

**Mandated Collaboration as a Strategy of Environmental Governance? A Case Study of the
Niagara Peninsula Source Protection Area in Ontario**

by

Katelyn Vaughan

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Environmental Studies
in
Environment and Resource Studies

Waterloo, Ontario, Canada, 2011

© Katelyn Vaughan 2011

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

Government (state) command and control strategies for addressing the complexities, uncertainties, and conflicts associated with ecological issues are no longer adequate. This is particularly true when addressing water resources. Water resources are inherently complex as a result of demands related to (1) competition between multiple users of water resources; (2) multiple scales at which water is managed; and (3) the mismatch between administrative and hydrological boundaries. Collaborative strategies for environmental governance are increasingly essential for addressing water resource issues. New legislation in Ontario has specifically mandated that collaboration be used as a strategy for source water protection. Government involvement is important for successful collaboration. However, little research has been undertaken to understand what impact mandating collaboration has on the process and outcomes. This thesis explores the relationship between mandated collaboration, the process of collaboration, and its outcomes in order to critically assess the potential impacts of government-mandated collaboration. The research was guided by a conceptual framework developed from the literature concerning government involvement in collaboration. Evaluative criteria were used to assess processes and outcomes. The empirical work explored a case study of the Niagara Source Protection Area in Ontario. The case draws attention to how government affects the collaborative process and outcomes.

ACKNOWLEDGEMENTS

Completing my thesis has been the greatest challenge of motivation and determination that I have ever faced. Without the help and support that I received along the way, I would not have been able to complete this project. I would like to thank everyone that has guided and supported me throughout this process.

Firstly, I would like to acknowledge the financial support that I have received from the Social Sciences and Humanities Research Council, the Ontario Graduate Scholarship Program, the University of Waterloo and the Faculty of Environment at the University of Waterloo. Their generous support made this experience possible.

I wish to thank the Niagara Peninsula Source Protection Committee and the source protection authority Staff for welcoming me to their meetings and enthusiastically participating in this study.

I would like to express my appreciation to Dr. Ryan Plummer for his guidance, encouragement and most importantly patience throughout this process. I would also like to thank Dr. Rob de Loë for his feedback and the tools that he provided along the way.

Finally, I would like to thank my family and friends who provided me with the emotional support to persevere even when I wanted to give up. Thank you for believing in me.

TABLE OF CONTENTS

<i>Author’s Declaration</i>	<i>ii</i>
ABSTRACT	<i>iii</i>
ACKNOWLEDGEMENTS	<i>iv</i>
TABLE OF CONTENTS	<i>v</i>
<i>List of Figures</i>	<i>vii</i>
<i>List of Tables</i>	<i>viii</i>
Chapter One - Introduction	1
1.1 Problem context	1
1.2 Research Purpose and Objectives	4
1.3 Thesis Organization.....	4
Chapter Two - Literature Review	6
2.1 Environmental Governance.....	6
2.1.1 Government to Governance	6
2.1.3 Defining Environmental Governance	10
2.2 Defining Collaborative Environmental Management	12
2.2.1 Contexts for Collaboration.....	14
2.2.2 Advantages and Disadvantages of Collaboration	15
2.3 Defining Mandated Collaboration	17
2.4 Framework to Assess Mandated Collaboration	19
2.4 Summary	29
Chapter Three - Methodology	31
3.1 Philosophical and Methodological Positioning	31
3.2 Research Method	32
3.2.1 Data Treatment.....	34
3.2.2 Research Design.....	34
Chapter Four - Source Water Protection in the Niagara Peninsula Source Protection Area . 53	53
4.1 Context for Source Water Protection in Ontario	53
4.2 Stages of The <i>Clean Water Act</i>	55
4.2.1 Stage 1: Creating the source protection structure	56
4.2.2 Stage 2: Preparing the assessment report	58
4.2.3 Stage 3: Preparing a source protection plan.....	59
4.2.4 Stage 4: Implementing the source protection plan.....	59
4.3 Overview of Niagara Peninsula Source Protection Committee.....	60
4.4 Context of the Niagara Peninsula Source Protection Area.....	61
4.4.1 Physical and Hydrological Context.....	62
4.4.2 Political Context.....	64
4.4.3 Socio-Economic Context	65

4.5 Summary	66
Chapter Five - Results	68
5.1 Collaborative Process	68
5.1.1 Actors	69
5.1.2 Issue Definition	84
5.1.3 Structure and Decision Process	91
5.1.4 Resources for Collaboration	97
5.2 Outcomes	102
5.2.1 First Order Parameters	102
5.2.2 Second Order Parameters	105
5.3 Summary	107
Chapter Six - Discussion and Conclusion	109
6.1 Summary and Discussion of Key Findings	110
6.1.1 Impact of Government-mandated collaboration on the Process	110
6.1.2 Impact of Government-mandated collaboration on the Outcomes	114
6.1.3 Implications for Governance	115
6.2 Case Specific recommendations	117
6.3 Scholarly and Practical Contributions	119
6.4 Limitations and Research Opportunities	121
References	124
Appendices	135
Appendix A – Dialogue for Introduction to Committee Chair	135
Appendix B – Participant Invitation to Participate in Study	137
Appendix C – Participant Consent Form	139
Appendix D – Follow-Up Letter to Study Participants	141
Appendix E - Letter for Committee Chairperson	142
Appendix F - Script to give introduction at Committee Meeting	143
Appendix G – Timelines for Source Protection Committees	144
Appendix H – Background of Committee Members (NPSP Committee, n.d.)	145

LIST OF FIGURES

Figure 2.1: Functions of Governance 11
Figure 2.2: Strategies of environmental governance 12
Figure 2.3: Framework to assess government-mandated collaboration and government
involvement 20

Figure 3. 1 Research Design 34
Figure 3. 2: Map of Niagara Peninsula Source Protection Area..... 39

LIST OF TABLES

Table 3. 1: Framework to assess process criteria for collaboration.....	41
Table 3. 2: Framework to assess outcomes of collaboration	43
Table 5. 1 Roles and Responsibilities for Source Water Protection.....	77
Table 6. 1: Summary of Case Study Results	111

CHAPTER ONE - INTRODUCTION

1.1 Problem context

Command and control strategies for addressing the complexity, uncertainty, and conflict that characterize social-ecological systems are no longer seen as adequate (Bidwell and Ryan 2006; Ferreyra and Beard 2007; Imperial 2005; Leach 2006; Lubell 2004; Mitchell 2002a; Singleton 2002). Governments are increasingly aware of the complex challenges confronting them, and of the limitations of a single organization to address the multiple facets, scales, and interdependencies of environmental problems (Agrawal and Lemos 2007; Bonnell and Koontz 2007; Ebrahim 2004; Ferreyra, *et al.* 2008; Fleegeer and Becker 2008; Imperial 2005; Naiman, *et al.* 1997). The management of environmental resources, such as water, is an example of an area where governments have begun to turn to more collaborative approaches in order to address the limitations of command and control strategies (Bidwell and Ryan 2006; Ferreyra and Beard 2007; Imperial 2005; Leach 2006; Lubell 2004; Mitchell 2002a; Singleton 2002). The movement away from government command and control strategies and towards more collaborative strategies has been pointed to as a shift from traditional government to governance (de Loë, *et al.* 2009).

Environmental governance can be defined as a means for coordinating individuals and organizations with varying degrees of autonomy (Imperial 2005) in advancing joint objectives to change environment-related incentives, knowledge, institutions, decision-making, and behaviors (Lemos and Agrawal 2006). Environmental governance includes regulatory processes, mechanisms, and organizations through which political and non-political actors influence environmental actions and outcomes (Lemos and Agrawal 2006). The growing interest in environmental governance is important because it emphasizes the extent to which environmental

issues reflect “people issues” rather than simply a lack of scientific knowledge or adequate technology (de Loë and Kreutzwiser 2007). It draws attention to the fact that it is not only governments that can (and should) make decisions about environmental issues (de Loë and Kreutzwiser 2007). From this perspective, de Loë and Kreutzwiser (2007, 86) argue that “[r]econciling the often conflicting needs, values, and interests of various stakeholders without further compromising environment quality [...] is a challenge for *governance* rather than a challenge for science and technology [...]” Proponents of environmental governance argue that it creates a government that is more informed, coordinated, flexible, and responsive to public demands (Agrawal and Lemos 2007; Leach 2004; Lemos and Agrawal 2006). It may also increase government accountability by bringing together a variety of stakeholders and ensuring a free flow of information and shared responsibility (Leach 2004; Rogers and Hall 2003) .

Interest in environmental governance has typically focused on the globalization of environmental issues, such as climate change. However, researchers are now beginning to acknowledge the important roles that governance plays at the sub-national level, which involves efforts to incorporate lower-level administrative units and social groups (Lemos and Agrawal 2006). A number of different strategies have been pointed to for environmental governance, including public-private partnerships, private-social partnerships, co-management and collaboration. For the purposes of this research, the term collaboration has been used to capture all of the above strategies for environmental governance. Collaboration can be defined as the pooling of tangible and/or intangible resources by two or more parties who see different aspects of a problem, so that they “can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible” (Gray 1989, 5). It is a joint activity that creates public value by networking together rather than separately through the use of shared

rules, norms or organizational structures to act or make collective decisions (Imperial 2005). Researcher have highlighted collaboration as a key strategy for environmental governance (e.g., (Bidwell and Ryan 2006; Ferreyra and Beard 2007; Imperial 2005; Leach 2006; Lubell 2004; Singleton 2002).

Water resources are a particularly challenging resource for a single level of government to manage. According to Bakker (2007), water resources present three complex issues that are difficult to resolve: (1) competition among multiple users of water resources; (2) multiple scales at which water is managed; and (3) a mismatch between geopolitical and administrative boundaries and hydrological boundaries. Boundaries based on watersheds are better suited to manage the complex ecological systems that transcend political, ideological and geographic boundaries and have become a preferred policy alternative (Bidwell and Ryan 2006; O'Connor 2002b). Watershed boundaries, however, can lead to institutional fragmentation and an inability for government organizations to work alone (Imperial 2005). Collaboration works to include a diversity of stakeholders across scales and boundaries with a variety of interests, perspectives, and knowledge.

Growing recognition of the need for environmental governance and the effectiveness of collaboration as a strategy for governance have led to new legislation that specifically mandates public involvement and collaboration in a variety of contexts throughout North America and Europe (Bidwell and Ryan 2006; Ferreyra and Beard 2007; Imperial 2005; Leach 2006; Lubell 2004; Singleton 2002). For example, under Article 14 of the European Union's *Water Framework Directive*, specific requirements for public involvement and engagement must be implemented by member states, and these are leading to more collaborative approaches to water governance (Watson, *et al.* 2009). Ontario's source water protection legislation is one example of

this type of approach to watershed-based collaboration (e.g., Ontario 2004a; Ontario 2004c; *Clean Water Act, S.O. 2006, c. 22*). Questions about how government-mandated collaboration will influence the processes and outcomes are becoming important to consider. Government policies, which mandate collaboration, have raised questions about how collaborative the process actually is when government institutions and actors play such a large role (e.g., (Brummel, *et al.* 2010; Bidwell and Ryan 2006; Conley and Mooto 2003; Leach 2006).

1.2 Research Purpose and Objectives

The overarching purpose of this research is to assess the process and outcomes of collaboration that has been mandated by government.

The objectives of this research are to:

1. Develop a framework from the literature to assess collaboration with specific attention to the processes and associated outcomes of government-mandated collaboration;
2. Explore a case study of the source water protection process in the Niagara Peninsula Source Protection Area using the framework of government-mandated collaboration.
3. Assess the relationship between government-mandated collaboration and the process and outcomes of collaboration in order to critically assess the potential roles and impacts that government can and should play in this process.

1.3 Thesis Organization

This chapter provided an overview of the research and defined some key terms and concepts. The second chapter expands on the literature related to governance and collaboration. Collaboration is elaborated upon in Chapter Two in order to further explore how mandating collaboration affects the processes and outcomes produced. A conceptual framework is developed within Chapter Two to help implement the empirical research objectives. Chapter

Three discusses the methodological approach and research design used to conduct this study. An overview of the case study method, the methodological framework and research design are provided. The specific details of how the research was conducted, including how the case was selected and how data were collected and analyzed, are also discussed. The fourth chapter presents context-specific details regarding the case study location and details of the process that was undertaken to develop legislation that mandates collaboration. Chapter Four also describes the source protection planning process in Ontario. Results are presented in the fifth chapter. Chapter Six draws connections between the results and the literature review, summarizes the major contributions, provides practical recommendations related to the case study, and identifies further research opportunities.

CHAPTER TWO - LITERATURE REVIEW

Chapter Two provides the basis for understanding environmental governance, collaborative approaches to environmental governance and mandated collaboration. It opens with a summary of the literature related to the governance of environmental resources, with a particular focus on water resources. Collaborative approaches to environmental governance are summarized next by highlighting the advantages and disadvantages of such an approach, the contexts in which collaborative approaches are being used and current models for assessing collaboration. A definition of mandated collaboration is also provided. In line with objective one (to develop a framework from the literature to assess government-mandated collaboration), a concerted effort is made in the final section to identify literature that addresses government involvement in collaboration and criteria from which to assess processes and outcomes.

2.1 Environmental Governance

2.1.1 Government to Governance

Traditional “command and control strategies”, in which power has been held primarily by government institutions and emphasis is on controlling natural resources, are becoming less desirable when trying to manage the complex adaptive systems in which environmental resources are embedded (Bidwell and Ryan 2006; Heikkila and Gerlak 2005; Koontz 2005; Mitchell 2002a; Plummer and FitzGibbon 2004a; Plummer and FitzGibbon 2004b; Singleton 2002). Traditional forms of governance have relied on regulatory and market-based mechanisms and provided limited opportunities for non-state actors to get involved in the decision making process (Lemos and Agrawal 2006). There is now a greater understanding of the complex challenges confronting governments, and it is recognized that no single organization has the capabilities to address the multiple facets, scales, and interdependencies of environmental

problems (Agrawal and Lemos 2007; Bonnell and Koontz 2007; Ebrahim 2004; Ferreyra, *et al.* 2008; Fleeger and Becker 2008; Imperial 2005; Naiman, *et al.* 1997). Mitchell (2002) argues that when addressing environmental resources there are a number of challenges, including (1) rapid change regarding natural and human systems, including needs and expectations; (2) high levels of complexity, especially when humans intervene and modify natural systems; (3) significant levels of uncertainty, often leading to turbulence and surprise; and (4) frequent conflict due to legitimately different needs, interests and values. Innes and Booher (2004, 11) suggest that “governance is no longer only about government but now involves fluid action and power distributed widely in society.”

The transition from government “command and control” strategies to more collaborative strategies is often referred to as a transition from “government to governance” (de Loë, *et al.* 2009). In order to understand this transition, it is first important to understand the difference between government and governance. Government refers to the formal and institutional processes, which operate at the level of the state to maintain public order (Stoker 1998). Governance refers to “a new policy-centric regime involving complex networks of public and private actors engaged in collaborative policy making through open processes of dialogue, social learning and negotiation” (Watson, *et al.* 2009, 451). The transition to governance has blurred the boundaries between and within public and private sectors because power within society is now being shared by government with non-state actors (Stoker 1998; Watson, *et al.* 2009). The organization of public policy has become far more diverse, with private and non-profit organizations taking on policy-making and implementation roles, which were previously performed by local authorities or other public bodies (Watson, *et al.* 2009).

Decentralization is a term used to describe the movement away from state centered control and towards more co-operative forms of governing that involve stakeholders from sub-national levels of government, civil society and the private sector. Critics of decentralization argue that national governments are off loading too much responsibility onto local and/or private interests (Leach 2004; Singleton 2002). They also argue that it is a move away from democracy because elected officials are deferring their powers to non-elected organizations that do not represent the interests of national stakeholders (Leach 2004; Singleton 2002). Furthermore, they argue that in some cases elected officials may actually enhance their own power through decision making arenas that lack the safeguards that are found in formal government institutions (Lemos and Agrawal 2006). Proponents, on the other hand, argue that decentralization can produce greater efficiencies by bringing together the strengths of each participant and minimizing overlapping responsibilities (Lemos and Agrawal 2006). This is seen as bringing decision making closer to those who are affected by the policies and, in turn, producing higher participation and helping decision makers to take advantage of more precise time- and place-specific knowledge through the involvement of local community members (Lemos and Agrawal 2006). It may also increase government accountability by bringing together a variety of stakeholders and ensuring a free flow of information and shared responsibility (Leach 2004; Rogers and Hall 2003).

Deliberative democratic theory is another emerging concept within the environmental governance literature (Parkins and Mitchell 2005; Zachrisson 2010). It is concerned with “debate and discussion aimed at producing reasonable, well-informed opinion in which participants are willing to revise preferences in light of discussion, new information, and claims made by fellow participants” (Chambers 2003, 309). Parkinson (2003, 180) highlights essential elements of

deliberative democracy, including: “insistence on some form of inter-personal reasoning as the guiding political procedure, rather than bargaining between competing interests; the idea that the essential political act – the giving, weighing, acceptance or rejection of reasons – is a public act, as opposed to the purely private act of voting; and the point that it is democratic deliberation, not deliberation without modifier [...]” While some researchers may choose to contrast public participation and deliberative democracy (see Parkins and Mitchell 2005), others see deliberative democracy as one particular kind of participation (Meadowcroft 2004; Zachrisson 2010). Public participation, in the general sense, raises questions about the legitimacy of democratic practices because not all participants have been elected into power. Neef (2009), however, argues that deliberative democracy can lay the foundation for more institutionalized forms of environmental governance.

Habermas’ *Theory of communicative action* has provided the theoretical foundations of deliberative democracy, which views public participation as an instrument to enlarge the democratic basis of decision-making (Neef 2009). Habermas argues that “the growing reliance on technological and scientific knowledge in policy-making, bypasses public involvement and its potential to include a wide range of civil society actors into decision-making processes” (Neef 2009, 54). In order to cope with this crisis of governance, which this reliance on technological and scientific knowledge creates, Habermas suggests increasing citizen participation in the political sphere through, what he refers to as, *communicative action* (Neef 2009). *Communicative action* is collective reasoning, argumentation, and analysis (Murray 2005). Habermas argues that through *communicative action* people can create a unified vision of reality, which in turn will create social integration, group solidarity, and coordinated action (Murray 2005). Thus, by incorporating a wider variety of knowledge into the decision making process and by ensuring

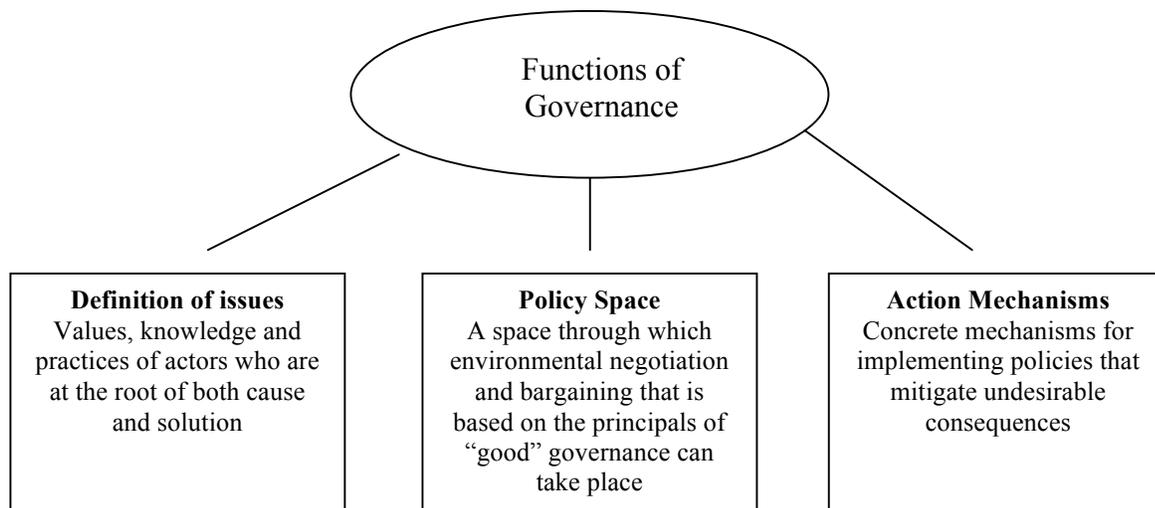
that participation is deliberative through institutionalized processes, there is a greater potential for better decisions to be made and, therefore, public participation that is deliberative should be encouraged within democracy.

2.1.3 Defining Environmental Governance

A definition of environmental governance has been provided in Section 1.1. This section helps to provide further expand on this concept. Key aspects of environmental governance include: the inclusion of multiple stakeholders (both state and non-state), participants engaged directly in decision-making and not just as consultants, formally organized non-hierarchical processes, and consensus based decision-making (Ansell and Gash 2007; Ferreyra, *et al.* 2008; Kearney, *et al.* 2007). Governance essentially works to integrate a diversity of perspectives and knowledge systems and to ensure that strong rules, norms and social structures are reinforced throughout the decision making and planning processes. Esty and Ivanova (2002) have identified three main functions of governance: (1) to define the issue that is being addressed based on the values, knowledge and practices of the stakeholders who are both the cause of and solution to the issue being addressed; (2) to create a policy “space” for environmental negotiation and bargaining that is based on the principles of “good” governance; and (3) to permit the establishment of mechanisms for the implementation of policies that mitigate undesirable consequences (see Figure 2.1).

Environmental policy making under traditional ‘command and control’ strategies, between the 1960’s and 1980’s was characterized by consensual arrangements between the state and industry, which were informed by scientific knowledge (Bulkeley and Mol 2003). Since the 1990’s, environmental governance has begun to be viewed as a challenge of governance rather than science or technology (de Loë, *et al.* 2007). Technical knowledge is needed, but is rarely

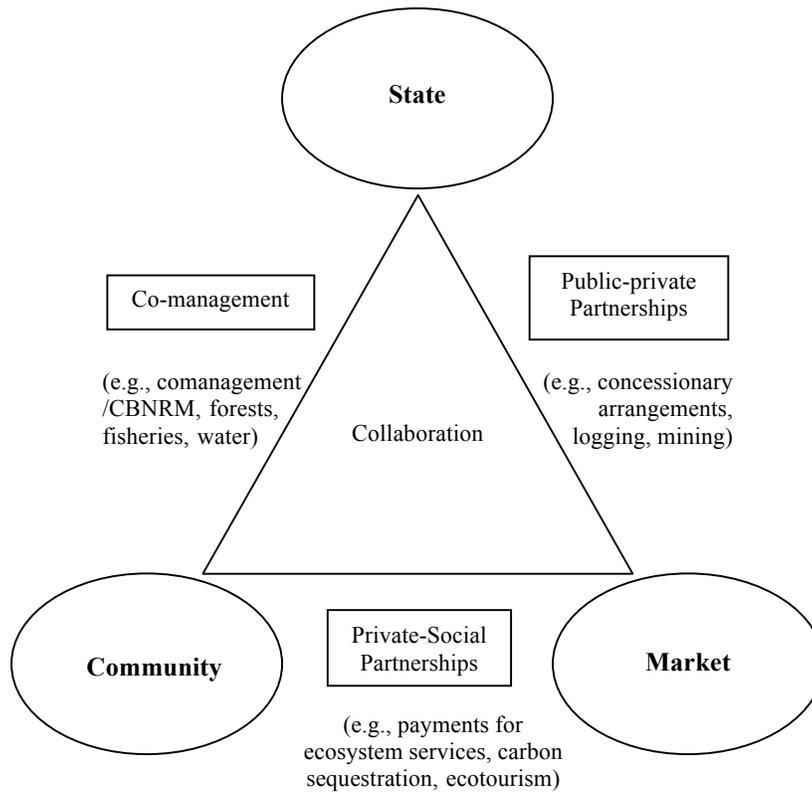
Figure 2.1: Functions of Governance (adapted from Esty and Ivanova 2002)



sufficient, in situations where needs, interests and values compete (Mitchell 2005). This shift away from science-based decision making calls on participation from both state institutions and societal organizations (Innes and Booher 2004). Lemos and Agrawal (2006) have found that many of the new forms of governance are innovative hybrids between the conventionally recognized social roles that markets, states, and communities play. In addition, they have found that these new forms of governance may also be a result of a “clearer appreciation that the effectiveness of what was conventionally understood as a pure form of governance based in the market or the state may be the result of existing relationships among market, state, and civil society actors” (Lemos and Agrawal 2006, 309).

