Tansley, 1999). In addition, there was growing recognition of the limitations of traditional land use tools such as zoning and subdivision control[5] to deal with the problems associated with rapid growth.

It can be argued that the limitations of traditional local planning controls have led to the development of growth management as an approach to planning and decision making. In essence, the value of further growth has been questioned as an outright good thing. The

[5] Zoning and subdivision control were the backbone for American and Canadian planning throughout the first half of the twentieth century (Tansley, 1999)

traditional association of growth with societal progress slowly gave way to a new and more sceptical view (Zovanyi, 1999). However, this ideological shift did not come easily or rapidly, as conventional thinking had historically associated ongoing growth with a range of benefits, including such things as stronger local economies, higher personal incomes, lower taxes, greater upward economic mobility for the poor, and a wider range of lifestyle choices for consumers (Zovanyi, 1999). In spite of this, increasing numbers of Americans started to see that urban growth was not just beneficial. Their personal experiences led them to "associate growth with overcrowded schools, tax increases, rising crime rates, physical blight, traffic congestion, the loss of open space, the destruction of a way of life, and increasing ecological degradation such as air and water pollution" (Zovanyi, 1999).

Gradually, urban growth – manifested in the expansion of developed land – was being blamed for such diverse problems as the costly and destructive development pattern associated with urban sprawl, the loss of key agricultural land, an inefficient provision of urban services and facilities, increasing housing prices, continued degradation of the natural environmental, and the loss of community character. In response, the growth management movement that emerged in the 1960s and 1970s suggested an avenue for addressing these issues. Most participants in the movement had come to think of growth as something to be managed, regulated, or controlled, rather than simply promoted as in the past (Zovanyi, 1999).

2.3.9.3 Planning in Canada: Federal, Provincial and Municipal authorities

In Canada, federal and provincial governments share power and authority, with municipal governments receiving their power and authority from provincial legislatures (Mitchell, 2004). According to Albo (2009), under the Prime Minister Mulroney, the federal government began to:

> "limit fiscal transfers to the provinces in terms of equalization payments but also the funding of key social programmes. The downloading process accelerated under the Liberals in the mid-1990s with the new Canada Health and Social Transfer (CHST). The CHST radically cut the level of transfers, and in particular withdrew the federal government from directly funding of many social programmes and influencing provincial government expenditures in these policy

> areas. In turn, provincial governments, freed from federal fiscal constraints and facing increased costs and less revenues, offloaded more programmes and funding responsibilities onto the municipalities" (Albo, 2009: 5).

This move was intensified by the "decisions of many provinces to attract voters by reducing taxes, which meant cutting back on programs" (Sewell, 2006). As a result, municipal governments across Canada have faced intense funding problems, leading to problems in several service areas, including "lagging infrastructure maintenance; public transit deterioration; crowded schools with facilities shutdown at the same time; community services trimmed; and social polarisation due to cuts to welfare, disability services and social housing" (Albo, 2009: 6).

The principle of subsidiarity was used as the main justification for this to happen, meaning decisions would be taken at the level closest to where consequences would be more noticeable. As asserted by Mitchell (2004: 2), while such principle might be seen as "admirable, many have suggested that the primary motive of such downloading was in fact the desire of provincial governments to shift the cost of many responsibilities to lower levels of government, as part of a strategy to reduce debts and deficits." Regardless of the reasons behind this move and its consequences, the reality is that municipalities have become much more significant players in many areas of planning and decision making.

2.3.9.4 Planning in Ontario: the Planning Act

A legislated land use planning system has been in place in the Province of Ontario since 1946, as the Planning Act established procedures and authority for making decisions about land use change on private and municipal lands (Penfold, 1998). Over time, several reviews and many amendments to the Planning Act resulted in a detailed and complex system of policies, procedures, roles, and authorities. In the 1960s, planning became established in most municipalities as a result of rapid growth and development. Managing this complex planning system started to become an issue of public concern. According to Penfold (1998), a review of the planning system in 1971 by the Ontario Economic Council recommended, among other initiatives, "a basic policy on the allocation of provincial resources" and "a consistent

philosophy on critical policy concerns including particularly environmental conservation, social and economic welfare, and community amenity".

In 1977, a review of the Planning Act by the Ontario Planning Act Review Committee recommended that legislation define provincial interests to include (PARC 1977: 30[6] as cited in Penfold, 1998):

> "the distribution of economic and social resources among the residents and regions of the Province; the maintenance of the province's agricultural and rural base; and the distribution of activities which have an "undesirable" local impact but are necessary from an overall Provincial standpoint."

In 1983, the Province of Ontario amended the Planning Act to include defined provincial interests and procedures for the review and approval of policies by provincial Cabinet (Penfold, 1998). Under the 1983 Planning Act, every municipality and planning board "may" develop an official plan to "provide guidance for the physical development of the municipality" while "having regard to relevant social, economic and environmental matters" (Ontario 1989: 3 as cited in Penfold, 1998). Official plans and zoning bylaws control private development and guide the planning and development of municipal infrastructure, while the Minister of Municipal Affairs is given the authority to approve these plans. Amendments to plans and large-scale developments, such as plans for subdivision, also require provincial approval. And if conflict occurs over the implementation of policies, appeals may be taken to the Ontario Municipal Board (OMB), which can generally make final decisions on planning matters (Penfold, 1998).

Throughout the latter half of the 1980s, calls for planning reform came from all quarters, and many thorough reviews and news reports concluded that "the planning system was seriously deficient; it lacked environmental integrity, the public was alarmed by many cases of actual and perceived corruption and mismanagement and the system suffered from excessive delay" (Cooper, 1996: 1). The Crombie Commission's review of environmental problems with land-

[6]PARC (Planning Act Review Committee). 1977. Report of the Planning Act Review Committee. PARC, Toronto, ON, Canada.

use planning recommended the establishment of a Commission of Inquiry. As a response to the need to streamline the planning process and tighten the links between land-use and environmental planning, the Rae government established in 1991 the Sewell Commission and so began one of the most extensive public consultation processes ever seen in Ontario (Cooper, 1996). As a result, Ontario began a local/provincial "Disentanglement Process". Beginning under the Bob Rae, New Democratic Party government and rapidly accelerating under the 1995 Progressive Conservative Party government of Mike Harris, the disentanglement process resulted in the amalgamation of municipalities and the transfer or downloading of provincial responsibilities and services to the municipal level. This transfer of responsibility usually did not come with an adequate increase in provincial budgetary transfers to municipal governments (Hanna and Webber, 2005).

Many criticized this process mainly because of the shifted emphasis of policies and implementation away from environmental and social concerns and toward economic concerns (Penfold, 1998). Kathleen Cooper of the Canadian Environmental Law Association referred to this process as Ontario's Four-Step Strategy to Trashing Environmental Protection (Cooper, 1998: 1). Accordingly, the four steps were dismantling environmental laws; weakening the role of government; shutting out the public; and, privatizing natural resources (Cooper, 1998: 1).

The Ontario Planning Act (Government of Ontario, 1991) defines land-use planning roles including delegation of specific responsibilities to the municipal level. The Planning Act is meant to protect the broad public interest by ensuring that land use decisions are consistent with provincial policies, requiring "municipal planning decisions to be 'consistent with' provincial policy statements" (Gibson et al., 2005: 164).

Section 2 of the act identifies 17 provincial interests that municipal planners "shall have regard to" when developing municipal official plans. However, the phrase "shall have regard to" does not legally oblige institutions to adhere to these principles. In the early 1990s, the Rae NDP government initiated the Commission on Planning and Development Reform in Ontario and replaced "shall have regard to" with "shall conform with", resulting in a much stronger land use planning legislative framework. With the change in provincial government in 1995, however, the Harris conservative government reversed this decision, returning Section 2 to its

less rigorous “shall have regard to” form and thus allowing for a more flexible development process (Hanna and Webber, 2005).

Section 3 of the Planning Act outlines a series of Provincial Policy Statements (PPS) meant to define or operationalize the provincial interests described in Section 2. These statements must be prepared in a consultative manner but are issued, like regulations, without going through the full legislative process (Gibson et al., 2005). Other key sections of the act require municipal governments to adopt Official Plans to guide future land use decisions and mandate local municipal government land use decisions to conform with regional-scale government growth and settlement plans (Hanna and Webber, 2005).

2.3.9.5 Upper and lower tiers: Regional and local governments

While several amalgamations were initiated in the 1990s under the Harris government, the development of regional governments has generally resulted in a two-tier municipal government structure in Ontario. The upper tier, regional government, has responsibility for regional-scale planning and the provision of infrastructure. The lower tier is responsible for land use decisions through development approval and zoning. Despite the intention for regional governments to provide a balance of interests at a regional scale, lower-tier zoning and development approvals are often made in relative isolation and can, as a result, have little regard for cumulative land use impacts (Hanna and Webber, 2005). Nevertheless, lower-tier municipal plans must be consistent with the upper tier regional plans.

2.3.10 SEA and strategic planning and decision making

There are several ways in which SEA can interact with the planning and decision-making process. For example, Figure 1 presents four different ways of interaction between SEA stages and different strategic-decision stages. In addition, a fifth way could be included in which SEA and planning merge vertically, and therefore SEA becomes the approach to decision making and strategic decision making.

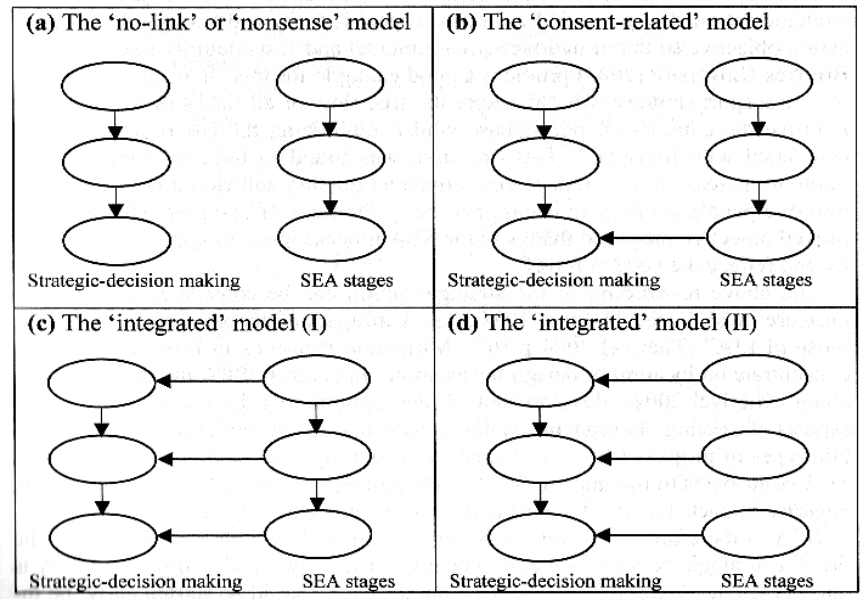

Figure 1: Links between decision-making stages and SEA stages

(source: João, 2005a)

From above, the 'no-link' model (Figure 1-a) is a very poor practice model, since it assumes that there are no links between SEA and strategic decision-making (SEA is done just as a 'tick-box' exercise). The 'consent-related' model (Figure 1-b) only adjusts decision-making to include an SEA stage that informs the strategic action's decision-making stage (Thérivel and Partidário, 1996), and is not seen as a best practice model. The two integrated models (Figure 1-c and Figure 1-d) assume that strategic actions are subject to multiple stages of decision making and attempt to integrate SEA into each of these decisions.

The difference between the two integrated models is that in model (I) there are links between the SEA stages, while in the integrated model (II) the emphasis is on the flow between decision-making stages, and the SEA stages exist only to inform decision making. The idea is that SEA can and must improve the strategic action, rather than just analyse it.

Using the integrated model (II) as a basis, Figure 2 summarises the stages of SEA and shows how they feed into various stages of decision-making. It shows that SEA's influence occurs right from the start in the improvement of the objective of the strategic action, so that it includes sustainability issues. Therefore, the emphasis should be on incorporating SEA in *the*

formulation of the strategic initiative, looking at the evolving strategic initiative and being willing to change and improve it in light of the SEA findings.

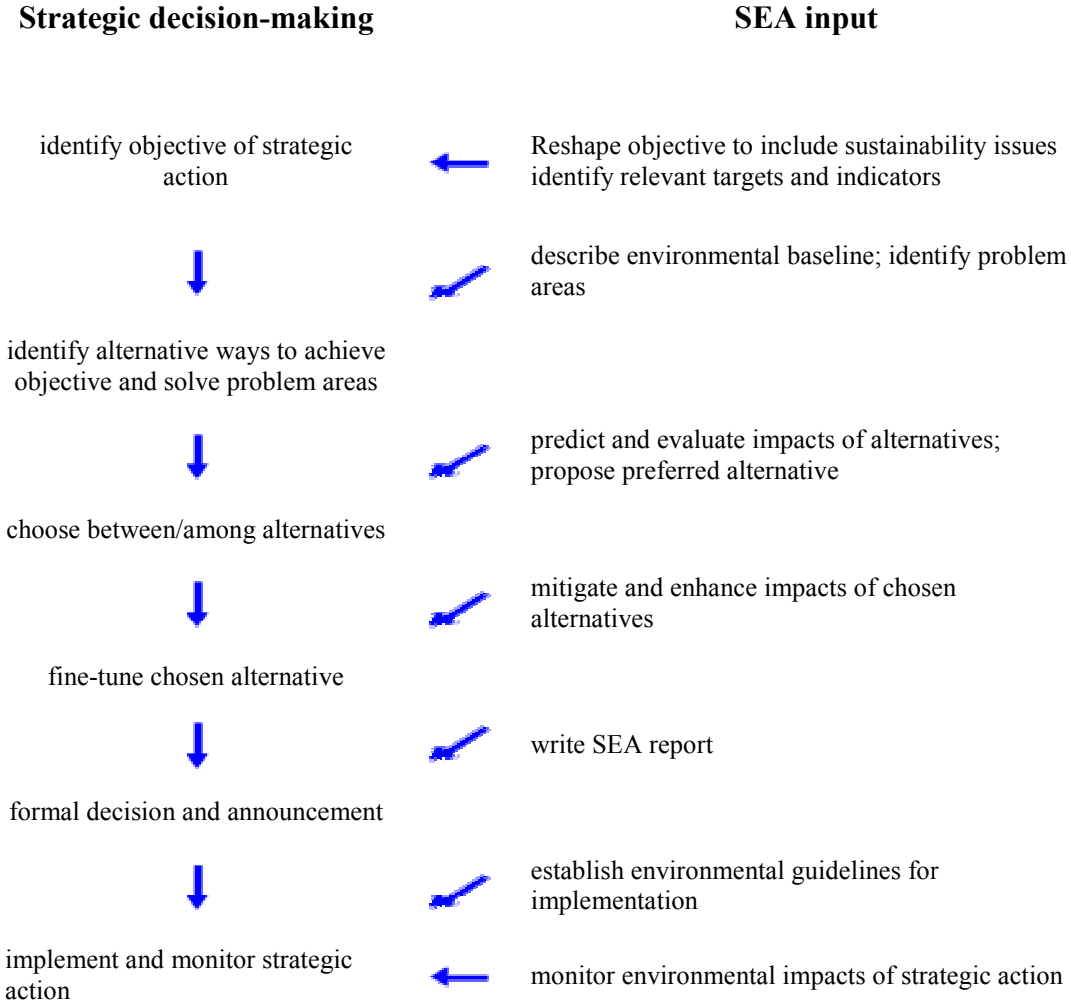

Figure 2: Key strategic decision-making stages and how they are influenced by SEA

(source: Oxford Brookes University, 2005)

Arguably, if SEA is integrated in the decision-making process in this way, then by the time the SEA report is being written most of the job is already done. What is important is the process that precedes the report. As argued by Thérivel (2004), an SEA report is not an effective way to convince decision makers to make changes to their strategic action. This should happen through the whole process. In this perspective, the preparation of an SEA report would not be

the most important part of SEA, because the real value in SEA is that it is "a creative tool in the design cycle of the strategic action" (Oxford Brookes University, 2005). This is not to say that the SEA report is dispensable. The role of the SEA report is to document the SEA process so that readers can follow how environmental and sustainability considerations have been taken into account in decision making.

As presented above on Figure 2, SEA's aim throughout is to ensure that sustainability considerations are taken on board at each stage of decision making so that in the end, potential benefits (see Table 4) associated with SEA application can be fulfilled. However, as SEA is running parallel to the planning and decision-making process, there is no guarantee that assessment results will actually be used and integrated within the strategic decision making process. In this case, integration of SEA results becomes an issue.

2.3.10.1 SEA as an approach to decision making

In contrast to the four different models presented above, a fifth way is to conceive strategic decision making and assessment in a merged manner, which is not fully addressed in the SEA literature. In this sense, SEA is used as the approach to planning and decision making (as opposed to an adds-on or parallel process), with potential to provide a bridge to the project level undertaking. In addition, SEA as the approach to decision making avoids the duplication of the planning and assessment processes (i.e., one process rather than two separate processes). At least two advantages of a merged approach can be highlighted:

- More likely that assessment results are used in the formulation of strategic initiatives (one of the limitations of having two separate processes that need to be integrated somehow for final decision making);

- Time and cost savings because of avoided process duplication.

SEA as the approach to planning and decision making would essentially be a fully integrated approach where the boundaries between planning and environmental assessment blur. The challenges of a merged approach include the difficulties in merging two traditions with very

different backgrounds (i.e., planning coming from a tradition focused on urban structure concerned about efficient service provision; and environmental assessment coming basically from environmental protection law and a concern about pollution and how to control it). To some extent, this gradual merger of the two traditions can be observed in certain parts of the world, and certainly in Ontario. In this regard, some jurisdictions have started thinking about this merger as it relates to better linking of the Ontario Planning Act requirements to the Ontario Environmental Assessment Act requirements. This is evidenced in some plans that take into consideration the requirements of the EA Act that will be required to be fulfilled for subsequent projects. This has also been a topic of the 2009 Canadian Institute of Planners Conference, where the integration of EA and planning was addressed as an emerging issue.

2.4 Summary

The purpose of this review of the literature was to provide conceptual and theoretical background on the main concepts relevant to this research: sustainability, SEA and to a lesser degree governance and planning. As such, it has described the history and evolving concept of SEA, various definitions of the term, the benefits and challenges to SEA implementation, as well as it has provided a brief overview of key concepts, which are directly linked to the implementation of SEA, such as sustainability, governance and planning.

From this review, it can be said that SEA is portrayed as having great potential to improve planning and decision-making processes. As a step towards sustainability through a sustainability-based SEA framework, SEA requires the early consideration of sustainability issues associated with strategic initiatives, creating a more strategic view in planning and decision making, and possibly changing the culture and the mindset of the way strategic initiatives are designed and implemented. Another important matter in SEA is public involvement, which can enhance the transparency and legitimacy of decisions. In this context, SEA can also help planners and decision makers to create public trust in the planning process, which in turn, prevents future unnecessary delays of actions due to public opposition and litigation. This has implications for the overall efficiency and reliability of the planning process as a whole.

Chapter 3: Background for the Case Study

3.1 Introduction

This section describes background information and the most relevant legislation relevant to York Region's growth-related planning efforts, especially EA and planning-related legislation.

3.2 Environmental Assessment Act

The Environmental Assessment Act (EAA) is the legislation used to define the environmental assessment process in Ontario, under the Ministry of the Environment. The EAA applies to undertakings (enterprises, activities, proposals, plans or programs) by provincial ministries, municipalities and prescribed public bodies such as conservation authorities and the Ontario Energy Commission and to designated private sector undertakings (MOE, 2005). Undertakings follow one of the three major MOE's EA processes (MOE, 2006):

1. **Individual Environmental Assessments:** apply to large, complex projects with the potential for significant impacts on the environment, such as major landfills. Proponents must prepare a Terms of Reference, which serves as a work plan to guide and focus the preparation of an EA. According to MOE, these represent less than five per cent of all applications.

2. **Class Environmental Assessments:** these are for specific project types or classes and are based on the potential for environmental effects. Currently, Ontario has approved a total of 10 Class EAs, which cover routine activities related to such things as: highway construction and maintenance; water and sewer; GO Transit; forest management activities; conservation authorities works; and, other public-sector activities (MOE, 2008a).

3. **Electricity generation and transmission:** the EA rules for these types of projects are set out in the Electricity Projects Regulation. Depending on the environmental impacts and the type and size of the project, proponents must either undertake an individual EA, a screening process or have no EA requirement. According to MOE, the screening process has been used for more than 30 generation projects since 2001.

The next section discusses one of the 10 class EAs approved by the Ontario Ministry of the Environment that is of direct interest for this research, the Municipal Class Environmental Assessment.

3.2.1 Municipal Class Environmental Assessment

One of the 10 class EAs[7] currently approved by the Ministry of the Environment, the Municipal Class Environmental Assessment (MCEA), is utilized by hundreds of municipalities throughout the Province. The MCEA, approved on June 2000 and updated September 2007, is a procedure whereby municipalities can comply with the requirements of the Ontario Environmental Assessment Act (MEA, 2008). It involves a five phase study that describes the process that proponents must follow in order to meet the requirements of the Environmental Assessment Act.

[7] The Environmental Assessment Act (EAA) formally recognizes the Class EA process and outlines the requirements for EA approval. The Class EA is submitted and reviewed under the individual EA review and approval process. Approval, if granted by the Minister and Cabinet, applies to the entire class of undertakings and the procedures described in the document. Thus, a proponent who receives approval for a class of undertakings does not need to obtain separate approval under the EAA for each specific project, provided the class planning process is adhered to for the specific project (MOE, 2008b).

Table 5: Municipal Class EA Planning and Design Process

Phase	Requirements
1 – Problem or Opportunity	Identify the problem or opportunity.
2 – Alternative Solutions	Identify alternative solutions to the problem, by taking into consideration the existing environment, and establish the preferred solution taking into account public and agency review and input. At this point determine the appropriate Schedule for the undertaking, and/or identify the approval requirements; proceed through the following Phases for Schedule C projects.
3 – Alternative Design Concepts for Preferred Solution	Examine alternative methods of implementing the preferred solution, based upon the existing environment, public and government agency input, anticipated environmental effects and methods of minimizing negative effects and maximizing positive effects.
4 – Environmental Study Report	Document, in an Environmental Study Report a summary of the rationale, and planning, design and consultation process of the project as established through the above Phases and make such documentation available for scrutiny by review agencies and the public.
5 - Implementation	Complete contract drawings and tender documents; proceed to construction and operation; monitor construction for adherence to environmental provisions and commitments. Where special conditions dictate, also monitor the operation of the complete facilities.

Source: (MEA, 2007)

As discussed in the previous section, projects that are carried out routinely, are similar in nature and scale, and have predictable and mitigable environmental effects may fall into groups or "classes" and therefore do not warrant an individual EA (MOE, 2005). Projects that do not display these characteristics must undergo an individual environmental assessment. Most of the time, the Class EA deals with municipal road, water and wastewater projects (York Region, 2008c), including:

- Construction of new roads
- Construction of new sewage and water facilities.
- Reconstruction and modification of existing roads and traffic facilities, reconstruction and modification of existing sewage, storm water management and water facilities.
- Construction of storm water management and related erosion, flood and water quality control facilities.
- Slope stabilization and related projects.

3.3 The Ontario Planning Act

In the settled parts of Ontario, the use of land is chiefly controlled through a Provincial statute entitled the Planning Act. The Planning Act sets out the rules for land-use planning in Ontario and describes how land uses may be controlled, and who may control them (MMAH, 2008b). As such, the Planning Act is the key legal foundation for municipal planning in the province of Ontario. This legislation empowers local governments to establish policies for the use of land within their municipalities through a series of mechanisms, centred on the Official Plan and the Zoning By-law. A different process is used on the Crown lands of northern Ontario, but this will not be discussed here as it is beyond the scope of this research.

3.3.1 Official Plans

The central activity in the planning of a community is the making of an official plan, a document that guides future development of an area and is the primary policy document developed by a municipality to guide how land should be used. Official Plans designations are usually general in scope and relate to ill-defined areas of land (Hale and Bowman, 1986). Each municipality in Ontario is required to develop an Official Plan to guide land use and development. Official plans deal with issues such as:

- where new housing, industry, offices and shops will be located;
- what services like roads, water-mains, sewers, parks and schools will be needed;
- when, and in what order, parts of your community will grow;
- community improvement initiatives (MMAH, 2008a)

The Official Plan can be amended through an Official Plan Amendment (OPA), which allows for property owners to request changes in municipal zoning and development restrictions. The Region of York Official Plan was first approved by the Minister of Municipal Affairs and Housing on October 17, 1994 (York Region, 2008g). Since then, many amendments have been incorporated in what is called “Office Consolidation”. The latest Office Consolidation is dated June 1, 2008 and incorporates approvals of deferred or referred policies and designations by

the Ministry of Municipal Affairs and Housing and/or the Ontario Municipal Board since the original approval in 1994. As such, it brings the Plan into conformity with the Oak Ridges Moraine Conservation Plan (OPA 41, 2004); however, subsequent amendments still will be required to bring this plan into conformity with the provincial Greenbelt Plan, 2005 and Places to Grow - The Growth Plan for the Greater Golden Horseshoe approved in June 2006.

3.3.2 Zoning By-law

A zoning by-law controls the use of land in a municipality. It is intended to guide:

- how land may be used
- where buildings and other structures may be located
- the types of buildings that are permitted and how they may be used
- the lot sizes and dimensions, parking requirements, building heights and setbacks from the street (MMAH, 2008c).

Official plans set out the municipality's general policies for future land use. Zoning by-laws put the plan into effect and provide for its day-to-day administration. Zoning by-laws can also be amended, through zoning by-law amendments or rezoning, but municipal council can consider a change only if the new use is allowed by the official plan.