Figure 2.2 presents a schematic structure to classify strategies of environmental governance depicting these hybrid forms. The three forms of hybrid governance that Lemos and Agrawal (2006) have identified include co-management (between state agencies and communities), public-private partnerships (between state agencies and market actors), and

Figure 2.2: Strategies of environmental governance. Abbreviation: CBNRM, community-based natural resource management (adapted from Lemos and Agrawal 2006, 310)



private-social partnerships (between market actors and communities). In addition, collaboration has been positioned within the centre of the triangle to represent a combination of the three other forms.

2.2 Defining Collaborative Environmental Management

Collaboration has been defined in Section 1.1 as the pooling of tangible and/or intangible resources by two or more parties who see different aspects of a problem, so that they “can constructively explore their differences and search for solutions that go beyond their own limited vision of what is possible” (Gray 1989, 5). Collaboration implies a joint decision-making approach, power sharing, and collective responsibility amongst stakeholders for their actions and

subsequent outcomes from those actions (Selin and Chavez 2005). The term stakeholders refers to individuals, groups, and formal organizations that have a perceived interest or impact on a particular resource. Collaboration is a joint activity that creates public value by networking together rather than separately through the use of shared rules, norms or organizational structures to act or make collective decisions (Imperial 2005).

Environmental management can be defined as the “actual decisions and action concerning policy and practice regarding how resources and the environment are appraised, protected, allocated, developed, used, rehabilitated, remediated and restored, monitored and evaluated” (Mitchell 2002, 7-8). Collaborative environmental management is then the application of collaborative strategies to the decisions and actions concerning policy and practices of resources and the environment. The term collaboration is used throughout this paper to refer to collaborative environmental management.

Researchers are now finding that collaborative approaches to environmental management are being promoted by governments (Bidwell and Ryan 2006; Fleeger and Becker 2008; Genskow 2009; Gerlak and Heikkla 2006; Koontz 2006; Singleton 2002). Additionally, researchers have found that collaboration among stakeholders in management decisions is a key component of sustainable planning and decision making (Fitzgibbon and Plummer 2004; Nasser 2003). It is also seen as a strategy for improving the governance of inter-organizational networks (Imperial 2005). Similarly, Fennell, *et al.* (2008, 73) have found collaboration to be an “agent of governance which is good, right, and authentic as well as an arena in which uncertainty can be embraced.” Innes and Booher (2004, 422) argue that collaboration is “a multi-dimensional model where communication, learning and action are joined together and where the polity, interests and citizenry co-evolve.” It is inclusive, non-reactive, self-organizing in both content and

membership, adaptive, challenges the status quo, seeks agreement or at least to build shared knowledge and heuristics for collaborative action (Imperial 2005; Innes and Booher 2004).

2.2.1 Contexts for Collaboration

A wide range of contextual factors, such as the physical environment, configuration of problems, institutional setting, situational histories, and the programmatic context, influences the scope and scale of collaborative activities (Hardy and Koontz 2010; Imperial 2001; Imperial 2005). Collaborative approaches can be applied to a broad set of issues, including forest management (Cheng, *et al.* 2003; Carr, *et al.* 1998; Wondolleck and Yaffee 2000), habitat protection and restoration (Leach and Pelkey 2001; Koontz, *et al.* 2004; Sommarstrom 1999) and water resources (Genskow 2009; Gerlak and Heikkila 2006; Hardy and Koontz 2010; Imperial and Hennessey 2000; Imperial 2005; Koehler and Koontz 2008; Koontz and Moore Johnson 2004; Lubell 2004).

An environmental area where collaborative approaches have grown rapidly is watershed management (Bidwell and Ryan 2006; Koehler and Koontz 2008). A watershed is an area of land from which surface runoff, including water, sediments, nutrients and contaminants, drain into a common water body, such as a lake, river, stream, creek, or estuary. Watersheds include all water and water-dependent land features, including wetlands, forests, towns, humans, and other living things (Pollution Probe 2004). Watersheds are generally considered to be the most practical unit for managing water because impacts are felt at the watershed level, rather than at the level of political boundaries, such as municipalities (Ontario 2004). Collaborative watershed initiatives seek to bring together multiple stakeholders to address public policy issues related to water and land (Koehler and Koontz 2008). A number of large-scale collaborative watershed efforts have been undertaken in the United States, Canada, Australia and Western Europe (e.g.,

Bidwell and Ryan 2006; Gerlak and Heikkila 2006; Koontz 2006; Koontz, *et al.* 2004; Margerum 2002; Plummer, Kulczycki, and Stacey 2006). Chapter Four will specifically explore the context of the case study in Ontario and how collaborative approaches are being carried out.

2.2.2 Advantages and Disadvantages of Collaboration

It is important to highlight some of the advantages and disadvantages of undertaking a collaborative approach in order to provide a clearer understanding of why governments are now turning to collaborative environmental management, and also to illustrate what some of the drawbacks of this approach may be. To begin, Heikkila and Gerlak (2005) have found that collaboration enables participants to adapt their processes to changing physical conditions of a resource (Heikkila and Gerlak 2005). This is because the process itself is self-organizing and flexible (Gray 1985). Collaboration is also found to enhance social capital (social networks, community organizations), which may extend beyond the initial collaborative forum (Koontz and Johnson 2004; Leach, *et al.* 2002; Margerum 2008). Collaborative approaches are more likely to resolve conflict than traditional expert-driven processes because the key stakeholders are present at the decision-making table and are able to work through conflict together (Cullen, *et al.* 2010). Collaboration can be more efficient than traditional planning and management processes because stakeholders are able to share information and costs associated with managing a resource (Cullen, *et al.* 2010; Imperial and Hennessey 2000). Collaborative approaches often increase support for agreements because all stakeholders are involved in the decision-making process (Cullen, *et al.* 2010; Koontz and Moore Johnson 2004). Agreements that are reached may be of higher quality because a broad array of experience and knowledge is incorporated (Cullen, *et al.* 2010; Koontz and Moore Johnson 2004). Collaboration also provides critical avenues for underrepresented segments of society to make their voices heard and provide decision-makers

with vital information about stakeholder preferences and needs (Cortner and Moote 1999; Koehler and Koontz 2008). Individuals may also benefit from collaboration and experience personal transformations in understanding and interpersonal relationships because of their exposure to a variety of stakeholders and information (Koontz and Moore Johnson 2004). Huxham (1996) and others (e.g., Huxham and Vangen 2005; Imperial and Hennessey 2000; Morse 2010) use the term ‘collaborative advantage’ to highlight the outputs that collaborative approaches can achieve that could not be achieved by a single organization (Huxham 1996; Huxham and Vangen 2005; Imperial and Hennessey 2000; Morse 2010). ‘Relational rents’ is another term used to describe the benefits that can be achieved when partners combine, exchange or invest in relation-specific assets, knowledge and resources/capabilities, or employ effective governance mechanisms that lower transactions costs or permit the realization of rents through synergistic combination of assets, knowledge and capabilities (Imperial and Hennessey 2000).

There are, however, a number of disadvantages and challenges also associated with collaboration. The time, cost and effort required within collaborative arrangements is often considerable (Cullen, *et al.* 2010; Gerlak and Heikkila 2006; Imperial 2005; Koontz and Moore Johnson 2004). Some organizations may not have the resources that are required to make collaborative arrangement work effectively and efficiently. In terms of the outcomes of decision-making, collaboration may motivate stakeholders to settle for less beneficial solutions in order to reach agreements (Cullen, *et al.* 2010). A potential problem associated with delegating decision-making power to unelected stakeholders is that public accountability may be undermined (Cullen, *et al.* 2010; Leach 2004). When participants have no accountability, they may be more flippant with their decision-making.

Bringing together a diverse group of stakeholders can also represent a serious challenge for coordinating activities, reaching consensus and keeping everyone engaged throughout the process (Cullen, *et al.* 2010; Koontz and Moore Johnson 2004). Greater complexity among stakeholders and political entities has been shown to create higher levels of transaction costs in collaboration (Hardy and Koontz 2010). Researchers have also noted that general public participation is not necessarily well suited to the collaborative process (Koehler and Koontz 2008). Competing agency goals and missions and inflexible administrative and legal procedures may also pose challenges to collaborative arrangements (Gerlak and Heikkila 2006).

When governments are ultimately held accountable for the policies and practices that come out of collaboration, their willingness to relinquish control may be challenged. This review of the advantages and disadvantages of collaboration helps to highlight some of the benefits and challenges that governments face when they mandate collaboration.

2.3 Defining Mandated Collaboration

Within the literature on collaboration, there are few efforts to categorize and classify collaboration (Margerum 2008). It is important for the purposes of this research, however, to distinguish mandated collaboration from other types in order to understand the specific type of collaboration is being assessed. In defining mandated collaboration, Rodriguez, *et al.* (2007) categorized mandated collaboration based on the conveners (mandators) of collaboration. The three conveners that they have identified include bureaucratic or hierarchical, market, and clan-based mechanisms. Hierarchical or bureaucratic-based mechanisms may include management fiat, formalized rules and regulations, and formal performance monitoring. Market-based mechanisms focus on incentives that reorient what individuals and groups within an organization or network are likely to want (i.e., their interests). Finally, clan-based mechanisms are driven by

the existence of shared values and beliefs to enhance coordination. Brummel, *et al.* (2010) have more specifically focused on defining “policy-mandated collaboration” as a form of collaboration in which legislation is an external impetus for collaboration and policy sets the framework within which social interaction occurs. The definition of mandated collaboration, which has been adopted for the purposes of this research, is based on the works of Brummel, *et al.* (2010) and Rodriguez, *et al.* (2007), and can be defined as a third party imposing collaboration on separate stakeholders through legislative and/or market-based mechanisms. The mechanism through which mandated collaboration has been imposed, may also stipulate additional requirements for how the process should be carried out and the outcome(s) that should be achieved.

Government policies, which mandate collaboration, have raised questions about how collaborative the process actually is when government institutions and actors play such a large role (e.g., (Brummel, *et al.* 2010; Bidwell and Ryan 2006; Conley and Moote 2003; Leach 2006). Innes and Booher (2004) argue that in mandated collaboration, genuine participation is generally not achieved, it rarely improves the decisions that agencies and public officials make, a broad spectrum of the interests of the public are not included, and citizens representing different interests are often pitted against one another because the issues are addressed in polarizing terms. Regardless of who initiates collaboration, it has been found that in order for it to be sustainable these initiatives should be supported by public policy and linked to local/national government agencies (Genskow 2009; Kapoor 2001; Koontz, *et al.* 2004; Lubell 2004; Wondolleck and Yaffe 2000). Questions have been raised as to the extent to which governments are actually willing (and able) to share power, the ways in which government facilitate or hinder collaboration and how collaboration fosters public involvement and engagement (Koontz, *et al.*

2004). It has also been noted that more research is needed to examine the roles of government in collaboration and how these roles affect sustainability (Koontz 2006, Koontz, *et al* 2004).

2.4 Framework to Assess Mandated Collaboration

In line with the first objective of this research, a framework has been developed to assess the process and outcomes of collaboration that has been mandated by government. This framework is based on the works of Innes and Booher (1999), Koontz (2006), Koontz, *et al.* (2004) and Plummer and Armitage (2007) (see Figure 2.3). This framework allows for a more detailed analysis through which to explore the relationship between mandated collaboration and (1) the process of collaboration; and (2) the outcomes of the process of collaboration. This framework will be applied to the case study of the Niagara Peninsula Source Protection Area (NPSP Area) in Ontario.

Koontz (2006) and Koontz, *et al.* (2004) have developed a framework to assess government's role in collaboration (see Figure 2.4). The framework is based on the Institutional Development and Analysis Framework (IAD) developed by Kiser and Ostrom (1982) and adapted by others (Hardy and Koontz 2003; Koontz 2006; Koontz, *et al.* 2004; Leach and Pelkey 2001; Imperial 1999; Lubell and Leach 2005; Ostrom, *et al.* 1994; Sabatier, *et al.* 2005). The purpose of the IAD framework is to provide an organizational tool that allows for structured inquiry across a broad array of policy sectors and disciplines (Koontz 2003). It allows analysts to make comparisons and evaluations (Koontz 2003). Koontz (2006) and Koontz, *et al.*'s (2004) framework advances the IAD framework by incorporating government impacts on the processes and outcomes of collaborative approaches.

Government Institutions

A key characteristic of Koontz (2006) and Koontz, *et al.*'s (2004) framework is the

Figure 2.3: Framework to assess government-mandated collaboration and government involvement

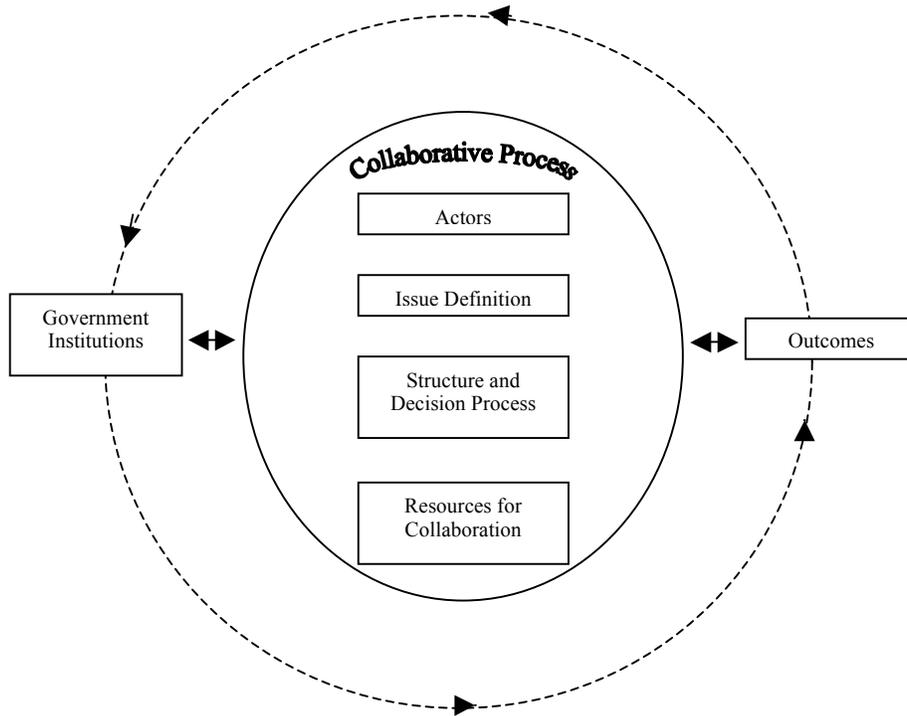
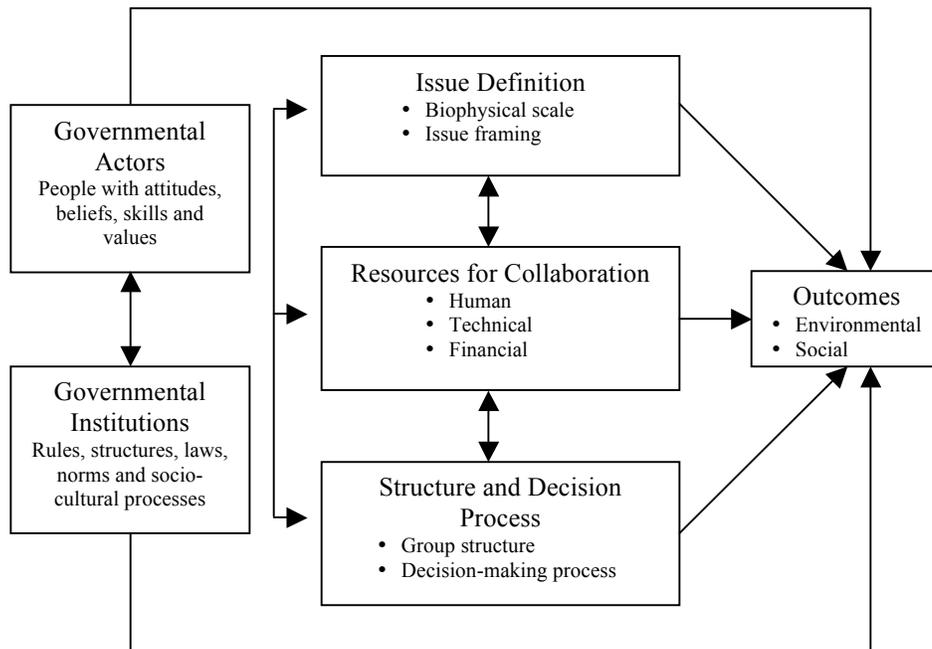


Figure 2.4: Framework to assess the governments' role in collaborative environmental management (Koontz 2006, 17)



distinction between governmental actors and governmental institutions. This distinction helps to clarify government roles and influences on collaboration. Governmental institutions are the rules, structures, laws, norms and socio-cultural processes that are meant to provide a structure or guidelines for collaboration. A governmental institution could fall under what Waddock (1989) and others (Plummer and FitzGibbon 2004a; Selin and Chavez 1995) have called antecedents or preconditions. Six antecedents or preconditions have been identified by researchers and have been adapted here (Plummer and FitzGibbon 2004a; Selin and Chavez 1995; Waddock 1989).

These include:

1. A perceived crisis, which motivates stakeholders to come together;
2. The intervention of a third party organization or broker, such as a mediator or a nonprofit organization who create an opportunity for stakeholders to come together;
3. A common vision shared by two or more stakeholders about the issue and how it should be handled;
4. Visionary leadership that recognizes and acts on the advantages of working together,
5. Building on existing networks, which introduce members of a potential partnership to each other and to the issues they may share; and
6. Policy and legislation that mandates collaboration.

Government institutions can be considered as part of a mandate or legal system. Within the framework developed for this research, government institutions are separated from the process and outcomes and are positioned as influencing the process and outcomes.

Collaborative Process

Governmental actors, in contrast to institutions, are the people that are actually involved in the process. They come into the process with attitudes, beliefs, skills, personalities, emotions

and values that are separate from the government institution within which they perform their duties (Koontz 2006; Koontz, *et al.* 2004). Koontz (2006) and Koontz, *et al.* (2004) position government actors and government institutions as separate from the collaborative process and from one another. The three-stage process model developed by Gray (1985) and adapted by others (Selin and Chavez 1995; Waddock 1989), however, positions all stakeholders as part of the process. In addition, government institutions have been perceived by researchers as actually influencing who is involved in the process and how they are involved (Selin and Chavez 1995; Waddock 1989). The key difference between actors and institutions is that individual actors can come and go throughout the process, but the underlying structure or guidelines set forth by government institutions, will remain relatively constant, making a distinction between the two very important for analysis of mandated collaboration (Koontz 2006; Koontz, *et al.* 2004)..

In Koontz (2006) and Koontz, *et al.* (2004)'s framework, governmental institutions are positioned on the left and an arrow has been drawn between governmental institutions and the collaborative process to show the influence that each component has on the other. A distinguishing feature of the framework developed for the purposes of this research (Figure 2.3) from the work of Koontz (2006) and Koontz, *et al.*'s (2004) (Figure 2.4) is that governmental actors are positioned within the collaborative process as opposed to outside of the process. This framework (2.3) positions all actors, including government, as part of the collaborative process in order to illustrate how government actors are influenced and constrained by the government institutions, and also to suggest that they influence the process in similar ways as other stakeholders (Fennell, *et al.* 2008; Gray 1985; Imperial 2005; Plummer 2006; Selin and Chavez 1995; Waddock 1989).

In their framework, Koontz (2006) and Koontz, *et al.* (2004) identify three factors as influencing the processes and outcomes. The first factor is issue definition, which refers to the biophysical scale and how an issue is framed. Defining the issue provides a rationale for action and a foundation on which collaboration is built (Koontz 2006; Koontz, *et al.* 2004). How the issue is framed can greatly affect which stakeholders become involved and how the issue works through political and administrative processes and the types of solutions discussed (Koontz 2006; Koontz, *et al.* 2004). Similarly, the term *problem setting* has been used within a three-stage process model developed by Gray (1985) to identify the problem being addressed. During this phase of Gray's model, it is expected that the stakeholders will come together and formulate what they believe to be the issue or problem that needs to be addressed (Gray 1985; Selin and Chavez 1995; Waddock 1989). Under mandated collaboration, however, government institutions have already framed the issue. This may be a challenge to collaboration because if the actors involved in collaboration do not perceive the issue as important then they may not remain committed to the process (Selin and Chavez 1995).

The biological and physical characteristics that are linked to the problem definition can also have a great impact on collaboration (Koontz 2006; Koontz, *et al.* 2004). For example, if the goal is to protect an entire watershed versus a single river within that watershed, there will be a large difference in who participates and how the participants address the issue. Sabatier, *et al.* (2005) point to a number of influences that the characteristics of the resource may have on the success of collaboration, including whether or not the resource is heterogeneous and geographically dispersed and the severity or perceived severity of the problem. Gray (1985) argues that collaboration is significantly enhanced by physical proximity of the stakeholders to a resource.

The second factor, identified in Koontz, *et al.* (2004) framework, is the resources that are available for collaboration. This refers to who is involved in the process and what roles they play, the technical knowledge and tools that are available to the group, and the finances that have been allocated to the process and outcomes. A number of researchers have pointed to the importance of resources in determining what collaboration can achieve (e.g., (Bonnell and Koontz 2007); Heikkila and Gerlak 2005; Koontz 2006; Koontz, *et al.* 2004; Margerum 2007; Moote and Lowe 2008).