3.4 Provincial Policy Statement

The Provincial Policy Statement contains overall policy directions to decision makers on matters of provincial interest related to land use planning and development. It is the complementary policy document to the Planning Act. The Planning Act requires that the Provincial Policy Statement be reviewed periodically to make sure its policies are still effective. The latest Provincial Policy Statement took effect on March 1, 2005. When decision makers exercise any authority that affects a planning matter, the Planning Act requires that the decision “shall be consistent with” the Provincial Policy Statement (Ontario Ministry of Municipal Affairs and Housing, 2005).

3.5 The Oak Ridges Moraine Conservation Act

The Oak Ridges Moraine is a unique protected landform that is an immense glacial moraine running east to west, north of, and parallel to, Lake Ontario (York Region, 2007b). One of the moraine's most important functions is as a water recharge/discharge area, and it has been described as southern Ontario's "rain barrel" – its permeable sands and gravels absorb and collect precipitation, which slowly recharge the deep aquifers below the ground, and directly provides drinking water to over 250,000 people (STORM coalition, 2008).

On December 14, 2001, the Oak Ridges Moraine Conservation Act (ORMCA) was proclaimed by the Province of Ontario and was followed on April 22, 2002, by the filing of Ontario Regulation 140/02, the Oak Ridges Moraine Conservation Plan (ORMCP). The ORMCP can be seen as the result of over 10-years of land use planning effort by environmental groups across the ORM led by the Save the Oak Ridges Moraine (STORM) Coalition (Whitelaw, 2005).

Under the provisions of the Act, the Region of York as well as the neighbouring Regions of Peel and Durham had until April 22, 2003 to adopt amendments to bring their Official Plans into conformity with the ORMCP. York Regional Council adopted Regional Official Plan Amendment 41, The Oak Ridges Moraine Conformity Amendment on March 25, 2003. This Amendment was approved by the Minister of Municipal Affairs and Housing on October 17, 2004 (York Region, 2008f). Accordingly, the ORMCP divides the Moraine into four land-use designations, as described on Box 6.

Box 6: ORMCP Land Designations

Natural Core Areas (38% of the Moraine)

Protect lands with the greatest concentrations of key natural heritage features critical to maintaining the integrity of the Moraine as a whole. Only existing uses and very restricted new uses are allowed.

Natural Linkage Areas (24% of the Moraine)

Protect critical natural and open space linkages. The only uses that are allowed are those allowed in Natural Core areas plus some aggregate resource operations.

Countryside Areas (30% of the Moraine)

Provide an agricultural and rural transition and buffer. Prime agricultural areas as well as natural features are protected.

Settlement Areas (8% of the Moraine)

Reflect a range of existing communities planned by municipalities to reflect community needs and values. Urban areas and areas of urban and suburban expansion as set out in municipal official plans are allowed.

Source: (Government of Ontario, 2002)

The Oak Ridges Moraine Conservation Plan is relevant to this research as 31.4% of York Region is within the Oak Ridges Moraine designation area (York Region, 2008d). The following map shows the Oak Ridges Moraine designation area within York Region (Figure 3).

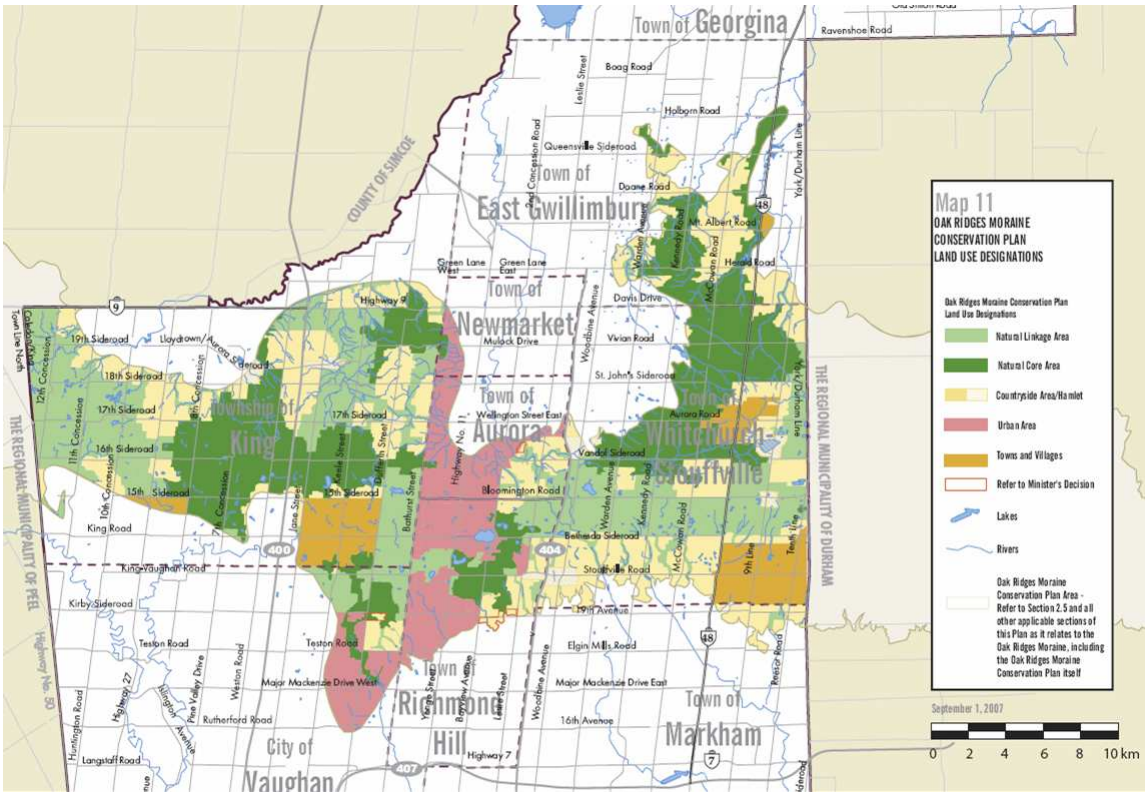

Figure 3: Oak Ridges Moraine Conservation Plan Land Use Designations within York Region

(Source: York Region, 2007a)

3.6 Greenbelt Act

The Greenbelt Act, 2005 enables the creation of the Greenbelt Area and the establishment of the Greenbelt Plan to protect about 1.8 million acres of environmentally sensitive and agricultural land in the Golden Horseshoe from urban development and sprawl. The Greenbelt includes the 800,000 acres of land protected by the Niagara Escarpment Plan and the Oak Ridges Moraine Conservation Plan, and 1 million newly protected acres known as the Protected Countryside (MMAH, 2008e). The Act requires that decisions made under the Ontario Planning and Development Act and the Planning Act conform to the Greenbelt Plan.

The Greenbelt Plan was established under Section 3 of the Greenbelt Act, to take effect on December 16, 2004, and it identifies where urbanization should not occur in order to provide

permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape. Figure 4 presents the Greenbelt Plan area.

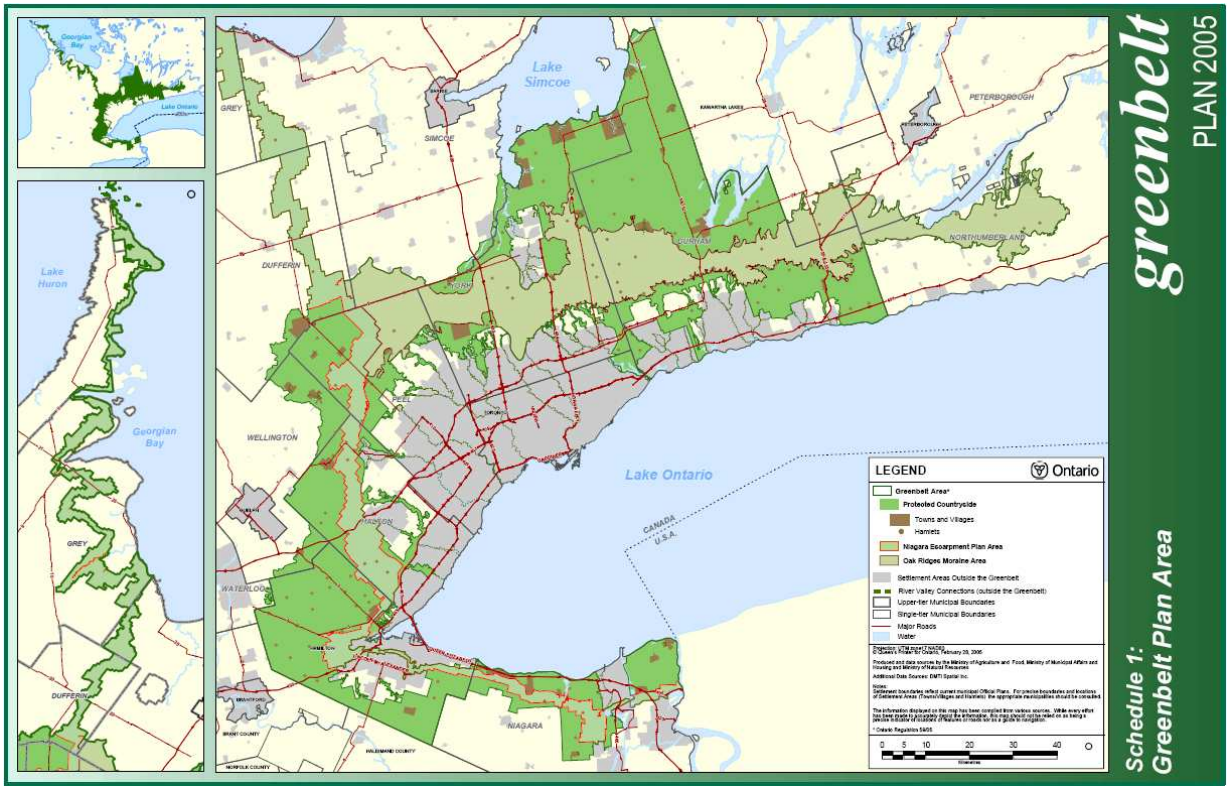

Figure 4: Greenbelt Plan Area

(Source: MMAH, 2005)

The Greenbelt Plan is relevant to this research as much of York Region is within the Greenbelt designated area (approximately 69% of York Region is within the Greenbelt; this includes areas within the ORM).

3.7 Places to Grow Act

The Places to Grow Act, 2005 received Royal Assent on June 13, 2005. It provides a framework for the Government of Ontario to coordinate planning and decision-making for

long-term growth and infrastructure renewal. It gives the Province of Ontario the power to designate geographical growth areas, and to develop growth plans in collaboration with local officials and stakeholders to meet specific needs across the Province (Government of Ontario, 2005).

The Growth Plan for the Greater Golden Horseshoe, released on June 16, 2006, was prepared under the Places to Grow Act and it anticipates accommodating an additional 3.7 million more people in the Greater Golden Horseshoe area by 2031. It is a 25-year plan that, according to the Ministry of Public Infrastructure Renewal, 2006), aims to:

- Revitalize downtowns to become vibrant and convenient centres.
- Create complete communities that offer more options for living, working, learning, shopping and playing.
- Provide housing options to meet the needs of people at any age.
- Curb sprawl and protect farmland and green spaces.
- Reduce traffic gridlock by improving access to a greater range of transportation options.

For York Region, the Growth Plan for the Greater Golden Horseshoe presents itself as a significant provincial plan as it guides all regional municipalities' decisions on a wide range of issues, including infrastructure and land-use planning.

3.8 Ontario Planning and Development Act

In 1994, the Ontario Planning and Development Act (OPDA) was proclaimed by the Province of Ontario. The OPDA addresses development plans that may contain policies for the economic, social and physical development of the area covered by the plan in respect of, among other things, "the management of land and water resources, the control of all forms of pollution of the natural environment, and the location and development of servicing, communication and transportation systems" (Government of Ontario, 1994).

3.9 Infrastructure master plans

Master plans are long range plans that integrate infrastructure requirement for current and future land use with environmental assessment planning principles (MEA, 2008). In this sense, Infrastructure Master Plans examines an infrastructure system(s) or group of related projects in order to outline a framework for subsequent projects and undertakings. The benefits of master planning are that municipalities are provided with a broad framework through which the need and justification for specific projects can be established and environmental assessment processes can be streamlined. While master plans typically identify a number of related projects with different time frames and levels of complexity, these projects are conceptual in nature, without a pre-determined location, technology or construction method (York Region, 2007d). Proponents are then required to fulfill the requirements of the Environmental Assessment Act (see section 3.2.1) and assess each project in accordance with its individual characteristics.

The Master Planning update process in York Region (both Transportation and Water and Wastewater) followed phases 1 and 2 of the Municipal Class EA Process (1-Identify problem or opportunity; 2-Identify alternative solutions to problem or opportunity) in order to evaluate alternative solutions and consult with the public. Master Plans do not require approval under the EA act, but specific projects within a Master Plan need to fulfill all appropriate EA requirements.

Chapter 4: The Importance of Context – A Review of SEA Best Practice

Summary
SEA has been promoted as an important instrument for planning and decision making. Scholars in the field have been engaged in producing sets of guidelines in order to promote better practice and implementation. This paper addresses these guidelines as lists of 'SEA best practice components'. First, the article reviews the SEA best practice literature and summarizes the key components. The pool of guidance is not intended to be exhaustive, but large enough to provide working material for the research. In addition, the paper illustrates how context influences the importance of each best practice component in regards to a specific case study in York Region, Ontario, Canada.

Keywords: Strategic environmental assessment; sustainability; best practice; context.

4.1 Introduction

The concept of SEA first appeared in the late 1980s, and has since been applied in several places around the world, mostly by governments at various levels. The ways in which SEA adds value to planning and assessment processes have been greatly publicized in the environmental assessment literature (Thérivel, 2004b; Alshuwaikhat, 2005; Dalal-Clayton and Sadler, 2005a). In addition, SEA has been interpreted and implemented in a number of different ways, mainly differing in scope, openness, comprehensiveness, duration, and the degree of integration (Rossouw et al., 2000; Verheem and Tonk, 2000; Hacking, 2004). However, SEA's publicized potential benefits and overall process effectiveness have varied greatly as a result of all these different SEA approaches used in practice. Accordingly, scholars have proposed the idea of having a list of 'ideal' components of an SEA approach that would lead to better SEA practice and effectiveness.

Different terms have been used to define these components of SEA, which shall be called 'best practice' throughout this paper. In fact, a number of these 'lists' can be identified in the literature, all of which carry similarities but not total congruence. Reasons for this remain

understudied, and a synthetic review provides a means by which we can better understand the evolution of SEA best practice thinking, as well as to better understand why there are differences across SEA best practice lists.

This paper follows the argument by Ahmed et al. (2005), that a good SEA process is tailor-made to the context in which it operates, and thus should be designed to enable it to influence the policies, plans, or programmes (PPP) that are specific to the situation. Therefore, in designing the SEA process, instead of a detailed prescription of steps to be followed (as in typical project-EA), it is preferable to establish a limited set of principles and criteria that allow for a variety of ways of implementing SEAs, depending on context (Verheem and Tonk, 2000).

With the need for careful attention to contextual issues, the first argument illustrated in this paper is that SEA best practice cannot be viewed as a single best approach, but rather as generic guidance, translated through a number of components that have general validity for SEA application everywhere, and with the assumption that these components must be interpreted and customized to the particularities of the case. Stated more simply, the context in which SEA is applied should always influence how SEA is conducted. Context may not be everything, but it is always crucial. Nevertheless, how context influences the application of SEA remains an important and still poorly understood process, and this paper addresses this issue of SEA best practice application and the influence of context to it.

As a first step, a review of the existing published SEA best practice 'lists' was undertaken. The variation in components of SEA, is noticeable, and required a deconstruction of previously published lists of best practices to build one combined list that is comprehensive and up to date. In this context, this paper first reviews the SEA best practice literature and summarizes the key components. Second, the paper illustrates how context influences the importance of each best practice component in regards to a specific case study in York Region, Ontario, Canada. Due to the analytic and exploratory nature of this article, the target audience is broad, including academics, decision makers, practitioners (e.g., consultants, assessors, and administrators), planners, and other related professionals with an interest in strategic planning and assessment.

4.2 International literature on SEA best practice

SEA experience in the past 20 years has given useful insights into what needs to be considered in order for it to be effective. Numerous scholars, drawing from SEA application in various places and contexts, describe important components of the process. This section summarizes the major findings in the literature about what is needed for effective SEA and, to the extent possible, identifies SEA best practice.

4.2.1 SEA best practice and the issue of context

The term SEA best practice is used sometimes to refer to important SEA components; however, to some extent this is misleading as the debates around what is considered a requirement for SEA best practice are still mostly normative rather than being based on practical observations. In other words, there are not many examples of empirically-based SEA best practice. There are, however, good SEA examples that highlight good use of one or another SEA component.

Different terms have been used to define components of SEA that might be called 'best practice'. Fischer and Gazzola (2006) provide a content analysis of SEA-related publications in the international literature up to 2002 and highlight how terminology has varied, including terms such as "Basic elements for effective SEA" (Sadler and Verheem, 1996), "SEA good practice elements" (Partidario, 1997), "Basic principles of SEA" (DETR/UK, 1998), "Conditions of effectiveness for SEA" (Nooteboom, 1999), "Principles for SEA" (Dalal-Clayton and Sadler, 1999; DEAT/CSIR, 2000), "Factors for SEA effectiveness in decision making" (Government of Finland, 2001), "SEA performance criteria" (IAIA, 2002), "SEA principles" (Fischer, 2002; Noble, 2005), "Principles of effective SEA" (Dusik et al., 2003) and more recently, 'SEA effectiveness criteria' (Fischer and Gazzola, 2006; Retief, 2007).

However, it is well recognized that no universal best approach to SEA exists, since context will always be an important factor in SEA application (Partidário, 2003; Dalal-Clayton and Sadler, 2005a). Context issues relevant to SEA include, for example, formal and informal institutional arrangements within a particular jurisdiction, legislative requirements in place, previous

decisions that shape the way in which the assessment is structured, and the ecological, social, cultural and economic aspects that define and shape how a place functions (Pope and Grace, 2006). Therefore, the best practice components presented here are intended to provide an indicative, rather than prescriptive, framework that encourages contextualization.

4.2.2 SEA principles and components found in the literature

Bina (2003: 60) argues that "SEA's greatest potential lies in its ability to influence decision making." Fischer (2005) elaborates on this and suggests defining effective SEA in terms of its ability to influence: (a) the underlying PPP decision-making process and other related policies, plans, programmes, projects and their assessments; (b) the mentality and attitudes of actors involved in policy, plan, programme and project making and assessment. As argued by Thérivel (2004a: *xv*), "effective environmental assessment is about making the right comment at the right meeting to get the right person to consider something that they had not thought of before." This interpretation, at a minimum, stresses the relevance of 'timing' for SEA and strategic decision making, especially in terms of the availability of the assessment results early enough to influence the decision-making process.

Table 6 presents the list of SEA components identified from the international literature and highlights whether a component is or is not present based on each of the following sources (Dalal-Clayton and Sadler, 1999; DEAT/CSIR, 2000; IAIA, 2002; Dusik et al., 2003; CEAA, 2004; Thérivel, 2004b; Noble, 2005). For a more detailed review, please see Appendix II.

Table 6: Presence or absence of SEA components

SEA should...	Dalal-Clayton and Sadler, 1999	DEAT/CSIR, 2000	IAIA, 2002	Dusik et al., 2003	Thérivel, 2004b	CEAA, 2010	Noble, 2005
i. Be sustainability-centred	+	+	+	+	+	+	+
ii. Be applied early	+	+	+	+	+	+	
iii. Be integrated	+	+	+	+	+	+	+
iv. Be tiered	+	+	+	+			+
v. Be flexible and adaptable	+	+	+	+		+	+
vi. Ensure early public involvement in open deliberations	+	+	+	+	+	+	
vii. Be transparent and accountable	+	+	+	+	+	+	
viii. Be strategically-focused		+				+	+
ix. Be iterative		+	+	+			
x. Be focused and cost-effective	+	+	+	+	+	+	
xi. Be proactive		+		+			+
xii. Ensure clear delineation of roles and responsibilities	+	+	+		+		
xiii. Ensure critical evaluation of alternatives	+	+	+	+	+	+	+
xiv. Ensure independent review	+	+	+		+		
xv. Ensure monitoring and follow-up	+	+	+	+	+	+	
xvi. Ensure/foster continuous learning	+	+		+		+	

+: component part of list of SEA essential components

4.3 The SEA framework: description of SEA best practice components

Box 7 presents the main components of the SEA best practice published in the international literature. Based on the lists reviewed in the previous section, categories were collapsed together to include all major components. These will be discussed in more detail below, in terms of their relative importance to SEA theory and practice.

Box 7: SEA best practice components

SEA should...

1. Be sustainability-centred
2. Be tiered
3. Ensure early meaningful public involvement in open, transparent and accountable decision making
4. Start early and be proactive
5. Follow an integrated approach
6. Be focused and cost-effective
7. Be flexible and adaptable to the context of application
8. Ensure critical evaluation of purposes and alternatives
9. Ensure clear delineation of roles and responsibilities
10. Ensure follow-up and continual learning
11. Be designed to include proper incentives and motivations for effective application

4.3.1 Sustainability-centred

Sustainability provides not just a purpose, but the underlying philosophy around which much of the contemporary SEA theory is based (Sheate, 2001). One of the main reasons for undertaking SEA is to help to make society's initiatives more sustainable. For this reason, explicit commitment to sustainability is an important requirement for SEA.

As argued by Jones et al. (2005), if one SEA outcome is to contribute to delivering the sustainability agenda, the concept must be incorporated as the central element in the SEA process. Therefore, the process should be focused on integrating the concept of sustainability

into the objectives of strategic initiatives, and should facilitate identification and assessment of options based on sustainability-centred decision criteria and trade-off rules. The key implications of this component include integrated attention to the interactions among ecological, social and economic factors in the assessment work, because these are the foundations for sustainability. For SEA, serious attention to sustainability entails establishing and applying explicit sustainability-based evaluation and decision criteria that are properly specified for the case and context.

4.3.2 Tiering

One of the main benefits of SEA is to set a strategic context for project EA, consequently making project EAs more efficient, if not unnecessary (Stinchcombe and Gibson, 2001). Referred to as tiering, it is usually idealized as a hierarchical process of decision-making, and it aims at ensuring that there are links from the strategic level to the project level and vice versa (Hildén et al., 2004). Therefore, when a PPP precedes and influences a project decision, the PPP and the project decision are said to be "tiered". In practice, this does not just work in a strict top-down manner (i.e., from policy to plan to programme to project). Rather, lower tier SEAs and project EAs can also have a "trickle up" effect, which in turn may lead to an improved awareness of the limitations of prevailing policies, plans and programmes and thus drive improvements (see for example Hildén et al., 2004).

Tiering is promoted as a way to minimise various limitations of project EAs, including preventing foreclosure of assessing important environmental issues; better focused environmental assessments; efficiency gains for [S]EA at lower levels by doing environmental assessments at higher levels (e.g., indication of major issues that need further elaboration, or not; guidelines for subsequent environmental assessments); better fit with the ongoing nature of decision making and planning processes by tiering of environmental assessments; and, improvement of plans and projects developed and implemented (Arts et al., 2005).

A vital role of tiering in SEA is for upper-level structures to provide procedural guidance to lower tier assessments (Gibson, 1993; Stinchcombe and Gibson, 2001). Procedural guidance

can "establish reliably defined and appropriately rigorous processes for various sorts of subsequent assessments, specifying for example, the scope and nature of necessary documentation, consultation and reviews" (Stinchcombe and Gibson, 2001: 11). Because of tiering, SEA has the potential to streamline decision making, where decisions taken at one planning level may not need to be revisited at subsequent stages of decision making (Thérivel, 2004b), potentially reducing costs, time and confusion (Ortolano and Shepherd, 1995). Thus, in terms of SEA practice, tiering ideally would indicate "the extent to which SEA is organized hierarchically, with one level of assessment informing the next level down (through to project EA)" (Jones et al., 2005: 280).

4.3.3 Public involvement in open deliberations, transparency and accountability

One of the SEA constraints is the "little interest by many government agencies in subjecting policy and planning proposals to assessment, reinforced by fear of losing control, power and influence by opening up such processes" (Dalal-Clayton and Sadler, 2005a: 27). Dalal-Clayton and Sadler argue that this constraint could be overcome by designing and implementing SEA as a transparent and a participatory process that helps to realize good governance and that reinforces accountability and builds public trust and confidence. In fact, public participation is widely regarded as essential for effective SEA (Partidário, 1996b; Sadler and Verheem, 1996; Thérivel, 2004b; Jones et al., 2005; Rauschmayer and Risse, 2005; Vicente and Partidário, 2006; Fischer, 2007).

Open deliberations in decision-making processes with early public involvement can also be beneficial not just in terms of providing additional information, but also in enabling social learning. Drawing from the Canadian experience with environmental assessment, Jacobs et al. (1993: 24) argue that the social learning aspect of environmental assessment is one of its most important but also overlooked benefits. As argued by Banister (2002: 131), "many of the decisions are not matters of expertise but matters of opinion and values rather than facts". For these reasons, it is essential that governance structures foster engagement of stakeholders to

work together towards sustainability, and meaningfully consider the importance of public involvement and its influence on the planning process.

A common objection to public participation in environmental assessments (both strategic and project level) is that it will take too long and it will cost too much. The costs of participation depend on various factors but, while a participatory approach may extend the time needed during the initial stages of analysis and planning, such investment is normally "returned" later in the process by avoiding or minimizing conflict (Mitchell, 2002). Conversely, the cost of not involving people can actually be higher, given that public opposition later in the process might lead to delays and potential litigation, as well as the greater likelihood of surprise or unexpected outcomes.