The third factor in Koontz, *et al.*'s (2004) framework, is the structure and decision-making processes. Gray (1985) views structure as essential for persistent, complex problems. The structure refers to the way group membership and activities are organized. Gray (1985) and Selin and Chavez (1995) describe this as *structuring* in their models of collaboration. Conceptually, *structuring* involves “institutionalizing the shared meaning of the group and devising a regulatory framework to guide future collective action” (Selin and Chavez 1995, 192). Gray (1985) argues that mandate alone does not guarantee that effective collaboration will occur. Further, Gray (1985) identifies a number of issues that limit government-mandated collaboration, including differing degrees of bureaucratization among organizations, cross- governmental consideration such as locus of authority, ambiguity about accountability and suspicious motives.

The decision-making process refers to the means through which individual preferences are incorporated into the group's decisions (Koontz 2006). There are a variety of decision-making procedures that may take place (e.g. consensus, majority, authority or expert) (Koontz 2006). A number of scholars have stressed the importance of consensus decision-making within collaboration (Ansell and Gash 2007; Lubell 2002; Margerum 2008; Wondolleck and Yaffee 2000). Ansell and Gash (2007, 547) note, however, that collaborative forums often do not

achieve consensus, but that the premise of “meeting together in a deliberative, multilateral, and formal forum is to strive toward consensus or, at least, to strive to discover areas of agreement.” By engaging stakeholders in decision-making, collaborative forums are thought to lead to more creative solutions and an increased likelihood of acceptance of decisions (Innes and Booher 1999; Margerum 2008).

For the purposes of this research, the collaborative process, within the assessment framework will be used to ascertain how collaboration that has been outlined within the legislation and regulations (i.e., ‘what has been mandated’ or ‘what is actually on paper’) is being carried out. Each of the components of the collaborative process is influenced by, and influences, the other components. As noted above, actors, both governmental and non-governmental, have been incorporated into the process. Koontz (2006) and Koontz, *et al.*’s (2004) three factors (issue definition, structure and decision making process and resources for collaboration) have been incorporated into the process. Koontz (2006) and Koontz, *et al.*’s (2004) framework helps to build a basis from which to examine the process itself, however further evaluation into the process can help to determine the level of collaboration that was or is being achieved. Innes and Booher (1999) and Plummer and Armitage’s (2007) process criteria establishes indicators to assess what elements of collaboration have been identified in the literature, are actually occurring within the case study. An adaptation of Koontz’s (2006) framework and Innes and Booher (1999) and Plummer and Armitage’s (2007) process criteria and indicators have been used to create the process criteria in Table 2.1.

Outcomes of Collaboration

A bidirectional arrow has been used in Figure 2.3 to represent the influence that the process of collaboration has on the outcomes and the influence that outcomes may have on the

Table 2. 1: Process criteria for collaboration(adapted from Koontz 2006; Koontz, et al. 2004; Innes and Booher 1999; Plummer and Armitage 2007)

Process Criteria	Indicators
Actors	<ul style="list-style-type: none"> • Relevant stakeholders are represented (e.g., stakeholders that are directly involved in the source protection committees, major landowners or businesses that will be affected by decisions, stakeholders that have been identified by other study participants as relevant) • Participants are active throughout the process (e.g., participants feel that they are active, participants identify one another as active, researcher’s observations of how participation works at committee and community level)
Issue definition	<ul style="list-style-type: none"> • Issues are framed in a way that ensures the process is driven by a practical purpose and task that are real, practical, and shared by the group (e.g., participants did not feel overwhelmed by tasks and felt they were manageable, all stakeholders supported group goals and the process) • The biophysical scale is representative of the physical resource to be governed (e.g., participants felt that the biophysical scale was appropriate to address the issues)
Structure and decision process	<ul style="list-style-type: none"> • Is self-organizing, allowing participants to decide on ground rules, objective tasks, working groups, and discussion topics (e.g., participants had the opportunity to make suggestions and changes to the process, the group as a whole decides how the meetings and group work is carried out) • Encourages challenges to the status quo and fosters creative thinking (e.g., participants feel that the group is responsive to new ideas and suggestions and that it provides them with opportunities to allow participants to question how the group is functioning) • Engages participants, keeping them at the table, interested, and learning through in-depth discussion, drama, humor, and informal interaction (e.g., participants express personal satisfaction and interest in being part of the group) • Assures agreement on the meaning of information (e.g., participants feel they are given the opportunity to ask questions and that these questions will be answered to their satisfaction) • Seeks consensus only after discussions have fully explored issues and interests and significant effort has been made to find creative responses to difference (e.g., observations that discussions have addressed all of the participants issues and that any questions have been answered and participants)
Resources for collaboration	<ul style="list-style-type: none"> • Includes representatives of all relevant and significantly different interests (e.g., participants did not identify any stakeholder groups that were missing from the group) • Incorporates high quality information of many types (e.g., participants feel that information is useful and that all types of knowledge are being incorporated into decision making, studies being undertaken use various types of information) • Sufficient funding has been provided (e.g., participants feel that there is sufficient funding to carry out the tasks)

process. Koontz (2006) and Koontz, *et al.* (2004) notes, it is difficult to assess or measure the

impact that collaboration actually has on the ecological conditions. Koontz's (2006) framework helps to build a basis from which to examine the process itself, however, further evaluation is needed in order to determine the level of collaboration that was or is being achieved. In contrast to Koontz (2006) and Koontz, *et al.* (2004), Innes and Booher (1999) and Plummer and Armitage (2007) devise outcome criteria into first order (immediately identifiable), second order (show up while the project is underway but outside the boundaries of the project or even after it is completed) and third order (may not be evident until sometime later) effects. This distinction helps researchers to determine what outcomes to look for when conducting their research based on the stage of the process being studied. Plummer and Armitage (2007) have also adopted Innes and Booher's (1999) outcome typology for their assessment framework for adaptive co-management. The outcome criteria developed for the purposes of this research, is based on the work of Innes and Booher (1999) and Plummer and Armitage (2007) (See Table 2.2).

The indicators identified in Table 2.2 are not meant as a checklist, but instead guide the researcher as to what types of outcomes are possible. For example, collaboration is not deemed unsuccessful because the group has not produced a management plan. Other outcomes, such as building partnerships beyond the group, may be equally or more important. Participant's responses will help to determine how successful they feel the group has been. Arrows are also used to connect government institutions and outcomes. Government Institutions may directly influence the outcomes by specifying what the specific outcomes should be, for example. The outcomes may, in turn, influence Government Institutions by pointing to the need for adjustments to the current legislation, for example.

Table 2. 2: Outcome criteria for collaboration(adapted from Koontz 2006; Koontz, et al. 2004; Innes and Booher 1999; Plummer and Armitage 2007)

Outcome Criteria	Indicators
First order parameters (from the specific initiative)	<p><i>Tangible</i></p> <ul style="list-style-type: none"> • Resource management plans • Resolution of conflict/dispute and/or agreement regarding resource issue • Codified statement of actions • Agreed upon sanctions • New or modification of institutional arrangement(s) (formal and/or informal) – policies, strategies, organizations, etc. • Compares favorably with other planning methods in terms of costs and benefits
	<p><i>Intangible</i></p> <ul style="list-style-type: none"> • Enhanced legitimization for policies and actions (e.g., participants feel that policies and actions are legitimate) • Greater adaptive capacity (flexibility live with uncertainty and deal with cross-scale dynamics) (e.g., participants feel better prepared to deal with any challenges that the resource may pose) • Creative ideas for solving problems (e.g., participants feel that they developed new strategies for problem-solving that did not exist before and that are specific to the context) • Encourages contemplation and questioning of routines, values and governance (e.g., participants feel that the process has encourages them to critically assess the process and outcome) • Creates social and political capital (e.g., participants feel that they have gained knowledge, developed relationships and that the political system has been strengthened)
Second order parameters (outside boundaries of the project)	<ul style="list-style-type: none"> • Sets in motion a cascade of changes in attitudes, behaviors and actions, spin-off partnerships, and new practices and institutions (e.g., participants identify greater respect for another organization or a new partnership that has formed) • Produces information that stakeholders understand and accept (e.g., participants feel that the information is understandable and they accept it) • Results in learning and change in and beyond the group (e.g., more information may become available that would not have otherwise been developed or published)
Third Order Parameters (evident subsequently)	<ul style="list-style-type: none"> • Enhanced adaptive capacity at the local level (e.g., community as a whole, not just those directly involved in collaboration have benefited and learned) <ul style="list-style-type: none"> ○ Learn to live with uncertainty and change ○ Create opportunities for self-organization that match scales (ecosystem and governance) and anticipate external drivers • Empowerment of broader ‘community’ (e.g., observations that the community feels more involved in decision-making) • Ongoing use of collaborative approaches (e.g., observations that collaboration is beginning to take place in order to address other issues) • Results in institutions and practices that are flexible and networked, permitting the community to be more creatively responsive to change and conflict • New institutions codified and/or enshrined in the law

Innes and Booher (1999) and Plummer and Armitage (2007) use the term first order parameters to refer to tangible and intangible outcomes that result from the specific initiative. Tangible outcomes may include plans projects, best management practices and policy changes to assess ecological changes. These types of outcomes are easy to recognize because a tangible product has actually been produced. Innes and Booher's (1999) have used the term "intangible products" to describe what Koontz (2006) has referred to as social outcomes. Intangible products or outcomes can be thought of as social, intellectual and political capital (e.g., stronger personal and professional relationships, trust, mutual understanding, work together to influence public action) (Innes and Booher 1999). Researchers have found that collaboration can improve an inter-organizational network's problem-solving capacities (Imperial 2005). Innes and Booher (1999) and Plummer and Armitage (2007) have further distinguished outcomes into second and third order parameters. Second order parameters are related to outcomes that take place outside the scope of the project (e.g, changes in attitudes, behaviors and actions, and spin-off partnerships). Third order parameters are related to outcomes that are evident subsequent to the initiative (e.g., empowerment of the broader community, and enhanced adaptive capacity).

2.4 Summary

This chapter explored the concepts of environmental governance and collaboration. It also helps to build on the literature related to the roles that government play in collaboration (Koontz 2006; Koontz, *et al.* 2004). The literature review revealed that there has been little research on the impact that mandating collaboration has on the process and outcomes of collaboration. A detailed review of the literature surrounding assessment frameworks and process and outcome criteria was also carried out. In order to expand on the literature, a framework has been developed to fill in the gaps related to assessing the process (Imperial and

Hennessey 2000) and outcomes (Koontz and Moore 2004) of collaboration. This framework is used in this research to guide the assessment of a case study of the NPSP Area in Ontario. In Ontario, new legislation has been enacted, which mandates collaboration. This new legislation has raised questions as to how collaborative the process actually is and whether or not collaboration is actually being achieved.

CHAPTER THREE - METHODOLOGY

The overarching purpose of this research is to assess the process and outcomes of collaboration that has been mandated by government. This chapter outlines the research methodology used to achieve these goals. The chapter firstly acknowledges the researcher's philosophical and methodological beliefs, which underlie the methods of this research. An adaptation of Yin's (2009) framework for undertaking case study research was used to guide the research methods section of this chapter (see Section 3.2.1, Figure 3.1). The steps outlined within the framework include: a literature search and review, determining the research problem and question(s), the development of theory, the selection of a case study to be examined, the design of a data collection protocol and data analysis techniques and concluding the findings through a final written report.

3.1 Philosophical and Methodological Positioning

Before attending to the practical features of this research, it is important to first consider how the researcher thinks about the process of developing knowledge (epistemology) (Daly 2007; Corbin and Strauss 2008; Willis 2007). The integrity of research is characterized by the qualities of soundness and consistency among values, beliefs, and methodological strategies (Daly 2007). This research is based on the belief that there are shared meanings that can be understood and known through a process of communication. The reality of what is known is socially constructed and researchers, therefore, only have access to socially constructed reality. A researcher's chosen focus, theoretical perspectives, and interpretations play a role in how that reality is explained and represented (Daly 2007).

An interpretivist/social constructionist paradigm is employed in this research in order to understand the ways in which participants involved in collaboration perceive the processes and

outcomes. Participants' perceptions of reality help to build knowledge of how government institutions may or may not influence the process and outcomes of collaboration. This research is centered on the idea that all social action is based on the definition of a situation, the interpretation of meanings that arise in interaction and the emergence of shared meanings in a situation.

3.2 Research Method

This Section discusses in detail the case study method. The following sub-sections discuss the use of the grounded theory method in combination with the case study method. While there are a several definitions for the case study, this research follows Yin (2009)'s more technical definition. Yin (2009, 18) defines the case study as:

An empirical inquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident. The case study inquiry copes with the technically distinctive situation in which there will be many more variables of interest than data points, and as a one result relies on multiple sources of evidence, with data needing to converge in a triangulating fashion, and as another result benefits from the prior development of theoretical propositions to guide data collection and analysis.

Yin (2009,13) has concluded that the case study method is most appropriately used in exploratory research or when “[a] ‘how’ or ‘why’ question(s) is being asked about a contemporary set of events, over which the investigator has little or not control.”

A number of studies have used the case study method to examine collaboration in the watershed context (e.g., (Bentrup 2001; Bidwell and Ryan 2006; Connick and Innes 2003; Koontz 2006; Lubell 2004). While many of these have undertaken a multiple case study design, a number have also undertaken a single case study approach (e.g., Bonnell and Koontz 2007; Ferreyra and Beard 2007; Koontz and Thomas 2006;

Margerum and Whittall 2004). The case study method was chosen for this research because it allows for a rich description of *how* government-mandated collaboration is being carried out in order to better understand the influence that mandating collaboration has on the process and outcomes of collaboration.

Researchers have found a number of advantages in the case study method for studying phenomena such as collaboration. First, it allows the researcher to gather rich, detailed data in an authentic or natural setting (Willis 2007). Second, it is a holistic approach and supports the belief that what we can know about human behavior is best understood as a lived experience in the social context (Willis 2007). Third, case studies enable researchers to achieve high levels of conceptual validity because they allow the researcher to identify and measure the indicators that best represent theoretical concepts (George and Bennett 2005). Fourth, because of the heuristic nature of case studies, they can open the door for new perspectives and new variables that were not originally considered (George and Bennett 2005; Willis 2007).

The case study method has been one of the most criticized yet most used methods in social science research (Willis 2007). Case studies are criticized for lacking rigor because researchers may incorporate biases and not follow systematic procedures, and because they do not necessarily lead to generalizability (George and Bennett 2005; Yin 2009). From this perspective case studies are regarded as having no scientific value because the researcher has limited control compared to experiments or surveys (Willis 2007). In order to address these criticisms it was important to follow the research framework (see Section 3.2.3, Figure 3.1) and to maintain a chain of evidence in the data collection process (see Section 3.2.1). In addition, special care has been taken

to address issues of generalizability, validity and reliability. These issues have been dealt with throughout each of the sections in this chapter.

3.2.1 Data Treatment

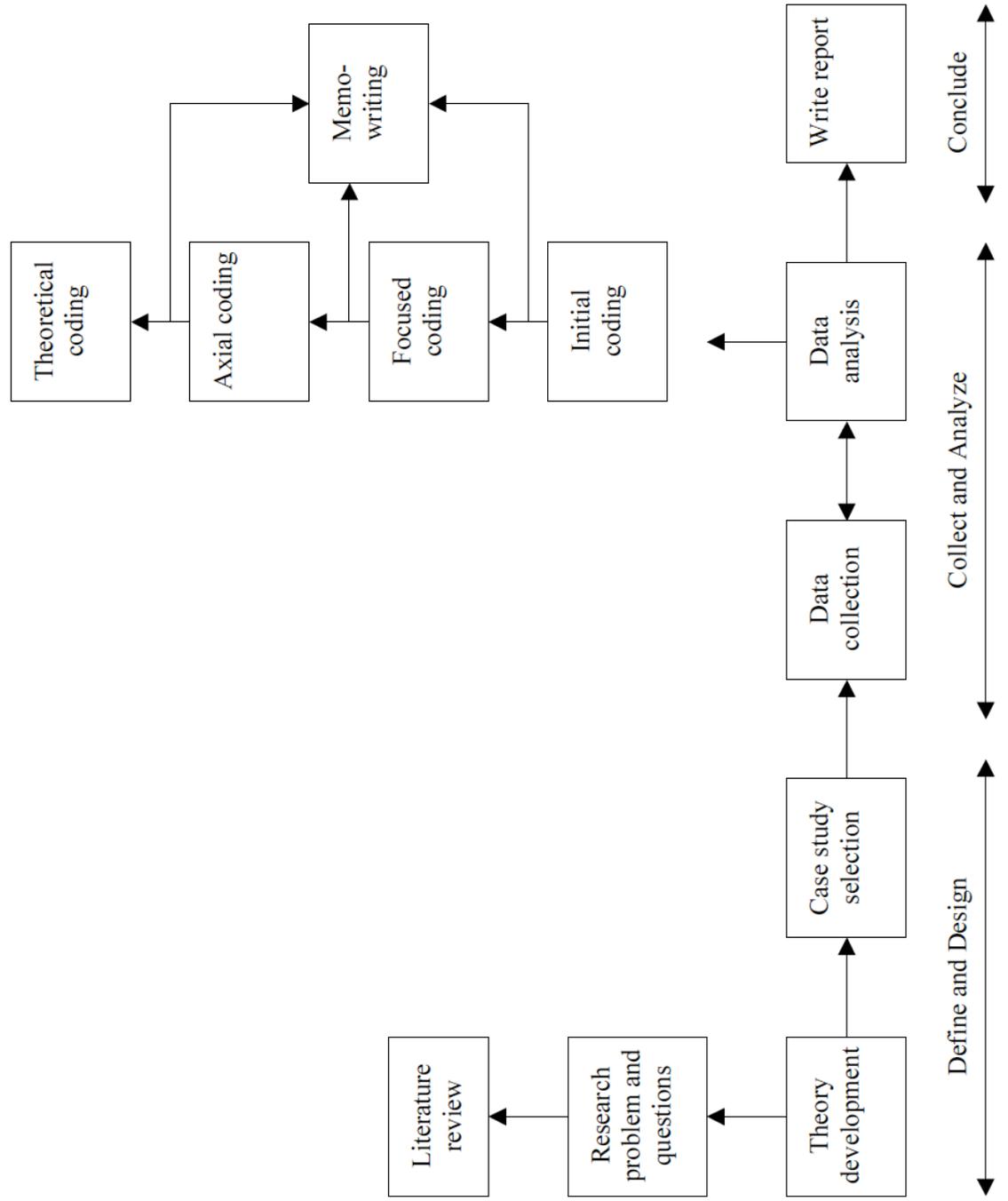
Maintaining a chain of evidence that creates a logical connection between the case study questions, protocol, citations to specific evidentiary sources in the case study database and final report is important for building case study construct validity (Yin 2009). The researcher maintained this chain throughout the research by establishing a database and linking findings to sources that are stored within the database.

A database was created in QSR NVivo to store all of the case study information. Databases are very important for case study research because they organize the raw data and make it accessible for independent inspection (Yin 2009). Documents and memos that were created throughout research process were stored within the database. If the document file size was too large, the documents were stored in a separate file on the researcher's computer and linked as an external source in QSR NVivo. All of the audio recorded interviews and observations were stored in separate files because the file size was too large for QSR NVivo.

3.2.2 Research Design

Yin (2009, 26) defines a study's research design as "the logical sequence that connects the empirical data to the study's initial research questions, and ultimately, to its conclusions." An adaption of Yin's (2009) case study research design has been utilized for this (see Figure 3.1). In addition, Charmaz's (2007) grounded theory research design has been incorporated into the data analysis phase of the framework.

Figure 3. 1 Research Design (adapted from Charmaz 2007 and Yin 2009)



3.2.3.1 Stage 1: Define and Design

3.2.3.1.1 Literature Review

The first step of this research was to carry out a literature review. The literature review occurred before, during and after data collection. Corbin and Strauss (2008, 37) identify a number of uses for a literature review that can be beneficial before the data is collected, including:

- It can be a source for making comparisons.
- It can enhance sensitivity.
- It can provide a cache of descriptive data with very little interpretation.
- It can provide questions for initial observations and interviews.
- It can be used to stimulate questions during the analysis.
- It can suggest areas of theoretical sampling.
- It can be used to confirm findings, and just the reverse, findings can be used to illustrate where the literature is incorrect, simplistic, or partially explains the phenomenon.

3.2.3.1.2 Research Problem and Questions

After gaining a clear understanding of the literature, the next step was to identify the research problem and to develop a research question. The literature review identified gaps in the literature related to assessing the process and outcomes of mandated collaboration (see Section 2.3.1). The research question then was developed to address the gaps identified in the literature review. The research question asks: what is the relationship between the mandated collaboration and: (1) the process of collaboration; and (2) the outcomes of the process of collaboration in order to critically assess the potential roles and impacts that government can and should play in this process.

3.2.3.1.3 Theory Development

The next step in the research process was to build a theoretical foundation for this research. The goal of case study research is analytic generalization (Yin 2009). Analytic generalizations use previously developed theory as a template to compare the empirical results of the case study (Yin 2009). Through the literature review an analysis framework was developed to guide the data collection and analysis of government-mandated collaboration (described in Section 2.3.1.1, Figure 2.3). The framework developed for this research was based on two main bodies of scholarly literature: literature dealing with assessing the impact of government institutions on collaboration (Koontz 2006; Koontz, *et al.* 2004); and literature on assessing the processes and outcomes of collaboration (Innes and Booher 1999; Plummer and Armitage 2007) (described in Section 2.3.1.1, Tables 2.1 and 2.2).

In order to explore the research questions, a single-case study design was selected to capture the circumstances and conditions of a commonplace situation (Yin 2009). Generalizing the findings of this research based on a single case study is a limitation of this study. Replicating this study in different contexts would help to increase the generalizability of the study. However, by using a single case study design the researcher was able to collect richer data that revealed in more detail the experiences of participants.

3.2.3.1.4 Case Study Selection

When selecting a unit of analysis, a number of criteria were developed in order to ensure that the research question could be explored. The unit of analysis was selected based on three criteria: (1) the existence of government legislation that mandates collaboration; (2) a diverse landscape with a variety of source water demands that are similar to the experiences that other cases would encounter; and (3) an area that was easily accessible and manageable in size given time and resource constraints of the study.

The NPSP Area in Ontario, Canada fulfills these three criteria (see Figure 3.2 for a map of the Area). Ontario is an ideal context to understand collaboration that is mandated by government because of the recent source water protection legislation that specifically mandates collaboration (*Clean Water Act 2007*). In Ontario, municipal residential drinking water systems supply the homes of more than 80 per cent of Ontarians (Ontario, 2006). Source protection committees have been established to develop terms of reference, an assessment report and a source protection plan for the Source protection area or region (Ontario 2006a). The Source protection committees include the participation of key affected stakeholders (e.g., municipalities, conservation authorities, farmers, small businesses) who are appointed by the Source Protection Authorities (*Clean Water Act 2006*).