Ensuring opportunities for early meaningful public involvement in open deliberations is therefore a crucial component of effective SEA, which contributes to transparent and accountable decision making. By considering opinions of key stakeholders early in the planning process, the risk of deadlock during decision-making on individual projects is reduced. Properly undertaken and accountable SEA will enhance credibility of PPPs and may mobilize support of key stakeholders for their implementation (Dusik et al., 2003). In addition, by making the decision-making process more transparent and accountable, the influence of non-technical political preference can be expected to diminish.

4.3.4 Early and proactive application

It is widely accepted that SEA needs to be applied as early as possible in the planning process in order to maximize the contribution it can make to guiding the planning process (Thérivel, 2004b; El-Jourbagy and Harty, 2005; Noble, 2005), when the purposes to be served and the major alternatives and design options are still open and well before decisions are made (Dusik et al., 2003). Moreover, SEA should ensure that the assessment process identify actions that help shape and build a desirable future rather than wait to respond and react to undesirable events.

In addition, as some strategic initiatives lead to projects, applying SEA early during PPP formulation "offers the chance to influence the kinds of projects that are going to happen, not just the details after projects are already being considered" (Thérivel, 2004b: 14). Early application also ensures the possibility that the information generated during assessment is available in a timely manner to decision makers and affected stakeholders.

4.3.5 Integration

The concept of integration has been taken to mean at least two things in SEA application, including integration of different concerns (e.g., biophysical, social and economic) and integration into planning and decision-making. In current thinking about strategic assessment, there is growing recognition that 'the sum of the parts does not equal the whole', meaning that if individual parts are added on in a way that can be fully described and measured, the final set is more than just the sum of the parts (Eggenberger and Partidário, 2000). As Eggenberger and Partidário (2000: 204) argue, "integrating means a new entity that is created where new relationships are established, bearing on individual entities that have specific characteristics and specific dynamics but in combination act in a different way".

Although integration has been discussed in many different ways in the literature (Partidario, 1998; Scrase and Sheate, 2002; Abaza et al., 2004), the integration of biophysical, social and economic aspects and their interrelationships is key. Many methodological problems arise when aggregating separate findings of biophysical, social, and economic impacts (Devuyst, 2001), especially because of all the different values and perspectives involved, making it difficult to integrate the results of separate findings from each separate discipline. In addition, this separation hinders the consideration of the interconnections and interdependencies among different disciplines. For a sustainability-oriented SEA, addressing these interconnections is crucial to the holistic, integrative concept of sustainability (Gibson, 2006a), as the big issues dealt with in strategic assessments do not fit neatly into disciplinary boundaries.

Another view of integration in SEA can also be discussed in terms of its placement and interaction with the planning and decision-making process. Many have suggested that SEA is

best conceived as an integral part of PPP formulation (i.e., integrated within the planning and decision-making process rather than as an add-on process) so that it can influence the courses of a PPP as decisions unfold (Partidário, 1999; Noble, 2005). In this context, Partidário (2007: 472) suggests SEA results should be used on "important moments in the strategic decision process when critical decisions are to be taken, and which can benefit from an SEA input", and not be just another exercise of writing a report that no one reads. Therefore, how SEA is positioned within the planning process is crucial to its effective application.

4.3.6 Focused and cost-effective

It is important that the process ensures matching of assessment effort to the significance of the case. This will vary from case to case. Therefore, SEA should be focused on the most crucial issues. In project EA, the term scoping is used as a phase in the assessment process that identifies the important issues that should be addressed, establishes the spatial and temporal boundaries of the assessment, and focuses the assessment on the critical issues and concerns (Noble, 2010). The way crucial issues are defined then is key. Who defines it? How are the issues identified as crucial? It seems appropriate that public participation at this stage should be essential. In addition, it is worth noting the importance of combining generically key considerations with considerations that are particularly significant for the case and context.

Focusing on the crucial issues also means letting some issues out of the list. This is also an important aspect of SEA, as prioritization of limited resources is common. In this case, issues that are judged to be less significant should be disregarded only if reasons for this decision are provided, justified and documented.

4.3.7 Flexibility and adaptability

Different circumstances demand different approaches, and because SEA deals with a range of mixed forces, operating on many fronts, different societal values and perspectives, and high levels of uncertainty (Partidário, 2000), it requires flexibility and adaptability to different types

of application contexts as well as to different tiers of decision making. As argued by Gibson et al. (2005), one of the key lessons to be drawn from the unsustainable results of conventionally guided development decision making is that context matters.

Because the scope broadens as SEA moves upstream from programmes to plans to policies (Noble, 2005, SEA must be designed as a sufficiently flexible and adaptable approach, built upon core elements to ensure that it is effectively responsive, while based on minimum administrative procedures adapted to the formal PPP process to which SEA applies (Partidário, 2000). One clear implication here is the need to specify the SEA, including the criteria for evaluations and decisions, to the particular context in which it will be applied.

4.3.8 Assessment of purposes and alternatives

SEA is about identifying and comparing reasonable alternatives in order to propose the best practical option, and it all starts with the assessment of purposes. Why is a specific initiative needed? The answer to this question helps in identifying and assessing possible alternatives. Part of the original rationale for proposing strategic-level environmental assessment was that, by the time plans for an individual project are put forward, there is little opportunity for considering basic alternatives to the proposal (Stinchcombe and Gibson, 2001; Jones *et al*, 2005). In addition, some potentially reasonable alternatives are effectively foreclosed (Lee and Walsh, 1992).

The purposes of a strategic initiative set the grounds for identifying the options to be considered as potential approaches to meeting the strategic objectives. If the purposes are narrowly defined to constrain options tightly, the potential for innovation is lost. The strategic initiative is more likely to be successful if the defining of purposes is open to participation by interested parties and subject to critical review (Benevides, 2008). Noble (2000) suggests that SEA's primary aim is to enlighten the choice of the preferred strategic action. Accordingly, he defines SEA as the "proactive assessment of alternatives" (Noble, 2000: 215). It is, therefore, important that the SEA process enables the generation of a range of possible means of

achieving the strategic initiative's objectives, and also assesses and compares the most reasonable alternatives (Jones et al., 2005).

4.3.9 Roles and responsibilities

SEA experience has shown how important it is to have clear delineation of the roles and responsibilities of the various stakeholders involved in the assessment set out from the outset. Improper definition of roles and responsibilities can lead to a number of problems including confusion and potential conflict among team members, and a lack of understanding of the process as a whole from stakeholders and the public, which could set the stage for chaos.

This is not, however, a unique aspect of SEA, as the importance of defining roles and responsibilities has long been identified as crucial in many professional areas such as business development and project management. Assumptions can be made about roles and responsibilities and if a person doesn't understand his or her role and responsibilities, the process will likely have efficiency problems. Therefore, for SEA purposes, decision makers must be aware of their assessment obligations, the public must be able to know who is responsible for the assessment and who is accountable for the decision, as well as the independent review of assessment results should be included as an integral part of the assessment process. It is important to recognize that, especially in Canada, SEA issues are likely to involve the responsibilities of agencies in two or more jurisdictions and that establishing cooperative relations is often crucial.

4.3.10 Follow-up and Continual learning

SEA follow-up is the process of fine-tuning predictions and recommendations from the PPP formulation stage, in light of new information obtained during the implementation of the PPP (e.g., Lee and Walsh, 1992; Sadler and Verheem, 1996; Thérivel and Partidário, 1996; DEAT/CSIR, 2000; Fischer, 2002; Noble, 2003). McCallum (1987) uses the term follow-up to mean activities undertaken during the post-decision stage of a proposal. Sadler (2004) asserts

that follow-up is part of a larger, generic field of *ex-post* evaluation, which refers to the analysis of all aspects of project EA and SEA effectiveness and performance. Morrison-Saunders and Arts (2004: 4) define follow-up as "the monitoring and evaluation of the impacts of a project or plan (that has been subject to project EA or SEA) for management of, and communication about, the environmental performance of that project or plan". Simply put, SEA follow-up is about life after the approval of a policy, plan or programme (Partidário and Arts, 2005), and as such, the need for using the findings to address deficiencies of implementation is crucial.

There is a considerable body of literature on project EA follow-up (e.g., McCallum, 1987; Munro et al, 1987; Lee et al, 1994; Arts and Nooteboom, 1999; Marshall and Fischer, 2005), and to a lesser extent but with increasing attention, on SEA follow-up (e.g., Partidário and Fischer, 2004; Sadler, 2004; Partidário and Arts, 2005; Persson and Nilsson, 2007). Morrison-Saunders and Arts (2004) observe that key issues in the early literature concern the accuracy of impact predictions and the quality of environmental impact statements. Later, attention was paid to plan and project implementation including mitigation and project management. More recently, however, the focus has widened to include communication issues and the role and stakes of the various parties involved as well as resources and capacity building (Morrison-Saunders and Arts, 2004).

SEA follow-up has an important role in making SEA learning-oriented, and it is a key mechanism for feedback, learning from experience and adaptive management (Caldwell, 2004). In addition to expert consultation and public participation in SEA, the follow-up component of SEA provides a valuable opportunity not just in terms of providing information, but also for enabling social learning. Therefore, SEA follow-up plays an important role to encourage lesson learning so that future decision making can be improved, and better understanding of what sustainability requires can be attained.

Although follow-up has been recognized as a fundamental element of SEA 'good practice', what happens to SEA once the related PPP is approved and implemented is still limited mainly to the identification of monitoring indicators (Partidário and Fischer, 2004). This relates to the fact that SEA follow-up can be a more complex exercise as compared to project-based follow-

up. While project-level follow-up is based on empirical evidence, particularly the environmental effects associated with project operation, SEA follow-up deals with impacts that can range from quite vague to very concrete, and can be expected at different relevant tiers of decision making (Partidário and Fischer, 2004). Nevertheless, follow-up has an important role to play if SEA is to achieve its perceived potential benefits.

4.3.11 Incentives and motivations

The SEA process needs to have effective incentives so that decision makers meaningfully use SEA before they begin planning. In order to provide the appropriate motivation, many authors have suggested that SEA systems should be based on clear legal provisions, which could be enforced in order to ensure compliance (e.g., Partidário, 1999; von Seht, 1999). Most of the time, what is seen in practice is a lack of proper incentives for SEA implementation.

Without some kind of incentive for decision makers to meet assessment obligations (e.g., legal requirements, enforcement of obligations, penalties for non-compliance) and encourage meaningful SEA application, SEA might have limited influence on decision making. In this perspective, Noble (2005) argues that institutional commitment through legislation is critical to the implementation and practice of SEA. The legal instrument could offer the potential for effective enforceability and consequently promises to be a more powerful vehicle for motivating compliance with SEA obligations. In Canada, for example, Benevides et al. (2008) argue that many years of experience with a non-legal approach to SEA (i.e., policy-based) have demonstrated very weak motivations for implementation, despite the mobilization of soft compliance oversight by the Auditor General and Commissioner of the Environment.

In addition, Sheate et al. (2001: 85) states that "successful SEA generally occurs where there is a legal obligation to require it". Similarly, Benevides et al. (2008) argue that a legally specified approach, rather than a policy based approach, could have greater firmness in guidance for lower-tier PPP and project level decision making. Based on legal provisions, the SEA process could provide for a final decision document that specifies directions for the conduct of lower-tier strategic undertakings and/or projects. Therefore, appropriate enforcement mechanisms

need to be in place in order to make practice comply with requirements. Without clear legal provisions, while completed PPPs could provide guidance for lower-tier PPPs and even for legally specified project assessments, the guidance would lack authority and the associated issues would remain open to debate in project level deliberations and decision making. Therefore, incentives and motivations for SEA application are crucial requirements for a SEA process that contributes to PPP formulation and implementation.

4.4 SEA best practice components and implications for practice

The eleven components discussed above represent an interpretation of the main components for SEA best practice, based on the international literature. These are summarized in Table 7 along with a discussion of some of the implications.

Table 7: SEA best practice components and illustrative implications[8]

SEA Component	Implication
Sustainability-centred: The process is centred on commitment to sustainability and to application of explicit sustainability-based decision criteria and trade-offs rules	1. *The assessment must facilitate identification of innovative options that take into account issues of social-ecological system integrity, precaution and adaptation, equity, resource efficiency, livelihood opportunities, democratic governance and how all these are integrated*
	2. *Sustainability issues are context-based and, therefore, the assessment (especially including the criteria for evaluations and decisions) must be customized to the context of application, including:* • *formal and informal institutional arrangements within a particular jurisdiction;* • *legislative requirements in place;* • *previous decisions that shape the way in which the assessment is structured; and,* • *the ecological, social, cultural and economic aspects that define and shape how a place functions*

[8] Some of the language used here is drawn from Benevides et al. (2008).

	3. *The assessment requires clear trade-off rules that help guide choices among trade-off options*
***Tiering*:** The assessment regime must take into account multiple tiers of decision making and be designed to provide clear guidance for assessment and decision making at lower tiers including at the project level	4. *The assessment must recognize the importance of input and direction both from higher to lower tier decision making and from lower to higher tier decision making in the interests of improving decision making, assessment quality, learning and efficiency*
	5. *Guidance from higher to lower tier decision making should be authoritative and obligatory (though time limited and open to reconsideration, e.g., where circumstances have changed)*
Public involvement in open, transparent and accountable deliberations: The process must ensure opportunities for early meaningful public involvement in open deliberations that contribute to transparent and accountable decision making	6. *The assessment requires broad engagement of all the relevant players who may be affected by or are otherwise concerned about strategic initiatives and who have an interest in ensuring that they are done well*
	7. *The process requires that data and information used must be accessible to all in a timely manner*
Early and proactive: The assessment must start early in the formulation of proposals when basic purposes and major alternatives and options are still open and well before decisions are made	8. *The assessment must ensure that attention to crucial issues begins at the outset of deliberations on strategic initiatives*
	9. *The assessment should identify actions that help shape and build a desirable future rather than wait to respond and react to undesirable events*
Integration: An integrated approach involves combining different sources of knowledge and information to represent and analyze problems.	10. *The assessment must address the interrelationships of biophysical, social and economic aspects*
	11. *The assessment should incorporate multiple objectives, criteria and sources of knowledge, and therefore, it requires better communication and coordination among different governmental departments and stakeholders, relevant to the undertaking*
	12. *The assessment should be an integral part of the planning process rather than an add-on process (e.g., integration of EA and infrastructure planning);*
***Focused and cost-effective*:** The process ensures matching of assessment effort to the significance of the case	13. *The assessment should focus on the most crucial issues, which should be identified with early public involvement*
	14. *Less significant issues can be disregarded but only when reasons for this decision are provided*

***Flexibility and adaptability*:** Because the scope broadens as organizations move from programs to plans to policies, the process must be designed so that it is flexible and adaptable	15. *The process must be flexible and adaptable to different types of application contexts as well as to different tiers of decision making*
	16. *The assessment should favour options that incorporate adaptive design, continual learning and adaptive implementation*
Assessment of purposes and alternatives: The process must ensure critical evaluation of purposes and comparative evaluation of potentially reasonable alternatives in light of sustainability-based decision criteria and trade-off rules that have been specified for the case and context	17. *The assessment must address implications related to positive and negative, direct and indirect, and immediate and cumulative effects*
	18. *The assessment requires recognition of uncertainties and commitment to precaution*
	19. *The assessment requires explicit justification for the selection of preferred options and for the acceptance of significant trade-offs*
	20. *Trade-off justification requires open and effective involvement of all stakeholders*
***Roles and responsibilities*:** The process ensures clear delineation of roles and responsibilities	21. *The process must ensure that roles and responsibilities are defined from the outset*
	22. *The process must ensure credible independence of assessment review*
Follow-up and continual learning: Follow-up is the process of fine-tuning predictions and recommendations from the formulation stage, in light of new information obtained during implementation.	23. *The assessment should be designed to be an ongoing, dynamic process in which monitoring verifies performance, as well as effects compared to initial predictions, and include adaptive management of the undertaking, informed by the monitoring findings*
	24. *The follow-up and monitoring process should encourage lesson learning to improve future decision making;*
Incentives and motivations: Effective incentives or sources of motivation must be in place in order to ensure the process is adhered to.	25. *The process requires buy in by high ranking decision makers and stakeholders in order to ensure that innovative changes (or new institutional culture) have long-lasting benefits;*
	26. *The assessment process should be based on clear legal provisions that can be enforced in order to ensure compliance.*

The list above provides generic guidance as to how SEAs should be utilized. However, interpretation and customization to the specific case of application is needed to determine which components are most relevant and important and what particular concerns should be priorities. To further investigate this issue, Table 7 was used as a framework to explore and better understand each component's importance in the context of a specific case study.

4.5 Background information

The Regional Municipality of York is an upper-tier municipality in south central Ontario, Canada, covering 1,776 square kilometres from Lake Simcoe in the north to the northern boundary of the City of Toronto in the south (see Figure 5). York Region is among the fastest growing regional municipality in Canada. York Region provides an upper-tier governance structure to nine lower-tier municipalities, including: Town of Aurora, Town of East Gwillimbury, Town of Georgina, Township of King, Town of Markham, Town of Newmarket, Town of Richmond Hill, City of Vaughan and Town of Whitchurch-Stouffville.

Figure 5: The Regional Municipality of York

(Source: York Region, 2007b)

The natural environment is characterized by many forested areas, wetlands and kettle lakes, which are part of a provincially-recognized planning area (York Region, 2007b; MMAH, 2008d). York Region's landscape includes the Oak Ridges Moraine, a unique protected landform that is an immense glacial moraine that runs east to west, north of, and parallel to, Lake Ontario. One of the moraine's most important functions is as a water recharge/discharge area, directly providing drinking water to over 250,000 people (STORM coalition, 2008).

York Region continues to experience significant development pressure, and this has resulted in the conversion of approximately 160 square kilometres (62 square miles) of countryside to urban uses since 1971 (York Region, 2009). The Region grew from 169,000 people in 1971 to 759,000 people by 2001, and is expected to reach 1.5 million by the year 2031 (Ministry of

Public Infrastructure Renewal, 2006). Growth has led to enormous pressure for new and updated infrastructure, especially in terms of transportation, water and wastewater. In this context the Region of York started a growth management initiative in 2006, entitled Planning for Tomorrow (York Region, 2008e). This involved the development of a Sustainability Strategy and the update of Infrastructure Master Plans, which led to an updated Regional Official Plan on December 2009 (York Region, 2009).

York Region's first Regional Official Plan was published in 1994, and in 1997, the York Durham Sewage System (YDSS) master plan (later updated in 2002) was completed. The YDSS master plan identifies current conditions and future alternatives necessary to provide the infrastructure to meet population projections in the Region (York Region, 2008i). The 'preferred alternative' was to double the capacity by twinning the existing YDSS. The YDSS is a complex wastewater collection system that converges at the jointly operated (York Region and Durham Region) Duffins Creek Water Pollution Control Plant (WPCP) located in Pickering, Ontario, Canada and discharges treated wastewater into Lake Ontario.

York Region, as a rapidly urbanizing jurisdiction, stands as a great location for the study of the importance of SEA best practice components to its specific conditions and context. The York Region approach to implementing a SEA-type[9] decision-making process involves integrated planning, rather than just a contribution of information to planning and decision-making processes. Recently, there has been some attempt to introduce elements of SEA best practice into their overall growth management planning, including infrastructure planning processes, such as the review and update of both the Transportation and Water and Wastewater Master Plans (York Region, 2007g; York Region, 2008h), and the publication of York Region's Sustainability Strategy (York Region, 2007f). The next section describes the methods used during this research examining York Region's work.

[9] The term 'SEA-type' is used throughout this dissertation to describe approaches that do not meet formal specifications or definitions of SEA, but have some of their characteristics or components.

4.6 Research Methods

Semi-structured key informant interviews and reviews of reports were used as the main sources of data about key events and lessons learned that have led to an emerging strategic approach to environmental assessment in York Region. In total, 28 key informants who were knowledgeable about the emergence of a strategic approach to environmental assessment within York Region were interviewed during two separate steps. The first set of interviews (n=21) took place between June 2007 and September 2008, and those interviews helped to develop a better understanding of the history of environmental assessment in York Region (see Appendix IV).

Of the 21 initial interviews, 11 were upper- and lower-tier municipalities' staff members, two were former provincial government staff members (one from the Ontario Ministry of Natural Resources and one from the Ontario Ministry of the Environment), three were Conservation Authority staff members, one was a resident, two were environmental non-governmental organizations representatives, one was a consultant and one was a lower-tier municipality politician. The second set of interviews happened between September and October 2010, when seven follow-up interviews were conducted with upper-tier municipality staff members to further clarify and build on some issues identified during the initial interviews. More importantly, follow-up interviewees were asked to rate the importance of SEA best practice components identified in Table 7, in the context of York Region. Participants were senior management staff from York Region who were knowledgeable about the history of EA in York Region, the problematic 16th Avenue trunk sewer project, and the transition to a more strategic, sustainability-based approach to planning and EA in York Region.

In-depth semi-structured interviews provided respondents with the opportunity to offer detailed explanation and clarification. Questions were generally asked of each interviewee in a systematic and consistent order, but participants were allowed freedom to digress. Employing semi-structured interviews allowed probing a consistent set of issues and hearing a variety of perspectives (Berg, 1995; Hughes, 2002). Interview analysis was done using *QSR NVivo*, a computer-assisted qualitative data analysis software to better manage and organize transcripts,

which were used to discover patterns, identify main themes, glean insight and develop meaningful conclusions.

4.7 Findings

This section highlights the findings obtained through interview analysis to illustrate the importance of each of the SEA best practice components presented in Table 7, in the context of York Region. Rating scale ranged from 1 (low importance) to 3 (high importance), with 2 being of medium importance.

4.7.1 Highest scores

Seven of the 26 implications for practice received a high score (i.e., rating of 3) by all follow-up interviewees (n=7). These are:

i. *Sustainability-centred* - The assessment must be customized to the context of application
ii. *Tiering* - The importance of input and direction from higher to lower as well as lower to higher tier decision making
iii. *Public involvement* - Broad engagement of all relevant stakeholders
iv. *Public involvement* - Data and information used are accessible to all in a timely manner
v. *Proactive* - Assessment must identify actions that help shape and build a desirable future rather than react to undesirable events
vi. *Integration and communication* - The assessment requires better communication and coordination among different governmental departments and stakeholders, relevant to the undertaking
vii. *Assessment of purposes and alternatives* - The assessment requires explicit justification for the selection of preferred options and for the acceptance of significant trade-offs

Three of the 26 implications received a high score from all but 1 participant. These are:

i. *Integration* - the assessment must address the interrelationships of biophysical, social and economic aspects
ii. *Follow-up* - The assessment is an ongoing, dynamic process in which monitoring verifies performance and effects, compared to initial predictions
iii. *Follow-up* - The follow-up and monitoring process should encourage lesson learning to improve future decision making

Three of the 26 implications received a high score by all but 2 participants. These are:

i. *Integration* - The assessment should be an integral part of the planning process rather than as a add-on process
ii. *Flexibility and adaptability* - The process must be flexible and adaptable to different types of application contexts as well as to different tiers of decision making
iii. *Roles and responsibilities* - The process ensures credible independence of assessment review

4.7.2 Lowest scores

Two of 26 implications received the lowest ratings. These are:

i. *Sustainability-centred* - The assessment requires clear trade-off rules that help guide choices among trade-off options
ii. *Roles and responsibilities* - The process ensures role and responsibilities are defined from the outset

4.7.3 Most important SEA best practice component in York Region's case

In addition, after going over the entire list of components, participants were asked if there was a single most important aspect of SEA best practice for York Region's case. All participants answered either tiering, sustainability or the issue of better communication (although communication is presented as an implication for practice linked to integration – implication #11), as the most important components in York Region's recent change in approach to planning and EA (see Table 8).

Table 8: Most important components/implications for York Region, according to participants

Interviewee	Component/implication
I001-10	Sustainability-centred
I002-10	Communicating and engaging with the public
I003-10	Communication and cooperation (but prefers the term partnership)
I004-10	Tiering
I005-10	Communicating and engaging with the public
I006-10	Sustainability-centred
I007-10	Tiering

These components are highlighted in recent activities in York Region. With the development of the York Region Sustainability Strategy (which is supposed to guide all activities in York Region from now on), the Region makes an explicit commitment to sustainability and begins to tackle the often difficult exercise of realizing what the requirements for sustainability are. As stated by one interviewee, "the 16th avenue was a wake up call, we realized we needed to do things differently" (interview 004-10). In addition, another interviewee adds:

> "We have realized that we need a much more integrated system, so we engaged in this Towards Sustainability Advisory Group in response to the 16th avenue issue, so lesson 1 is that the world is a much more integrated place, the sustainability storyline. So now the Region has

> adopted the sustainability strategy and one of the theme areas is corporate culture of sustainability – we also engaged the Schulich School to do a training program for us, and all managers and senior managers were required to take the training course" (interview 007-10).

Interviewee 004-10 adds that "This is our new way of corporate culture – reflected in sustainability strategy and endorsed by Council. Now we've really embraced it – it has become part of the corporate culture".

In regards to communication and engagement with the public, one interviewee said that "communication is key, you may have the best engineering solution, but if you can't or don't communicate it what is the point" (interview 004-10). In fact, principle #6 of the Sustainability Strategy is about "fostering partnerships and public engagement (York Region, 2007f). In addition, both recently updated infrastructure master plans incorporated public engagement and the role of communication:

> *Transportation master plan sustainability principle 10:* "Further encourage communication, consultation and engagement: York Region will plan for and implement transportation infrastructure and services in an open, transparent and accountable manner based on broad consultation, citizen engagement and strong communications" (York Region, 2007g).