Within Ontario, the NPSP Area was selected as the specific case study because the region is a diverse landscape with a variety of source water demands including hydroelectric projects, transportation systems, manufacturing companies, the tourism industry, agricultural practices and domestic needs. The NPSP Area is located between Lake Ontario and Lake Erie in the west central region of Ontario and is 2,424 km² in size (NPSP Committee 2009c). The jurisdiction covers the Regional Municipality of Niagara (Niagara Region), the City of Hamilton and Haldimand County (DWSPNP 2008).

A case study of the NPSPA provides a diverse reflection of demands that may be found in watersheds and the challenges that environmental managers face when undertaking a watershed approach. For example, it is affected by international agreements, the area covers both rural and urban areas, has both land and water transportation routes and hosts a large amount of industrial and agricultural practices. Additionally, the watershed extends into multiple jurisdictions, which is an important characteristic for understanding how collaboration is

Figure 3. 2: Map of Niagara Peninsula Source Protection Area (NPSP Committee 2009c)



occurring beyond the source protection committees. These characteristics make the NPSP Area a good case study to analyze because some of the issues that are addressed in this case study will reflect similar issues that are occurring in other cases across the Province. Further examples of the generalizability of the NPSP Area are detailed in Section 4.3.

Consistent with the third criterion, the NPSPA was easily accessible and manageable. Having previously worked with some of the key stakeholders on a land management project within the Niagara Region, the researcher was able to gain initial insights relevant to the research and to develop contacts within the Area. In addition, the size of the NPSP Committee provided the researcher with the opportunity to speak to all Committee members who agreed to participate in the study.

3.2.3.2 Stage 2: Data Collection and Analysis

3.2.3.2.1 Data Collection

Collection occurred from three main sources: a review of relevant documents, interviews with relevant stakeholders and observations of the how the process is being carried out. A major strength of case study research is the opportunity to use many different sources of evidence (Yin 2009). Using multiple sources of evidence strengthens the construct validity of case study research because it develops converging lines of inquiry and can be deemed more convincing and accurate (Yin 2009). When facts are supported by multiple sources of evidence triangulation is achieved (Yin 2009). Process and outcome criteria and indicators from the assessment framework were used to determine which sources of evidence could best answer the questions that were developed to guide the researcher when conducting interviews, analyzing documents and during observations (see Tables 3.1 and 3.2). These questions are based on Innes and Booher (1999) and Plummer and Armitage's (2007) research on criteria for the collaborative process and outcomes. In order to determine what sources of evidence would best be able to answer the questions from the frameworks, the researcher first determined: 1) whether or not the information necessary to answer the questions was mandated and therefore described in documents (document analysis); 2) the outcomes were tangible (document analysis); 3) the questions required personal opinions from participants involved in the process (interviews); and 4) the researcher would be able to answer the questions through observations at meetings (observations).

Table 3. 1: Framework to assess process criteria for collaboration

Criteria	Indicators	Questions	Source of Data
Actors	<ul style="list-style-type: none"> All relevant stakeholders are represented 	<ul style="list-style-type: none"> Who has been mandated to participate in the process? Who is included in the process? Who should be included in the process? 	Document analysis, interviews and observations
	<ul style="list-style-type: none"> All participants are active throughout the process 	<ul style="list-style-type: none"> How does each individual participate? 	
Issue Definition	<ul style="list-style-type: none"> Issues are framed in a way that ensures the process is driven by a practical purpose and task that are real, practical, and shared by the group 	<ul style="list-style-type: none"> How has the issue been framed by government institutions? Is the issue manageable for the participants? Can all participants contribute? How has the framing of the issue impacted collaboration? 	Document analysis, interviews and observations
	<ul style="list-style-type: none"> The biophysical scale is representative of the physical resource to be governed 	<ul style="list-style-type: none"> What is the biophysical scale that is being addressed? Is the Niagara Peninsula Source Protection Area representative of the watershed? How does the biophysical scale reflected in the decision making process? 	Document analysis, interviews and observations
Structure and decision process	<ul style="list-style-type: none"> Is self-organizing, allowing participants to decide on ground rules, objective tasks, working groups, and discussion topics 	<ul style="list-style-type: none"> How has group membership been defined and how are activities organized (e.g., what are the administrative processes)? Who decides the structure for collaboration and the processes organization? 	Document analysis, interviews and observations
	<ul style="list-style-type: none"> Encourages challenges to the status quo and fosters creative thinking. 	<ul style="list-style-type: none"> Are participants seeking to create new, creative ways to address source water protection? 	Interviews and observations
	<ul style="list-style-type: none"> Engages participants, 	<ul style="list-style-type: none"> Do participants feel 	Interviews and

	keeping them at the table, interested, and learning through in-depth discussion, drama, humor, and informal interaction	engaged in the process? • In what types of ways are participants getting involved throughout the process?	observation
	• Assures agreement on the meaning of information	• How are different types of information assessed by the committee?	Interviews and observations
	• Seeks consensus only after discussions have fully explored issues and interests and significant effort has been made to find creative responses to difference	• What is the government mandated procedure for group decision-making? • How are decisions made within the SPC? • How have individual preferences been incorporated into the group's decisions? • Are differences being addressed? • How are differences being handled?	Document analysis, interviews and observations
Resources for collaboration	• Includes representatives of all relevant and significantly different interests	• What resources have been provided to participants in order to carryout group initiatives? • Are all relevant stakeholders who provide valuable insights into the watershed represented? • What resources do the participants bring to the table?	Document analysis, interviews and observations
	• Incorporates high quality information of many types	• What types of information are being represented throughout the processes? • Is all information considered equal?	Document analysis, interviews and observations
	• Sufficient resources have been provided	• Is there sufficient funding, information, power to carryout this process?	Interviews

Table 3. 2: Framework to assess outcomes of collaboration (adapted from Koontz 2006; Koontz, *et al.* 2004; Innes and Booher 1999; Plummer and Armitage 2007)

Criteria	Indicators	Questions	Source of Data
First Order Parameters	Tangible <ul style="list-style-type: none"> • Resource management plans • Resolution of conflict/dispute and/or agreement regarding resource issue • Codified statement of actions • Agreed upon sanctions • New or modification of institutional arrangement(s) (formal and/or informal) – policies, strategies, organizations, etc. • Compares favorably with other planning methods in terms of costs and benefits 	<ul style="list-style-type: none"> • What tangible outcomes were required by government legislation? • What tangible outcomes have been produced as a result of the process? 	Document analysis, interviews, and observations
	Intangible <ul style="list-style-type: none"> • Enhanced legitimization for policies and actions • Greater adaptive capacity (flexibility live with uncertainty and deal with cross-scale dynamics) • Creative ideas for solving problems • Encourages contemplation and questioning of routines, values and governance • Creates social and political capital. 	<ul style="list-style-type: none"> • Are there any outcomes achieved that were not tangible for the project or participants ? 	Interviews and observations
Second Order Parameters	<ul style="list-style-type: none"> • Sets in motion a cascade of changes in attitudes, behaviors and actions, spin-off partnerships, and new practices and institutions. • Produces information that stakeholders understand and accept. • Results in learning and change in and beyond the group. 	<ul style="list-style-type: none"> • Beyond the boundaries of this project, what beneficial outcomes have been achieved? 	Interviews and observations
Third Order Parameters	<ul style="list-style-type: none"> • Enhanced adaptive capacity at the local level <ul style="list-style-type: none"> ○ Learn to live with uncertainty and change ○ Create opportunities for self-organization that match scales (ecosystem and governance) and anticipate external drivers • Empowerment of broader ‘community’ • Ongoing use of collaborative approaches 	<ul style="list-style-type: none"> • After having gone through the process and completing a project, what beneficial outcomes 	Interviews and observations

	<ul style="list-style-type: none"> • Results in institutions and practices that are flexible and networked, permitting the community to be more creatively responsive to change and conflict. • New institutions codified and/or enshrined in the law 	have been achieved?	
--	---	---------------------	--

Documentation

Documentation provides exact details related to the case study (Yin 2009), including why collaboration has been mandated, how collaboration has been mandated, who is involved in collaboration, what specifically has been mandated and some of the tangible outcomes of collaboration. Tables 3.1 and 3.2 provided the questions that were asked while analyzing each of the documents that referred to the mandated process and outcomes. Documentation from formal plans, terms of reference, legislation, meeting minutes and guidelines related to the case study were collected. To find these documents, a search of the Ontario government, Conservation Ontario and the Niagara Peninsula Conservation Authority websites was conducted for any information related to source water protection, including fact sheets, legislation and background documents.

Interviews

Interviews with stakeholders were an important source of data related to the collaborative process being carried out and the outcomes being achieved. The purpose of interviews was to understand themes within the lived experience of the participant from his or her own perspective (Charmaz 2007; Kvale and Brinkmann 2008). Interviews provide perceived causal inferences and explanations directly related to the case study (Kvale 1996; Yin 2009). One-on-one, semi-structured interviews were conducted to ensure a more focused inquiry through which participant responses would be easily comparable. This approach still allowed the researcher to explore new directions that arose throughout an interview, which elicited more detailed and expansive

insights (Daly 2007). The questions asked of the interviewees were open-ended. Questions focused on asking the participant to describe and reflect on her or his own experiences through descriptive responses (Charmaz 2007). Open-ended questions allow for the researcher to go beneath the surface of the described experience and to explore statements or topics in more detail (Charmaz 2007). Speaking with participants who are involved in the process (i.e., members of the Source protection committee) and also with relevant stakeholders who are not directly involved in this process (e.g., land owners whose property may be affected by new regulations, but who are not on the Source protection committee) enabled the researcher to gain insights into how the process of collaboration is occurring and what the outcomes are or may be from this process.

The indicators developed within the process and outcomes criteria of the assessment framework were used to guide these questions and observations (see Tables 3.1 and Table 3.2) (Kvale 1996). Interview questions were designed to answer the theoretical conceptions of the study and the subsequent analysis and to promote positive interactions between the researcher and participants and keep the flow of conversation (Kvale 1996). For example, in order to assess “Actors” in the framework, a set of indicator questions were developed, including “are relevant stakeholders are represented.” In order to find out whether or not relevant stakeholders are represented the research asked participants to “describe who is involved in source water protection in the NPSP Area.” The interview questions were piloted with a research supervisor and three people with little knowledge of the source protection process in order to ensure that questions were understandable and followed a logical progression.

Potential participants were contacted through email, telephone (using the telephone script in Appendix A) or at source protection meetings. After initial contact was made with potential

participants, a follow up email, telephone call or face-to-face conversation was initiated if the person had not yet responded. If the person did not respond or show further interest in the study, the researcher did not contact them any further. All members of the Niagara Source protection committee, including the committee chair and the committee liaisons, and additional support staff from the Regional Municipality of Niagara, who are responsible for the operation, installation and maintenance of water and sewer systems within the Source protection area, and the conservation authority were asked to participate in the study. In addition, members of the community who had expressed personal interest in the NPSA to the researcher, and people who were identified by participants in the study as representing a potential stakeholder group, were also asked to participate in the study. There were 22 interviews carried out with a range of purposively selected participants.

All participants were emailed an introduction letter, which explained the purpose of the study and provided some information about their participation (see Appendix B). An ethics application with the University of Waterloo and Brock University was completed to ensure the protection of research participants and the researcher. Throughout the data collection process, special care was taken to follow the process outlined within the approved ethics application. If a participant did not have access to email, this information was provided to them at the time of the interview. Participants were also asked to complete and sign a consent form (see Appendix C), which alerted them to the nature of the study and formally asked for their participation in the study. The consent form also asked for the participants to indicate how their responses could be presented within the research report in order to protect their privacy and confidentiality. To fulfill ethics requirements, all participants are identified by their stakeholder group when referencing interview data.

Each interview was recorded using a digital recording device to make the interviews accessible to analysis and described through note taking when non-audible observations are made (Kvale 1996). The researcher transcribed the interview. The goal of transcription was to communicate the meaning of the participant's responses versus a verbatim transcription for linguistic analysis (Kvale 1996). This means that incomplete sentences or the repetition of words, for example, was removed from the transcription when the researcher did not feel that it was necessary for analysis. All of the transcribed interviews were stored in QSR NVivo. A copy of the transcriptions was emailed to the participants in order to allow them the opportunity to make changes to the transcription, which ensured greater reliability. In all cases, the participant did have access to email, however, a hard copy of the transcript could have been delivered to participants if a participant did not.

After the interview was conducted and the interviews had been transcribed a follow-up email was sent to participants requesting that they review the transcribed interviews and make any desired changes to the document before analysis began, and providing further information about the next steps in the research study (see Appendix D). If participants did not respond, a second email was sent out. If participants still did not respond a second time, the research carried out the analysis of the interview as was originally transcribed. In addition, once the data was collected from participants and a rough draft of findings was completed, participants were requested to examine the instances in the draft where their actions or words were used to assess the draft for accuracy and palatability (Stake 1995; Yin 2009). This process has been termed member checking and was used to triangulate the researcher's observations and interpretations of the data to increase the construct validity of the research (Corbin and Strauss 2008; Stake 1995;

Yin 2009). The research process and the researchers interpretations were also checked over by research supervisors to further ensure reliability.

Direct Observations

Direct observations provide researchers with opportunities to observe social life in its natural setting (Daly 2007; Yin 2009). It must be noted, however that the researcher is part of the social process that is occurring and that the observations are coming from their point of view and also that the event may proceed differently because it is being observed (Daly 2007; Yin 2009). Attending the NPSP meetings, public consultation meetings and meetings with local government officials provided opportunities to see the process of collaboration occurring in its natural form. These meetings provided opportunities to gain insights into how the process is actually occurring. While interviews allowed the researcher to listen to the perspectives of the participants, direct observations cover the events that are occurring in real time and in the context of the case (Yin 2009).

The observations were guided by the questions developed from the process and outcomes criteria (see Tables 3.1 and 3.2). Throughout the observations the researcher sought to answer the questions outlined in the criteria whenever possible. For example, while attending a source protection meeting, the researcher was able to observe who was involved in the process and to see how this differed from the legislation that mandates who should be participating. During observations notes were taken to record observations, which were later typed in a Word document and stored in QSR NVivo.

The researcher attended five source protection meetings, two public consultation meetings and one meeting with local government officials. The protocol for attending these meetings was reviewed and approved through an ethics application at both the University of

Waterloo and Brock University. Before attending the NPSP meetings, a letter was emailed to the Committee Chair explaining the details of the study and the importance of attending the meetings (see Appendix E). After being introduced at the NPSP meeting, the researcher introduced herself to attendees and provided a brief description of the study (see Appendix F). This formality was not necessary at the public consultation meetings. During the NPSP meetings the researcher was asked to leave the room during “In Camera Sessions” where the information being discussed was deemed to be confidential in order to protect landowner’s rights. The public consultation meetings and meeting with local government officials provided an opportunity for the research to observe how the NPSPC was collaborating with stakeholders not directly involved with the Committee.

3.2.3.2.2 Data Analysis

The data was analyzed using modified techniques of a grounded theory approach. The procedures outlined in grounded theory are designed to generate a theoretical explanation of a particular social phenomenon grounded in the data that has been collected (Daly 2007).

Grounded theory allows for flexible design in order to adjust to the ever-changing social world that is being researched (Crobin and Strauss 2008; Daly 2007). Charmez (2007) outlines a grounded theory process that was adapted for the data analysis process of this research.

Data analysis in grounded theory requires that the researcher undertake the process of coding. Charmaz (2007, 43) defines coding as “categorizing segments of data with a short name that simultaneously summarizes and accounts for each piece of data.” During coding, the constant comparative method was used (Glaser, 1978; Glaser & Strauss, 1967; Strauss & Corbin, 1990). The constant comparative method allows the researcher to establish analytic distinctions and make comparisons at each level of analysis (Charmez 2007). The data analysis process

involved: (1) conducting a line-by-line analysis of the data using initial coding (Charmez 2007) in order to identify theoretical categories; (2) comparing data to data and identifying the most significant or frequently used earlier codes to develop focused codes; (3) developing properties that characterize these categories through the process of axial coding (Charmaz 2007; Strauss & Corbin, 1998); and (4) identifying the central code(s) that are distinctive and inclusive of all of the data in order to advance theory (Charmez 2007; Strauss & Corbin, 1998). An intermediate step, between data collection and report writing, is memo writing (Charmez 2007). Memo writing involves analyzing ideas about the codes and recording them in the moment (Charmez 2007).

During the initial coding phase, data from interviews and observations were analyzed line-by-line. By coding the data line-by-line, the researcher was able to gain insights about what kinds of data to collect next (Charmez 2007). Each line was coded using words that described actions in order to curb the researcher's tendency to make conceptual leaps and theories before the analytical work has been done (Charmez 2007).

Focused coding involved using the most significant and frequently used codes, developed during line-by-line coding, to further sift through the large amounts of data (Charmez 2007). In QSR NVivo each code was analyzed during this stage and overlapping codes were merged together. In addition, the adequacy of the codes was assessed by comparing the data to the codes (Charmez 2007). As more data was collected the new data was compared with the earlier codes. The most frequent and significant codes were then developed into categories.

Axial coding follows the development of major categories established during focused coding (Charmez 2007). It brings data back into a coherent whole by relating the concepts that were earlier broken apart (Corbin and Strauss 2008). During this stage, sub-categories and

categories are connected (Corbin and Strauss 2008). This research uses the assessment framework to organize categories and sub-categories. For example, the category Actors was created and data that answered the questions from the assessment framework related to Actors were coded into sub-categories under Actors.

The final stage of coding, theoretical coding, specifies possible relationships between categories (Charmez 2007). During this stage the researcher was able to draw conclusions about the relationship between government-mandated collaboration and: (1) the process of collaboration; and (2) the outcomes of the process of collaboration in order to critically assess the potential impacts that government can have on collaboration. The goal of this analysis was to reach theoretical saturation – the point in analysis when all categories are well developed and further data collection and analysis will add little to the conceptualization (Charmez 2007; Corbin and Strauss 2008). From an interpretivist view (see Section 3.1), theory emphasizes understanding rather than explanation (Charmez 2007). The purpose of theory, in this study, was to utilize existing theories to help explain the results of this study. At this point in analysis, no further data collection was necessary.

3.2.3.3 Stage 3: Concluding the Report

The following chapters (Chapters Four and Five) provide a narrative of the case study and detail the findings of this research. Chapter Four describes the context of source water protection in Ontario, how government-mandated collaboration is being undertaken, and circumstances surrounding the NPSP Area. The organization of Chapter Five is based on the assessment framework and is structured according to its major categories (Actors, Issue Definition, Structure and Decision Process, Resources for Collaboration and Outcomes). The

final chapter (Chapter Six) makes connections between the findings of the research and the literature to provide conclusions and recommendations.

CHAPTER FOUR - SOURCE WATER PROTECTION IN THE NIAGARA PENINSULA SOURCE PROTECTION AREA

Chapter Four communicates the contextual setting of the Niagara Peninsula Source Protection (NPSP) Area and provides a narrative of the case study. The chapter is structured into three parts. The first two parts are focused on government institutions pertaining to source water protection and respond to that element of the assessment framework in Figure 2.3. The first, describes the major events and developments related to source water protection in Ontario since the tragedy in Walkerton. The second, sets forth how the government of Ontario mandates source water protection planning through the *Clean Water Act's* four-stage process. The third section describes the specific contextual elements surrounding the SPA. The case study is thus positioned within the context of the province of Ontario, and the manner in which the collaborative process has unfolded in this particular case is thus described. While the results are largely presented in Chapter Five, some of the results related to how collaboration has been mandated by government institutions are presented in the second and third sections of this chapter.

4.1 Context for Source Water Protection in Ontario

In May 2000, a serious tragedy occurred in the town of Walkerton, Ontario, which forced Ontarians to question the safety of their drinking water. Bacteria (*Escherichia coli* O157:H7 and *Campylobacter jejuni*) from farm runoff entered an adjacent well and contaminated the drinking water supply of Walkerton, killing seven people and leaving 2,300 seriously ill (O'Connor 2002a). The tragedy triggered a public inquiry. The public inquiry into the Walkerton tragedy was conducted by Justice O'Connor and pointed to several reasons for the tragedy, including weaknesses in government policies and practices as being responsible for the contamination and the extent to which people were exposed to it (O'Connor 2002a; O'Connor 2002b).

The first half of the Report outlined the causes of the contamination and the reasons that it was undetected for so long. Justice O'Connor concluded that the Walkerton Public Utilities Commission (PUC) operators lacked the training and expertise necessary to treat and monitor the drinking water system according to MOE protocol and had been knowingly failing to follow proper operating practices for years (O'Connor 2002a). Budget reductions also made it less likely that the MOE would have identified both the need for continuous monitoring and the improper operating practices of the Walkerton PUC (O'Connor 2002a).

In Part 2 of the report, Justice O'Connor created 22 recommendations directly related to Source Water Protection to address the weaknesses identified in Part 1 of the report. Part 2 was developed using a Research Advisory Panel. All of the recommendations from Part 2 of the O'Connor Report have been implemented through a variety of mechanisms, including legislation, regulations, educational programs and changes to business practices (Ontario Ministry of the Environment 2006-2010). A key recommendation of the O'Connor Report was that a multi-barrier approach be taken to safe drinking water (O'Connor 2002b). The multi-barrier approach covers all elements of the provision of drinking water, including source protection, treatment, distribution, monitoring, and responses to emergencies (Ontario 2004a).

The first new piece of legislation came into effect in 2002: the *Safe Drinking Water Act* (S.O. 2002, c. 32) was enacted to address matters related to drinking water treatment and distribution as recommended by the Walkerton Inquiry Report (Ontario 2006-2010). The Act consolidates the legislation and regulations related to the treatment and distribution of drinking water in Ontario (Ontario 2006-2010). The purpose of the Act is to protect human health through the control and regulation of drinking-water systems and drinking water testing (Ontario 2006-2010). In 2006, the *Clean Water Act* was passed into legislation. The new legislation

implemented a number of the Walkerton Report's recommendations and built upon the frameworks developed in the preceding reports (e.g., (Advisory Committee on Watershed-based Source Protection Planning 2003; Ontario 2004b; Ontario 2004c; Ontario 2004d). Justice O'Connor recommended that the *Clean Water Act* designate that source protection in Ontario be positioned around the functioning of the watersheds (Ontario 2004a; Ontario 2004b). This is because impacts are felt at the watershed level, rather than at the level of political boundaries, such as municipalities" (Ontario 2004d, 7).

4.2 Stages of The *Clean Water Act*

In order to carry out source water protection, the *Clean Water Act* sets out a four-stage process. For each of these stages, the government has provided clear tasks and timelines for addressing source water protection within the Province (see Appendix G). The following section outlines the stages for source water protection, as outlined by the Ontario government. In reference to the Assessment Framework developed in Chapter Two, the stages that have been provided by the Ontario government represent government institutions that shape the processes and outcomes of collaboration.

The *Clean Water Act* and the accompanying regulations are the legislative mechanisms through which collaboration has been mandated. Within the legislation requirements for how the process should be carried out and the outcomes that should be achieved have been outlined. Throughout each of these stages, the *Clean Water Act* has provided a framework for defining the resource that is to be protected, who should be involved in developing the source protection plans, how this process should be carried out and the outcomes that are required.