> *Water and wastewater master plan sustainability principle 9:* "Communication, consultation and engagement: York Region is committed to planning and implementing water and wastewater services in an open, transparent and accountable manner based on broad consultation, citizen engagement, strong communications and to building public consensus toward the need to practice sustainability" (York Region, 2008h).

Regarding tiering, one interviewee mentioned that "now everything that we do – all planning – falls under the framework of the sustainability strategy. Current master plans are all done under the umbrella of our sustainability strategy, so you can have broad sustainability considerations influencing lower level decisions" (interview 002-10). During this research, this trickle down effect was evidenced through the further refinement of the sustainability principles from the Sustainability Strategy to be used during the review and update process of the infrastructure master plans (Kirchhoff, 2011). Therefore, the customized sustainability criteria used during

the update process of master plans were directly derived from an upper level strategic document. In turn, sustainability-based master plans can now provide guidance to project undertakings. What is seen then, is a filtering down of sustainability principles from upper to lower tiers of decision making, providing a tiered planning and decision making approach.

4.8 Discussion

It is interesting to note that, although the sustainability-centred component was identified as a very important component, implication #3 (which is related to the requirement of having trade-off rules in order to make choices among different trade-off choices) stands as one of the components with the lowest rating and three out of seven interviewees rated this implication as not applicable to York Region's context. In discussing why this is the case with participants, it was argued that trade-offs are usually dealt with during the identification and evaluation of alternatives, and for that part of the assessment process, criteria for choosing among alternatives should be provided. This implies that trade-off rules are implicitly included or embedded as criteria for identifying and assessing alternatives.

Some participants mentioned that the list was not complete and other items could be included. One person thought there should be something related to viability and healthy communities, such as housing, transportation, accessibility and social services, which suggests the importance of contextualizing the generic framework to the specifics of the location. Another interviewee mentioned that the issue of better communication should also be with the regulator in terms of building trust. A third mentioned that innovation should be included in the list.

It is also interesting to note that some of the terms used in Table 7 to define and describe components and implications were not common language used by the interviewed practitioners. These included tiering and trade-off rules, which required further clarification by the interviewer so that participants could relate the term used to their day-to-day practice. Tiering, for example, was related to strategic direction or corporate strategies by one of the interviewees, while another person mentioned partnership should be used instead of integration.

The term “crucial issues” in implications # 8 and 13 was highlighted by some as being difficult to define. Reasons for this ranged from arguing that “crucial issues are not all known at the outset of deliberations” to questioning “who defines what the crucial issues are” in the assessment process. In this regard, one person argued that “stakeholders must be invited early to identify crucial issues”, while another interviewee argued that “you need upfront discussions with the public to identify and define crucial issues”.

4.9 Conclusions

Since SEA emergence, several scholars have been engaged in producing sets of guidelines in order to promote better practice and implementation. This paper addressed these sets of guidelines as ‘SEA best practice components’ and reviewed the SEA literature so that best practice components could be summarized and used as a framework to explore each SEA component in terms of its importance in the context of a specific case study. The intention was to highlight how context can play an important role when using these SEA best practice components. It was clear from the review that there are several lists found in the literature, all of which carry many similarities, but not total congruence (see Table 6).

Eleven essential components for SEA best practice and 26 related implications for practice were identified and used to illustrate how these generic components relate to York Region’s context in terms of their importance for regional planning and environmental assessment. The list of best practice components and implications served as a useful evaluation framework for the case under consideration.

Several components of SEA best practice were identified through key stakeholder interviews as being relatively more important (in the context of York Region), including sustainability and tiering (i.e., SEA components) and communication (i.e., SEA implication for practice). None of the components or implications was consistently or generally rated as being of ‘low importance’, which suggests that the list of best practices derived from the literature is a useful generic framework that SEA practitioners can draw from as they consider local needs and context. SEA practitioners also suggested the possibility of adding several more components or

implications to the list of SEA best practices. However, most were related to contextual issues (i.e., growth in a rapid urbanizing region, crisis during the construction of a trunk sewer, institutional culture towards how EAs were done in the past, etc.), stressing the importance of customizing the framework to the context of application.

It is concluded that, while a SEA best practice framework can help practitioners and decision makers, the generic framework needs to be interpreted and tailored to the specific context of application. Therefore, it is concluded that SEA best practices can help setting the stage for contextualized SEA application. Implications for academia include advancing the discussion about SEA theory and practice, especially in terms of reducing the theory-practice gap through better understanding of how SEA should happen on the ground. Given all the different contexts to which it might be applied, implications for practitioners include the usefulness of a SEA best practice framework that can be used to provide guidance during planning assessment and implementation of strategic initiatives. However, multiple case studies might still be needed to further test and refine the proposed SEA best practice framework.

Chapter 5: Strategic Environmental Assessment and Regional Infrastructure Planning - The Case of York Region, Ontario

Summary
Strategic Environmental Assessment (SEA) is seen as an instrument that is essential to realizing sustainability goals that transcend project-level undertakings (e.g., policies, plans and programmes). The purpose of this case-based, collaborative research was to extend practical and theoretical understanding of SEA to the related, but in practice poorly coordinated, processes of project-level environmental assessment (EA), master planning and regional land use planning. Semi-structured key informant interviews and review of policy documents were used as the main source of qualitative data to explore the key events that have lead to an emerging strategic approach to planning and EA in York Region. This research contributes to the application of SEA at the municipal level, and highlights the importance of an SEA-type approach as a contribution to better informed, tiered and integrated planning and decision making that is underpinned by sustainability.

Keywords: Strategic environmental assessment, sustainability, tiering, communication, master plan, official plan.

5.1 Introduction

Despite recent advances in knowledge and experience with strategic environmental assessment (SEA) – and considering the important role that SEA could play in facilitating better informed, more credible and more broadly beneficial strategic initiatives – in practice, the story has been quite different. Even though principles for best practice SEA call for a sustainability-led assessment process (e.g., IAIA, 2002), most applications have been narrow in conceptual and spatial scope, and have not paid enough attention to how a comprehensive sustainability-based process should look.

In addition, many SEA conceptualizations are focused on a discrete, formal assessment of plans, policies or programs that culminate in a report that is used to help make decisions,

following a project environmental assessment (EA)-style protocol (e.g., Bass, 2005; Fischer, 2007; EC, 2008). Our research addresses SEA as an approach to decision making – as opposed to an informational piece (used or not) to make the final decision. As such, SEA is addressed as a dynamic, on-going process (as opposed to a static, one-time study) that is informed by a broader conceptual foundation of sustainability principles. It is through this perspective that our research analyzes a SEA-type approach that has emerged in York Region, Ontario, Canada. We use the term 'SEA-type' to describe approaches that do not meet formal specifications or definitions of SEA, but have some of their characteristics or elements.

York Region's interest in a more strategic approach to environmental decision making was the result of a "policy window" (Kingdon, 1995) that opened in the wake of a flawed municipal wastewater EA process. The crisis caused by this event generated great public opposition, and served as the focusing event that led to the adoption of an SEA-informed process for infrastructure planning and decision making in York Region (Kirchhoff et al., 2010).

The main purpose of this case-based, collaborative research was to extend practical and theoretical understanding of SEA to the related, but in practice poorly coordinated, processes of project-level EA, master planning and regional land use planning. The results of this research contribute to the theoretical and practical extension of both SEA and land-use planning in the context of regional growth management. As such, this paper illustrates what was learned from the York Region experience to advance SEA practice for regional infrastructure planning in a Canadian context.

The paper begins with an overview of the literature on SEA as an evolving concept and highlights three important SEA components that are of interest to the research presented on this paper: tiering, communication and sustainability-based decision making. The case study context is then presented, followed by the research methods used. Discussion of main research findings are organized chronologically with a focus on the following: the development of sustainability principles to guide master planning and project-level EA in York Region; organizational changes to coordinate water, wastewater and transportation master planning; and the current York Region environmental decision-making context. The implications and recommendations for the theory and practice of SEA at the regional level are then presented.

5.2 Strategic Environmental Assessment overview

5.2.1 The Need for SEA

If SEA is meant to be an extension of EA practice and principles at the planning, policy and program level, it is important to define what we mean by EA and provide a brief overview of the principles and stages of a generic EA process. EA has been defined as "the process of identifying, predicting, evaluating and mitigating the biophysical, social, and other relevant effects of development proposals prior to major decisions being taken and commitments made" (IAIA and IEA, 1999). The EA process should be applied (IAIA and IEA, 1999: 3):

i. as early as possible in the planning and decision-making stages;
ii. to all proposals that may generate significant adverse effects or about which public concern is significant;
iii. to all biophysical and human factors potentially affected by development, including health, gender and culture, and cumulative effects;
iv. in a manner consistent with existing policies, plans and programs and the principles of sustainable development;
v. in a manner that allows involvement of affected and interested parties in the decision-making process; and,
vi. in accordance with local, regional, national or international standards and regulatory requirements.

SEA has, at least in part, evolved out of a collective disillusionment with the efficacy of project EA to result in sound environmental decision making (Partidário, 2000; Fischer and Seaton, 2002; Dalal-Clayton and Sadler, 2005a). In many cases, project-based EA has evolved into a proponent-driven, bureaucratic process that has compounded the inherent limitations of the project-based approach to assessing environmental impacts. The literature points to several interrelated limitations of project EA that SEA approaches are intended to address, or complement. These limitations are summarized below (Partidário, 2000; Alshuwaikhat, 2005; Gibson, 2007):

- **Project EA is rushed and reactionary:** It is pushed by pragmatic and technocratic project approval demands and often examines already selected and even already designed undertakings;

- **Project EA is narrow in scope:** Small, incremental decisions happen in the absence of a systematic, sustainability-based assessment approach, resulting in the foreclosure of alternatives and a failure to address broader spatial, temporal scales and cumulative impacts of individual projects;

- **Project EA is poorly integrated and lacks appropriate information:** Project EA has evolved into a technocratic, protocol-based process that is poorly integrated with broader planning, political and economic processes and that has come to require artificially elevated levels of certainty based on data, information and field studies that are inadequate.

The limitations of project-level EA point to broader issues that require the consideration of environmental and sustainability concerns at more strategic levels of decision making. SEA facilitates overcoming some of the weaknesses of project EA by anticipating impacts that can occur at the project level, increasing efficiency in decision making and reducing the burden of work for project EA (Fischer, 1999). By strengthening the EA process, SEA has the potential to save time and reduce the costs involved (Dusik et al., 2003).

5.2.2 Evolving Concept and Practice of SEA: From Project EA Towards Sustainability Assessment

Despite the apparent simplicity of the concept of SEA, the continuous evolution of the concept and practice has resulted in a variety of definitions of SEA in the literature. SEA was first defined as a tool that extended its process and procedure upstream from the project to the strategic-level, and focused on the environmental impacts of PPPs that were already proposed (Dalal-Clayton and Sadler, 2005a). Dalal-Clayton and Sadler (2005: 10) contend that more recent definitions "take a broader, more complex and varied perspective, and see SEA as including the social (and sometimes the economic) dimension."

Based on Sadler (1996, 1999), Chaker et al., 2006: 17) documented that SEA has evolved into a tool "to safeguard critical resource and ecological functions and offset residual damage," as well as "environmental accounting and auditing of natural capital loss and change" (Table 9). Partidário and Clark's definition (2000: 4) reflects the emergence of this new perspective on SEA:

> "SEA is a systematic on-going process for evaluating, at the earliest appropriate stage of publicly accountable decision making, the environmental quality, and consequences of alternative visions and development intentions incorporated in policy, planning, program initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations."

Table 9: Evolution of EA/SEA

Paradigm/Level/Stage	Key Characteristics
1st generation – project EA	Broadened progressively to include social, health and other impacts, cumulative effects and biodiversity
2nd generation – SEA	Applies to the PPP and legislation
3rd generation – assurance of environmental sustainability	Uses EA and SEA to safeguard critical resources and ecological functions and offset residual damage; includes environmental accounting and auditing of natural capital loss and change
Next generation – appraisal/assessment of sustainability	Includes integrated assessment of the economic, environmental and social impacts of proposals

Source: (Sadler, 1996; Sadler, 1999)

Reflecting Sadler's "next generation" of EA and, similarly, what Haq (2004) calls third trend in EA moving towards sustainability assessment, Stinchcombe and Gibson (2001: 344–45) define SEA as "a particular tool for analyses that contribute a sustainability component to existing decision making processes and, more ambitiously, as an approach to decision making at the strategic level that focuses on sustainability considerations." Gibson et al. (2005) and Gibson (2006b) have built on the concept of SEA and developed a practical approach for undertaking a sustainability assessment. This perspective of SEA represents an effort to develop "more effectively comprehensive, farsighted, critical and integrated approaches to decision-making on important policies, plans, programs and projects" in order to "meet the

challenge of providing decent livelihoods for all without wrecking the planet" (Gibson, 2006b: 171).

5.3 SEA Issues and Implementation: Tiered Environmental Decision Making, SEA as a Communication Tool and Sustainability-Oriented Decision Making

Given the complexity, uncertainty and breadth of issues and scales involved at the policy, plan and program level, strategic-level assessment versus project-level arguably requires a different approach. Mintzberg (1994) argues that, in strategic approaches related to planning, the question is not about knowing what will happen in the future, but about knowing how to plan and guide actions that can help shape and build a desirable future. This is of primary importance for SEA.

This section highlights three aspects of SEA and the important roles they play in strategic decision-making:

1. SEA as a tiered approach in environmental decision making (e.g., Wood, 1988; Wood and Djeddour, 1992; Partidário, 2000; Fischer, 2002; Caratti et al., 2004; Dalal-Clayton and Sadler, 2005a; Jones et al., 2005);

2. SEA as a communication tool to enable EA practitioners, planners and decision makers to understand each other's perspectives (Partidário, 2000; Richardson, 2005; Vicente and Partidário, 2006); and

3. SEA as a driver of fundamental change in decision-making structures, as EA evolves from project-EA to SEA and moves towards some notion of sustainability assessment (Gibson et al., 2005; Chaker et al., 2006).

These three aspects of SEA will be used as a guide for discussion in the findings and analysis section of this paper. Below, we discuss these three elements in more detail.

5.3.1 Tiered Environmental Decision Making

One of the main benefits of implementing an SEA framework is to set a strategic context for project EA, thus making project EA more efficient (Stinchcombe and Gibson, 2001). Dalal-Clayton and Sadler (2005: 19) provide a useful example of how policy, plan and program SEAs set the context for project EA. As depicted in Figure 6, "there exists a tiered, forward planning process, which starts with the formulation of a policy at the upper level, followed by a plan at the second stage and by a programme at the end" (Jones et al., 2005: 6).

		Category of action and type of assessment (in brackets) Sectoral and multi-sectoral actions			
Level of Government	Land Use Plans (SEA)	Policies (SEA)	Plans (SEA)	Programmes (SEA)	Projects (EA)
National / Federal	National land use plan	National transport policy	Long-term national roads plan	5-year road building programme	Construction of motorway section
		National economic policy			
Regional / State	Regional land use plan		Regional Strategic Plan		
Sub-regional	Sub-regional land use plan			Sub-regional investment programme	
Local	Local land use plan				Local infrastructure project

Figure 6: Tiered Decision making

(source: Jones et al. 2005: 7)

According to Dalal-Clayton and Sadler (2005a: 18),

> "[Tiering] is frequently idealized as a hierarchical or tiered process of decision-making. But in reality it is quite different … often, it is a more complex, iterative process in which the range of choice is gradually narrowed and most options are foreclosed by the project phase."

Therefore, when a policy, plan or program precedes and influences a project decision, the policy, plan or program and the project decision are then, in effect, "tiered." In practice, this works not only in a strict top-down manner (i.e., from policy to plan to program to project), but also as a "bottom-up" effect, in which lower-tier SEAs and project EAs can lead to an improved awareness of the limitations of prevailing policies, plans and programs (see, for example, Hildén et al. (2004). With this in mind, the arrows in Figure 6 could then be updated to include arrows going both ways.

Arts et al. (2005) assert that tiering is assumed to minimize various limitations of EA and has the following benefits:

- prevention of the foreclosure of assessing important environmental issues;
- better focusing of EAs (e.g., through scoping of issues, time and geographical area), type of alternatives and impacts assessed, and abstract level of analysis (e.g., broad-brush methods, expert opinions vs. advanced quantitative and detailed methods);
- gains in efficiency of SEA or EA (e.g., indication of major issues that need – or do not need – further elaboration; guidelines for subsequent EAs) when it is done at higher rather than at lower levels;
- better fit with the ongoing nature of decision-making and planning processes by tiering of EAs;
- improvement of plans and projects developed and implemented.

Put differently, in traditional project EA, "by the time an analyst is looking at alternative routes or locations many past decisions have already foreclosed options. This approach is entirely too late to discuss alternative means of providing transport or energy, frustrates the public, and has too little influence" (Partidário and Clark, 2000: 21). SEA allows for options or alternatives that are often beyond the scope of project EA. SEA can result in the consideration of a broader, more systemic suite of alternatives considered at strategic levels, providing a more comprehensive approach to addressing environmental concerns and making project-level EA more efficient. For example, a project-level question regarding whether a highway will have impacts on wildlife movement might be avoided by the strategy-level question of whether the need for the highway can be addressed through the construction of a light rail connection or another form of public transit. Thus, in terms of SEA practice, tiering ideally would indicate "the extent to which SEA is organized hierarchically, with one level of assessment informing the next level down (through to project EA)" (Jones et al., 2005: 280). However, a project-level EA could also suggest the need to evaluate strategic options to address a problem.

While most of the SEA literature mentions tiering, inattention to the key role that tiering must play in SEA practice remains a problem. The literature highlights the potential advantages of SEA making project-level EAs more efficient. SEA has the potential to set individual projects in the context of broader policy decisions, in part by being used to "set the terms of reference for a resulting EA and assist in its scoping" (Jones et al., 2005: 32). An SEA of a land-use plan or infrastructure master plan could also outline the process or protocol for all subsequent project EAs, effectively changing the way a jurisdiction makes project-level decisions.

5.3.2 SEA as a Communication Tool

In some contexts SEA may be more usefully considered to be a communication tool rather than a technical protocol (Partidário, 2000; Richardson, 2005; Vicente and Partidário, 2006). Given the diversity of perspectives involved in environmental decision making, any tool that can provide for more effective communication among stakeholders and decision makers would be a useful contribution. Vicente and Partidário (2006) describe the valuable role SEA can play in

providing a means for impact assessors and decision makers to share perceptions of a given policy problem and to develop a shared solution.

In the context of SEA implementation, a SEA process would be an effective communication forum if it creates "an arena for mediation between strategic partners, where knowledge is shaped by negotiations and tensions between positions, and by the need to secure a working consensus" (Richardson 2005: 355). We agree with Vicente and Partidário (2006: 699) in saying that "different values related to the perception of a problem can help to reveal the common ground between impact assessors and decision makers and consequently contribute to the shared acceptance of a given solution." In addition, SEA can play an important role in bridging different perspectives on an issue with the development of solutions.

As a communication tool, SEA can also play an important role in terms of improving communication with the public, by integrating multiple perspectives surrounding a specific issue. In doing this, SEA needs to go beyond the simple accounting of facts, which means addressing the social-political dimension of the problem (Vicente and Partidário, 2006). This mediating role of SEA could enhance the following:

- integration of the multiple visions of the problem, and establishment of the consequent communication links towards learning interaction;
- guidance on the communication strategies to enhance the social relevance of technical and scientific knowledge, creating new attitudes in face of technical facts;
- an adjustment among decision makers – at the level of their values and environmental attitude – of their perception of reality and therefore their willingness to accept necessary actions for environmental reasons;
- dialogue between impact assessors and decision makers that stimulates constructive collaboration and the production of common meanings (Vicente and Partidário, 2006: 704)

Tiering and SEA as a communication tool point to the continuous evolution of SEA towards a fundamental change in environmental decision making that focuses directly on efforts to achieve some form of sustainability. As Chaker et al. (2006) indicate, the next generation in the evolution of EA is sustainability appraisal, or sustainability assessment.

5.3.3 Sustainability-Oriented Decision Making

As a term, sustainability emerged in the early 1970s as a response to the two previous decades' deepening worries about damages and risks, development failures and evident growth limits (Gibson et al., 2005). It emerged and evolved within the general discourse about the future of the world, in which a number of sub-themes fall under the umbrella theme of sustainability, such as: limits to growth (Meadows et al., 1972), steady state economy (e.g., Daly, 1973), conserver society (e.g., Schumacher, 1973), eco-development and environment and development (e.g., Francis, 1976; Sachs, 1977), ecology and ecologism (e.g., Bookchin, 1980; Lovelock, 1982).

However, it was not until the 1987 Brundtland Report produced by the World Commission on Environment and Development (WCED, 1987), that sustainable development became popularised and began to enter the political arena (Noble, 2002). The Brundtland Commission (1987) defined sustainable development as development that "meets the needs of the present generation without compromising the ability of future generation to meet their own needs". At the time, the main idea was to identify a "pathway" through which people could create sustainable policies and practices rather than to develop a blueprint for action.

Sustainability-oriented assessment and decision making (Gibson et al., 2005) represents a fundamental shift in policy making that takes sustainability as its primary set of decision-making criteria. It is an "integrative process that can act as a framework for better decision-making on all undertakings – policies, plans and programmes as well as physical undertakings – that may have lasting effects" (Gibson, 2006a: 260). Pope et al. (2004: 595) define SA broadly as "…a process by which the implications of an initiative on sustainability are evaluated, where the initiative can be a proposed or existing policy, plan, programme, project, piece of legislation, or a current practice or activity". This type of assessment has been applied

around the world, including Hong Kong (HKSDU, 2002), the United Kingdom (UK ODPM, 2005), Australia (Pope and Grace, 2006) and in Canada with the Voisey's Bay nickel mine on the north Labrador coast (Gibson, 2002).

Sustainability assessment builds on several key aspects of SEA, including broader conceptual, spatial and temporal scales; tiered and integrated decision making; and transparency of decision making. SEA, therefore, is a critical step in moving towards a more sustainability-oriented approach to decision making. In this regard, Gibson et al. (2005) and Gibson (2006b) provide a set of core criteria (Table 10) and a practical approach to implementing a sustainability assessment framework.

Table 10: Sustainability criteria for decision making

Principles	Requirements
Socio-ecological system integrity	Build human-ecological relations to establish and maintain the long term integrity of socio-biophysical systems and protect the irreplaceable life support functions upon which human as well as ecological well-being depends.
Livelihood sufficiency and opportunity	Ensure that everyone and every community has enough for a decent life and that everyone has opportunities to seek improvements in ways that do not compromise future generations' possibilities for sufficiency and opportunity.
Intragenerational equity	Ensure that sufficiency and effective choices for all are pursued in ways that reduce dangerous gaps in sufficiency and opportunity (and health, security, social recognition, political influence, etc) between the rich and the poor.
Intergenerational equity	Favour present options and actions that are most likely to preserve or enhance the opportunities and capabilities of future generations to live sustainably.
Resource maintenance and efficiency	Provide a larger base for ensuring sustainable livelihoods for all while reducing threats to the long term integrity of socio-ecological systems by reducing extractive damage, avoiding waste and cutting overall material and energy use per unit of benefit.
Socio-ecological civility and democratic governance	Build the capacity, motivation and habitual inclination of individuals, communities and other collective decision-making bodies to apply sustainability requirements through more open and better informed deliberations, greater attention to fostering reciprocal awareness and collective responsibility, and more integrated use of administrative, market, customary and personal decision-making practices.
Precaution and adaptation	Respect uncertainty, avoid even poorly understood risks of serious or irreversible damage to the foundations for sustainability, plan to learn, design for surprise, and manage for adaptation.
Immediate and long term integration	Apply all principles of sustainability at once, seeking mutually supportive benefits and multiple gains.

Source: (Gibson et al., 2005)

According to Gibson et al. (2005: 115), the "main advantages of the eight requirements list are that it is short, comprehensive, demanding and difficult to collapse into conventional categories". They contain areas that are not clearly defined within just one of the traditional pillars (e.g., social, ecological and economic), which ends up fostering a better understanding and addressing of interdependencies. In addition, the "demand for integrated attention to all eight requirements imposes a broader agenda than most proponents and public authorities now accept" (Gibson et al., 2005: 115). However, these are general requirements that must be tailored for particular circumstances paying special attention to the specifics of context, such as local ecosystems, institutional capacities, social-economic circumstances, public preferences, etc.

A sustainability assessment framework would require "positive overall contributions to a more desirable and durable future by identifying best options (not just acceptable undertakings) and multiple reinforcing gains (not mere avoidance of problems and mitigation of adverse effects)" (Gibson, 2006b: 178). Moreover, the sustainability concept implies that "assessments should encourage a turnaround from unsustainability" and that, "the test of acceptability for new undertakings should be more demanding than mere mitigation" (Gibson et al., 2005: 62), since the long-term "mitigation-only" strategy is doomed to fail sustainability aspirations. Moving towards sustainability requires that SEA attempts to avoid, eliminate and minimise negative impacts and also ensure and enhance positive ones. Therefore, SEA is seen as having the potential to adjust and improve the conventional planning and decision-making approaches, providing a means of transition towards sustainability.

5.4 The Case Study Context

The Regional Municipality of York is an upper-tier municipality[10] in south central Ontario, Canada, covering 1,776 square kilometres from Lake Simcoe in the north to the northern

[10] In the 1990s, the Ontario government initiated amalgamations of several municipalities. This resulted in a two-tier municipal government structure in parts of Ontario. The upper tier (or regional government) has responsibility for regional-scale planning and the provision of infrastructure. The lower tier is responsible for land use decisions through development approval and zoning.

boundary of the City of Toronto in the south. It borders Simcoe County and Peel Region in the west and Durham Region in the east (see Figure 7). York Region is one of six regional governments in Ontario and is among the fastest growing regional municipalities in Canada (Ministry of Public Infrastructure Renewal, 2006). The entire Region is part of the Greater Toronto Area (GTA) and the Greater Golden Horseshoe; and over 69% of York Region is designated part of Ontario's Greenbelt, which includes the Oak Ridges Moraine (York Region, 2008a).

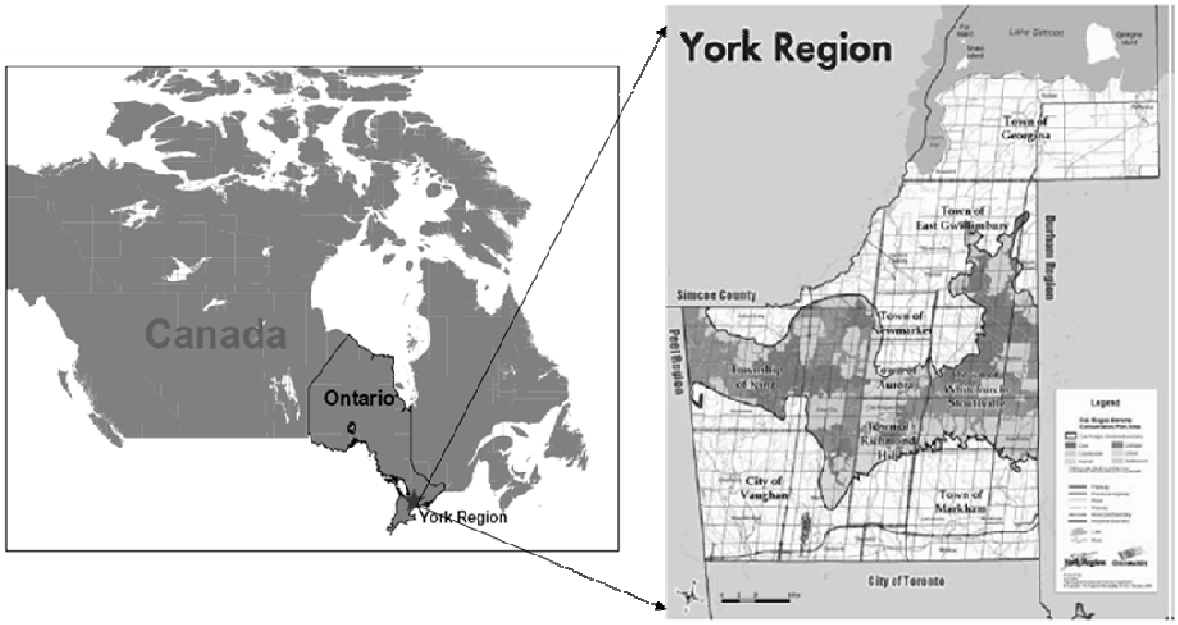

Figure 7: Area of study

(Source: adapted from York Region, 2007b)

York Region's landscape includes farmlands, wetlands and kettle lakes, forests and the Oak Ridges Moraine, a unique protected landform that is an immense glacial moraine running east to west, north of, and parallel to, Lake Ontario (York Region, 2007b). One of the moraine's most important functions is as a water recharge/discharge area, and it has been described as southern Ontario's "rain barrel" – its permeable sands and gravels absorb and collect precipitation, which slowly recharge the deep aquifers below the ground. In 2001, following a

decades-long community-led campaign, the provincial government enacted the *Oak Ridges Moraine Conservation Act*, followed by the establishment of the Oak Ridges Moraine Conservation Plan (ORMCP) six months later. In 2005, the Government of Ontario established its Greenbelt Plan, resulting in the protection of over 720,000 hectares. The plan identifies where urbanization should not occur in order to provide permanent protection to the agricultural land base and the ecological features and functions occurring on this landscape (MMAH, 2008e).

York Region has and continues to experience significant development pressure. This rapid growth has made the Region one of the most prosperous areas in Canada, and has resulted in the conversion of approximately 160 square kilometres of countryside to urban uses since 1971 (York Region, 2008g). The Region grew from 169,000 people in 1971 to 759,000 people by 2001, and is expected to reach 1.5 million by the year 2031 (Ministry of Public Infrastructure Renewal, 2006). Approximately 350,000 employees work in the Region's 21,000 businesses. Employment is forecast to double by the year 2031. Most of the growth in the Region has occurred within the lower-tier municipalities of Aurora, Vaughan, Markham, Newmarket and Richmond Hill. Markham grew from a population of approximately 37,500 in 1971 to a population of 273,805 in 2006, while the City of Vaughan experienced the Region's highest growth rate of 8.2% over the same thirty-five year period (York Region, 2008j).

This growth has led to enormous pressure for new and updated infrastructure, especially for transportation, water and wastewater. With one of the largest infrastructure budgets of all Canadian municipalities[11], the Region of York started a growth management initiative (entitled "Planning for Tomorrow") in 2006 as part of its periodic official plan reviews (York Region, 2008e). This involved the development of a Sustainability Strategy and the update of Infrastructure Master Plans, which culminated in an updated Regional Official Plan in late 2009.

[11] York Region spent $400 million in 2005 for water and wastewater and road infrastructure, and expects to spend about $3 billion over the next 10 years (York Region, 2008b).

There are several reasons why York Region embarked on this growth management initiative, including provincial initiatives that fundamentally changed the way growth will occur in the Greater Toronto Area over the next 25 years (i.e., *Oak Ridges Moraine Conservation Act* and Plan, *Places to Grow Act* and Plan, *Greenbelt Act* and Plan). The *Places to Grow Act,* provides a framework for the provincial government to coordinate planning and decision making for long-term growth and infrastructure renewal in Ontario. The Act gives the provincial government the power to designate geographical growth areas and to develop growth plans in collaboration with local officials and stakeholders to meet specific needs across the province (Government of Ontario, 2005).

York Region completed its first Regional Official Plan (ROP) in 1994, some 20 years after its creation. In 1997, the York Durham Sewage System (YDSS) Master Plan (later updated in 2002) was completed. The master plan identifies "current conditions and future alternatives" necessary to provide the infrastructure necessary to meet population projections in the Region (York Region, 2008i). The 'preferred alternative' was to double the capacity by twinning the existing YDSS. The YDSS is a complex wastewater collection system, conceived and constructed in the 1970s that extends into northern areas of York Region and converges and discharges at the Duffins Creek Water Pollution Control Plant (WPCP) on the northern shore of Lake Ontario near Pickering, Ontario, Canada.

The 1997 YDSS Master Plan identified several main projects that would need to go through an EA process, including the 16th Avenue Trunk Sewer phase I project, which was 6.7 km in length, with a pipe diameter of 2600 mm. A number of problems emerged during the construction of this project. Tunnelling was the method of construction used, which required 'de-watering' at depths of up to 60 metres below ground to lower the water level in the immediate vicinity. In order to safely construct the shafts and tunnels of this sewer to the required depth, the groundwater level was lowered by pumping in the deep Thorncliffe aquifer to below the depth of the shaft and tunnel (York Region, 2006). Some of this water was returned to area streams and some was discharged into the YDSS (York Region, 2007e).

Due to unanticipated hydrogeological conditions, more de-watering was required than originally anticipated (York Region, 2006). This has adverse effects on private wells outside

what was originally identified as the zone of influence during the pre-construction phase of the EA. These events led to a major media campaign by local residents, environmental movement organizations and politicians criticizing the efficacy of the original project-EA.

5.5 Research Approach and Methods

Case study research using multiple methods was utilized to investigate SEA in an empirical context (Yin, 2003). In order to understand how a SEA-type process emerged and evolved in York Region, data collection and verification were obtained from multiple sources, including:

i. Literature review;
ii. Semi-structured interviews; and,
iii. Participant observation.

The literature review helped to identify research gaps that were then explored throughout the research and guided the analysis of results. In addition, it aided in the development of interview questions and the framing of interview analysis by providing insight into areas which needed further exploration. The background and contextual information was developed for the York Region case study by reviewing academic sources, governmental documents and websites, and NGO research reports and websites.

Twenty-one key informant, semi-structured interviews were carried out with relevant stakeholders (see Table 11) on the emergence of a more strategic approach to EA and environmental decision making between June 2007 and September 2008. Conducting in-depth interviews provides respondents with the opportunity to relate detailed explanations and provide clarification (Lewis, 2003). Employing semi-structured interviews allowed us to probe a consistent set of issues and hear a variety of perspectives (Berg, 1995; Hughes, 2002).

Table 11: Interviews conducted

Interviewee Number	Date	Affiliation
I001-07	November 6, 2007	York Region staff
I002-07	November 6, 2007	York Region staff
I003-07	November 14, 2007	York Region staff
I004-07	November 14, 2007	City of Vaughn staff
I005-07	November 14, 2007	York Region staff
I006-07	November 16, 2007	Former Ministry of Natural Resources (MNR) staff
I007-07	November 22, 2007	Environmental NGO representative
I008-07	November 27, 2007	York Region staff
I009-07	November 27, 2007	York Region staff
I010-07	November 28, 2007	York Region staff
I011-07	November 28, 2007	Former Toronto and Region Conservation Authority (TRCA) staff
I012-07	November 29, 2007	TRCA staff
I013-07	November 30, 2007	Former Ministry of the Environment (MOE) staff
I014-08	December 21, 2008	York Region staff
I015-08	March 10, 2008	Consultant
I016-08	June 9, 2008	Markham resident
I017-08	June 20, 2008	Markham councillor
I018-08	July 18, 2008	York Region staff
I019-08	July 18, 2008	York Region staff
I020-08	August 15, 2008	TRCA staff
I021-08	September 11, 2008	Environmental NGO representative

Snowball sampling (Patton, 2002) was used to identify additional key informants. Interview analysis was conducted using QSR NVivo, a computer-assisted qualitative data analysis software, in which transcripts were analyzed to discover patterns, identify main themes, glean insight and develop meaningful conclusions.

Participant observation was used to produce empirical material on non-trivial phenomena in a "natural context" (Alvesson and Skoldberg, 1999). This interpretation of participant observation "assumes that knowledge develops from experience, particularly the experience of

social-political action" (Newman, 2000: 24). As such, the research team engaged participants in 10 different forums from June 2007 to May 2009. These observations complemented the qualitative data collected during in-depth interviews.

The research team was provided unprecedented access to York Region's meetings on EA and land-use planning, including Technical Advisory Committee meetings about both the Transportation Master Plan and the Water and Wastewater Master Plan, and internal and public meetings concerning the development of the York Region Sustainability Strategy. In addition, the research team was invited to participate, with York Region and conservation authority staff and consultants, in a chartering – or visioning – session of the Upper York Sewage Solutions (UYSS) EA project.

In addition, the research team hosted two workshops for case study participants. The first involved York Region staff and relevant members of the academic community, including experts on sustainability, EA, transportation and infrastructure planning. The focus of this workshop was on the key guiding principles that underpinned the Region's Sustainability Strategy (York Region, 2007f). The second workshop looked at the integration of sustainability and SEA principles and practices into York Region EA and planning processes, and involved York Region staff and private consultants.

5.6 Findings

Findings are structured in terms of activities in which York Region was involved that are considered to be related to SEA or have some characteristics and elements of it. It is interesting to note that, when the proposal that led to this research was written, regional authorities were unaware of the concept of SEA. Considering that this is York Region's story of an approach that emerged from their history and particular circumstances – and not efforts to apply SEA theory *per se* – it is remarkable how closely the characteristics of this approach parallel the SEA literature in terms of its essential components (for example, early and proactive application, participative, adaptive, sustainability-centred, tiered and integrated decision making). The activities are described below in chronological order.

5.6.1 Development of Sustainability Principles to Guide Master Planning and EA Processes

Traditionally, planning and EA in York Region have been influenced by what many would consider to be a pro-development culture. Growth and increase in population numbers have always pushed the agenda to "develop and build more roads and more pipes" (interviews 2 and 11). To some extent, York Region has realized that there are limits to growing and developing in this manner (interviews 1, 2, 10 and 14). As a result, an explicit commitment to sustainability has been recognized as being essential to bringing important improvements in terms of what gets addressed and the overall way in which decisions are made (York Region, 2007f).

Our research also identified some tiering associated with the work York Region has completed on sustainability. This was initiated through the development of *Vision 2026: Towards a Sustainable Region* – an exercise to "establish a strong vision for the future" (York Region, 2007c: 2). This process was somewhat unique in terms of public involvement and improved communication among the public, decision-makers and other stakeholders involved (interviews 1, 3, 8, 10, 14 and 15). Improved dialogue during this process stimulated constructive collaboration with input from the general public, academia and other stakeholders during the Region's Sustainability Symposium, the *Towards Sustainability in York Region* (TSYR) Advisory Group and the Growth Management Public Engagement Initiative (York Region, 2007f).

To further "translate the concept of sustainability into practical action," the Region engaged in the development of the *York Region Sustainability Strategy* (York Region, 2007f: 2) (see Box 8). The sustainability strategy was influenced by the Province of Ontario's growth management and conservation policies (e.g., Places to Grow Plan, Oak Ridges Moraine Conservation and Greenbelt Plans) and was used as a guiding document for both infrastructure master planning and upcoming project-level EAs. Academic input into the development of the sustainability strategy resulted from a workshop organized by the SEA research team in June 2007. The

focus of the workshop was the development of sustainability strategy principles and criteria relevant to master planning for transportation and for water and wastewater.

The principles in the sustainability strategy were then further refined and adapted to the specific context of the master plan review and updating process for each type of infrastructure (i.e., transportation, and water and wastewater); the broad set of sustainability principles in the strategy were contextualized for each master plan and a set of criteria was developed for use during the review and updating process and during consideration and selection of preferred alternatives. This tiered process can be interpreted as having what the literature refers to as a "trickle-down effect"– proceeding from the vision developed for *Vision 2026*, to the generic sustainability principles in the sustainability strategy, to the specified sustainability criteria developed to guide the master plan update process and then down to the project level.

Box 8: Sustainability Strategy Principles

Principle 1: Provide a long-term perspective on sustainability.
Principle 2: Evaluate using the triple-bottom line elements of environment, economy and community.
Principle 3: Create a culture of continuous improvement, minimizing impact, maximizing innovation and increasing resiliency.
Principle 4: Identify specific short-term achievable actions that contribute towards a sustainability legacy.
Principle 5: Set targets, monitor and report progress.
Principle 6: Foster partnerships and public engagement.
Principle 7: Create a spirit of stewardship, shared responsibility and collaboration.
Principle 8: Raise the level of sustainability awareness through education, dialogue and reassessment.
Principle 9: Promote sustainable lifestyles and re-evaluation of our consumption and expectations.

Source: (York Region, 2007f: 9)

In addition, with the publication of York Region's Sustainability Strategy, integration of biophysical, social and economic dimensions can be facilitated, as the document is intended to guide all regional activities (York Region, 2007f). This is especially important for growth-management planning and its infrastructure component in a Region with restricted land

available for development. Focusing on integration can help reveal many opportunities in growth-management planning, such as integrating transportation planning with land-use planning[12] and urban design to minimize single-occupant vehicle trips while encouraging the use of an efficient public transportation system that reduces traffic congestion, pollution and resource use; and reducing water inflow and infiltration while taking measures to conserve water rather than just building one big pipe to handle the demand. These are emerging examples of links that are being made in practice between SEA and sustainability assessment.

Nevertheless, the SEA-type process in York Region still falls short by paying limited attention to broader issues such as equity and social well-being (other than housing affordability and access to transportation, for example). The translation of sustainability principles into context- or sector-specific sustainability principles and criteria in the update processes of both the transportation master plan and the water and wastewater master plan is certainly promising as a novel approach to formulating these plans. It is however, yet to be seen in practice how this document will, in the long run, actually influence Regional planning and decision making, and how it will be filtered down to the project level. Nevertheless, these sustainability initiatives can be interpreted as a sign that York Region is striving to take the sustainability paradigm more seriously.

5.6.2 Organizational Changes to Coordinate Water, Wastewater and Transportation Master Planning Under the York Region Sustainability Strategy

Some interviewees criticized the previous wastewater master plan (i.e., 1997 YDSS Master Plan), indicating that the master planning process needed to be rethought in terms of the strategic nature and overall approach to address issues in a more conceptual, generalized and flexible manner (interviews 8, 11 and 14). Flexibility and adaptability are crucial components

[12] One of the sustainability principles used during the updating process of the transportation master plan relates to the integration of transportation planning and land-use planning (York Region 2007e).

for an effective planning system, given all the different contexts of applications in terms of scale, tiers of decision making and sectors (Noble, 2005).

In the context of the York Region case, the previous master plans were too inflexible in terms of specific reference to projects and their location, and favoured large-scale engineering solutions leading to the YDSS project (interview 14). This foreclosed conservation and smaller-scale infrastructure alternatives at the project-level. Interviewees noted that the only viable alternatives, as a result of the Water and Wastewater Master Plan, were minor routing alternatives for the "big pipe" (interviews 2, 5, 11 and 14), leaving little space for discussion of alternatives at the project level. Interview respondents indicated that the issue of the foreclosure of alternatives needed to be revisited so that the goals and objectives of strategic initiatives (e.g., official plans, master plans) could be addressed by evaluating all potentially reasonable alternatives (interviews 3 and 14). Recent evidence of this in York Region can be identified in the UYSS project (see following section), which had originally been conceived of as a "big pipe" project, that now provides opportunities to consider other reasonable alternatives, including dealing with reduction of inflow and infiltration, increasing water conservation and potentially building a smaller pipe. This evidence highlights the importance of a flexible, adaptive approach to SEA, as described in the literature (see, for example, Noble, 2005).

Additional evidence of a more integrated, collaborative approach to decision making in York Region is the recent simultaneous review and update of both the transportation master plan and the water and wastewater master plan. This resulted in an attempt to better coordinate or at least improve more effective communication across these traditional institutional silos. These updated master plans have been used to update the Regional Official Plan and guide subsequent project-level EAs (interviews 1, 3, 10, 15). In addition, both master plans developed specific sustainability principles that highlight and incorporate public involvement and the role of communicating with the public:

> *Transportation master plan sustainability principle 10:* "Further encourage communication, consultation and engagement: York Region will plan for and implement transportation infrastructure and services in an open, transparent and accountable manner based on

> broad consultation, citizen engagement and strong communications" (York Region, 2007g).
>
> *Water and wastewater master plan sustainability principle 9:* "Communication, consultation and engagement: York Region is committed to planning and implementing water and wastewater services in an open, transparent and accountable manner based on broad consultation, citizen engagement, strong communications and to building public consensus toward the need to practice sustainability" (York Region, 2008h).

These criteria have increased public consultation and engagement with respect to master planning in York Region, which contribute positively to improved SEA processes and formative sustainability assessment (Gibson et al., 2005; Noble, 2005).

5.6.3 Ongoing Upper York Sewage Solutions EA

In 2009, York Region initiated the Upper York Sewage Solutions (UYSS) EA project to identify practical and sustainable solutions to provide additional sewage servicing capacity related to forecasted growth in upper York Region. York Region has retained a consortium of consultants to complete the requirements of the EA process (interview 10 and 14).

In September 2008, the SEA research team was invited to participate in the chartering session for the UYSS EA, which included representatives from York Region's Water and Waste Water, Transportation and Planning divisions and the consulting consortium. This session was meant to lay the groundwork for what is intended to be a new and more integrated, sustainability-oriented project-EA. Meeting results demonstrated that the aforementioned York Region Sustainability Strategy, related growth management targets, and emerging water and wastewater and transportation master plans provided a context and overall guidance for the project. This is an example of a regional approach to tiered and more integrated decision making (Stinchcombe and Gibson, 2001; Arts et al., 2005; Dalal-Clayton and Sadler, 2005a; Jones et al., 2005).

This effort also demonstrated the role of SEA as a communication tool (Vicente and Partidario, 2006) among key stakeholders (i.e., decision makers, planners, consultants and the public). By

inviting members from different departments, as well as the SEA research team (which includes a member of a regional NGO) to participate in this initial session, York Region demonstrated some commitment to a more integrated, cooperative and transparent approach to environmental decision making. In addition, interviewees indicated that York Region has engaged in changing its approach to communicating with and engaging the public (interviews 1, 2, 3, 8, 10, 15). Early and more frequent public consultations have recently become more common in York Region's activities, something that in the past many people – especially residents and NGO representatives – saw as a serious deficiency in York Region's planning and EA processes (interviews 6, 7, 16 and 17).

At the project level, a method for public engagement called "constructive engagement"[13] has been used in several recent initiatives, resulting in what some interviewees perceive to be better outcomes (interviews 3, 10, 15 and 16). Engaging the public has been associated with increasing transparency in planning and decision making in York Region, as well as improving accountability and the relationship and communication with York Region staff, consultants and the interested public (interviews 6, 7 and 11). By engaging the public, different perceptions of the issues and resulting problems are integrated and constructive collaboration can be fostered, which ultimately contributes to the acceptance of the proposed solution (Vicente and Partidário, 2006).

In discussing the evolution of project-EA in York Region, interviewees indicated that expectations regarding timing and costs of EAs have changed (interviews 3, 5 and 15). Interviewees noted that, in the past, project EAs were mostly done using a low-cost desktop study (interviews 3 and 6), with obviously limited spatial, temporal and conceptual scope. The need to broaden these aspects has been identified as an important step in improving the overall

[13] "Constructive engagement" is the term used by Ogilvie, Ogilvie & Company, the firm hired to facilitate a few of York Region's projects. The five main principles of constructive engagement are (1) respect for their concerns vs. as a necessary hurdle; (2) engage them vs. "trying to smoke it past 'em"; (3) empower them with user-friendly information and education vs. confuse them with techno-babble; (4) value their opinions and accommodate their suggestions vs. "hide their suggestions in the Appendix"; and (5) make sure our processes are open, transparent, informed and fair vs. one Public Information Centre (PIC) from 6:00 to 9:00 on a "holiday." (Source: http://www.mobalizers.com/)

planning and EA process in York Region (interviews 2, 14 and 18). This requires that, at the project level, more detailed background studies (i.e., hydrogeology in York Region's case[14]) be conducted, the acknowledgement that EA processes will probably "take more than six months to be completed" (an embedded assumption of the past), and that a broadened conceptual scope take into account sustainability considerations found in the overall sustainability strategy principles and related master plans (interviews 2, 3 and 8).

York Region staff and consultants working on the UYSS indicated that these new approaches were integral parts of the UYSS project. With respect to the UYSS case, it can be interpreted that the particular tiered approach (strategic direction filtering down to the project level) is having positive impacts on the EA process in the early stage of project design. In addition, the UYSS project team has indicated that, on the basis of the sustainability criteria developed for the water and wastewater master plan, further specified criteria for the project itself will be developed and used in considering and assessing reasonable alternatives.

It was also indicated that staff and consultants working on the UYSS were taking into account strategic direction from the Oak Ridges Moraine Conservation Plan and other legislation, such as the Lake Simcoe Protection Plan[15]. It is, however, too early to evaluate the actual influence of these plans and legislation on the UYSS EA in terms of scoping and evaluation of alternatives, as the EA has only recently been launched (at the time of writing).

During the joint workshop held between the SEA research and UYSS EA project teams to explore innovative ideas for application in EA processes, the idea of establishing a long-term standing advisory committee on EA in York Region was discussed, consisting of individuals involved in Oak Ridges Moraine planning and management to assist with interpretation. The potential benefits of bringing together on a long-term basis such individuals with complementary knowledge of strategic planning, such as the Oak Ridges Moraine

[14] As interviewee 1 mentioned, in the past York Region would spend limited resources on hydrogeology studies during the EA process. Now, 5 percent of the project cost is allocated to hydrogeology studies.

[15] The Lake Simcoe Protection Plan is a watershed-based plan that attempts to provide a roadmap to help restore and protect the health of Lake Simcoe (MOE, 2010).

Conservation Plan and the Greenbelt Plan, was thought to be a useful idea; however, no such committee has been formed to date.

5.7 Champions of Sustainability and the Current Situation

When trying to develop a culture of change such as that associated with advancing a sustainability agenda in an organization such as York Region, an individual(s) to champion the cause is required (interviews 10 and 17). Sometimes this will come from the chief administrative officer or even someone at a lower level in the organizational hierarchy. As one interviewee mentioned:

> "Cultural change in the organization is really critical. You've got to have champions, and it really does take leadership, because the organization will not change by itself. You've got to have the right level of people or series of people." (Interview 10)

In York Region, a number of champions emerged to deal with the fallout from the 16th Avenue EA and construction problems. They played a significant role in pushing a new agenda for a different approach to planning and EA in York Region (interview 9 and 15). It is important to note, however, that at the time of writing this paper, most of these champions had moved within or left the organization, which raises doubts as to the continuity of the positive aspects of SEA in York Region.

5.8 Implications and Recommendations

Research findings indicate that York Region's approach to planning and EA processes has recently changed to a more strategic, long term, participative, integrated and tiered approach reflecting a commitment to sustainability. Opportunities for change appeared after problems were recognized during a project-level undertaking (Kirchhoff et al., 2010). As a response, potential solutions were explored at the strategic and project levels. Procedural and some structural changes can already be identified (e.g., tiered and integrated decision making, improved public involvement, development and application of sustainability criteria for

decision making, improved communication among departments). Practical project-level outcomes as a result of these changes are likely to take more time to be identifiable. Nonetheless, looking at the SEA-type approach described above in York Region offers some useful lessons and implications for SEA application. Below, we present six implications and corresponding recommendations:

i. **Better coordination between land-use planning and EA processes:** The York Region case clearly demonstrates the value of SEA as a tool for fostering coordination and integration between land-use planning and EA. York Region master planning is increasingly influenced by growth management strategies, regional land-use plans and other legislation that provide strategic direction. Furthermore, regional land-use plans, such as the Oak Ridges Moraine Conservation Plan, require EA processes to take into consideration strategic, as well as site specific, information with respect to justification and need, scoping and assessment of alternatives (Government of Ontario, 2002: section 41). Municipalities are well positioned to enhance integration and coordination, as these organizations have the legislative responsibility for both land-use planning and EA processes.