4.2.1 Stage 1: Creating the source protection structure

Stage one is the initial phase of the process and involves establishing source protection authority, source protection areas and source protection committees as well as developing the terms of reference that are agreed upon between the source protection committee's and municipalities (Ontario 2007c). During stage one, the *Clean Water Act* mandates what will be addressed and who will be involved in source protection planning process. Under the *Clean Water Act*, source protection areas represent watershed boundaries and, when deemed advisable by the province, two or more Source protection areas may be combined to form a Source Protection Region (SPRs) for administrative efficiency (Niagara Peninsula Source protection committee (NPSPC) n.d.). In accordance with the *Clean Water Act*, the area of jurisdiction for each Conservation Authority was generally designated as the drinking water Source protection area and the Conservation Authority was deemed the source protection authority. In a Source Protection Region, one source protection authority leads and co-ordinates the efforts of all the authorities within the region (Ontario 2006b). Where there is no Conservation Authority established, the Minister of Environment set out the Authority's composition, which may include one or more municipalities (*Clean Water Act*, 2006).

The Source Protection Authorities are also responsible for establishing the Source protection committees. The MOE outlined very specific guidelines for each source protection authority to follow when selecting members of the Source protection committee. Section 2 of Regulation 288/07 of the Act, specifies the requirements for selecting the Committees:

Subject to subsection 7 (4) of the Act, the members of a source protection committee shall be appointed by the source protection authority that establishes the committee in accordance with the following rules:

1. One-third of the members to be appointed by the source protection authority, not counting any members appointed pursuant to section

6, must be persons appointed to reflect the interests of the municipalities that are located, in whole or in part, in the source protection area or source protection region.

2. One-third of the members to be appointed by the source protection authority, not counting any members appointed pursuant to section 6, must be persons appointed to reflect the interests of the agricultural, commercial or industrial sectors of the source protection area's or source protection region's economy, including small business interests.

3. One-third of the members to be appointed by the source protection authority, not counting any members appointed pursuant to section 6, must be persons appointed to reflect interests other than the interests referred to in paragraphs 1 and 2, including, in particular, environmental, health and other interests of the general public.

Collaboration is expected to occur within the Source Protection Committees and also between the Source Protection Authorities and the Municipalities. It is the Source Protection Committees, however, who have the authority to make decisions related to the Source Protection Plans, which are developed in Stage 3.

The source protection authority is also required to engage First Nations by asking for representatives from a band's reserve, as defined in the *Indian Act* (Canada), to participate in the source protection planning process either through membership on a Source protection committee or through participation in technical committees in Source protection areas where these reserves may be affected. Drinking water systems located within or adjacent to a source protection region can be considered part of the source protection planning process (Ontario 2007c). This case study does not address a source protection area or region where a reserve is perceived to be impacted, based on the source protection boundaries.

The Source protection committees, in collaboration with the Source Protection Authorities, are responsible for developing a Terms of Reference for the Source protection area. Terms of References are locally drafted "work plans" to direct the source protection planning

process and set out who is responsible for carrying out specific duties (Ontario 2006a). The mandatory content requirements for Terms of Reference are largely prescribed by regulation. It was required that the Terms of Reference include strategies to consult with potentially affected property owners, to involve the public and to resolve disputes (Ontario 2006a). Opportunities for the public to review and comment on the proposed Terms of Reference are required before the documents were sent to and approved by the Minister of the Environment (NPSP Committee n.d.).

4.2.2 Stage 2: Preparing the assessment report

During the second stage, Source protection committees are required to create an Assessment Report, which identifies and assesses threats to the quality and quantity of drinking water sources and outlines how to address them (Ontario 2006a). The technical studies that were conducted vary depending on the needs of the Area/Region, however Regulation 287/07 and the Director's Technical Rules govern the content of the assessment report and the Technical Bulletins elaborate and provide clarification and guidance on certain aspects of the Director's Technical Rules (Ontario 2009a). The Source protection committees throughout the province have had their Assessment Reports approved, are awaiting final approval from the MOE, or have released their reports in draft form for public consultation (Conservation Ontario 2009). The Assessment Report provides the scientific information needed to develop the Source Protection Plan. The source protection committees were responsible for overseeing the development these reports. This stage was deemed collaborative because the source protection committees were able to provide input into who carried out the studies and to question the results.

4.2.3 Stage 3: Preparing a source protection plan

Stage three of the Source Protection process will be to develop the Source Protection Plan. It has been mandated that Source protection committees collaborate with various stakeholder groups to build on information from the Assessment Report, setting out policies and risk management strategies to address any significant threats to drinking water supply (NPSP Committee n.d.; Ontario 2006a). It is required that this broad consultation involves municipalities, conservation authorities, property owners, farmers, industry, businesses, community groups, public health officials, First Nations and the public (Ontario 2006a).

The Source Protection Plan is to set out policies on how significant drinking water threats will be reduced or eliminated, who is responsible for taking action, timelines and how progress will be measured (Ontario 2006a). Municipalities and any person affected by the Source Protection Plan are to be notified and given adequate time to provide comments on the proposed plan (Ontario 2006a). It is important to note that Source Protection Plans may have a significant effect on the livelihoods of individuals because they may require landowners, for example, to change current practices to their operations so they conform to the Plans, which may require significant time and resources. The Source Protection Plans will also take precedence over the official municipal plans, by-laws and the Planning Act (*Clean Water Act 2006*). In addition, the proposed Source Protection Plan will have to be made available for public comment before it is submitted to the Minister of the Environment for approval (Ontario 2006a). Currently, some of the source protection committees are beginning this stage of the process.

4.2.4 Stage 4: Implementing the source protection plan

Finally, Stage four involves executing the Source Protection Plan. Generally, Source Protection Plans will be implemented through existing regulatory requirements or approvals,

zoning by-laws, official plan amendments, education or voluntary initiatives (NPSP Committee n.d.). Once the MOE has approved the Source Protection Plan (anticipated to occur in 2012), activities that have been identified as posing a significant risk to a drinking water source may be prohibited or restricted in designated wellhead and intake protection zones (Ontario 2006a). A risk management plan may also be required before the activity can be carried out (Ontario 2006a). Property owners may negotiate the risk management measures that are required with a risk management official (Ontario 2006a). In addition, annual reports must be submitted to the MOE in order to track implementation and compliance (Ontario 2006a). Stage four is an ongoing process and the Source Protection Plans will require updating and review at a frequency set by the Minister of Environment (Ontario 2006a). Ongoing collaboration between key stakeholders, such as landowners and municipalities, is also required (*Clean Water Act* 2006). Municipalities, for example, may act as enforcement bodies and work with the source protection authorities and committees to further identify threats to source waters.

4.3 Overview of Niagara Peninsula Source Protection Committee

As outlined in Section 4.2.1, Stage 1 of *Clean Water Act* establishes the Conservation Authorities as the Source Protection Authorities. The NPSP Authority established the NPSP Committee in August 2007. The first Committee meeting was held in December 2007 and, for the most part, regular meetings have been held monthly. As observed during the source protection meetings, the meetings offer members of the Committee the opportunity to make decisions on the planning process based on the information given to them by the source protection authority. The source protection authority provides the Committee members with information in advance of the meetings and also presents information during the meetings. Since the establishment of the Committee, the Committee has produced the Terms of Reference, as part

of Stage 1, and the Assessment Report, as part of Stage 2. These documents have received public consultation and the MOE has approved of the Terms of Reference. The Assessment Report was originally submitted to the MOE in July 2010. In February 2011 the MOE requested some amendments be made to the July 2010 report. Consequently, on March 8, 2011, the NPSP Committee approved the *Draft Amended Proposed Assessment Report*, which contained changes to help improve the accuracy and clarity of the report. The report is still awaiting final approval by the MOE.

In addition to committee meetings, it was observed that, the NPSP Authority and the Water and Waste Water Division (WWWD) of the Niagara Region have been reaching out to staff from the local communities with the NPSP Area to ensure that they are informed of the results of technical studies, as outlined in the Assessment Report, and possible directions emerging from the planning process. The NPSP Committee is currently, continuing to assess the threats that were identified within the Proposed Assessment Report and to prepare for Stage 4, Preparing the Source Protection Plan, of the process. Source Protection Plans are required to be submitted to the MOE in August 2012.

4.4 Context of the Niagara Peninsula Source Protection Area

This section provides an overview of the physical, hydrological, political and socio-economic context for the case study location. The context for the case study of the NPSP Area helps to establish the area as a representative case study because it touches on issues that are common in other source protection areas and regions. Some of these common issues include: rural and urban landscapes; transboundary water issues; surface water sources; agricultural, industrial and tourism sectors; and a wide variety of source water demands. The following sub-

sections will discuss the physical, hydrological, political and socio-economic contexts in more detail.

4.4.1 Physical and Hydrological Context

The Area is located between Lake Ontario and Lake Erie and covers 2,424 km² in size (See Figure 3.2) (NPSP Committee 2010). The majority of the landscape is devoted to agriculture (approximately 64%), followed by rural wooded or natural lands (approximately 21%) and the remaining land is considered urban (approximately 15%) (NPSPA 2010). There are a number of significant geological and ecological features within the NPSP Area (e.g., Niagara Escarpment, the Niagara Falls, Great Lakes, agricultural conditions), however, many features (e.g., Niagara Escarpment, Great Lakes and agricultural features) can also be found in other source protection areas or regions.

Water has played an important role in shaping the characteristics of the NPSP Area. Significant features, such as the Niagara Falls, the Niagara River, the Great Lakes and the Welland Canal are important for the NPSP Area's economy and supporting local residents. In addition, there are numerous rivers, creeks, bogs and marshes. The Wainfleet Bog, for example, is over 1200 hectares in size, is one of the few major wetlands left in southern Ontario and is home to numerous rare species of animals and plants (NPSP Committee 2009c). While the quantity of water in the NPSP Area is significant, many of the other source protection areas and regions also address issues related to the Great Lakes, wetlands, plants and wildlife.

Sources of drinking water in the Area include Lake Erie, Lake Ontario, the Niagara River and the Welland Canal. There are a variety of demands on the Area's water resources, which include, but are not limited to, residential, hydroelectric, industrial, agricultural, transportation (e.g., Welland Canal), recreation, fishing and fish/wildlife. Many of these demands have an

enormous impact on the quantity and quality of the water. For example, excessive nutrients (notably phosphorus) and sedimentation (erosion) from agricultural practices have affected water quality in the Area (Brown, *et al.* 2010). In addition, heavy industry in Canada and particularly in the United States has caused the Niagara River to be identified as an Area of Concern by the International Joint Commission due to the high levels of toxins in the water and threats to biodiversity and human health (International Joint Commission 2002).

The NPSP Area's most significant geological feature, the Niagara Escarpment, is another important feature of the NPSP Area. The Niagara Escarpment is a common feature in other source protection areas as well. Together, the Great Lakes and Niagara Escarpment provide moderation against the harsh inland climate and abundant rainfall within the NPSP Area. These conditions make the NPSP Area one of the most fertile locations in Canada and ideal for certain specialized agricultural practices (Brown, *et al.* 2010). Agricultural practices, however, are common amongst other source protection areas. Despite the significance of the Areas agricultural land, the Area only hosts approximately 4% of the Provinces total agricultural lands (Niagara Region, 2010a).

The ecological features of the NPSP Area are also important to consider in the source protection planning process. The NPSP Area is the northern most point of the Carolinian Zone - characterized by the dominance of deciduous trees – and supports a tremendous diversity of wildlife with more rare species of plants and animals than any other part of Canada (The Centre for Land and Water Stewardship, University of Guelph, 1994). While the flora and fauna are particularly diverse and unique to the Area, other source protection areas and regions must take into consideration a variety of plant and animal species.

4.4.2 Political Context

An enormous amount of coordination is required between different levels of government within the Area because the watershed extends into multiple jurisdictions. The jurisdiction outlined by the *Clean Water Act* covers approximately 55% of the Regional Municipality of Niagara, 20% of the City of Hamilton and 25% of Haldimand County and has a total population of approximately 450,000 people (See Figure 3.2) (NPSPA 2010). All of the Water Treatment Plants within the Area are owned and operated by the Regional Municipality of Niagara (NPSPA 2010). Beyond the jurisdictional boundaries outlined by the Province, coordination between source protection areas and regions is also important because water resources, such as Lake Ontario and Lake Erie, are shared. For example, the NPSP Committee and the Halton-Hamilton Source Protection Region have been working together to ensure that information is shared and that they coordinate their approaches to source protection planning (Chris Shrive, personal interview, December 9, 2009)

There are a number of Federal and Provincial agreements that specifically impact the NPSPA and a number of other source protection areas and regions as well. The Canada-Ontario Agreement Respecting the Great Lakes Basin Ecosystem outlines “how the governments of Canada and Ontario will cooperate and coordinate their efforts to restore, protect and conserve the Great Lakes Basin ecosystem” (Environment Canada 2001, n.p.). The Ontario Ministry of Environment is also a partner in a series of binational Lakewide Management Plans (LaMPs), for Lake Ontario, Lake Erie, and Lake Superior, and is also a member of the Lake Huron Bi-national Partnership, which work to identify lake-wide environmental issues, define ecosystem goals and objectives, coordinate environmental efforts, encourage stewardship and monitor the progress of Great Lakes water quality (Ontario 2007a).

International coordination has also been necessary at the federal level for water sources within the NPSP Area. The International Joint Commission (IJC) was established in 1909 by Canada and the United States in recognition of the impact that both countries have on the water quality of the rivers and lakes that border the countries. The Great Lakes Water Quality Agreement, created in 1978, is a recognition of each country's right to use the water and also to protect the water from further pollution. The Niagara River is of particular concern, as it has been designated as an Area of Concern due to the high levels of contamination by the IJC. The contamination has largely been attributed to point sources of pollution from the New York State side of the River (International Joint Commission 2002).

In addition to jurisdictional coordination, there is legislation that protects the NPSP Area, which must be considered. A portion of the NPSP Area has been zoned part of the Ontario Greenbelt. The purpose of the Greenbelt is to permanently protect environmentally sensitive land, green space, farmland, communities, forests, wetlands, and watersheds from urban development and protects 1.8 million acres of land (Friends of the Greenbelt Foundation n.d.). The Greenbelt extends beyond the boundaries of the NPSP Area and affects fourteen different municipalities. The NPSP Area is also protected by the Niagara Escarpment Planning and Development Act and the Niagara Escarpment Plan (NEP), which works to preserve the Niagara Escarpment as a vital corridor of green space through south-central Ontario (Ontario's Niagara Escarpment 2010). The Niagara Escarpment extends beyond the boundaries of the NPSP Area and into seven other counties or regions (Ontario's Niagara Escarpment 2007).

4.4.3 Socio-Economic Context

Manufacturing is considered the NPSP Area's major economic driver (Niagara Economic Development Corp (NEDC) 2010). The primary industrial sectors include the manufacturing of

automotive parts, steel products, pulp and paper mills and recycling centres, and chemical products (NPSPA 2010). Tourism and agriculture are also very important to the Area's economy (NEDC 2010). Tourism is a multi-billion dollar industry in the Region of Niagara (NEDC 2010), which attracts approximately 19 million visitors each year (NEDC 2010). Agricultural practices within the Area include vineyards, tender fruit orchards, livestock operations and specialty crops (greenhouses for flowers and vegetables, sod farms, and mushroom farms) (NPSP Committee 2009c). The Regional Agricultural Economic Impact Study was carried out in 2002 and determined that the industry generated in excess of \$1.8 billion across all sectors of the Niagara economy (Niagara Region 2003).

Water is extremely important to the Area's economy. Hydroelectric stations located along the Niagara River provide power to both the United States and Canada, and the station located at Decew Falls provides power to Canadians (Ontario Power Generation, 2000-2011). The Canadian stations annually produce enough power to supply one million homes year round (Ontario Power Generation, 2000-2011). The agricultural and industrial sectors require large amounts of water for production and the Welland Canal provides a major transportation route for shipping, which further helps to support major industries along the Great Lakes. The quality of water in the Area is also very important for supporting the growing tourism industry, largely focused on the Niagara Falls, and social activities of residents.

4.5 Summary

This chapter has provided background information for the case study. By providing a greater understanding of the circumstances surrounding the creation of the *Clean Water Act* and an overview of the NPSP Area, this section helps to frame the results of this study. Collaboration has been mandated through legislation and is being carried out during each stage of the planning

process by the source protection authorities and committees. More details of the NPSP Area, the Committee and other local stakeholders are discussed in Chapter Five. Chapter Five presents the results of this research based on the assessment framework.

CHAPTER FIVE - RESULTS

Chapter Five presents the results of this research. In addition to guiding data collection and analysis, the assessment framework presented in Chapters Two and Three (see Figure 2.3 and Tables 3.1 and 3.2) also acts as an organizational tool for this chapter. The assessment framework includes government institutions in order to understand how they influence the process and the outcomes of collaboration. Government institutions were initially discussed in Chapter Four by highlighting the process that was undertaken to develop the *Clean Water Act*, the details of the *Clean Water Act* and the formation and government-mandated functions of the NPSP Area. Government institutions will be further explored in each section of this chapter in order to provide the details of how government institutions influence the process and outcomes beyond the initial development of the *Clean Water Act*¹ and the formation of the NPSP Area.

The first section of this chapter presents the results of investigating the collaborative process using the questions from the assessment framework (see Table 3.1). Specific considerations within the collaborative process portion of the framework include: who is involved, how actors participate, how the issues have been defined and framed, the structure for collaboration, how decisions are made and the resources available for collaboration. The second section of the chapter focuses on the outcomes that have been produced by the NPSP Committee, following the questions developed in the outcomes portion of the assessment framework (see Table 3.2). Both tangible outcomes and intangible outcomes are assessed.

5.1 Collaborative Process

This section communicates results of how collaboration detailed in the *Clean Water Act* and the accompanying regulations (i.e., ‘what has been mandated’ or ‘what is actually on paper’)

¹ *The Clean Water Act* and its regulations may also be referred to as “legislation” throughout this chapter.

is being carried out within the NPSP Area. It is important to emphasize here that the various components of the collaborative process (e.g., actors, issue definition, structure and decision making process, resources for collaboration) are influenced by, and influence each another. For example, how an issue is defined can influence what actors participate in the process and, in turn, who is involved in the process, which can help to further shape how the issue is defined. This is important because many of the issues that are raised impact multiple components of the collaborative process, despite the fact that they may have only been discussed under one of the components. For example, the impact of excluding an issue related to international waters from the issue definition may influence who is involved in collaboration, which in turn may influence participants' engagement because they may not feel that they have any influence over protecting the resource.

5.1.1 Actors

Actors are the people who are actually involved in the process. They come into the process with attitudes, beliefs, skills, personalities, emotions and values that are separate from the stakeholder groups to which they belong (Koontz 2006; Koontz, *et al.* 2004). Within this subsection, Actors is broken down further to distinguish between who is being represented within the collaborative process and how these actors are participating. Key indicators of collaboration, as presented in Table 3.1, are whether or not all relevant stakeholders are represented and whether or not participants are active throughout the process. The attitudes, beliefs, skills, personalities, emotions and values of Actors were observed during interviews and through personal observations, however, they were not specifically addressed within the assessment framework. The characteristics of Actors helped the researcher to understand the roles that were being carried out by the Actors and to separate the personal attributes of individuals from their

stakeholder group. An assessment of both those who has been mandated to participate and those who are actually participating is presented.

5.1.1.1 Representation

The *Clean Water Act* mandates the quantity and types of representation required on the Source protection committee. Under *Regulation 288/07* of the *Clean Water Act*, the Province has provided specific guidelines for the number of members required on each of the Source protection committees, the types of representation that must be on the Committees, what proportion of the Committees must reflect each of the stakeholder groups that have been identified by the government, and what the process for selecting members must be (*Clean Water Act* 2006). It is the Source Protection Authorities, however, that are responsible for actually establishing the Source protection committees and selecting whom specifically is involved in this process (*Clean Water Act* 2006).

Based on the requirements outlined by *Regulation 288/07*, the NPSP Authority was required to publish the proposed committee composition online and in the newspaper for public consultation. After the comments were received, the source protection authority decided on the final composition of the Source protection committee (NPSP Committee n.d.). The final committee composition for the NPSP Area consisted of three municipal representatives, one representative each from agriculture, industry and commerce in the economic sector, and three representatives from the public at large (NPSP Committee 2009b). Once the committee composition was finalized by the NPSPA, advertisements for the committee chair and the other committee member positions were posted online and in newspapers. Regulation 288/07 required the NPSP Authority to consult the municipalities (Regional Municipality of Niagara, City of Hamilton and Haldimand County) before selecting the municipal representatives.

The Committee composition was based on land use characteristics, potential influences on drinking water sources and economic importance in the watershed (NPSP Committee 2009b). In addition, the NPSP Authority sought out representation from a variety of sectors and interested people to reflect the broad interests of the planning area and to oversee the science-based process (NPSP Committee 2009b). The first committee member to be selected was the chair, who was appointed by the Ministry of Environment in August 2007. Municipal representation on the Committee was divided equally between the three municipalities in the Area: Niagara Region, Haldimand County and the City of Hamilton (NPSP Committee n.d.). The three economic sector representatives were selected from the agricultural, commercial and industrial sectors. The three public stakeholder representatives were also selected to reflect the land use characteristics, potential influences on drinking water sources and economic importance in the watershed (NPSP Committee n.d.). Appendix H provides further details on the Committee member's backgrounds. The NPSP Committee members were appointed in November 2007 (NPSP Committee n.d.).

In addition to the Committee members, employees from the NPSP Authority, liaisons from Niagara Regional Health, the Niagara Peninsula Conservation Authority and the Ministry of Environment and representatives from Niagara's Waste Water division were also engaged in the Committee's activities (NPSP Committee n.d.). During the NPSP Committee's meetings, the researcher observed that despite the fact that these representatives did not have voting power on the committees, they were still able to provide feedback and answer questions at the meetings (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). The source protection authority is responsible for all of the administration, coordination, communication, and technical studies (Ontario 2006b; Vaughan, field notes, September 29,

2009; November 10, 2009, December 8, 2009; January 12, 2010). Staff from the NPSP Authority that attended the meetings regularly included the Source Protection Coordinator, Director of Communication, Director of Water Management, Chief Administrative Officer, Recording Secretary and Source Protection Planner. Each of these staff members played an important role in facilitating the source protection planning process and carrying out the decisions made by the Committee. This represents an interesting dynamic within the process of collaboration because Committee members are essentially being given decision-making power, but there are other participants involved who are represented, but not given this same power.

Based on interviews, all of the study participants, who were either liaisons or representatives on the NPSP Committee, reported that they were overall satisfied with representation on the committee. The municipal representative from Hamilton commented that:

I think that the representation on the committee, particularly from the public, is invaluable and there are also councilors [and] political and industry representatives that are well represented. So in terms of the environment that Niagara has to deal with and protecting and maintaining source protection planning issues, the committee is overall well represented.

It was also observed during the Committee meetings that there is a great deal of knowledge within the range of sectors that are represented on the Committee (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). For example, the agricultural representative was able to provide valuable insights into issues and concerns that may arise from decisions that will affect the agricultural community and to provide detailed knowledge of legislation that applies to farmers within the NPSP Area. Additionally, a public interest representative who had a great deal of knowledge and experience related to engineering and public works was able to provide valuable technical knowledge to the Committee and to find

errors and omissions in technical studies. This finding suggests that there are various stakeholder groups that are being represented throughout the collaborative process.

Despite an overall satisfaction with the representation on the Committee, there were some stakeholder groups that were identified as lacking representation on the committee by participants and observed during the meetings. Firstly, concerns were raised about the composition of municipal representation. Within the NPSP Area, the legislation requires that three municipal representatives must sit on the Committee; however, it was the decision of the NPSP Authority to divide the municipal representatives equally between the three municipalities that are part of the NPSP Area. Justification for this decision was given by a representative from the source protection authority, who stated that representation should reflect “land use characteristics, potential influences on drinking water sources and economic importance in the watershed.” This was pointed to as a potential point of criticism by the liaison for the Niagara Peninsula Conservation Authority, who was involved in the NPSP Authority’s selection of the committee members. This was because the Niagara Region accounts for 55% of the Area and owns and operates all of the water treatment plants within the NPSP Area, yet it receives equal representation to the other two municipalities. Despite these comments, the liaison for the Niagara Peninsula Conservation Authority felt that it was better to have representation from all of the Municipalities because they may need to work together. This finding points to a potential limitation of government mandating the representation on the Committee because it stifled the NPSP Authority’s ability to adjust representation to the context of the Source Protection Area.

Secondly, concerns were raised about whether or not stakeholders that are on the NPSP Committee are actually representing their stakeholder groups. For example, the representative for the commerce sector is from a golf course business and may not necessarily be able to capture

the entire commercial sector during discussions. This issue was raised by the liaison for the Niagara Peninsula Conservation Authority, who was also part of the selection committee.

Another example concerned representation from the Niagara Region. While the representative from the Niagara Region does have a strong political background that was useful during the committee meetings, it was observed that technical expertise from the Niagara Region's water and wastewater division were also needed at the meetings (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). Since drinking water is essentially the responsibility of the Municipality, this type of expertise was important during decision-making. During the Committee meetings, it was observed that two representatives from the wastewater treatment department did attend meetings, but they were not given voting power and were in attendance merely to provide clarification on any questions posed by the committee (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). During his interview, the committee representative from the Niagara Region did express that without the expertise of these two representatives, he would not be able to accurately represent the Niagara Region because he did not have the technical expertise to make decisions on behalf of the Region. This finding raises questions about the effectiveness of the Committee if the participants with decision making power are not actually able to fully represent their stakeholder group because of their limited knowledge.

A third example concerned absences from the NPSP Committee meetings. Committee members raised concerns that when committee members were unable to attend meetings, they may not be able represent their stakeholder group in decision-making. For example, due to personal reasons, two committee members, who represented the agricultural and industrial sectors, were not able to attend meetings for a significant period of time and therefore the sectors

that they represented may not always have had a person to voice opinions or vote on decisions. Both of these representatives were only present for one of the four meetings attended by the researcher during this study. During his interview, the Committee Chair noted that he made a concerted effort to keep in touch with these committee members during these times and to hold off voting on issues that may be of particular importance to these committee members. It was observed during Committee meetings that the dynamics of the meetings do change when all committee members are present and able to contribute to the discussions (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). Because of the legislation, temporary substitutes from a stakeholder group are not possible.

Thirdly, there were a number of stakeholders that were identified as missing from the Committee. The first stakeholder group that was identified as missing from the committee was someone who is concerned with groundwater sources. The Committee is not currently responsible for including groundwater in source protection planning because source water protection, as defined within the legislation, only addresses municipal sources of water, however, this has been identified as a concern and is discussed further in Section 5.1.2. During his interview, one of the public sector representatives, identified that:

There could be more representation from someone who's concerned with groundwater sources. But its not as if it is an urgent matter for us because municipal sources are all lake sources. In the future I do think we are going to have to look at wells.

This was also pointed to as a major concern by a local fisherman during an interview for this research. The fisherman was concerned about groundwater sources being excluded from source protection planning because they are important to fish habitat and the sustainability of the ecosystem.

A second stakeholder group that was identified as missing representation was environmental non-governmental organizations (NGOs). For example, the municipal representative for Hamilton-Halton, saw the absence of NGOs as both a positive and a negative:

I think that for the most part there is very sound representation. I guess the only thing that typically we might see on a panel like this is an advocacy group. Typically, you would find them on the environmental side, for example. They can be a benefit to the process, but they can also be a detriment to the process as well because they don't really report to anyone in terms of opinion and that sort of thing. I think that there may have been some way to bring that sort of representation to the committee, but I think, in terms of the time frame and schedule that the MOE had and provided to SPCs [Source Protection Committees] in bringing this together, it just wasn't possible.

It should be noted that the source protection authority could have selected an advocacy group within the public sector representation and that some of the other Source protection committees in Ontario did include advocacy groups (e.g., the CTC Source Protection Region has two Environmental Non-Governmental Organizations (ENGOS) on the Committee) (CTC Source Protection Region 2008-2010).

The government has had a large impact on determining who participates in the collaborative process through its legislative power to mandate the types of stakeholders that must be represented. The legislation has created barriers for additional stakeholders to be represented. Despite these barriers, government has also created an environment through which these stakeholder groups can come together and make decisions, which was previous unavailable to them.

5.1.1.2 Participation

The MOE has set out a number of requirements for participation within the collaborative process. These requirements focus on participation from specific stakeholder groups. The

Province has divided the roles and responsibilities for source water protection based on the following five main groups: Province, Municipalities, Conservation Authorities, Source Protection Authorities and Source protection committees. These roles and responsibilities are outlined in Table 5.1.

Table 5.1 Roles and Responsibilities for Source Water Protection (Ontario 2006b)

Organization	Roles and Responsibilities
Province	<ul style="list-style-type: none"> • The Province sets the rules, provides ongoing guidance, approves the terms of reference, assessment report, and source protection plans, and is responsible for implementation of significant threat policies and designated Great Lakes policies associated with prescribed provincial approvals or permits of provincially regulated facilities.
Municipalities	<ul style="list-style-type: none"> • Participate in consultations around the terms of reference • Provide the Source protection committee with council resolution for tasks they agree to complete concerning the assessment report and source protection plan • Submit comments on the terms of reference, assessment report and source protection plan. • Participate in the implementation of the source protection plan.
Conservation Authority	<ul style="list-style-type: none"> • Facilitate and coordinate source protection planning within source protection areas. • Have dedicated source protection staff that will support its role and responsibilities and those of the SPC. • Use its years of experience in watershed management and its understanding of stakeholders within each watershed to pull together the science necessary to develop the Assessment Report and Source Protection Plan under the guidance of the SPC • Bring together the partners, facilitate working groups, including members of the public and other key stakeholders, to consult on the development and implementation of the Source Protection Plan.
Source Protection Authority	<ul style="list-style-type: none"> • Establish the SPC • Generally support the work of the SPC. • Review the Terms of Reference, Assessment Report and source protection plan prepared by the SPC, comment on them, and submit them for MOE approval. • Ensure that the approved Terms of Reference are available to all key stakeholders and members of the general public • Complete parts of the assessment report and source protection plan assigned to it in the Terms of Reference

	<ul style="list-style-type: none"> • Prepare progress reports on activities undertaken under the <i>Clean Water Act</i>.
Source Protection Committee	<ul style="list-style-type: none"> • Oversee the preparation of the Terms of Reference, Assessment Report and source protection plan for each source protection area. • Ensure public consultation • Meet on an ongoing basis to review annual progress reports and determine whether the source protection plan's objectives are being met after the plan is in effect.

In addition to the roles and responsibilities outline by the MOE, participation for source protection planning was mandated to occur through source protection committee meetings and through public consultations. Source protection committees are required to decide on a monthly time and date for all committee meetings and that they be posted six months at a time, so that the public has access to information in advance (NSPA Committee 2007). These meetings, however, may occur more or less frequently depending on various circumstances. The Committee Chair noted that meetings may occur more frequently when the Committee was releasing a major report for public review, such as the Terms of Reference or the Assessment Report. Meetings occur less frequently if the source protection authority and Committee Chair feel there is not enough material to be discussed or if quorum could not be met. Requirements for how committee meetings would be carried out, however was set and agreed upon by the committee itself.

Outside of committee meetings, the committees were also required to host public consultations and to receive input from the public as part of the planning process. Public consultation meetings are held during each stage of the planning process, as required by the *Clean Water Act*. These meetings involve information sessions on the work that has been done by the committee, source protection authority and the Municipality (Vaughan, field notes, March 30 and 31, 2010). Based on observations, these meetings are an opportunity for stakeholders that are not on the Committee to ask questions, voice concerns and provide comments to the Committee, municipalities and source protection authority. The source protection authority and

Municipalities are also responsible for engaging with city staff to keep them up to date on the planning process.

It was observed that the Committee and public meetings did provide stakeholders with the opportunity to participate in discussions concerning source water protection (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010; March 30; and March 31, 2010). By mandating participation from specific stakeholder groups on the Committee and by providing additional stakeholders with the opportunity to provide comments and feedback through public meetings and in public commenting periods, stakeholder knowledge and feedback can be incorporated into the final reports. The feedback received through the public commenting period for the Terms of Reference and Assessment Report, for example, were reviewed by the NPSP Authority and Committee. There was, however, no indication within the revised reports of whether or not comments received through the public commenting process were incorporated into the final report (NPSP Committee n.d.).

Beyond the basic structure for participation, as outlined by the Ministry of Environment, there were a number of barriers to participation for committee members and other stakeholders. Firstly, it was observed that participation from committee members was often limited by each member's technical knowledge (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). Up to this point in the process, there has been a heavy focus on technical research and committee members were expected to read reports and provide comments, questions and suggestions. Because the process has been so heavily focused on technical information, a number of committee members that do not have a technical background reported feeling overwhelmed by the information that was provided to them. Consequently, it was observed during committee meetings that participation has not been equal when discussions

were technical in nature (see Section 5.1.1) (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). Committee members have also felt that the amount of information is very overwhelming and unmanageable, but that the staff from the NPSP Authority has been doing a good job of summarizing the information, for example:

The[re] are mounds of paper and reports to deal with. I must say, I haven't had the opportunity to read them all and it's just absolutely impossible for me, in particular, as an add-on to my regular job. It's not part of the work I do [and] that I'm paid for everyday, so it is quite [a] significant increase in workload, although its not specifically my work.

- *Health Liaison*

Staff has been very very good about keeping us informed and providing us with sufficient information. There is a tremendous amount of material to read. The reports, I probably have a pile of reports that is two foot high, but the summaries have been provided and the presentations provided have helped quite a bit, so we're able to work through it.

- *Public Interest Representative*

Committee members that identified themselves as lacking technical knowledge also reported feeling less useful than other members of the NPSP Committee. For example, one of the public interest representatives felt that his lack of technical expertise has meant that he cannot contribute to discussions. It was observed at committee meetings that the majority of discussions have been centered on technical studies (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). It was observed during committee meetings that people that did not have a technical background were less engaged in discussions (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). For example, one of the public interest representatives, commented on how participation is playing out during the committee meetings:

I think mainly the technical guys, those who are more technically versed than the others, they have been able to contribute more to

this point than people like myself. I am looking forward to the point where I can contribute something a little more constructive, but I still fail to see where that's going to happen.

As the Committee shifts its focus from the assessment report, which has been supported by technical studies, to the planning phase, committee members may find that there is a shift in focus away from analyzing technical knowledge and towards determining how to address the threats to drinking water identified in these technical studies. This may involve discussions about non-technical issues such as municipal by-laws, agricultural and business practices, coordinating policies between source protection areas and/or regions.

A second barrier to participation that was identified was that the NPSP Authority has not established sub-committees to engage participants further in specific projects or issues. Despite the fact that the legislation provides opportunities for the source protection committees or Regions to break up the technical information by establishing smaller working groups that focus on specific technical issues, the NPSP Committee has not done this. A public interest representative has suggested that technical committees might be a better way to handle the overwhelming amount of information that committee members are expected to understand. Even committee members with extensive technical knowledge reported that their participation has been limited. The agricultural representative, for example, expressed disappointment in his lack of participation in technical matters:

I just want to say that I was a little disappointed in the way it works because I thought [...] each member would be more actively involved in the process and it seems to be controlled by the Conservation Authority. The materials and the resolutions are already typed out, drawn up and the chairman says 'who wants to move the resolution?' and somebody moves it, seconds it, and everybody votes 'yeah we'll accept this' and I thought we would be doing some work at least but basically we're just approving what's handed to us.

Despite his interest and knowledge of technical issues, the agricultural representative has not been engaged in technical matters beyond “reviewing” the work presented by the source protection authority, as outlined by the legislation in Table 5.1. This finding raises concerns about the level of involvement and participation that participants are actually having.

A third barrier to participation that was observed during the committee meetings was the personalities of committee members and the personal stake that a member may have in an issue. For example, the agricultural representative had a very strong presence on the committee and contributed a great deal to discussions. He raised numerous questions and voiced concerns consistently at meetings (Vaughan, field notes, January 12, 2010). The municipal representative from the city of Hamilton, noted that:

One member is a farmer and active in the agriculture community and he provides significant knowledge from that point of view.

When the agricultural representative was present at committee meetings, the discussions became more technical and detail-oriented, as compared to when he was not in attendance. It was also observed that the agricultural representative’s presence at public consultation meetings also held great amount of legitimacy for local farmers. For example, at a public consultation meeting for the Assessment Report that was released by the Committee, there were a number of concerned farmers present. The agricultural representative was able to support the Committee’s decisions and directly speak to the farming community on the issues that were raised (Vaughan, field notes, March 31, 2010). Other committee members were less engaged in discussions and not as active during public consultation meetings. Their lack of engagement has meant that their stakeholder group does not have equal representation compared to other groups whose representative has a stronger presence.

A fourth barrier to participation that was identified was having voting power on the NPSP

Committee. The Health Liaison, for example, felt that his role was limited to providing information to the Committee when requested to do so and that his engagement has been minimal at this point:

I hear all of the discussions and comments and so on and I'm fully comfortable that anytime I have comments on my own to throw into the mix, I'm allowed to do so. I haven't come across times when I've felt that I needed to, most of the discussion is positive and going down the right path, which I understand this whole process is all about.

The Liaison for the Niagara Peninsula Conservation Authority also felt unengaged in the process:

Being a liaison I don't feel quite as engaged as I do in other committees. It's a case where when you are a full voting member you are more of a participant than you are when you more of witness, but that's ok.

These findings raise questions about how important decision-making power is for engagement.

Participation from the public was also an issue that was expressed as an important concern by a significant number of committee members. Participants in the study felt that public participation very low and that this was a weakness of the current process. For example, participants commented that:

I kind of feel like the number of people in the public that are aware is very small [...] and maybe there needs to be a little more effort made at keeping the public aware of what the source protection committee is all about, the work that they're doing and so on.

- *Public Interest Representative*

I am concerned with the public apathy. Lack of public knowledge is going to be the problem. People really don't wake up to the possibility of the impact upon them and then all of a sudden the impact is there. For instance, its very clear that some properties will be subject to restrictions if they're within the protection zones and bylaws will be changed to ensure that activities within the protection zones are not detrimental to water treatments of the

water quality. Until people understand that this is going to happen to them, there's not a lot comparatively, but there are some. [...] I don't think they're going to pay too much attention to this. It's difficult, but you have to do everything you can to make sure they have the opportunity and, in our case, there will be about eleven hundred individual letters sent out.² That's pretty significant, so I think at least people have the opportunity to see how it's going to affect them.

- *Public Interest Representative*

Observations during public consultation meetings revealed that after the committee had mailed out letters to specific stakeholders who owned property within the Intake Protection Zones, members of the public became much more engaged in the planning process (Vaughan, field notes, March 30 and 31, 2010). It was felt by a public interest representative that engagement with these specific stakeholders should have occurred much earlier in the planning process in order to include them in the training and discussions of the Committee.

The government has impacted how stakeholders are participating in the collaborative process by defining the ways in which they should be participating. By mandating how participation should occur, government has been able to ensure that individuals are included throughout the process. Mandating participation, however, has created challenges for participants on the committee and also for additional stakeholders who are not as engaged in the process because of how opportunities for participation are defined by the government.

5.1.2 Issue Definition

Issue definition refers to how an issue is framed (i.e., the identification of the problem that is being addressed) and the biophysical scale. Defining the issue provides a rationale for action and a foundation on which collaboration is built (Koontz 2006; Koontz, *et al.* 2004).

During this stage, it is expected that the stakeholders will come together and formulate what they

² Letters were sent out to individual property owners, whose land may be affected by the source protection plans after the assessment report draft was completed.

believe to be the issue or problem that needs to be addressed (Gray 1985; Selin and Chavez 1995; Waddock 1989). As identified by Selin and Chavez (1995), mandating collaboration may create a challenge because the actors involved in collaboration may not perceive the issue as important, and as a result, may not remain committed to the process (Selin and Chavez 1995). A key indicator of issue framing when undertaking a collaborative approach is that issues have been framed in a way that ensures the process is driven by practical purpose and tasks that are real, practical and shared by the group. A key indicator of the biophysical scale is that scale is representative of the physical resource that is to be governed (Innes and Booher 1999; Plummer and Armitage 2007). During this section the impact of government defined issues on process are assessed.

5.1.2.1 Issue Framing

The issue of source water protection has been framed within the legislation as locally driven by key stakeholders and supported by municipalities and conservation authorities (*Clean Water Act* 2006). The Government of Ontario's role in source water protection is outlined in Table 5.1 and it prescribes specific actions (Ontario 2006b). The Province also mandates a science-based approach be taken to address source water protection (Ontario 2006a).

The majority of study participants with a technical background felt that by defining the issues in advance of the committee being formed, the government did provide a basic framework from which the Committee could start from and through which, the otherwise, overwhelming tasks could be accomplished. By undertaking a science-based approach, the work carried out by the Committee was focused around the technical studies that were undertaken as part of the requirements for the Assessment Report. In order to carry out the technical studies, specific requirements were outlined within the Technical Rules (Ontario 2009a).

Within the NPSP Area, a significant number of members of the Source protection committee felt that the issues they must address were restricted by the legislation, but that the guidelines of the legislation did help to keep them focused and to keep the issues manageable.

For example, two committee members made comments on the legislation:

At the beginning of the process the task was outline[d] for the group. Certainly there were concerns about the scope of what we were trying to accomplish and the scope hadn't really yet been defined. As we got into it and completed our terms of reference, it was very helpful in narrowing down just exactly what we were doing, so in a nutshell our understanding is we are protecting municipal drinking water sources from potential of contamination and that really is it in a nutshell and everybody understands that.

- *Committee Chair*

So there was some frustration at the committee level with some of the restrictions of the parameters of what we were going to do, but as we got into it and saw the magnitude of the work within our prescribed scope of work, I think everybody appreciated that we need to be focused and I am satisfied with that. There's much more work that can be done, but perhaps in the next round of planning, not these first five years.

- *Liaison for MOE*

Based on observations at Committee meetings, the science-based approach has meant that much of the research and related discussions have been highly technical. As discussed in Section 5.1.1, the focus on technical knowledge has excluded many of the committee members from participating in discussions. This also excludes and/or limits important information that other types of knowledge, such as local knowledge and experiences, can bring to the discussions, which is an important part of the collaborative process. During a public consultation meeting held on March 30, 2010 at the Four Points Sheraton in Thorold, Ontario and on March 31, 2010 at the Casablanca Winery Inn in Grimsby, Ontario, it was observed that this type of information is not taken into account as much as members of the public would like in comparison to science-

based knowledge that was based on technical studies (Vaughan, field notes, March 30 and March 31, 2010). In addition, during committee meetings, it was observed that those members, who are not as technical as other members, are less inclined to contribute to discussions (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010).

How the issues have been defined by the legislation has also meant that certain issues that have been identified by the NPSP Committee, as a result of the technical studies, are not addressed. For example, the Welland Canal is a major transportation route for shipping within the Area and also the location for one of the drinking water intakes; however shipping falls under federal jurisdiction, and as a result, the NPSP Committee has been told that it does not fall within their mandate, despite posing a major threat to source water protection. The agricultural representative raised concerns about the impact that ships may have to drinking water:

Some of the things that would actually have an effect on source water in Niagara are excluded. [For example,] most of our water comes through the Welland Canal and [this transportation route is excluded]. The Port Colbourne intake is right on the wall of the Welland Canal and if a ship were to break up right in front of it, that would be one of the few things that could actually have an effect. And yet, under the technical rules, right now, shipping and transportation quarters are not looked at. Every time there are MOE people speaking, we say 'what about the ships?' and they respond 'well maybe in some future day we'll look at it, but right now, we won't.'

The liaison for the source protection authority also identified his concerns regarding representation from the shipping industry:

In this case, the source water is in the Great Lakes and the only industry that might be directly affected is shipping, in terms of any possible wreckage or spilling and so on.

There has been no indication for how the federal government is working with the shipping industry to protect source waters, nor has there been a discussion about how the Source

protection committees can work together with the federal government to address these issues. This raises questions about the effectiveness of the collaborative process if it is limited by additional government legislation.

The focus on municipal sources of drinking water has been also recognized as a limitation of the government mandate. Within the NPSP Area, this has meant issues related to groundwater are not addressed. This has been highly criticized by participants because the municipal focus does not address the needs of all stakeholders within the Area. For example:

From my perspective, I can't separate the two [groundwater and surface water]. To me, we only have one cold-water stream in Niagara, Twelve Mile Creek, it's not directly a source of drinking water, but it is something that, in my view, we have to preserve. There are pressures right now from the MNR [Ministry of Natural Resources] to reduce the size of the ANSI [Area of Natural and Scientific Interest] in term of the size of the area, which would open the door for aggregate companies to come in and destroy what is a UNESCO [United Nations Educational, Scientific and Cultural Organization] Heritage Site, in terms of its value, so it's a cause where yes, there's concern, but at this stage of the game, it is not part of the mandate of this source water committee. It is very much a concern of the Conservation Authority.

- *Liaison Niagara Peninsula Conservation Authority*

I have a frustration, and I voiced it again a little last night, that there are issues that I may feel they're there or someone may feel they're there and we're told 'that's not within our mandate to be discussed in this Area', so that part I find a little frustrating. It's certainly not the chair's fault. It's what the province has set out as being our guidelines.

- *Municipal Representative*

Recognizing the limitations of focusing only on municipal sources of drinking water, the liaison from the MOE commented that the watershed approach is a good starting point for the committees.

If you follow the path that is laid out, you will be dealing with source protection for ninety percent of the population, so let's

worry about them first. [...] Hopefully, I think everybody would [...] be happy to see it expanded to other systems outside of municipal drinking water systems.