   Recommendation: That municipalities actively work on integrating and better coordinating land-use planning and EA processes by using SEA as a communication tool between planning and EA practitioners. The timing of land-use plan reviews should be coordinated with infrastructure master planning processes. Furthermore, municipalities should work at better integrating and coordinating land-use planning and infrastructure and EA departments.

ii. **Environmental assessment and sustainability-centred decision making:** The York Region case study illustrates the important role that sustainability principles can play at early stages in planning and EA processes. Gibson et al. (2005) indicate that broad sustainability criteria need to be contextualized for application in practice. Broad sustainability visions (e.g., York Region's Vision 2026) can be refined (e.g., York Region Sustainability Strategy) for use in strategic planning processes such as master

planning and through specific project-level sustainability criteria, as is taking place for the UYSS individual EA project.

Recommendation: That municipalities under moderate to significant development pressure with high demand for the provision of infrastructure services should adopt a sustainability approach by developing sustainability visions and strategies. The broad principles embedded in such strategic documents must then be contextualized for use in master planning and further specified for use at the project level.

iii. **SEA as a communication tool:** Once York Region staff members were exposed to the SEA concept, many actively used it to continue to improve communication between departments and to better integrate land-use and EA planning processes. This research points to this aspect of SEA as having a particularly positive impact within the municipal context in terms of overcoming the silo mentality usually characterized by land-use, infrastructure and EA departments.

Recommendation: That further applied research be carried out in a municipal context to explore the potential of SEA as a communication tool to better integrate EA and planning processes and to increase communication and collaboration between traditional departmental silos.

iv. **Active promotion of tiering:** The York Region case suggests that tiering has significant potential at the municipal level. Strategic and site-specific information from regional- and provincial-level plans (e.g., Places to Grow, Oak Ridges Moraine Conservation Plan) is now influencing and guiding project-level EAs (e.g., UYSS project). Furthermore, the sustainability principles discussed above are filtering down and becoming more contextualized at the project level.

Recommendation: That municipalities actively and explicitly work to encourage tiered decision making. Municipalities should extract strategic and project-level direction from progressive land-use planning documents to guide master planning and subsequent project EA.

v. **Improved transparency and meaningful public engagement:** The York Region case demonstrates an increased willingness to engage with the public, especially at the project level (e.g., UYSS EA) and some improvements in transparency and engagement at the strategic level. In fact, fostering public engagement is now one of the Region's Sustainability Strategy principles. In addition, the Region took some tentative steps by entering into a collaborative agreement with STORM Coalition and is contemplating setting up a long-term EA advisory committee.

Recommendation: That medium-sized and large municipalities work on establishing long-term EA advisory committees, comprised of individuals involved with land-use planning, EA and other related activities (e.g., stewardship).

vi. **Need for long-term champions:** The York Region case clearly demonstrates the important role of champions in initiating and sustaining positive changes towards improved land-use planning, EA and SEA. A group of committed planners and EA practitioners actively worked to improve York Region planning and EA processes. Unfortunately, most of them have moved on to different positions. The long-term implications of the role and loss of champions requires further study.

Recommendation: That an (S)EA advisory committee be established. Such a committee could be the retainer of contextual knowledge and succession planning and training. A type of "champion succession planning" could also be fostered through this committee, by scouting for and training future champions.

5.9 Conclusions

The purpose of this case-based, collaborative research project was to extend practical and theoretical understanding of SEA to the related, but in practice poorly coordinated, processes of project-level EA, master planning and regional land-use planning. Many SEA conceptualizations focus on discrete, formal assessment of policies, plans or programs following a EA-style protocol (e.g., Bass 2005; European Commission 2008; Fischer 2007),

and they also concentrate on the potential for EA principles and practice to improve planning and policy-making processes (e.g., Hildén et al., 2004).

This research reveals that, in York Region, a voluntary, ongoing, communicative, tiered and integrated type of SEA was put in place. The initiative was voluntary in a legal sense, but practically driven by needs to address evident problems and response to ENGO and citizen concerns. The lessons learned from York Region's experience provide useful insights about integration and tiering in planning and decision making, especially in the context of growth management. The descriptions of the activities in the Findings section suggest that York Region's approach to planning and EA processes appears to have shifted gradually from the traditional pro-development approach to planning and EA towards a broader, more strategic and sustainability-oriented approach.

One of the main benefits of SEA is its potential to set a strategic context for lower tiers of decision making, including project undertakings (i.e., tiering). In this sense, a vital role for SEA is to encourage procedural guidance to lower-tier assessments (Gibson, 1993; Stinchcombe and Gibson 2001). Because of tiering, SEA has the potential to streamline decision making so that decisions taken at one planning level may not need to be revisited at subsequent stages of decision making (Thérivel, 2004b), potentially reducing costs, time and confusion. As was the case in York Region, a SEA of a land-use plan or infrastructure master plan has the potential to inform and guide the process or protocol for all subsequent project-EAs, effectively changing the way a jurisdiction makes project-level decisions and enhancing the public credibility of its deliberations and decisions.

The research findings reflect Vicente and Partidário's (2006) conceptualization of SEA as an ongoing, communication tool. SEA may be valuable as a vehicle for improved communication within a broadly defined regional governance structure. Furthermore, SEA should be characterized by the tiering of decision making with an emphasis on the development and contextualization of sustainability principles (i.e., specifying sustainability criteria to the particular circumstance, from the broad strategic level down to the project level).

Chapter 6: A policy window opens: strategic environmental assessment in York Region, Ontario, Canada

Summary
Government agenda setting has been a focus of research in the field of policy sciences for over two decades. The concept of a policy window is explored as a driver of governmental agenda setting. The Regional Municipality of York, Ontario, Canada was chosen as a case study for exploring the application of strategic environmental assessment at the municipal level through a policy window lens. Problem, policy and political streams converged to provide the necessary conditions for improved environmental assessment and infrastructure planning in York Region. A focusing event and the resulting crisis motivated stakeholders to identify and act on the problem. An SEA-type approach was initiated as one key response. A variety of activities were initiated by York Region including the development of a Sustainability Strategy, synchronization of master planning, wider consideration of alternatives at the master plan level and improved public consultation. Conclusions are drawn and several recommendations are presented and discussed.

Keywords: Strategic environmental assessment, policy windows, growth management, Regional Municipality of York, sustainability, master plan.

6.1 Introduction

Why do specific matters become priorities for governments? Why do decision makers pay attention to particular policy, program or planning issues rather than others? At any given time, there are a number of issues competing for decision makers' attention, yet, only a few of those can actually gain serious attention at the same time. Government agenda setting has been a focus of research in the field of policy sciences for over two decades. A provocative research contribution in the area is presented by Kingdon (1984; updated 1995) using the concept of policy windows to describe how individual matters become governmental priorities. Policy

windows are temporally discrete opportunities for innovative policy change that result from abrupt and uncommon phenomena, often referred to as focusing events (Kingdon, 1995).

Within the strategic environmental assessment (SEA) literature, few have attempted to understand how SEA adoption becomes a priority (see for example Fischer, 2004). Most SEA scholars have focused their research on practical and process issues, methodological and governance and decision making (Brown and Thérivel, 2000; Stinchcombe and Gibson, 2001; Abaza et al., 2004; Caratti et al., 2004; Cashmore, 2004; Hildén et al., 2004; Thérivel, 2004b; Dalal-Clayton and Sadler, 2005a; Jones et al., 2005; Schmidt et al., 2005; Fischer, 2007; Retief, 2007). The Regional Municipality of York, Ontario, Canada was chosen as a case study for exploring SEA application at the municipal level. During the research process the concept of a policy window emerged as highly relevant in York Region's adoption of an SEA-type approach to reframe and restructure its planning and decision-making processes in particular, with reference to infrastructure planning and development. We use the term 'SEA-type' to describe approaches that do not meet formal specifications or definitions of SEA, but have some of their characteristics or elements. Changes in York Region's approach to planning and decision making, as well as the story behind them will be highlighted throughout this article through a policy window lens.

This research was designed and implemented in collaboration with municipal infrastructure and planning staff from York Region. The research included multi-stakeholder workshops, participant observation, document analysis and key-informant interviews. The paper is structured as follows: background information on policy windows, strategic environmental assessment and the York region case study; research methods; findings; and, implications and recommendations.

6.2 Policy Windows

Policy windows are transitory opportunities during which the likelihood of adopting new policy or legislative proposals is greater than usual (Solecki and Michaels, 1994). In this context, the policy windows concept is useful in describing and analyzing what happens in the

agenda setting process in public bureaucracies. As indicated by Kingdon (1995: 166), policy windows "open infrequently, and do not stay open long, but despite their rarity, the major changes in public policy result from the appearance of these opportunities".

Kingdon (1995) describes how three related policy components or "streams" (problem, political and policy) converge to move an issue onto the public policy agenda and toward potential governmental action. The problem stream refers to how decision makers learn about new issues and define and understand their evolution. The solution stream (policy stream) includes the set of potential solutions to the problem. The third stream refers to the political climate and public opinion with reference to the issue (Michaels et al., 2006). Kingdon labels the term "coupling" to describe when these three major streams converge, and finds that these independent streams "flow" through the system all at once. They become coupled or emerge onto the policy agenda when a window of opportunity is opened (Thurber, 2003). Kingdon asserts that an issue is most likely to achieve public agenda status when public problems, policy alternatives, and political opportunities intersect. Furthermore, these windows present themselves when there is a major incident or accident that requires action. The idea of a focusing event is used to describe a sudden, uncommon event (such as a disaster or a crisis) that leads to policy change (Birkland, 1997).

As will be discussed subsequently, this study identified a focusing event associated with one of the projects derived from a wastewater collection system project in York Region. The crisis caused by this event, generated significant public opposition, and served as the focusing event that led to the adoption of an SEA-type process for infrastructure planning and decision making in York Region.

6.3 Strategic Environmental Assessment

Since the formal introduction of environmental assessment (EA) in North America through the USA National Environmental Protection Act (NEPA) in 1969 and later the Canadian Environmental Assessment and Review Process (EARP) in 1973, EA has become more efficient, effective and fair (Gibson, 2000). Since then, there has been growing interest in the

environmental implications of initiatives at scales beyond the project level, *vis a vis* the policy, plan, program levels. In recent years, strategic environmental assessment (SEA) received considerable attention as a means of integrating environmental considerations into the development, approval and implementation of policy, plans and programs, as well as other strategic undertakings.

Two primary motivations for the development of SEA include: counteracting limitations of project EA; and, promoting sustainability principles and practice (Sadler and Verheem, 1996; Thérivel and Partidário, 1996; Fischer, 1999; Petts, 1999; Clark, 2000; Bina, 2003; Dalal-Clayton and Sadler, 2005a). While project-level assessment processes have generally led to more environmentally-informed, transparent and participatory decision-making, project-level EA has, in general, not been able to deal effectively with broader concerns (e.g., cumulative effects, broad objectives and alternatives, underlying policy conflicts and longer term options). Project assessments are usually reactionary, rushed, narrowly mandated and come too late in decision making to be generally effective vehicles for examining strategic concerns and options (Partidário, 2000; Alshuwaikhat, 2005; Gibson, 2007). Moreover, if sustainability is to be the guiding set of principles for future development, then a strategic approach in development processes is required. A strategic approach implies linking long-term vision to medium-term targets and short-term action; 'horizontal' linkages across sectors, so that there is a coordinated approach to development; 'vertical' spatial linkages, so that local, regional and national policy and governance are mutually supportive; and genuine partnership between government, business, and community and voluntary organizations since the problems are too complex to be resolved by any group acting alone (Dalal-Clayton and Bass, 2002).

SEA emerged as a promising means of dealing directly with strategic issues in a way that has the advantages of project EA processes (e.g., firm obligations, integration of environmental concerns in planning and decision making, more transparent and open process, etc.), but also has the necessary scope and mandate to influence strategic level decisions (Benevides et al., 2008). In addition, SEA is intended to occur at a stage in the process and a scale that can provide guidance to subsequent, lower-tier strategic undertakings as well as overall project planning. The main purpose of SEA is to improve strategic planning and decision making, that is, "to make it more integrated, farsighted, open, efficient, credible and defensible, and most

importantly, more likely to bring consistent delivery of lasting benefits from strategic initiatives" (Benevides et al., 2008).

Increasing awareness of, and concern about, some of these effects has encouraged greater use of SEA, both to ensure better attention to environmental and sustainability considerations in the development of policy, plans and programs and to address sustainability issues through new strategic initiatives at the sectoral or regional scale. SEA may be applied at the supra-national, national, and sub-national levels of governance in arenas such as legislation, economic policy (budgeting, privatization, subsidies, and taxation), land use planning, infrastructure development planning, resource management, and social policy. Examples of SEA in practice include (although not always under the SEA label) applications to the transportation, land use planning, energy, and water and wastewater sectors (e.g., Stockholm Environmental Institute, 2001; Fischer, 2002; Carter and Howe, 2006; Tang, 2008).

After more than 20 years of experience with SEA worldwide, perceived benefits include wider consideration of effects and alternatives; improving the evidence base for strategic decisions; facilitating consultation with stakeholders and addressing their concerns; and streamlining other processes such as environmental assessment of individual development projects by establishing an appropriate context for the project level undertaking (i.e., tiering) (Sadler and Verheem, 1996; Fischer, 1999; Nooteboom, 2000; Stinchcombe and Gibson, 2001; Bina, 2003; Dusik et al., 2003; Fischer, 2003; Thérivel, 2004b; Alshuwaikhat, 2005; Dalal-Clayton and Sadler, 2005a; Jones et al., 2005; Partidário, 2005b; Fischer, 2006; Vicente and Partidário, 2006). Thérivel (2004b: 18) expresses the potential benefits of SEA as being able to, "help achieve clearer, more environment-friendly and more publicly acceptable strategic actions that are approved more quickly." While there are a growing number of jurisdictions that have SEA-type processes or apply some elements of SEA, few countries have established formal arrangements or legislative requirements for SEA (Dalal-Clayton and Sadler, 2005).

6.4 York Region and background information

The York Region approach to implementing an SEA-type decision-making process involves integrated planning, rather than just a contribution of information to planning and decision-making processes. Recently, there has been some attempt to introduce elements of SEA good practice[16] into their overall growth management planning, including infrastructure planning processes, such as the review and update of both the Transportation and Water and Wastewater Master Plans (York Region, 2007g; York Region, 2008h), and the publication of a Sustainability Strategy (York Region, 2007f), making explicit York Region's commitment to sustainability.

Replacing the former York County in 1971, the Regional Municipality of York is an upper-tier municipality in south central Ontario, Canada. It covers 1,776 square kilometres from Lake Simcoe in the north to the northern boundary of the City of Toronto in the south. It borders Simcoe County and Peel Region in the west and Durham Region in the east (see Figure 8). York Region is one of six Regional Governments in Ontario and is among the fastest growing regional municipalities in Canada, with its population expected to reach 1.5 million residents by 2031 (Ministry of Public Infrastructure Renewal, 2006). The entire Region is part of the Greater Toronto Area (GTA), the Greater Golden Horseshoe and over 69% of York Region is designated part of Ontario's Greenbelt, which includes the Oak Ridges Moraine (York Region, 2008a).

[16] Elements of SEA such as the ones described in IAIA, 2002

Figure 8: Area of Study

(Source: York Region, 2007b)

York Region provides an upper-tier governance structure to nine lower-tier municipalities, including: Town of Aurora, Town of East Gwillimbury, Town of Georgina, Township of King, Town of Markham, Town of Newmarket, Town of Richmond Hill, City of Vaughan and Town of Whitchurch-Stouffville. York Regional Council consists of 20 elected representatives from each of the constituent towns and cities in the region, including each of the nine mayors and 11 regional councillors (York Region, 2008a).

York Region's landscape includes farmlands, wetlands and kettle lakes, forests and the Oak Ridges Moraine, a unique protected landform that is an immense glacial moraine that runs east to west, north of, and parallel to, Lake Ontario. One of the moraine's most important functions is as a water recharge/discharge area – sustaining the health of the many watersheds, which originate in the moraine and directly providing drinking water to over 250,000 people (STORM coalition, 2008). The moraine is described as southern Ontario's rain barrel – its permeable sands and gravels absorb and collect precipitation, which slowly recharge the deep

aquifers below the ground (see Figure 9). In York Region, the Oak Ridges Moraine is the headwaters for many rivers and streams, including the Schomberg; Black and Holland Rivers, which flow north to Lake Simcoe, and the Humber, Don and Rouge Rivers, which flow south to Lake Ontario. The natural environment is characterized by many forested areas, wetlands and kettle lakes, which are part of a provincially-recognized planning area (York Region, 2007b; MMAH, 2008d).

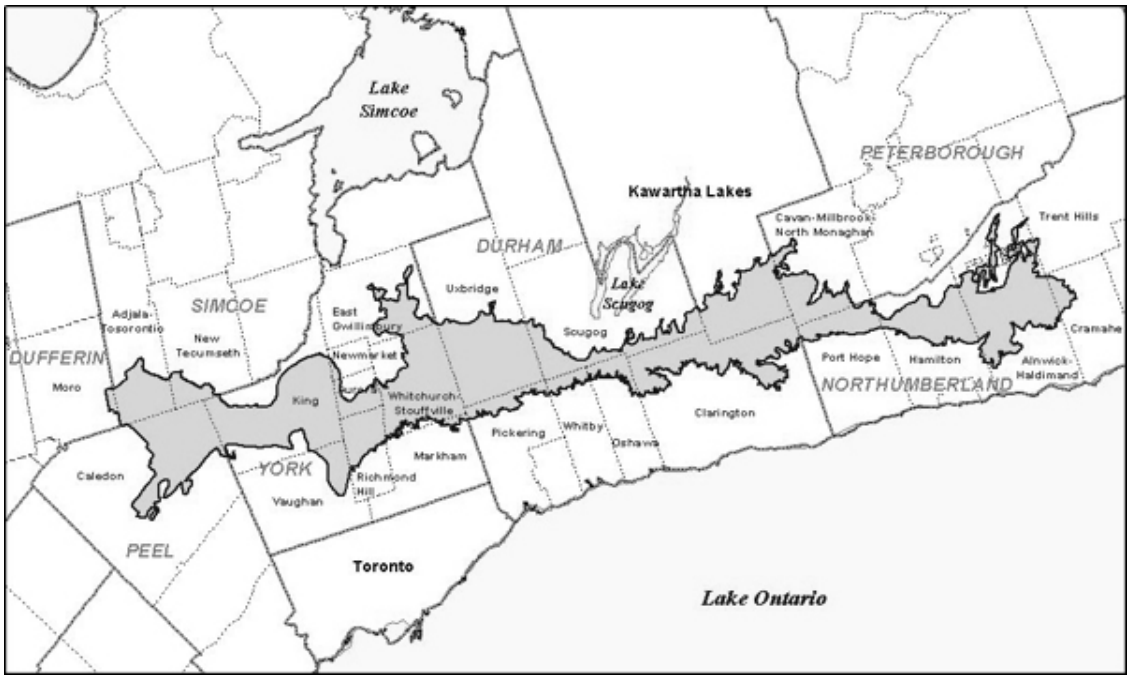

Figure 9: The Oak Ridges Moraine Area

(Source: MMAH, 2008d)

York Region continues to experience significant development pressure. This rapid growth has made the Region one of the most prosperous areas in Canada, and has resulted in the conversion of approximately 160 square kilometres (62 square miles) of countryside to urban uses since 1971 (York Region, 2009). The Region grew from 169,000 people in 1971 to 759,000 people by 2001, and is expected to reach 1.5 million by the year 2031 (Ministry of Public Infrastructure Renewal, 2006). Approximately 350,000 employees work in the Region's

21,000 businesses. Employment is forecast to double by the year 2031. Most of the growth in the Region has occurred within the southern municipalities of Vaughan, Richmond Hill and Markham. For example, Markham grew from a population of approximately 37,500 in 1971 to a population of 273,805 in 2006. The City of Vaughan experienced the highest growth rate of 8.2% over the thirty-five year period (York Region, 2008j).

Growth led to enormous pressure for new and updated infrastructure, especially in terms of transportation, water and wastewater. York Region has one of the largest infrastructure budgets of all Canadian municipalities, with $400 million spent in 2005 for water and wastewater and road infrastructure, and $3 billion to be spent over the next 10 years (York Region, 2008b). It is in this context that the Region of York started a growth management initiative in 2006 entitled *Planning for Tomorrow* (York Region, 2008e). This involved the development of a Sustainability Strategy and the update of Infrastructure Master Plans, which culminated in an update to the Regional Official Plan on December 2009 (York Region, 2009).

In 1994, York Region's first Regional Official Plan was published and in 1997, the York Durham Sewage System (YDSS) master plan[17] (later updated in 2002) was completed. The YDSS master plan identifies current conditions and future alternatives necessary to provide the infrastructure to meet population projections in the Region (York Region, 2008i). The 'preferred alternative' was to double the capacity by twinning the existing YDSS. The YDSS is a complex wastewater collection system and it converges at the jointly operated (York Region and Durham Region) Duffins Creek Water Pollution Control Plant (WPCP) located in Pickering, Ontario, Canada and discharges treated wastewater into Lake Ontario.

The 1997 YDSS master plan identified several projects that would need an environmental assessment, including the 16th avenue trunk sewer phase I project, which was 6.7 km in length, with a pipe diameter of 2600 mm. Numerous problems emerged associated with the construction of this project. Tunnelling was the method of construction used, which required

[17] The idea for the YDSS – a centralized sewage treatment system – dates back to 1965 when the province of Ontario decided that no additional sewage treatment plants could be built on the Don and Rouge Rivers and Duffins Creek. The original YDSS servicing scheme then was started by the Province of Ontario to meet environmental goals emerging at the time. The conceptualization, design and construction of this project occurred over a 25 year period and was completed in the early 1980s. For more information, see York Region, 2007d).

'de-watering' to lower the water level in the immediate vicinity. In order to safely construct the shafts and the tunnels of this sewer to the required depth, the groundwater level was lowered by pumping in the deep Thorncliffe aquifer to below the depth of the shaft and tunnel (York Region, 2006). Some of this water was returned to area streams and some was discharged into the YDSS (York Region, 2007e). Due to unanticipated subsurface conditions, more de-watering than originally anticipated was necessary (York Region, 2006). This impacted private wells outside what was originally defined as the zone of influence during the EA process. These events, coupled with inaction by the EA project team to address concerns early on, led to a major media campaign by local residents, environmental movement organizations and politicians criticizing the efficacy of the original EA. This was a focusing event, which we describe in greater detail in the Findings section below.

6.5 Research Methods

The methodological approach incorporated participatory action research and the use of a case study. "Participatory action research" (PAR) is a generic term that can refer to several related streams of collaborative forms of research, including Participatory Action Research (PAR) (Whyte, 1991), Action Science (Argyris and Schon, 1974; Argyris and Schon, 1978; Schon, 1983) and Co-operative Inquiry (Reason, 1988; Reason, 1994; Reason and Heron, 1995), among others. For the purposes of this research, the focus is primarily on Whyte's PAR.

> "In participatory action research, some of the people in the organization or community under study participate actively with the professional researcher throughout the research process from the initial design to the final presentation of results and discussion of their action implications" (Whyte 1991: 20).

Our project was conceived, developed and implemented collaboratively with representatives from York Region and Save the Oak Ridges Moraine Coalition (STORM Coalition) and with researchers from the University of Waterloo and Queen's University.

Case studies involve the exploration of a single entity or phenomenon bounded by an event and process. As a research strategy, case studies are used in many situations to "improve our

knowledge of individual, group, organizational, social, political and related phenomena" (Yin, 2003: 1). The need for case studies arises out of the desire to understand complex social phenomena; a case study allows investigators to retain the holistic and meaningful characteristics of real-life events, such as organizational and managerial processes (Yin, 2003).

6.5.1 Multiple Research Methods

For the purposes of this research, data was obtained from and verified using the following:

- semi-structured interviews;
- analysis of relevant government policy documents;
- participant observation/workshops.

Semi-structured interviews of key informants were the main source of data about the emerging SEA-type approach in York Region. Twenty-one people were interviewed (see Table 12). Semi-structured interviewing is an interaction between an interviewer and respondent in which the interviewer has a general plan of inquiry but not a specific set of questions that must be asked in particular words and in a particular order (Babbie, 2004). In the semi-structured interview, interviewers "develop, adapt, and generate questions and follow-up probes appropriate to the given situation and the central purpose of the investigation" (Berg, 1995: 32). Employing semi-structured interviews allows the researcher to probe a consistent set of issues and hear a variety of perspectives (Berg, 1995; Hughes, 2002).

Table 12: Interviews conducted

Interviewee Number	Date	Affiliation
1	November 6, 2007	York Region staff
2	November 6, 2007	York Region staff
3	November 14, 2007	York Region staff
4	November 14, 2007	City of Vaughn staff
5	November 14, 2007	York Region staff
6	November 16, 2007	Former Ministry of Natural Resources (MNR) staff
7	November 22, 2007	Environmental NGO representative
8	November 27, 2007	York Region staff
9	November 27, 2007	York Region staff
10	November 28, 2007	York Region staff
11	November 28, 2007	Former Toronto and Region Conservation Authority (TRCA) staff
12	November 29, 2007	TRCA staff
13	November 30, 2007	Former Ministry of the Environment (MOE) staff
14	December 21, 2008	York Region staff
15	March 10, 2008	Consultant
16	June 9, 2008	Markham resident
17	June 20, 2008	Markham councillor
18	July 18, 2008	York Region staff
19	July 18, 2008	York Region staff
20	August 15, 2008	TRCA staff
21	September 11, 2008	Environmental NGO representative

In addition, each respondent was asked to identify the key documents for understanding the issues and events associated with the history and evolution of York Region's EA and land-use planning processes. All documents were systematically reviewed as a means of triangulation and verification of the qualitative data from the interview, literature review and participant observation. Each policy document was reviewed in terms of its purpose, content and significance for the research. The analysis of policy documents was used to verify details regarding key events, key individuals, groups, organizations and agencies involved in the

history and evolution of York Region's EA and related master planning and land-use planning processes.

Participant observation refers to "research that involves social interaction between researcher and informants in the milieu of the latter, during which data are systematically and unobtrusively collected" (Taylor et al., 1984: 15). This interpretation of participatory observation "assumes that knowledge develops from experience, particularly the experience of social-political action" (Newman, 2000: 24). Throughout the research, we engaged participants in various forums and observed participants to complement the in-depth interviews and policy document review. The research team was invited to attend various York Region internal and public meetings and project-related workshops involving York Region staff (8 meetings and 2 research team-led workshops).

6.6 Findings – Evidence of a Policy Window

The following section presents a summary of our analysis from interviews, observations and reports based on the three separate policy window "streams" (problem, political and policy) that converged to move York Region infrastructure planning onto the public policy agenda, i.e., the adoption of an SEA-type approach to planning and decision making in York Region.

6.6.1 The focusing event and the Problem Stream

One influence on policy change is "the inexorable march of problems pressing in on the system" (Kingdon, 1995: 16), and a crisis or a focusing event that brings one issue to the forefront and defines the problem stream. In the York Region case, many issues associated with growth management were pressing on decision makers. Problem recognition, in this case, emerged as a result of a focusing event in the form of a crisis generated during the construction phase of the 16th avenue trunk sewer project in 2002/2003, one of the 1997 YDSS Master Plan

projects[18]. A number of interviewees suggested that a crisis is often needed to promote change (Interviews #3, 10, 14, 15).

More extensive dewatering than predicted through the environmental assessment was required for this project, which caused many residential wells to run dry. Residents in the affected area rely on wells and initially were unable to secure appropriate mitigation. In contacting the contractor, first responses included "you didn't look after your well, it's your problem" to even "the environmental assessment study says this is the zone of influence, and your well is outside, so it must be something else" (Interviews # 15, 16 and 17). Given that this was a design/build contract, the responsibility for mitigation measures was left with the contractor rather than the Region of York (Interviews #8, 15). Since the contractors' profits would be impacted when mitigation measures were required, this led to feelings of a potential conflict of interest by some residents (Interviews #15, 16, 17 and 21). This conflict was the basis for growing public opposition during the construction phase. One York Region staff explained, "we did not address these problems upfront so relationships with the public, the major stakeholders and the area municipalities got strained. We stonewalled and did not admit the problem for a while" (Interview #10).

Another component of the problem stream was associated with the level of dewatering necessary for this project resulting in changes to base flow of nearby streams negatively impacting fish habitat (Interview #21). Robinson Creek was affected in the Rouge system as the recipient creek of pumped water from the project. This led to flow augmentation and erosion problems including changes to fish habitat (a significant issue because Robinson Creek is known for being a great trout stream in the Rouge). Therefore, impacts on nearby streams were also one of the reasons for public and key stakeholders' outcry.

Besides these more visible public controversy issues arising from the project, which certainly focused the attention of the public, was a general public perception of a lack of transparency in the planning/EA process that further heightened the confrontational relationship (Interviews

[18] For more information on a few events that preceded the 16th avenue focusing event and that might have 'helped' the opening of a policy window years later, please see Appendix I.

#6, 7 and 16). A related concern raised during interviews was the perception that contractors could not be seen as independent experts, because they were working for the Region and the Region's interest/goals (Interviews #16 and 21) as well as their own profits. This perception amplified the general lack of trust in the whole process by affected residents.

The corporate culture in the Region of York, before this focusing event, encouraged EAs to be completed at minimal costs and on short timelines (Interviews #2, 3 and 14). This project was illustrative of this culture and resulted in the problems noted above. The focusing event forced the Region to recognize the need for additional background studies especially in terms of hydrogeology and increased public participation throughout the process. The resulting higher costs and extended timelines of subsequent EAs were acknowledged by many interviewees to be a necessary condition for better overall project-level assessment and decision making (Interviews #3, 5, 14, 15). This view especially resonated with a number of interviewees based on the cost of delays, negative publicity associated with the project, social impacts to citizens of York Region and ecological impacts (Interviews #3, 10, 18 and 20).

A final element of the problem stream was associated with the water and wastewater master planning process. This process foreclosed viable project-level alternatives because the master plan favoured large-scale engineering solutions leading to the YDSS project. This foreclosed conservation and smaller-scale infrastructure alternatives at the project-level. Interviewees noted that the only viable alternatives, as a result of the water and wastewater master plan, were to minor routing alternatives to the "big pipe" (Interviews #2, 5 and 11).

6.6.2 Political Stream

The main issue discussed above (i.e., dewatering impacting wells and streams) was the catalyst for public opposition to the project. Additional issues cited by interviewees related to the 16th avenue trunk sewer project that contributed to greater public opposition and pressure to change included poor communication with affected residents (Interviews #6, 7, 15, 16) and lengthy response times by the Region to address construction related problems (Interviews #15, 17, 20).

After requests to the Ministry of the Environment (MOE) to have the environmental assessment bumped-up to an individual EA[19] (all bump-up requests were denied), the response from the Minister in 2004 through a letter to York Region required York Region to address over 40 conditions for current and future YDSS-related EAs. The conditions included requirements for more monitoring of the aquifer and making the information available to the public on a website. Interestingly two YDSS-related projects (i.e., Southeast collector project and the Upper Leslie street truck project) were voluntarily bumped-up by York Region to Individual EAs (a more extensive process requiring MOE involvement and approval).

Overall, York Region received extremely negative press and strong public opposition to the 16th Avenue process. As a result, the Region, together with other agencies, developed a $30 million Environmental Management Plan and Well Mitigation Plan to manage impacts resulting from the future phases of the project. The conditions laid out in the Minister's letter were raised by some interviewees as beneficial and crucial in determining the direction and resolution of the problems associated with the identified focusing event (Interviews #2, 15 and 21). A few York Region staff however, argued that the Minister's letter was not a top down imposition of completely new conditions, but rather a catalyst that further accelerated the pace of a few initiatives already underway in York Region, such as the development of the York Region Sustainability Strategy (Interviews # 10 and 18). Regardless, MOE's involvement and the Minister's letter definitely played an important role in the evolution of York Region's approach to EA and infrastructure planning.

Furthermore, Regional Council was identified as having played a critical role in relation to improving the Region's planning and EA approach. As stated by interviewees # 1, 3 and 18, Regional Council was "open to a new approach" especially because they considered that there was "no other choice but to do things differently" due to public concerns and municipal credibility. The focusing event described above resulted in Regional Council's openness to a new, more strategic approach to EA and infrastructure planning. The Minister's letter and

[19] An Individual EA is a more strict process as compared to the municipal class EA and requires the involvement of the MOE in the approval procedure. It also takes more time and has greater public participation.

regional council's interest in changing York Region's reputation provided the political will to open the policy window.

6.6.3 Policy Stream

An SEA-type approach to planning and decision making represented a key policy option, or solution, to the problem identified in the problem stream. York Region embarked on a number of longer-term visioning initiatives designed to inform both infrastructure master planning and related project-level EAs including the creation of the 'Towards Sustainability Advisory Group', which drafted a strategic document called 'York Region's Sustainability Strategy' (York Region, 2007f). This document is intended to inform all York Region-related activities on the policy, plan and program levels through project-level implementation. Public consultation processes were recognized as being critical for transparency and informed decision making. As a result, York Region increased public engagement and education efforts, and interviewees noted that there has been "a lot of investment in terms of how they consult with the public and the manner in which they do the environmental assessment work" (Interview #10). The Region allocated substantial resources in support of these initiatives, including substantial in-kind contributions to our SEA-focused research.

Integration and tiering is another aspect that was slowly put in place, as Master Plans increase their relationship and guidance to project-EAs. This kind of guidance appears to be present in a recent Individual Environmental Assessment Sewage Servicing project that is taking into consideration the sustainability principles and criteria developed for the Water and Wastewater Master Plan (York Region, 2010; Interviews #14 and 15) . Since this is a very recent initiative, it is still early to say whether this will get to the ground or not, but what seems to be happening is a "filtering down" of the York Region Sustainability Strategy principles going through and guiding Master Plans and further influencing the consideration and assessment of alternatives at the project level (usually referred to as tiering in the SEA literature).

The Region has also synchronized transportation with water and wastewater master planning to ensure increased cross-departmental or horizontal coordination and knowledge sharing (Interviews #1, 3, 8, 10, 18). In addition, the Region has committed to collaborative planning

processes with the intention of creating genuine partnerships with private sector corporations and community and voluntary organizations (Interviews # 3, 10, 14, 18, 19). This may be interpreted as a first step in recognizing that complex issues associated with EA and infrastructure planning require discourse and integration of multiple perspectives.

6.7 Discussion

The discussion around the focusing event and the three streams highlight the opening of a window of opportunity (i.e., policy window) that led to policy change in York Region. The main argument is that a focusing event and the resulting crisis moved citizens, and later the municipality, to identify and act on the perceived problem. One key response was the approach initiated by York Region, which had remarkable similarities to what is called in the literature an 'SEA-type' approach (i.e., an approach to planning and decision making that does not carry the SEA label, nor does it follow formal SEA specifications, but has to some degree essential SEA elements in place, including an approach that is: applied early and proactively, participative, adaptive, sustainability-centred, tiered and integrated).

Furthermore, the analysis revealed plenty of potential for SEA, as a proposed solution, to improve strategic decision making in York Region Accordingly, two main expected benefits include:

- better informed, more credible and more broadly beneficial strategic initiatives; and
- clearer and more timely guidance for subsequent undertakings.

In this perspective, Kingdon's (1995) policy window concept shows promise as a useful instrument for identifying windows of opportunities for SEA adoption.

6.8 Conclusions and Recommendations

This paper provides a first attempt to better understand how SEA adoption becomes a government priority by looking at this issue through a policy window lens. As such, this paper

described the opening of a policy window in York Region as a result of a crisis generated during the construction phase of a sewer trunk project in 2002/2003. Analysis revealed that opportunities for change, articulated as a policy window, appeared after problems were recognized during the 16th Avenue project-level undertaking (i.e. the focusing event). Problem, policy and political streams converged, providing the necessary conditions for York Region to embark on initiatives focused on improving environmental assessment and infrastructure planning in the Region.

It is probably reasonable to say that it will take years for many of the outcomes of the SEA-type approach in York Region to become evident. However, procedural and some structural changes have occurred including the development of a sustainability strategy (York Region, 2007f), the synchronization of master planning (York Region, 2007g; York Region, 2008h), proper consideration of a full suite of alternatives at the master plan level (Interviews #3, 8 and 14), improved relationship – tiering – between different levels of decision making (Interviews # 1, 8, and 10) and improved public consultation (York Region, 2007f). The resilience of these changes is unknown at the time of publication.

The policy window approach proved useful as an evaluation instrument, clearly identifying the problem stream (i.e., environmental assessment crisis), a viable solution (i.e., a more strategic, collaborative and integrated approach to planning and environmental assessment) and the political will to enact the solution (in the form of a letter from the Minister of Environment and a willing municipal council) and how all three streams converged, or "coupled", to provide a viable opening for policy change in York Region.

Based on the insights gleaned from our analysis the following three recommendations are presented:

1. *Taking advantage of policy windows:* Planning, EA practitioners and other stakeholders should become familiar with the concept and requirements of the opening of a policy window, in the form of "coupling" the problem, policy and political streams to better take advantage of such opportunities to make innovative policy change.

2. *The policy stream and SEA*: SEA holds significant potential to inform the solution stream (or policy stream) associated with policy windows that may open within the domain of environmental assessment and infrastructure planning. SEA can inform the solution stream associated with policy windows that may open within the domain of environmental assessment and infrastructure planning. EA practitioner and stakeholders should apply SEA approaches and tools to counteract the limitations of project-level environmental assessment and complement the overall assessment system in place.

3. *Future research*: Follow-up research should be carried out to: further examine the utility of using the policy window approach for research on SEA; and examine the long-term implications and resilience of the policy solutions developed in the York Region case.

Chapter 7: Conclusions and Recommendations

7.1 Introduction

The fields and practices of environmental assessment emerged during the 1960s and 1970s, partly in response to blatant exploitation and inadequate protection of natural resources and systems. Rapid population growth and industrialization had contributed to a deteriorating environment. Media stories covered radioactive fallout and its effects on the food chain, dangerous impurities in urban water supplies, indiscriminate use of pesticides, and the deterioration of city air (e.g., Wisman, 1985). To deal with these environmental challenges, governments have developed approaches to mitigate the damage and even prevent developments and undertakings that cause the problems. One of the main ways of doing this is through assessment processes of various kinds. Since its formal introduction in the USA

through the enactment of NEPA in 1969, environmental assessment has spread, in various forms, to most other countries. One conclusion of the related literature is that governance structures and policy guidance affect the ways in which protection, mitigation and enhancement measures are implemented, and the extent to which potential environmental damages are limited.

This dissertation deals with environmental assessment as a decision making support instrument in an urban area. A continued focus on assessment is justified by the considerable discussion on the limitations of project-level assessment, and the need for broader frameworks to guide the process. A particular focus on urban regions is justified by the rapid urbanization of Canada, and indeed the globe, and by the relevance of municipal-level governance on a number of issues of significance to environmental concerns, such as land use and infrastructure planning.

There are various ways to approach or frame environmental issues that are of particular relevance to urban, municipal-level governance. One framework that promises considerable usefulness is strategic environmental assessment, mainly because of its connections with current urban planning processes, including strategic planning and project-level environmental assessment.

SEA, as a concept, has been discussed for more than 20 years; and, as an instrument, has been implemented in various countries of the world. The concept is still evolving, however, and its implementation has varied greatly from place to place. Based on the literature, there is growing consensus about SEA's potential benefits, including wider consideration of effects and alternatives; improving the evidence base for strategic decisions; facilitating consultation with stakeholders and addressing their concerns; and streamlining other processes such as environmental assessment of individual projects by establishing an appropriate context for the project-level undertaking (Sadler and Verheem, 1996; Fischer, 1999; Nooteboom, 2000; Stinchcombe and Gibson, 2001; Bina, 2003; Dusik et al., 2003; Fischer, 2003; Thérivel, 2004b; Alshuwaikhat, 2005; Dalal-Clayton and Sadler, 2005a; Jones et al., 2005; Partidário, 2005b; Fischer, 2006; Vicente and Partidário, 2006).

There is still much to learn, however, about its potential value and implementation in urban contexts, and in situations where there are no legal obligations that elaborate its requirements. The contribution of SEA to growth-related planning in urban contexts has been, to some extent, understudied, and this research provides useful insights not only into how SEA can contribute to a more integrated, transparent and credible approach to growth-related planning, but also into how interest in applying SEA gains momentum and becomes a governmental priority.

This research was guided by an interest in improving understanding of how SEA can help to contribute to sustainability through planning/EA processes and activities, especially in the context of growth-related planning. The approach taken was to explore, in detail, a case study. The advantages of this approach is that it provides both detailed insight into the case itself—which is of practical value to the participating organization—but also into broader questions about the importance of context in SEA, the potential value of SEA in the urban, municipal context, and about how interest and adoption of this way of framing future decisions can emerge from acute challenges in the present.

7.2 Summary of results

York Region is an urban municipality in the Greater Toronto Area of Canada. It has a rapidly growing population that is expected to increase from 930,000 in 2006 to 1.5 million residents in 2031 (Ministry of Public Infrastructure Renewal, 2006). Growth pressures, and the associated need for growth management, ensure that York Region is similar to many expanding urban regions of Canada. However, some particular challenges resulted in recognized needs for a re-framing of related policies and procedures, which provided a unique opportunity to explore SEA in this context. More specifically, a water supply crisis and associated public outcry, led to out-of-the-box thinking by key stakeholders and ultimately to a decision to adopt an SEA-type approach in moving forward with infrastructure planning generally. It is important to note, however, that there is no formal SEA process in place in York Region. That said, some SEA components have been put in place in York Region, especially in terms of an approach that was:

- applied early and proactively;
- participative;
- adaptive;
- sustainability-centred; and
- tiered and integrated.

In this sense, York Region's approach to planning and EA resembles many characteristics of SEA, characteristics that moved the Region towards a more participative, transparent, and sustainability-based approach to making decisions regarding infrastructure planning. These changes in approach to planning and decision making were explored in Chapters 4, 5 and 6. Each of the chapters is guided by a specific objective. It is through these explorations of the York Region case that the main contributions of the dissertation emerge.

Chapter 4 addressed research objective #1, which was to produce a synthetic and critical review of the guidelines for SEA best practices with particular attention being paid to context issues, which can either amplify or make specific components less relevant. Towards this end, eleven essential components for SEA best practice and 26 related implications were identified and used to illustrate how these generic components relate to York Region's particularities in terms of their importance for regional planning and environmental assessment. Findings presented on Chapter 4 highlight the importance of context when using SEA as a decision making instrument, and how SEA best practices can help in setting the stage for contextualized application.

In the case of York Region, several components of SEA best practice were identified through key stakeholder interviews as being relatively more important, including sustainability and tiering (i.e., SEA components) and communication (i.e., SEA implication). None of the components or implications, however, were consistently or generally rated as being of 'low importance', which suggests that the list of best practices derived from the literature is a useful generic framework that SEA practitioners can draw from as they consider local needs and context for customizing SEA application.

Chapter 5 addressed research objective #2, which was to explore in greater depth how SEA could contribute to planning and EA processes. For this, the three SEA components identified

by key stakeholders as having the greatest importance to York Region were investigated. Findings revealed that, in York Region, a voluntary, ongoing, communicative, tiered, sustainability-based and integrated type of SEA was put in place. The lessons learned from York Region's experience provided useful insights about tiering, integration and communication in planning and decision making, especially in the context of growth-related planning.

One of the main benefits of SEA is its potential to set a strategic context for lower tiers of decision making, including project undertakings (i.e., tiering). Because of tiering, SEA can streamline decision making so that decisions taken at one planning level may not need to be revisited at subsequent stages of decision making, potentially reducing costs, time and increasing efficiencies. As was the case in York Region, a SEA of a land-use plan or an infrastructure master plan can inform and guide the process or protocol for all subsequent project-level EAs, effectively changing the way a jurisdiction makes project-level decisions.

In addition, Chapter 5 highlighted the importance of conceptualizing SEA in part as a communication tool that may be valuable as a vehicle for improved communication within a broadly defined regional governance structure. The case study revealed that SEA should be characterized by the tiering of sustainability-based decision making with an emphasis on the development and contextualization of sustainability principles (i.e., specifying sustainability criteria to the particular circumstance, from the broad strategic level down to the project level).

Chapter 6, which addressed research objective #3, provided a first attempt to better understand how SEA adoption becomes a government priority, particularly by looking at this issue through a policy window lens. The policy window approach proved useful as an evaluation instrument, clearly identifying the opening of a policy window in York Region as a result of a crisis generated during the construction phase of a sewer trunk project in 2002/2003. Analysis revealed that opportunities for change, articulated as a policy window, appeared after problems were recognized during the 16th Avenue project-level undertaking (i.e., the focusing event, or the event that focused the attention of many people). Problem, policy and political streams converged, providing the necessary conditions for York Region to embark on initiatives focused on improving environmental assessment and infrastructure planning in the Region.

It is important to note that, while a crisis of some sort may be needed to win political attention (as was the case in York Region), most of the foundation building can be done in anticipation of the opening. This is an even more interesting idea than simply identifying policy windows, i.e., building and opening windows of opportunity for innovative policy change. This relates to the idea of a policy entrepreneur used by John Kingdon (1995); a purposive agent with the goal to advocate a policy solution or couple a solution with an identified problem. Kingdon draws attention to the way policy entrepreneurs can influence policy outcomes as policy windows open and policy entrepreneurs are then encouraged to link existing ideas/solutions with new perceived problems or understandings of problems. Therefore, even when the political will is not yet available, the relevant parties can prepare the solution and set up the problem stream so that an opening can occur.

Chapter 6 also highlighted how it will probably take years for many of the outcomes of the SEA-type approach in York Region to become more evident. However, there was evidence that procedural and some structural changes have happened, including the development of a sustainability strategy, the synchronization of master planning, wider consideration of a full suite of alternatives at the master plan level, improved relationship – tiering – between different levels of decision making and improved public consultation. These findings underscore the ways in which environmental governance structures and tangible environmental outcomes often evolve over different timeframes, something that is important when considering how to evaluate the potential benefits of such policy initiatives.

7.3 Implications for SEA practice

Research findings indicate that York Region's approach to planning and EA processes appears to have recently changed to a more strategic, long term, participative, integrated and tiered approach reflecting a commitment to sustainability. Furthermore, looking at the SEA-type approach in York Region offers some useful lessons and implications for SEA application in York Region as well as in other jurisdictions:

i. **The use of SEA best practice components as generic framework:** The York Region case demonstrates the usefulness of having a generic framework as a starting point. The generic SEA best practice framework can then be used by SEA practitioners as guidance in which they can draw from as they consider local needs and context.

ii. **Better coordination between land-use planning and EA processes:** The York Region case clearly demonstrates the value of SEA as a tool for fostering coordination and integration between land-use planning and EA. York Region master planning is increasingly influenced by growth management strategies, regional land-use plans and other legislation that provide strategic direction. Municipalities are well positioned to enhance integration and coordination, as these organizations have the legislative responsibility for both land-use planning and EA processes.

iii. **Environmental assessment and sustainability-centred decision making:** The York Region case study illustrates the important role that sustainability principles can play at early stages in planning and EA processes. Many scholars now indicate that broad sustainability criteria need to be contextualized for application in practice. The York Region case illustrates this with broad sustainability visions (e.g., York Region's Vision 2026) being refined (e.g., York Region Sustainability Strategy) for use in strategic planning processes such as master planning and through specific project-level sustainability criteria. York Region's experience provides a useful example of how this can be achieved.

iv. **SEA as a communication tool:** This research points to this aspect of SEA as having a particularly positive impact within the municipal context in terms of overcoming the 'silo mentality' traditionally characterized by land-use, infrastructure and EA departments. Once York Region staff members were exposed to the SEA concept, many actively used it to continue to improve communication between departments and to better integrate land-use and EA planning processes.

v. **Active promotion of tiering:** The York Region case suggests that tiering has significant potential at the municipal level. Strategic and site-specific information from

regional- and provincial-level plans (e.g., Places to Grow, Oak Ridges Moraine Conservation Plan) is now greatly influencing and guiding project-level EAs (e.g., UYSS project). Furthermore, the sustainability principles discussed above (Implication #2), through the use of tiering, can be filtered down and become more contextualized at the project level.

vi. **Improved transparency and meaningful public engagement:** The York Region case demonstrates an increased willingness to engage with the public, especially at the project level (e.g., UYSS EA) and some improvements in transparency and engagement at the strategic level. In fact, fostering public engagement is now one of the Region's Sustainability Strategy principles. The York Region experience provides an interesting example that could be followed and refined by other jurisdictions.

vii. **Need for long-term champions:** The York Region case clearly demonstrates the important role of champions in initiating and sustaining positive changes towards improved land-use planning, EA and SEA. A group of committed planners and EA practitioners actively worked to improve York Region planning and EA processes. The importance of champions should not be overlooked.

viii. **The use of the policy window approach to identify windows of opportunities:** In York Region, the policy window approach proved useful as an evaluation instrument, clearly identifying the problem stream, a viable solution and the political will to enact the solution, and how all three streams converged to provide a viable opening for policy change. Other jurisdictions could use this York Region's experience as an example to guide identification of windows of opportunities for innovative policy change.

7.4 Recommendations

Based on the results of this research and implications highlighted above, the following recommendations are highlighted:

Recommendation #1: Municipalities should actively work on integrating and better coordinating land-use planning and EA processes by using SEA as a communication tool between planning and EA practitioners. The timing of land-use plan reviews should be coordinated with infrastructure master planning processes. Furthermore, municipalities should work at better integrating and coordinating land-use planning and infrastructure and EA departments.

Recommendation #2: Municipalities under moderate to significant development pressure with high demand for the provision of infrastructure services should adopt a sustainability approach by developing sustainability visions and strategies. The broad principles embedded in such strategic documents must then be contextualized for use in master planning for the particular context and further specified for use at the project level.

Recommendation #3: Municipalities should encourage guiding links in tiered decision making. In particular, municipalities should extract strategic and project-level direction from progressive land-use planning documents to guide master planning and subsequent project EA.

Recommendation #4: Medium-sized and large municipalities should consider establishing long-term EA advisory committees, comprised of individuals involved with land-use planning, EA and other related activities (e.g., stewardship).

Recommendation #5: The establishment of an (S)EA advisory committee should be considered. Such a committee could be the retainer of contextual knowledge and succession planning and training. A type of "champion succession planning" could also be fostered through this committee, by scouting for and training future champions.

Recommendation #6: Planners, EA practitioners and other stakeholders should become familiar with the concept of and requirements for opening of a policy window, in the form of "coupling" the problem, policy and political streams to better take advantage of such opportunities to make innovative policy change.