- *Liaison for Ontario Ministry of Environment*

Two other study participants also pointed to the focus on municipal sources as necessary in order to make the issue manageable for the Committee at this present time.

The government has clearly defined the issues that are being addressed. This has created challenges for participants because participants are unable to redefine the issues in light of new information that has been brought to their attention. While participants did identify this as an advantage, in that the issues can be used as a starting point and are manageable, it can be seen as a disadvantage of government-mandated collaboration.

5.1.2.2 Biophysical Scale

The legislation mandates that source protection areas be based on watershed boundaries. Watershed boundaries were determined to be the most appropriate scale to manage water because any impacts on source water are felt at the watershed level rather than the level of political boundaries (Ontario 2004d). In the case of the NPSPA, these boundaries were established based on the pre-existing Niagara Peninsula Conservation Authority's boundaries. The watershed approach was generally perceived by all of the participants as an appropriate scale to address the issues by committee members.

I think the watershed approach is definitely the way to approach this. I wish, really, that other issues and policies were dealt with using this sort of approach.

- *Municipal Representative*

This approach has allowed the NPSP Committee to coordinate activities with multiple municipalities that are part of the watershed and helped to ensure that neighboring source protection areas or regions are working together, when they otherwise may not have.

There have, however, still been limitations for addressing source water protection from a watershed scale because of jurisdictional boundaries between source protection areas and between international borders. People within the Committee meetings, public meetings and during interviews raised concerns over the decision to not address national and bi-national waters. Participants saw this as a significant weakness because much of the source water is directly affected by large industry on the American side of the Canada/US border (International Joint Commission 2002). The agricultural representative, for example, felt that the area that had been outlined as the watershed for Niagara was not addressing all of the watershed issues because issues that occur on the American side of the border cannot be addressed.

The majority of the water originates in the United States, so every time I ask a question about water from the States, they say ‘we can’t deal with any of that.’

This has been a source of frustration for the NPSP Committee because committee members felt that they could not fully carry out their responsibilities as long as they were limited by jurisdictional boundaries. A public interest representative for the Committee also sits on a technical subcommittee of the Lake Erie LakeWide Management Plan (LaMP). The LaMP is a comprehensive management plan to restore and protect the waters in Lake Erie. The Lake Erie LaMP followed a commitment made by the governments of Canada and the United States in 1987 as part of the Great Lakes Water Quality Agreement (GLWQA), to develop a LaMP for the Great Lakes (Bi-National.net n.d.). The (LaMP) for Lake Erie is coordinated by federal, state and provincial government agencies in the two countries. Despite one of the public interest representative’s involvement in the Lake Erie LaMP, he himself along with other committee members did not find that he was able to fill the void that committee members identified. There have been recommendations by the Canadian Environmental Law Association that the province

should organize a committee that addresses all of the international issues between the United States and Ontario's source water protection as a whole, but there is no indication at this time that such a committee will be formed (CELA, personal communication, February 10, 2010).

The government has defined the biophysical scale of the resource for the Source Protection Committees. Defining the issues at the watershed level has been perceived as a positive requirement because study participants felt that it encourages collaboration beyond municipal jurisdictional boundaries. Concerns have been raised, however, about how effective the government has been in ensuring that collaboration is occurring with beyond municipal jurisdictions.

5.1.3 Structure and Decision Process

The structure and decision process refers to the way group membership and activities are organized and the means through which individual preferences are incorporated into the group's decisions (Koontz 2006; Koontz, *et al.* 2004). Gray (1985) argues that mandate alone does not guarantee that effective collaboration will occur. Indicators that the structure and decision process are collaborative include self-organization, encouraging challenges to the status quo, engaging participants, ensuring agreement on the meaning of information and seeking consensus after extensive discussions (Innes and Booher 1999; Plummer and Armitage 2007). During this section the structure and decision-making process of the NPSP Committee are assessed.

Structure

The source protection authority is responsible for coordinating and administering the planning process, as identified in Table 5.1. The Province has also outlined the tasks that the Source protection committees must complete and the deadlines in which they must complete

them by (see Appendix I). For example, *Regulation 287/07* and the Director's Technical Rules govern the content of the assessment report (e.g., Ontario 2008b; Ontario 2009c).

Beyond the overarching structure outlined above, the committees themselves determined how source protection meetings are carried out. In the case of the NPSP Committee, discussions occurred at the first meeting to determine how the committee would address per diems, travel expenses, targets for reaching consensus and the rules and procedures for undertaking meetings (e.g., visitors, delegates, substitution of members, proxies and in-camera meeting minutes) (NPSP Committee 2007). If the committee found that there was a problem or issue with its policies, there were opportunities to address these problems or issues. For example, a failure to reach quorum was discussed as a concern for the Committee because it has put the Committee behind schedule and they have had to file for extensions due to a failure to meet the deadlines set by the Ministry of Environment for the Assessment Report (NPSP Committee 2009a). While the Niagara Committee had originally decided not to use a proxy system for voting, due to issues with meeting attendance, the proxy system was implemented (NPSP Committee 2007; NPSP Committee 2009a). These examples of self-organization are reflective of the importance of being adaptable to the changing needs of the collaborative arrangement as well as those of the resource itself.

The liaison for the Ministry of Environment indicated that each committee is able to adjust its goals to meet what is manageable for them based on the size of the area and committee and the number and the types of issues that need to be addressed:

I think that the work that there is will expand to fill the time the committee has to deal with it, so for a bigger committee, which will automatically be dealing with a bigger area, they will have less time to deal with things and it will be hard to move a given report through them because there is going to be somebody who is always asking more questions or who won't agree with something.

In other words, a larger source protection area that has both ground water and surface water issues may have a lot more work than a smaller area that only focuses on surface water. In order to account for these differences, the Source protection area may establish technical working groups. As discussed in section 5.1.1, however, technical committees have not been established for the NPSP Area.

Despite the abilities of committees to self-organize certain aspects of the planning process, Committee members did feel that the structure of the committee has been very prescriptive by government and that there were few opportunities to challenge the current structure and how the issues have been defined. The researcher observed at committee meetings that committee members were often frustrated by the structure because the ways in which the process was defined and structured did not allow for them to address key issues that arose after the technical studies had been completed (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). For example, additional stakeholders and issues could not be added to the planning process even if they were identified as important for source water protection. The municipal representative for the Niagara Region commented that:

It's a very structured process and its very clear on what the committee can and shouldn't do and therefore at the beginning there was a bit of misunderstanding from time to time about what they should work with.

This confusion and misunderstanding was observed at the NPSP Committee meetings regularly. The committee members were frustrated with their lack of control of what issues were being addressed and how they were being addressed (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). Further frustrations have stemmed from the Province's decision to make changes to the rules throughout the process. For example,

the *Clean Water Act* requires committees to address significant drinking water threats, but the regulation now also defines “low drinking water threats” and “moderate drinking water threats” . This has created extra work for the Committee, making it harder to meet the already tight deadlines.

In terms of participant engagement, some members of the NPSF Committee felt that the committee acts as a peer review process for the technical reports that are conducted and presented by the Conservation Authority and Municipality. One of the public interest representatives commented that:

I feel relatively guilty sometimes that this group doesn't really do anything. It's the staff here that does it all and then they lay it out in such a manner that we can understand it and make an agreement or agree with what they have done or what they're recommending. It's not rubber-stamping, but its not very often that we will say 'oh we're going to do things differently' its never that we're going to do things differently from what the staff have recommended.

Additionally, observations at meetings suggest that it is the Source Protection Authorities who are actually developing these reports and it is the Committees who approve them (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). During the Committee meetings, members were given the opportunity to raise questions concerning these reports and to request clarification or changes to be made, however there were no major changes that came out of these discussions (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). This finding may be more directly related to the concerns raised by some Committee members about barriers to participation, such as their level of technical knowledge, and also to expectations about hands-on work versus reviewing the technical studies and making decisions based on these studies.

Another issue that was raised by committee members concerning their engagement in the process was the hiring of a private consulting group to conduct the technical studies and to help establish Intake Protection Zone guidelines. This was perceived as both a positive and a negative, but has affected participant engagement. The mandate of the consultant was to help create a standardized method of assessing source waters. The city of Hamilton representative commented that:

We're typically not responsible for developing documents. Consultants have been hired to undertake the technical work. Our responsibility is to review that and, from the level of our responsibility, approve it and test it perhaps from time to time with our local knowledge and we have been provided with the technical reports in a very timely fashion for us with a couple of exceptions and I think that is to be expected with the realm and the scope of the undertaking.

The same consulting group was used for a number of other source protection areas and regions and this has been presented as both a strength and weakness by staff from the Niagara Region's Water and Waste Water division and the Conservation Authority. For example, during a presentation to city staff in St. Catharines, one city representative raised concerns that people that are affected by the source protection rules and regulations outlined by the NPSP Committee may challenge the standards for identifying Intake Protection Zones by comparing them to other source protection areas or regions. In response to this comment the representatives from the Niagara Region and the NPSP Authority defended the standards by pointing to the fact that the majority of the source protection areas and regions had used the same consultant and therefore many of the same standards would apply in these areas and regions. In addition, the representatives from the Niagara Region and the NPSP Authority cited that there has been a considerable amount of science-based evidence to support the decisions as well.

Based on interviews and observations, it appears that it is the private consultants and the NPSP Authority that are setting the direction of the committee and developing documents. Once these documents are presented to the NPSP Committee, the Committee members are given the opportunity to approve the work of the conservation authority. It is important to note, however, that non-technical members of the committee are less engaged in the final approvals because the scope of the information that is being presented may be too technical to understand (see Section 5.1.1). The structure outlined by the province and the reliance on the consultants, who are not local to the area, has raised concerns about the committee's ability to adapt to local needs of the Source protection area by the agricultural representative:

I think the work that they did was more generic because they we're giving it across the whole province. As it stated in our terms of reference, we're a unique region and I thought more of the work should have dealt specifically with Niagara rather than being more generic. I think that if we had had a local consultant they would have been more familiar with the Niagara Peninsula and some of the things that are more unique to us. Other source protection areas rely on groundwater and wells, but we don't, so I think they were trying to make it look like we're just the same as the rest of the province, but we aren't.

Decision Making

The *Clean Water Act* has mandated that group decision making within the source protection committees be structured around consensus, which is in line with a collaborative approach. Participants largely felt that the committee was undertaking a consensus approach. For example, two public interest representatives commented that:

A lot of [times] it is just a communication thing – somebody might perceive the information differently than others, but the chair does a good job of perceiving that and, again, just engages in more discussion and typically when that happens, more communication comes out and people start to say 'oh, I see it that way' or 'I don't see it that way' or 'we want more information', So it's really a

consensus building exercise and that's a good way to approach it, I think.

- *Public Interest Representative*

There have been a couple of relatively major differences and [the chair] has handled those very very well by leading the individual and the group into some form of consensus. I think in a couple of cases he's taken it outside of the meeting to try to come to a conclusion and then kind of smoothed things over so that its understood and accepted by all parties, but generally we haven't ended up with any that are insurmountable, they've all been managed.

- *Public Interest Representative*

The agricultural representative, however, felt that often times when consensus could not be reached, majority ruled and that this may disadvantage certain stakeholder groups.

It's always gone by a vote of the majority of the quorum votes to approve. No one else has ever voted against anyone else but me.

If consensus is the goal for the Committee, the agricultural representative's concerns raise questions about how consensus oriented the process actually is if one representative does not feel his vote is represented in the Committees decisions.

5.1.4 Resources for Collaboration

Sufficient resources are critical for determining what collaboration can achieve (e.g., Bonnell and Koontz 2007; Heikkila and Gerlak 2005; Koontz 2006; Koontz, *et al.* 2004; Margerum 2007; Moote and Lowe 2008). Resources enable the process to occur by providing the decisions makers with the tools to carry out decisions. This refers to whether or not relevant stakeholders are represented and whether or not they are providing valuable insights into the watershed, the technical knowledge and tools that are available to the group, and the finances that have been allocated to the process and outcomes. Based on the Table 3.1, the main resources that are necessary for collaboration, include:

- Representation from of all relevant and significantly different interests;

- High quality information of many types; and
- Sufficient funding.

In addition, to the resources identified within the assessment framework, the additional theme of time emerged, and as a result time has been added to this section.

5.1.4.1 Representation

Representation has been discussed extensively within section 5.1.1, however it is still important to address how representation has contributed to collaboration in terms of resources (e.g., knowledge). In the case of the NPSP Committee there were a number of participants that were involved in source protection planning, both members of the committee and non-committee members. These participants were able to both facilitate collaboration and contribute to the collaborative process through their knowledge and experience. For example, one of the public interest representatives pointed to the liaisons as aiding the committee members:

There's a member [from the] MOE who's been very very helpful and she's very knowledgeable and by in large can answer the questions right away and if not, she back with at timely answer for the next meeting or even before. That staff support from MOE has been very very useful and very helpful. Also having people like the Regional Municipality of Niagara has a representative and they own the treatment plants and the Health Authority is there as well. So all of that makes for a good mix of knowledge and background and allows the process to move forward well.

The representative for Niagara Region has found representation from Niagara's Wastewater division helpful in his own contribution to the committee:

The other resource that I have is that I can talk to our wastewater people and get information that I am having concerns about, [which I can then] take to the committee. I don't know where [a person representing the general public] would get their [information from] other than maybe their own knowledge. On the other hand we all have the resource of having had the capability of saying 'we want to know this' and we have the consultants. So I think the resources are very fair.

The staff from the NPSP Authority was also pointed to as an important resource for the Committee.

I guess the main resource is the staff here at the Conservation Authority. They're phenomenal. They leaves very little to criticize.
- *Pubic Interest Representative*

It was also observed that representatives that were committee members also contributed a great deal to the collaborative process. For example, the municipal representative from the City of Hamilton was able to relay information back to the City and ensure that further coordination and collaboration would be achieved concerning carrying out technical studies. The agricultural representative was also important in ensuring that the Committee had adequate knowledge of the interests of agricultural stakeholders when making decisions. Missing representation, however, as discussed in Section 5.1.1, was perceived as affecting the ability of the committee to address all of the important issues related to source protection for the area.

5.1.4.2 Information

Within the NPSP Area, information has largely come from the technical studies that have been required by the Ministry of Environment as part of the planning process. The legislation has also required that Committee liaisons and the Conservation Authority provide information to the Committee. The Niagara source protection website also provides information to Committee members and provides an opportunity for sharing information. There have also been a number of Province-wide training sessions provided to committee members. Three of the study participants pointed to these training sessions as invaluable for providing opportunities for committee members to network with committee members beyond the Niagara Area and to share information. One point of criticism related to these training sessions, as pointed out by a public interest representative, is that members felt that affected landowners would have also benefited

from the training sessions and that the process of including these landowners should have begun before the public consultation meetings.

As discussed in section 5.1.1, the science-based approach has meant that technical information is the focus of discussions and decision-making. Participants that do not have technical backgrounds have felt that their input is less important than those with technical knowledge and some participants have been discouraged from participating as a result. This has meant that non-technical information, such as local knowledge of a resource or the community has not been incorporated nearly as much as some participants would have liked.

5.1.4.3 Financial

The Ontario government, through the Ministries of Natural Resources and Environment, has committed \$120 million over a four fiscal year period (2004/05 - 2007/08) towards the Province-wide source protection planning initiative (Ontario 2008a). Further funding will be provided to cover costs associated with the process to develop source protection plans, which will be divided on a case-by-case basis (based on the results of the technical studies) (Ontario 2009e). The *Clean Water Act* has also introduced a financial assistance program, the Ontario Drinking Water Stewardship Program (ODWSP) to provide financial assistance for farmers and small rural businesses for activities that reduce drinking water threats. The Province has committed a total of \$14 million to the ODWSP, \$7 million in each of the next two fiscal years (2009/10 and 2010/11), through to the spring of 2011 (Ontario 2009b).

When asking study participants to comment on resources available for collaboration, most committee members focused on other resources and did not discuss financial resources. The representative from the City of Hamilton did, however, comment that more financial resources would be helpful.

I wish that there would be again more time and more financial support for [...] the whole source protection undertaking. I think it's an important one. Having said that, there are other [...] funding bodies and other jurisdictional bodies that are responsible and have an interest in the Great Lakes water quality in general, so it's good to have those sorts of sources of information available to us. At the same time I think that the quality of water in the Great Lakes, in general, is of such an importance that generally there should be some more financial support.

It is important to note that based on document analysis, there has been no clear indication of monies allocated for the implementation of the Source Protection Plans. During public consultation meetings, a number of members of the public raised concerns about whether or not property owners would be provided with funding to make any required changes to their land and/or operations (Vaughan, field notes, March 30 and 31, 2010). The Source protection committee's representatives were unable to answer these questions.

5.1.4.4 Time

The province has outlined strict deadlines for Committees to submit the Terms of Reference, Assessment Report and Source Protection Plan. A detailed timeline, which is based on these deadlines, has been developed by the Source protection committee and can be found in Appendix I. The deadlines set out by the province were perceived by the study participants as unreasonable for managing the issues as in-depth as they would have liked.

I would like to see that schedule, perhaps, spread out a little bit further because of the importance of some issues that need, perhaps, a little bit closer study.

- Municipal Representative

To make matters worse for the source protection committee and the Conservation Authority staff, the province has made changes to the rules throughout the process, but not provided time extension on the original deadlines. The Committee chair member expressed his concerns:

The concern is, of course, timelines that we're all working under in that the rules are changing as we're approaching deadlines and that is creating a capacity crunch, if you will, to get the final product to fit in to the right mold, so those are the shortfalls and challenges in my opinion.

It should be noted that it is possible to request an extension of the province. In the case of the Niagara Committee an extension was requested and granted due to some committee members being unable to attend meetings, which pushed set back the committee as discussed in Section 5.1.1.

5.2 Outcomes

Table 3.2 categorizes outcomes into first, second and third order parameters and first order parameters have been broken down further into tangible and intangible outcomes. Tangible outcomes are those that can be thought of as real or measurable (e.g., reports, water quality improvements), while intangible outcomes can be thought of as social, intellectual and political capital (e.g., stronger personal and professional relationships, trust, mutual understanding, work together to influence public action) (Innes and Booher 1999). Because the source protection process is still in the planning stages and the plans have not been implemented, third order parameters were not considered in this study. Table 3.2 presents a number of different indicators as well as guided questions. The list is not exhaustive and additional outcomes emerged through the analysis process are included in this section.

5.2.1 First Order Parameters

Tangible

The *Clean Water Act* outlines specific tangible outcomes that are required by the committee, including the Terms of Reference; Assessment Report, which includes technical studies; and a Source Protection Plan. The Niagara Committee has been able to produce both a

Terms of Reference and an Assessment Report that was based on studies of the watershed. Based on observations at committee meetings, the studies that have been conducted thus far have provided valuable information into source water protection and have provided a scientific framework for addressing threats to source water (Vaughan, field notes, September 29, 2009; November 10, 2009, December 8, 2009; January 12, 2010). There have also been a number of public presentations and information on websites to educate the public about source water protection and the public's role in this process. Public meetings have focused largely on consultations for the Terms of Reference and Assessment report in order to keep the public informed throughout the process and to answer any questions or concerns that are being raised. The website for the Niagara Committee provides information about the Committee itself and reports that they have produced, links to government websites, any public announcements and information about how the process should be carried out by the Committee.

Participants have identified meetings with the public and also local city and municipal staff as very valuable. For example, the liaison for the Conservation Authority has indicated that:

I think the biggest tangible (it's not tangible for the committee), it is tangible in terms of the community at large, is the presentations that the chair has made at Regional Councils. I believe at local council, although I wasn't there, to inform them of the process and to give them some idea of the mandate at the beginning (what the preliminary studies are indicating and what the future direction is going to be in terms of public direction) and I think that's probably the best part in terms of producing something tangible.

Despite the fact that the Committee is unable to address groundwater in their source protection plan, groundwater research has been conducted even though it is not part of municipal water. This has proven useful for decision-making and also may be important if the *Clean Water Act* extends beyond municipal sources. The Committee also decided to develop a Primer to the Terms of Reference to help contextualize the Area and its characteristics. This document outlines

the source protection process, roles and responsibilities and a timeline for the process to be carried out (NPSP Committee 2008).

The tangible outcomes that have been produced reflect the requirements outlined within the legislation. Government has ensured that these requirements are met in order to ensure that the source protection planning process is successful. Beyond the legislative requirements, the NPSP Committee has taken its own initiative to develop additional reports. These findings suggest that under government-mandated collaboration, government plays a large role in defining the minimum tangible requirements, but that additional outcomes are possible.

Intangible

Participants have identified enhanced legitimization for policies and actions as a second intangible outcome. A public interest representative from the committee commented that:

Perhaps [an outcome has been] a greater sense or a renewed sense of confidence in the public process of policy making, at least I hope that is a spin-off. It's hard to judge because it is still early in the source protection planning process, but I like to think that there will be some confidence from the public. I don't know if it will be in the government itself, but certainly in government's role in process making, if you will.

Additionally, participants from the Committee felt that they were being given the opportunity to influence decision-making. They were uncertain of how this will play out once the final implementation stage has been reached, but they are satisfied that they are able to have their opinions heard and considered by the province. For example, the agricultural representative felt that he was able to voice his concerns on behalf of the farming community. He is also a member of the Ontario Federation of Agriculture and is able to voice concerns on behalf of them as well. This finding points to a successful outcome of the collaborative process.

5.2.2 Second Order Parameters

Second order parameters may include outcomes such as learning and building partnerships. The province has stipulated that in order to achieve greater source water protection, collaboration amongst variety of stakeholder groups is necessary. Through collaboration, the province expects that partnerships between neighboring source protection committees and between committee members will be formed (Ontario 2007b).

Based on the interviews with study participants, participants felt that this process has been able to provide stakeholders with the opportunity to hear different perspectives on the issues that are being discussed. For example, participants commented that:

When members, who are representing various stakeholder groups, express some concerns with a certain part of the process, all of the other individuals gain some insight and knowledge into the concerns of that particular group and that's ongoing and continually unraveling, as we get further into this process.

- Committee Chair

You can get a better idea of where the organizations they represent are coming from and what those organization's attitudes are related to source protection.

- Source Protection Authority Staff

Additionally, it was felt that a greater respect between organizations has formed as a result of this process. The municipal representative from the city of Hamilton, for example, indicated that municipalities are getting a better appreciation of the work that the Conservation Authorities do.

Participants also felt that as a result of this process stakeholder groups were able to identify areas that they can work together more closely. For example, a public interest representative from the committee acknowledged the strong relationship that the Region and the Conservation Authority have formed:

I think that the Niagara Peninsula Conservation Authority and their close work with the Niagara Region is very evident through this

process and without the cooperation between the two, the NPCA and the Region, we would not be anywhere near close to where we are now, so that's impressive, I have to admit.

Information sharing between committee members, the Conservation Authority and the Municipalities has been seen as a very valuable outcome of this process by study participants. This information may not have otherwise been shared between organizations or in as efficient a manner. Participants pointed out outcomes associated with information sharing, for example:

We have an internal source protection planning group which covers all of the sections in the city that would have interest: public health, development planning, building, long range planning and we have regular scheduled meetings to discuss source protection issues and discuss what is being done on the committee level.