7.4.1 Further research

Recommendation #1: Further applied research should be carried out in a municipal context to explore the potential of SEA as a communication tool to better integrate EA and planning processes and to increase communication and collaboration between traditional departmental silos.

Recommendation #2: Follow-up research should be carried out to further examine the utility of using the policy window approach for research on SEA, especially looking at how to build and open policy windows as opposed to just identifying them. In addition, it would be valuable to examine the long-term implications and resilience of the policy solutions developed in the York Region case.

Recommendation #3: Multiple case studies should be carried out to further test and refine the SEA best practice framework.

Recommendation #4: Further research should be conducted regarding the value of SEA best practice frameworks in regards to how current or obsolete best practice components are. It would be valuable to research the value that other related disciplines might add to SEA theory and practice, especially in terms of institutional change, transition management and social innovation. For SEA to serve as a decision making instrument that contributes to sustainability, governance structures and practices that can foster, guide and coordinate positive work by a host of actors on a vast complex of issues, through webs of interconnection and across multiple levels and scales, with sensitivity to their contexts and respect for uncertainties must be established. Perhaps it is time for the SEA community to embrace other related disciplines that encourage transitions to sustainability (as opposed to making the problem less worse by focusing on mitigation and compensation).

7.5 Concluding remarks

This research was designed to contribute to the theoretical and empirical discussions about strategic environmental assessment. On a broad scale, this research contributes to the

pragmatic application of sustainability thinking in assessment of undertakings, with an emphasis on strategic initiatives, such as policies, plans and programmes. More specifically, this research was designed to contribute to the SEA best practice literature by the development and testing of a SEA framework that is based on SEA best practices and is informed by sustainability considerations. In addition, within the SEA literature, few have attempted to understand how SEA adoption becomes a priority (see for example Fischer, 2004), as most SEA scholars have focused their research on procedural and methodological issues, as well as governance and decision making.

As such, this research presents three main scholarly contributions. First, it develops a SEA best practice framework based on the international literature and, as a result, it provides SEA practitioners with a useful generic framework that they can use as guidance and a starting point for SEA studies. In addition, this research brings to light the importance of paying attention to contextual issues in using SEA best practice frameworks. The context of application will always be unique, so the particularities of the case will still need to be carefully considered and incorporated. Second, this research further develops the discussion about what SEA can achieve, or more specifically, how SEA can help to contribute to sustainability. Through case study research, Chapter 5 illustrates how SEA can help planning and decision making approaches through a more in depth look at three main components of SEA: sustainability-centred decision making, tiering and communication. The third contribution relates to how SEA adoption becomes a priority or how governments become interested enough in SEA application to do it. The concept of policy window was borrowed from the policy sciences field to provide the framework of analysis for this part of the research.

In sum, the results of this research suggest that SEA has potential to play an important role in planning and decision making, with particular attention to growth-related planning in urban regions. In this context, SEA can contribute to planning and decision making that is more integrated, farsighted, open, efficient, credible and defensible, and ultimately brings desirable and durable benefits. Moreover, by providing clearer guidance to the subsequent undertaking, SEA has potential to serve as a bridge to the planning of project undertakings.

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Appendices

Appendix I: Timeline of Events in the Regional Municipality of York

Appendix II: Review of SEA 'best practice'

Appendix III: Rating of SEA best practice components by participants

Appendix IV: Interview question themes

Appendix I: Timeline of Events in the Regional Municipality of York

The table below summarizes some of the important events identified during this research.

Table 13: Chronology of events

Date	Event
May 1996	The Town of Markham completed a Schedule B Class Environmental Assessment into the expansion of local sewage and water services along portions of the 9th Line and 16th Avenue to service new development areas associated with OPA #5.
1997	The Regional Municipality of York completes a Master Plan for the expansion of the York Durham Sewage System (YDSS). This Plan identifies the need to parallel the existing sewage system from Newmarket to Pickering
March 1998	Marshall Macklin Monaghan completes a Class Environmental Addendum to the aforementioned Class EA entitled Town of Markham Design-Build Project Delivery. To meet the Regional servicing needs identified in the Master Plan, as well as the Town of Markham 's needs, the trunk sewers proposed by York Region are longer, larger and deeper than those approved in the Town's Class EA.
August 2000	York Region starts construction of the parallel sewage system
February 2002	The YDSS Master Plan was updated in February 2002 to consider new planning projections, policy changes and implementation status. The study confirmed the need for a doubling of system capacity.

March 2002	A small artesian well fed tributary stream of Robinson Creek runs dry due to increased de-watering for the 16th Avenue Phase I Trunk Sewer project. TRCA, DFO and MNR officials visit the site and start an investigation into the flow stoppage and harm to fish habitat.
April 2002	A local ENGO, the Friends of the Rouge Watershed, writes to provincial, federal and municipal officials to express concerns about the adverse effects of the sewer construction on water resources and to ask questions about the project and the environmental review and approval process
June 2002	The Friends of the Rouge Watershed writes to government officials at the provincial Ministry of the Environment, Ministry of Natural Resources, Toronto and Region Conservation Authority, federal Department of Fisheries and Oceans and others, requesting a full individual environmental assessment and public hearing for the twinning of the YDSS.
December 2002	Phase I of the 9th Line Trunk Sewer construction was completed in December 2002.
February 2003	In a notice to residents, York Region states that during the 16th Avenue Phase I dewatering, the observed area of groundwater impact was limited to approximately 2 to 3 kilometers from the dewatering wells. The notice acknowledges that "for Phase II the impacted area will move to the west as the sewer construction progresses along 16th Avenue. It is anticipated that the sewer impact will again be limited to within 2 to 3 kilometers of the project."
April 2004	The Chair of the Rouge Park Alliance, a former Assistant Deputy Minister of Natural Resources (MNR), writes to federal, provincial and municipal officials requesting an individual environmental assessment for the 16th Avenue Trunk Sewer. The Chair of the Rouge Park Alliance also writes to the Regional Councilor stating that impacts of this scale were not anticipated in the Class Environmental assessment.
April 2004	A Draft TRCA protocol for review of sanitary sewer works (dated April 21, 2004) states: *"Through the review process associated with the 16th Avenue Phase I and II sections of this project, unanticipated issues arose related to hydrogeology"* *"Many of the projects are not properly classified"* *"these projects are not simple and they do not have simple impacts"*

	"TRCA staff should be prepared to request bump-ups to ensure studies are comprehensive in cases where the impacts are not predictable or mitigable"
July 2004	Representing the Friends of the Rouge Watershed, Jim Robb repeats his formal request for a Bump-up to an individual EA for the York Durham Sanitary Sewer System (YDSS) twinning and extension undertaking(s). Member of Parliament Derek Lee writes to the federal Fisheries Minister concerning harm to water resources and fish habitat in the Rouge River and requests a thorough federal Environmental assessment Act review; A private Fisheries Act prosecution is launched by Jim Robb against York Region and a Justice of the Peace finds sufficient grounds to allow the matter to proceed to trial. The Ministry of the Environment and the department of Fisheries and Oceans are conducting investigations into suspected violations of the federal Fisheries Act and the Ontario Water Resources with respect to Phase I of the 16th Avenue Sewer;
September 2004	York Region meets with MOE about YDSS projects and bump-up requests. York Region decides to voluntarily bump up two YDSS-related projects to Individual Environmental Assessment processes.
October 2004	Minister's Decisions on Requests for Bump-ups is submitted to York Region. The Minister's letter included 44 conditions, but no bump-up requests were granted. However, two of the main projects were voluntarily bumped-up by York Region (i.e., Southeast Collector and Upper Leslie Street Trunk projects). The letter commends this voluntary commitment of York Region but still orders York Region to follow Individual EAs for both projects (complying with part II of the EA Act): *"To provide certainty and ensure that this commitment is fulfilled and the environment protected, I am ordering, pursuant to subsection 16(1) of the Environmental Assessment Act, the Regional Municipality of York to comply with part II of the Environmental Assessment Act…"*
November 2004	A mishap at the 16th Avenue dewatering site causes the pumps to be left off overnight and Robinson Creek stops flowing. Fish sampling shows a loss of fish and another investigation is launched by the Department of Fisheries and Oceans into suspected breaches of the

	Fisheries Act.
December 2004	Monitoring indicates that York Region is removing water at a faster rate than allowed by its October 5, 2004 Permit to Take Water (PTTW) and a new PTTW is submitted to MOE to try to resolve this non-compliance York Region's Clerk writes to Environmental Defence stating that the Region will not provide access to the supporting documents for the 16th Avenue Trunk Sewer, which has been noted by some as a violation of the Minister's October 2004 EA Conditions of Approval.
July 2005	York Region establishes a multi-stakeholder group, the "Towards Sustainability in York Region (TSYR) Advisory Group", one of the main components that led to the development of York Region's Sustainability Strategy.
September 2005	Regional Council endorses the TSYR Advisory Group initiative.
2006	Both Transportation and Water and Wastewater Mater Plans begin their update process, within a broader Growth Management initiative titled "Planning for Tomorrow".
Fall 2007	Final version of the York Region Sustainability Strategy is published.
Early 2009	Regional Official Plan update is initiated
May 2009	Both Transportation and Water and Wastewater Master Plans are submitted to Regional Council for approval and request for public comments (minimum of 30 days)
September 2009	Both Master Plans get officially published
December 2009	Updated Regional Official Plan is published

Appendix II: Review of SEA 'best practice'

In 1999, Dalal-Clayton and Sadler (1999) suggested a set of principles based on their review of SEA experiences and other proximate approaches:

Box 9: SEA principles according to Dalal-Clayton and Sadler (1999: 11)

(A) General: An SEA process should:

- fit the purpose and be customised for application at the policy level or at the level of plans and programmes;
- have integrity, so that it is applied in accordance with the objectives and provisions established for it; and be effective in meeting those objectives;
- be focused on delivering information necessary to the decisions to be made, and address the significant and key issues;
- be driven by sustainable development principles (taking into account environmental, social and economic considerations); and therefore
- be integrated with parallel analyses of economic and social dimensions and issues, and with other planning and assessment instruments and processes;
- relate to project EIA where appropriate - perhaps through tiering mechanisms;
- be transparent and open;
- be practical, easy to implement, oriented to problem-solving, and cost -effective;
- introduce new perspectives and creativity (it should "provide bonuses, not be a burden"); and
- be a learning process (thus it is essential to start 'doing SEA' to gain experience).

(B) SEA Steps: An SEA process should ensure that:

- *screening*: responsible agencies carry out an appropriate assessment of all strategic decisions with significant environmental consequences;
- *timing*: results of the assessment are available sufficiently early for use in the preparation of the strategic decision;
- *environmental scoping*: all relevant information is provided to judge whether: (i) an initiative should proceed; and (ii) objectives could be achieved in a more environmentally friendly way (i.e. through alternative initiatives or approaches);
- *other factors*: sufficient information is available on other factors, including socio-economic considerations, either parallel to or integrated in the assessment;

- *review*: the quality of the process and information is safeguarded by an effective review mechanism;
- *participation*: sufficient information on the views of all legitimate stakeholders (including the public affected) is available early enough to be used effectively in the preparation of the strategic decision;
- *documentation* : results are identifiable, understandable and available to all parties affected by the decision;
- *decision-making and accountability*: it is clear to all stakeholders and all parties affected how the results were taken into account in decision-making;
- *post-decision*: sufficient information on the actual impacts of implementing the decision is gained to judge whether the decision should be amended.

Source: (Dalal-Clayton and Sadler, 1999: 11)

In 2000, the Department of Environmental Affairs and Tourism in partnership with CSIR developed SEA principles which were to serve as the fundamental premises underpinning SEA methodologies in South Africa (DEAT/CSIR, 2000). These include substantive as well as procedural principles for SEA (Box 10).

Box 10: SEA principles according to DEAT/CSIR (2000)

1. SEA is driven by the concept of sustainability;
2. SEA identifies the opportunities and constraints which the environment places on the development of plans and programmes;
3. SEA sets the criteria for levels of environmental quality or limits of acceptable change.
4. SEA is a flexible process which is adaptable to the planning and sectoral development cycle.
5. SEA is a strategic process, which begins with the conceptualisation of the plan or programme.
6. SEA is part of a tiered approach to environmental assessment and management.
7. The scope of an SEA is defined within the wider context of environmental processes.
8. SEA is a participative process.
9. SEA is set within the context of alternative scenarios.
10. SEA includes the concepts of precaution and continuous improvement.

Source: (DEAT/CSIR, 2000: 15-16)

In 2002, the International Association for Impact Assessment (IAIA) developed a set of SEA themes and performance criteria "in consultation with members of the IAIA SEA section and through discussions at special workshops held in 1998, 1999 and 2000 during the IAIA annual conferences" (IAIA, 2002). Concentrating primarily on procedural aspects, the IAIA identified six main SEA themes which were thought to define a "good-quality SEA process" (i.e., SEA

which is integrated, sustainability-led, focused, accountable, participative and iterative) and further identified a total of 17 performance criteria (Table 14).

Table 14: IAIA performance criteria

Theme	Performance criterion
SEA is integrated	• Ensures an appropriate environmental assessment of all strategic decisions relevant for the achievement of sustainable development. • Addresses the interrelationships of biophysical, social and economic aspects. • Is tiered to policies in relevant sectors and (transboundary) regions and, where appropriate, to project EIA and decision making.
SEA is sustainability-led	• Facilitates identification of development options and alternative proposals that are more sustainable.
SEA is focused	• Provides sufficient, reliable and usable information for development planning and decision making. • Concentrates on key issues of sustainable development. • Is customized to the characteristics of the decision making process. • Is cost- and time-effective.
SEA is accountable	• Is the responsibility of the leading agencies for the strategic decision to be taken. • Is carried out with professionalism, rigor, fairness, impartiality and balance. • Is subject to independent checks and verification • Documents and justifies how sustainability issues were taken into account in decision making.
SEA is participative	• Informs and involves interested and affected public and government bodies throughout the decision making process. • Explicitly addresses their inputs and concerns in documentation and decision making. • Has clear, easily-understood information requirements and ensures sufficient access to all relevant information.
SEA is iterative	• Ensures availability of the assessment results early enough to influence the decision making process and inspire future planning. • Provides sufficient information on the actual impacts of implementing a strategic decision, to judge whether this decision should be amended and to provide a basis for future decisions.

Source: (IAIA, 2002)

Shortly thereafter, Dusik et al. (2003) drew from practical lessons learned with pilot SEA projects in Central and Eastern European countries from 1996 to 2003, recommending the following principles of effective SEA:

Box 11: Principles of effective SEA according to Dusik et al. (2003)

SEA should…

- cover all proposed policies, plans and programmes likely to have significant environmental effects;
- provide relevant information and be undertaken by proponents of a PPP;
- be integrated into the PPP-making process at key procedural stages;
- evaluate the environmental effects of a reasonable range of alternatives to the proposed initiative, recognizing the scope of consideration will vary with the level of decision-making;
- focus on the right issues at the right stages of the policy, plan and programme-making process;
- facilitate early involvement of key stakeholders;
- use appropriate and cost-effective methods and techniques of analysis. It should gather information only in the amount and detail necessary for sound decision-making.

Source: (Dusik et al., 2003: 1-2)

Although the set of principles provided by Dusik et al. (2003: 3) does not include the term sustainability, they explicitly recognize one of the potential SEA's benefits to be linked to "achieving sustainable development". In their own words:

> "SEA supports the consideration of environmental and social aspects on a par with economic aspects. It supports the early consideration of environmental and sustainable development objectives at the outset of policy, plan and programme formulation. SEA supports evaluation of the whole set of options and alternatives against these overall objectives and helps to design environmentally sustainable implementation plans for preferred strategic options (Dusik et al., 2003: 3).

From several surveys of UK planners spanning eight years, Thérivel (2004b: 187) suggests that a 'good SEA process' must:

- start early,
- involve the decision-maker;
- focus on key environmental/sustainability constraints, thresholds and limits;
- consider alternatives;
- apply the precautionary principle;
- aim to minimise negative impacts, optimise positive ones, and compensate for the loss of valuable features and benefits; and,
- be transparent and promote public participation in decision making.

In 2004, The Canadian Environmental Assessment Agency (CEAA) hosted a workshop, for federal public servants, designed to develop and strengthen capacity within the federal policy community regarding the role SEA in government (CEAA, 2010). The outcomes of this workshop include a list of "dos and don'ts" presented below:

Box 12: SEA best practice according to CEAA (2010)

Do:

- Incorporate EA into policy development process as early as possible.
- Consult widely
- Determine consultation requirements and best way to do this.
- Seek assistance from experts in impacted areas.
- Determine if an SEA is required on a case-by-case basis, not from an administrative must-do approach.
- Use SEA as a planning/decision-making tool.
- Ensure good communications between branches, departments and experts.
- Create departmental capacity and knowledge base regarding SEA by providing training, education and through the development of tools such as information sessions, newsletters, Web site.
- Learn from past SEAs to improve future ones.
- Build in re-evaluation after a reasonable time (three to five years).
- Articulate how the process made a difference to the policy, plan or program.
- Keep SEA strategic - a high level, horizontal approach to policy program planning.

Avoid:

- Using SEA as a political tool to placate the public.
- Doing an SEA when it is not really applicable.
- Using SEA as a means for developing the rationale for a project to move forward or to post-rationalize decisions.
- Making assumptions without professional advice or in the absence of information/facts.
- Working in isolation.
- Taking a "one size fits all" approach.
- Blurring SEA with project-based, site-specific EA.

Source: CEAA (2010)

In a review of the literature on SEA, Noble (2005: 95-100) identifies and discusses several principles that characterize SEA:

Box 13: SEA principles according to Noble (2005)

1. **Strategically focused**
   - Emphasis is placed on strategy
   - Determines objectives and the means to achieve them
   - Identifies strategic initiatives
2. **Future oriented**
   - Forward looking
   - Back-casts desirable ends and alternative means
3. **Focused on alternatives**
   - Assessment of alternative policy, plan, and programme options
   - Alternatives to meet a need or formulate a policy, plan or programme
   - Alternatives to a proposed or existing policy, plan, or programme
4. **Objectives-led**
   - Examines particular goals and objectives to be accomplished
   - Alternatives assessment set within the context of a broader vision
5. **Proactive**
   - Attempts to avoid, eliminate, and minimize potentially negative actions
   - Attempts to enhance and create potentially positive PPP actions
   - Creates and examines alternatives to identify the best practicable environmental option
6. **Integrated**
   - Addresses the interrelationships of biophysical, social and economic systems
   - Incorporates multiple objectives, criteria and sources of knowledge
   - Ideally, an integral part of policy, plan and programme formulation
7. **Broad focus**
   - Not project-specific
   - Often more broad-brush than project-level assessments
   - Scope broadens as assessment moves from program, to plan, to policy-level assessment
8. **Tiered**
   - Set within the context of previous and subsequent decision outcomes and objectives
   - Sets the stage for subsequent assessment and decision-making processes, including EIAs

Source: (Noble, 2005: 96)

Jones et al. (2005) evaluated 14 SEA systems as related to land use planning, taking into account the distinction proposed by Thissen (2000) between quality and effectiveness, and propose three broad categories of criteria: *system criteria* (i.e., legal basis, integration, guidance, coverage, tiering, sustainability), *process criteria* (i.e., alternatives, screening, scoping, prediction/evaluation, additional impacts, report preparation, review, monitoring, mitigation, consultation and public participation), and *outcome criteria* (i.e., decision making, costs and benefits, environmental quality and system monitoring). Noble and Bronson (2007),

building on Jones et al. (2005) and others (e.g.. Thissen, 2000; Sheate et al., 2001; Noble, 2003; Gibson et al., 2005) developed similar criteria separated into *system criteria* (i.e., provisions, integration, tiering, sustainable development), *process criteria* (i.e., responsibility and accountability, purposes and objectives, scoping, alternatives, impact evaluation, cumulative effects, monitoring program, participation and transparency), and *result criteria* (decision making, PPP and project influence, system-wide learning).

Appendix III: Rating of SEA best practice components by participants

The following table presents the rating of the importance of each SEA best practice component by participants who were interviewed for the York Region case study. The results of this part of the research are also presented (not in table format) in chapter 4.

Table 15: Rating by participants

SEA Component	Implication	Interviewee number						
		I022	I023	I024	I025	I026	I027	I028
Sustainability-centred	*Implication 1*	3		3	3	3	2	
	Implication 2	3	3	3	3	3	3	3
	Implication 3	2		N/A	N/A	N/A	2	
Tiering	*Implication 4*	3	3	3	3	3	3	3
	Implication 5	2	3	1	1		3	3
Public involvement	*Implication 6*	3	3	3	3	3	3	3
	Implication 7	3	3	3	3	3	3	3
Early and Proactive	*Implication 8*	3		3	3		3	
	Implication 9	3	3	3	3	3	3	3
Integration	*Implication 10*	3	3	3	3	3	2.5	3
	Implication 11	3	3	3	3	3	3	3
	Implication 12	3	3			3	3	3
Focused and cost-effective	*Implication 13*	2		N/A	3	3	3	1
	Implication 14	3	3			3	2	1

Flexibility and adaptability	*Implication 15*	3	3			3	3	3
	Implication 16	3	3			3	3	1
Assessment of purposes and alternatives	*Implication 17*	2	3	3	3	3	2.5	3
	Implication 18	3		2	2	3		1.5
	Implication 19	3	3	3	3	3		3
	Implication 20	3		3	3	3	2.5	3
Roles and responsibilities	*Implication 21*		1	2	3	1	3	2
	Implication 22	3	3			3	3	3
Follow-up and continual learning	*Implication 23*	3	3	1.5	3	3	3	3
	Implication 24	3	3	2	3	3	3	3
Incentives and motivations	*Implication 25*	2		3	3	3	3	3
	Implication 26	3				3	N/A	1.5

Rating legend:

N/A-Not applicable to York Region according to participant

1- Low importance

1.5- Medium-low

2- Medium importance

2.5- Medium-high

3- High importance

Appendix IV: Interview question themes

To counterbalance skepticism about the replicability and validity of semi-structured interviewing, a set of question "themes" was created prior to interviewing and served as a general list from which to draw and formulate questions during each interview. These themes were adjusted as field research proceeded, but questioning was not limited to predetermined themes so that new themes could emerge from the interview participants themselves.

General Interview Themes

The interview question themes are:

1. **Pressures/reasons for interest in SEA**

Questions asked under this theme addressed the reasons behind York Region's apparent interest in adopting a more strategic approach to environmental impact assessment. Therefore, environmental/sustainability concerns above the project level, public pressure, efficiency opportunities, and the potential relationship to projects (i.e., tiering) were addressed.

2. **Elements of SEA in place**

Questions asked under this theme addressed the extent to which SEA best practice components were in place in the York Region case study. The literature review on SEA best practice informed this theme in terms of providing the range of elements that are perceived, in the international literature, as best practice elements.

3. **Governance change**

Questions asked under this theme addressed how municipal governance has changed in light of this move to a more strategic approach to environmental impact assessment. Issues addressed included the change in the range of governance players, the level of public involvement and potential influence on the process and decisions taken, as well as, the change in roles of key actors/stakeholders.

Interview Questions derived from the question themes:

The following interview questions were developed to be entry points into a discussion about York Region's experience with environmental assessment and how it has led to an interest in strategic environmental assessment. Questions were generally asked of each interviewee in a systematic and consistent order, but the interviewees were allowed to digress. This style of interviewing allows the researcher to probe a consistent set of issues from a variety of perspectives (Hughes 2002).

1. From your perspective what have been the key events in the evolution of York Region's strategic approach to environmental impact assessment?
2. Why are these events significant?
3. What lessons did you and your organization / agency learn about project environmental impact assessment from these experiences?
4. Who were the key actors / groups / organizations / agencies involved in these events?
5. Who else should I speak to?
6. What are the key documents I should read?

Glossary of Key Terms

Environmental Impact Assessment (EIA) – EIA is a systematic process designed to identify, predict, and propose management measures concerning the possible implications that a proposed project undertaking may have for the environment. It emerged as a way to integrate ecological concerns into decision making, and has more recently, to some degree, incorporated social and economic considerations.

Land Use Planning – Land use planning is the development of regulatory, developmental and conservation strategies for land, taking into account the interactions between land and their institutions, norms, and values. The overall goals of conventional land use planning are to protect land owners from incompatible neighbouring land uses, maintain property values and protect certain resources identified as important to the public good such as farm land, aggregates, and cultural and natural heritage (Cullingworth, 1987). Land use planning ranges from general comprehensive planning or policy development to site specific planning. Among the instruments available to control land development are the official plan, secondary plan, plan of subdivision, zoning by-law, development control permit, and site plan control.

Project-EA – Used synonymously with EIA throughout this dissertation.

Strategic Environmental Assessment (SEA) – SEA is a systematic, on-going process for evaluating, at the earliest appropriate stage or publicly accountable decision making, the environmental quality and consequences, or alternative visions and development intentions incorporated in policy, planning, or program initiatives, ensuring full integration of relevant biophysical, economic, social and political considerations. The trend in SEA has mirrored project-EA, in that in many jurisdictions the coverage of SEA is still predominantly focused on biophysical aspects. There are, therefore, big differences between (i) SEA that focuses only on biophysical considerations in the hope that these will later be incorporated in overall decision making, and (ii) SEA that itself adopts a sufficient scope and agenda such that integrated attention to sustainability objectives are incorporated into decision making.

Sustainability-based SEA – This research adopts the term sustainability-based SEA to make clear that the adopted definition of SEA is one that is underpinned by the concept of sustainability (as opposed to SEAs focused on biophysical concerns).

Sustainability Assessment (SA) – Sustainability assessment can be considered as an umbrella term that embraces a range of processes that all have as their broad aim the integration of sustainability concepts into decision-making, processes that may carry the labels sustainability appraisal, sustainability impact assessment, or integrated assessment, amongst others.