- *Municipal Representative*

I am hearing from Source Protection staff about some positive potential spin offs from the consultant's reports that will be useful for further studies and information going forward. [There are] advantages to the entire watershed, in terms of planning and practical work, so the physical reports that have come out are a definite finished product that can be useful, and not just for this process, but for others as well.

- *Committee Chair*

Participants also felt that they had learned a considerable amount of new information as a result of their participation on the committee and felt that they had grown personally. Members commented that:

I have learned a lot more about water treatment plants and things like that, so that's been helpful for me I suppose in my job here as well.

- *Public Interest Representative*

Well, I guess personally for me, I've learned some good information, better knowledge about what the possibilities are for our water intakes.

- *Municipal Representative*

I think for me personally, it's been a wonderful opportunity for me to use my knowledge and background. Not that I'm an expert, but I

have 45 years of engineering experience and its been good for me to use that and it keeps the mind busy and I enjoy it. On the other side, I have appreciated very much the insight and differing views of other individuals on the committee and the interface and discussion with them. It's been very rewarding, particularly people who represent the farming industry or the recreational industry, like golfing. Everybody has different aspects and different concerns and it's been of value to me personally to listen to those and see how they fit.

- *Public Interest Representative*

Study participants reported examples of how government institutions are receiving and incorporating feedback. For example a member of the Committee highlighted an example of a change that the Ministry of Environment has made to further support Committees:

There is now support staff in at the MOE in Toronto for the actual planning and development, which was a foresight.

A staff member of the Canadian Environmental Law Association (CELA) has expressed that the government has been asking for feedback from CELA and Committees as well:

[The Ministry of Environment] like to know what we think is working out really well [and] what we like about how things are being implemented. To a lesser degree, they do want to hear about what we think is not working out quite so well and there are a few challenges that have yet to be overcome, [but] they're very much aware of it. [I]t is very much an open process, it's an open discussion.

5.3 Summary

This chapter communicates the results of the research according to the criteria set forth in the assessment framework (Tables 2.1 and 2.2). For each criterion, the mandate set forth by the Government of Ontario and the experiences of the specific case study were described and assessed according to indicators established from the literature (Tables 3.1 and 3.2). From these results, it is evident that some aspects of collaboration are being realized by the committee (e.g., greater respect for other stakeholder groups, new partnerships, development of new information

and learning). However, because collaboration has been mandated and restricted by legislation, there are also aspects of collaboration that have not been realized (e.g., not all relevant stakeholders are participating, participants are restricted from engaging in creative problem solving and feel unengaged). The benefits of government involvement are most evident through the financial support and organizational structure. Limitations are most evident in regards to the committee's ability to adjust the process and outcomes to meet the needs of the NPSP Area. This has created frustrations for study participants, and in some cases reduced their engagement in the process. At this point in the source protection planning process, the outcomes that have been achieved have largely been tangible first order outcomes. Second order outcomes, such as learning and spin-off partnerships are also being achieved. Chapter Six summarizes these results, discusses them in light of the scholarly literature, and offers conclusions and recommendations.

CHAPTER SIX - DISCUSSION AND CONCLUSION

Attention to governance has been intensifying as governments are increasingly moving towards environmental management strategies that are less focused on government command and control strategies and more focused on collaborative approaches (Bidwell and Ryan 2006; Fleeger and Becker 2008; Genskow 2009; Gerlak and Heikkla 2006; Koontz 2006; Singleton 2002). While researchers have pointed to the need for some level of government involvement (Genskow 2009; Kapoor 2001; Koontz, *et al.* 2004; Lubell 2004; Wondolleck and Yaffe 2000), little research has previously been undertaken to understand how government-mandated collaboration affects the process and outcomes (Koontz, 2006).

The purpose of this research was to understand collaboration in situations where collaboration has been mandated by government, in the context of source water protection. A case study of the NPSP Area was selected to carry out this research because of the existence of the *Clean Water Act*, which mandates collaboration, the diverse landscape of the Area that encompasses a variety of source water demands that are similar to the experiences that other cases would encounter and because the area was easily accessible and manageable in size given time and resource constraints of the study. The single case study method allowed for an in-depth look at how collaboration is being undertaken with the NPSP Area. Through interviews, observations at meetings and a document analysis, this research was able to achieve this purpose.

The first section of this chapter provides a summary and discussion of the key findings from this research. The second section summarizes the major contributions that this research revealed to both the literature and policy in Ontario. In the final section, the limitations of the research approach are identified and further research opportunities are highlighted.

6.1 Summary and Discussion of Key Findings

This research set out three main objectives. The first was to develop a framework from the literature to assess government-mandated collaboration. In chapter Two, a framework was developed based on Innes and Booher (1999), Koontz (2006), Koontz, *et al.* (2004) and Plummer and Armitage's (2007) research in the areas of government involvement in collaboration and the processes and outcomes of collaboration. The second objective was to explore a case study of the source water protection process in the NPSP Area using the framework to assess government-mandated collaboration. The methodology, discussed in Chapter Three, guided the collection and analysis of data and oriented the reader to the philosophical and methodological approach taken by the researcher before the case study could be carried out. Chapter's Four and Five summarized the case study context for the NPSP Area and the results that were guided by the assessment framework. Finally, objective three sought to assess the relationship between the government-mandated collaboration and the process and outcomes of collaboration. Chapter Five also carried out the third objective by summarizing the key results and drawing links between related concepts from the literature. This section provides a summary and discussion of the key findings.

6.1.1 Impact of Government-mandated collaboration on the Process

The indicators within the assessment framework provided a basis from which to compare what the literature says about the processes and outcomes of collaboration and what occurred within the case study. Table 6.1 provides a summary of these findings. Within the process of collaboration, the literature argues that all relevant stakeholders should be represented and active throughout the process (Innes and Booher 1999; Plummer and Armitage 2007). The findings from this research suggest that under government-mandated collaboration there tends to be

Table 6. 1: Summary of Case Study Results (adapted from Innes and Booher 1999; Koontz 2006; Plummer and Armitage 2007)

Criteria	Indicators	Case Study Results
Actors	<ul style="list-style-type: none"> All relevant stakeholders are represented 	<ul style="list-style-type: none"> While study participants did identify stakeholders that were not represented on the NPSP Committee, participants did still feel that overall representation on the Committee was satisfactory.
	<ul style="list-style-type: none"> All participants are active throughout the process 	<ul style="list-style-type: none"> Participants on the NPSP Committee were given equal opportunity to participate; however a number of barriers were identified to participation that have prevented some participants from being active in all discussions and activities.
Issue Definition	<ul style="list-style-type: none"> Issues are framed in a way that ensures the process is driven by a practical purpose and task that are real, practical, and shared by the group 	<ul style="list-style-type: none"> Study participants felt that the legislation did restrict the NPSP Committee from addressing all issues within the NPSP Area, however, they also felt that it did provide a good starting point to work from.
	<ul style="list-style-type: none"> The biophysical scale is representative of the physical resource to be governed 	<ul style="list-style-type: none"> All study participants were satisfied with the use of watershed boundaries as the biophysical scale. Participant did, however, also feel that because of international waters, the source waters for the entire watershed will unable to be addressed and that because they were only addressing municipal waters (surface water), they were not fully able to address all issues within the NPSP Area.
Structure and decision process	<ul style="list-style-type: none"> Is self-organizing, allowing participants to decide on ground rules, objective tasks, working groups, and discussion topics 	<ul style="list-style-type: none"> Members of the NPSP Committee determined the basic ground rules, however, the province also played a much larger role in setting the overarching ground rules and tasks for the Committee.
	<ul style="list-style-type: none"> Encourages challenges to the status quo and fosters creative thinking. 	<ul style="list-style-type: none"> Participants felt that their ability to engage in creative thinking and challenge the status quo was stifled.
	<ul style="list-style-type: none"> Engages participants, keeping them at the table, interested, and learning through in-depth discussion, drama, humor, and informal interaction 	<ul style="list-style-type: none"> Participants who lacked voting power on the NPSP Committee (i.e., liaisons) and who lacked technical knowledge, reported feeling unengaged throughout the process.
	<ul style="list-style-type: none"> Assures agreement on the meaning of information 	<ul style="list-style-type: none"> All study participants reported that the NPSP Committee does put in a great deal of time and effort to assure agreement on the meaning of information.
	<ul style="list-style-type: none"> Seeks consensus only after discussions have fully explored issues and interests and significant effort has been made to find creative responses to difference 	<ul style="list-style-type: none"> All study participants felt that the NPSP Committee did put in a great deal of effort to try and reach consensus on the committee. Consensus, however, could not always be reached and one particular stakeholder representative did feel that his stakeholder group was disadvantaged.
Resources for collaboration	<ul style="list-style-type: none"> Includes representatives of all relevant and significantly different interests 	<ul style="list-style-type: none"> There were a number of stakeholder groups who were not represented on the NPSP Committee, whose input study participants felt would be valuable.
	<ul style="list-style-type: none"> Incorporates high quality 	<ul style="list-style-type: none"> Study participants felt that a great deal of technical

	information of many types	information was being generated through the planning process and that they were provided with ample information to make decisions. It was observed, however, that this information was largely science-based and alternative sources of information were not sought out.
	<ul style="list-style-type: none"> • Sufficient resources have been provided 	<ul style="list-style-type: none"> • The large majority of study participants felt that sufficient funding has been provided to the NPSP Committee. All participants, however, identified time, as a resource that was significantly limited by government.

fairly accurate representation from all relevant stakeholder groups. When there is missing representation, however, it is difficult to incorporate new stakeholders into the process.

Additionally, under mandated collaboration, participation may be perceived as limited by some stakeholders who feel that they lack the knowledge to participate in technical discussions and also because of how the process has been structured by government.

The literature points to the need for issues to be defined in a way that ensures the process is driven by practical purpose and that the biophysical scale that is being address is representative of the resource (Innes and Booher 1999; Plummer and Armitage 2007). This study has found that the legislation that mandates collaboration can be restrictive when trying to address all issues related to the resource, however, providing stakeholders with a common issue was found to provide participants with a good starting point to work from. This finding both contrasts and relates to Gray’s (1985) findings that it is important for stakeholders to come together to define the issues because there are both strengths and weaknesses to defining the issues in advance. Similarly, Selin and Chavez (1995) have found government’s defining the issues as a possible challenge to collaboration because the actors involved in collaboration may not perceive the issue as important and, as a result, may not remain committed to the process (Selin and Chavez 1995). Study participants did report feeling frustrated by how the issue has been defined, and that the impact that they have on protecting the resource is limited.

A number of indicators were identified in the literature for the structure and decision making process. The first was that the process is self-organizing (Innes and Booher 1999; Plummer and Armitage 2007). This study has found that under government-mandated collaboration the government played a large role in setting the overarching ground rules and tasks for the collaborative. Based on the literature, the process is also expected to encourage challenges to the status quo and to foster creative thinking (Innes and Booher 1999; Plummer and Armitage 2007). Furthermore, collaboration is expected to keep participants engaged and active throughout the process (Innes and Booher 1999; Plummer and Armitage 2007). Evidence from the study revealed that under mandated collaboration, participants felt that their ability to engage in creative thinking and challenge the status quo was stifled as a result of strict legislative requirements. Additionally, participants who lacked power or knowledge, reported feeling unengaged throughout the process. The findings, however also suggest that there are still opportunities to influence the organization of the process that may ignite participant engaged and creative thinking, such as workshops with other committees.

The literature on collaboration has found that the decision making process should assure agreement on the meaning of information and seek consensus from participants after discussions have fully been explored (Innes and Booher 1999; Plummer and Armitage 2007). Evidence from this study has found that requirements for consensus decision-making help to ensure that the process is consensus-based. It should also be noted under conditions where consensus cannot be reached, minority stakeholder groups can be disadvantaged by the final decisions under this arrangement. This finding supports Ansell and Gash's (2007) findings that collaborative forums often do not achieve consensus. Ansell and Gash (2007, 547) note that that the premise of "meeting together in a deliberative, multilateral, and formal forum is to strive toward consensus

or, at least, to strive to discover areas of agreement.” When consensus cannot be reached, collaboration may motivate stakeholders to settle for less beneficial solutions in order to reach agreements (Cullen et al. 2010). Evidence from this research suggests that the lack of agreement on all issues may create less support for decisions from other members of this stakeholder group in the future.

The literature identified a number of indicators for what resources are necessary for collaboration. The first was that it includes representation from relevant and significantly different interests (Innes and Booher 1999; Plummer and Armitage 2007). The study found that under government-mandated collaboration, not all relevant stakeholders are necessarily represented and that adding additional stakeholders is challenging. Secondly, collaboration should incorporate high quality information of many different types (Innes and Booher 1999; Plummer and Armitage 2007). This study has found that technical information was valued highly within the legislation, and as a result much of the focus was on this specific type of information. This finding suggests that governments can have a large influence on the types of information that are incorporated into decision-making, despite a variety of stakeholders being represented. Thirdly, sufficient resources should be provided to carry out collaboration (Innes and Booher 1999; Plummer and Armitage 2007). This study has found that under government-mandated collaboration, great deals of resources are dedicated to ensuring that the process is carried out effectively. All participants, however, identified time, as a resource that was significantly limited by government.

6.1.2 Impact of Government-mandated collaboration on the Outcomes

Innes and Booher (1999) and Plummer and Armitage’s (2007) indicators to assess the outcomes of collaboration were also used to compare what the literature says about the outcomes

of collaboration and what occurred within the case study. A number of tangible outcomes were achieved that support the literature. These outcomes included government legislation (e.g., *Clean Water Act, 2002*), the development of documents that provide background information on the source protection area and will support the final source protection plans (see Table 6.1).

Intangible outcomes that have been identified within the literature include enhanced legitimization for policies and actions; social and political capital; creative ideas for problem solving, encouraging contemplation and questioning routines values and governance; and greater adaptive capacity (Innes and Booher 1999; Plummer and Armitage 2007). There also appeared to be a greater acceptance of decisions made when stakeholder groups feel that their interests are being represented in decision-making. Under mandated collaboration, creativity was stifled by the requirements outlined by the government. Partnerships between organizations appear to be strengthened through the collaborative process under mandated collaboration and participants also reported that they were able to gain a better understanding of the perspectives of other organizations and stakeholder groups. Whether or not greater adaptive capacity will be achieved is still to be determined.

6.1.3 Implications for Governance

Researchers have argued that governments are moving towards more decentralized forms of governance in order to off load their responsibility onto local and/or private interests and that this is a move away from democracy because elected officials are deferring their powers to non-elected organizations that do not represent the interests of all stakeholders (Leach 2004; Singleton 2002). This research has found that that this is not necessarily the case of government-mandated collaboration. Evidence from this research suggests that the government actually

struggled to relinquish its control over the process and outcomes of collaboration, and as a result government still ultimately holds much of the power and sense of responsibility.

Proponents of decentralization have pointed to a number of advantages of undertaking collaborative approaches. They have argued that decentralization can produce greater efficiencies by bringing together the strengths of each participant and minimizing overlapping responsibilities, bringing decision making closer to those who are affected by the policies and in turn producing higher participation, and helping decision makers to take advantage of more precise time- and place-specific knowledge through the involvement of local community members (Lemos and Agrawal 2006). Evidence from this study has found that under mandated collaboration, greater efficiencies are not necessarily being achieved. This is because the types of participants that are involved are not necessarily those that are involved in the decision making and/or implementation. A great deal of education of the participants has been required and local planners and city officials are not sitting at the table making the decisions. These are the stakeholders who will be expected to provide funding and enforcement of the decisions that are made through the collaborative process. If they do not agree with the decisions, there may be conflict when it comes to implementation.

Furthermore, researchers have argued that decentralization may also increase government accountability by bringing together a variety of stakeholders and ensuring a free flow of information and shared responsibility (Leach 2004; Rogers and Hall 2003). Under locally driven collaborative arrangements, it is expected that there will be more accountability because the decision-making is brought closer to those that are affected (Lemos and Agarwal 2006). Evidence from this case study suggests that the devolution of authority from higher levels of government to lower levels of government and community-based organizations is not necessarily

occurring under government-mandated collaboration because government is still so heavily involved throughout the process. In some instances, local governments are not as actively involved throughout the process, so they may not feel a great deal of accountability because they were not part of the decision making. This may be seen as a potential weakness of government-mandated collaboration.

Theories of deliberative democracy have also been discussed within this research. Deliberative democracy calls for more participatory approaches to governance and suggests that discussion and deliberation are more effective approaches to decision-making than private voting and decision-making that is carried out solely by governments without the input of all effected stakeholders (Meadowcroft 2004; Neef 2009; Parkinson 2003; Zachrisson 2010). Neef (2009) has further argued that participatory approaches should lay the foundation for institutionalized governance. This research has found that government-mandated collaboration does allow for greater deliberation in decision-making by bringing together stakeholders. Because governments can hold final decision-making power and are overseeing the process and outcomes under government-mandated collaboration, issues related to relinquishing power to non-elected officials, does not appear to be a concern for the public. Having a variety of stakeholder groups represented in decision making appears to strengthen support for these decisions.

6.2 Case Specific recommendations

Based on the results of this research, a number of case specific recommendations have been identified by the researcher, which may help to improve the process that is occurring with the province of Ontario. The first recommendation is for the Province to allow for greater flexibility in terms of committee membership and how the biophysical resource is defined. While providing an initial framework from which the Committee could be formed and the general roles

and responsibilities that were to be carried out, were perceived as beneficial, the lack of flexibility did not allow for the NPSP Committee to adapt to the needs of the resource as greater knowledge of the resource was gained. This was largely evidenced by concerns raised about transportation routes, international sources of contamination, and ground water sources.

Opportunities for additional stakeholders to participate are available if stakeholders would like to attend the source protection meetings or public consultation meetings; however, it was observed that few stakeholder groups participated unless they were directly asked to participate.

Additionally, exclusion of issues related to transportation routes and international waterways has limited the Committee and its power when trying to identify and adapt policies and practices to risks to source water. It would be beneficial if a process was built in to request changes to how the Committee and its mandate has been mandated.

Greater involvement from local decision makers is a second recommendation. During consultation meetings that provided updates to local city officials, it was clear that their role will be essential in carrying out the decisions made by the NPSP Committee. Their engagement, input and “buy-in” early on appeared to be something that the NPSP Authority perceived as important, but engagement beyond consultation has not been carried out. These city officials are also considered decision-makers and could bring expertise related to city planning and the power to enforce by-laws, for example, to the NPSP Committee.

Specific to the NPSP Area within Ontario, a final recommendation is that the NPSP Committee utilize technical committees that can provide the NPSP Committee members with more opportunities to participate throughout the process and provide their stakeholder perspective in more detail. Currently, a consulting group that also works with other source protection areas and regions is carrying out technical studies. While this provides greater

consistency across the province, it fails to incorporate the local knowledge of committee members, which was identified by research participants as a limitation of the work that is being carried out.

6.3 Scholarly and Practical Contributions

This research has been able to contribute to the literature on collaboration, and more specifically government-mandated collaboration, and the literature on governance. Through the assessment framework developed in Chapter Two, this research was able to assess the impact and roles of government throughout the process and on the outcomes. The purpose of an assessment framework is to provide an organizational tool that allows for structured inquiry across a broad array of policy sectors and disciplines (Koontz 2003). It also allows analysts to make comparisons and evaluations (Koontz 2003). The assessment framework expanded upon Koontz (2006) and Koontz, *et al.*'s (2004) framework to assess the role of government in collaboration and upon Innes and Booher (1999) and Plummer and Armitage's (2007) frameworks to assess the outcomes of collaboration. Through the assessment framework, additional support for concepts within the Koontz (2006) and Koontz, *et al.*'s (2004) and Innes and Booher (1999) and Plummer and Armitage's (2007) frameworks has also been given.

Governance was an important concept within this research. The concepts of decentralized governance and deliberative democracy have been discussed. The findings of this research add additional knowledge and understanding of the challenges of collaborative approaches to governance and the challenges that governments face as they shift away from command and control strategies.

This research has also helped to draw distinctions between governance and government and between management and governance were also made. The distinction between government

and governance helps to highlight the roles of government and opportunities for governments to share power between additional stakeholders under participatory approaches, which may not have been shared under command and control strategies of governance. The distinction between governance and management has helped to highlight management as a means through which to operationalize governance.

The discussion and definition of mandated collaboration has helped to build on the literature of collaboration and to distinguish mandated collaboration from other types. More specifically, a greater understanding of government-mandated collaboration has been developed through this research. This understanding adds further insights into the impact that mandating collaboration has on the process and outcomes of collaboration.

The framework for research design, which was developed in Chapter Three and represented in Figure 3.1, has provided a clear step-by-step approach for carrying out this research based on Yin's (2009) research design for a single case study and Charmaz's (2007) grounded theory approach. This framework provided a logical sequence from which to carry out the research and makes it easier for future researchers to replicate this study, thus strengthening the generalizability of the study.

Finally, Contributions have also been made in the form of case-specific recommendations. The challenges related to source water protection occurring in Ontario were discussed in Chapter Five and case specific recommendations were made in Section 6.2. The findings and recommendations can help to contribute to the long-term success of source water protection in Ontario.

6.4 Limitations and Research Opportunities

A single case study was selected as a representative or typical case, however, there were three significant pieces of source protection that were not present in the Niagara case study that may have existed in other source protection areas or regions throughout the province. The first was the involvement of First Nations communities. The second was issues that are related to northern communities that do not have the same existing structures as more populated areas. Both of these limitations were acknowledged and discussed in Chapter Four. Finally, the NPSP Area is not a source protection region (i.e., did not include multiple source protection areas) and therefore does not touch on some of the advantages and disadvantages of working within a larger committee. For example, a source protection region may have more financial resources or may include more stakeholders on the committee, but it may also have greater conflict between competing interests. Source protection regions were also discussed in Chapter Four. Despite these limitations, the single case study of the NPSP Area allowed for an in depth analysis that could not have been carried out using a different research approach and met the criteria for the case study selection outlined in Section 3.2.3.1.4.

A second limitation of the study was that the process was only in the third phase of a four-phase process, so some of the outcomes that may be realized during the fourth phase were not be observable. This limitation was acknowledged in Section 5.2. Third order parameters for outcomes that have been indentified within the assessment framework were not considered in this research and, while second order parameters were assessed, there may be more outcomes as the process moves into the fourth phase. Additionally, feedback between outcomes and government institutions was not able to be explored within this study because the planning process has not been completed.

The limitations of this study also offer opportunities for future research. It would be useful to conduct further research in Ontario at a later date to assess the outcomes and feedbacks once the fourth phase of the planning process has been carried out for a few years. Third order outcomes would be able to be explore in-depth at that point. Furthermore, once the source protection plans have been implemented, an assessment of whether or not the process and outcomes have been able to influence government institutions through feedbacks would also be able to be explored.

Further research to develop criteria to assess feedbacks would be also valuable. Research has been carried out to assess the development of new environmental policies in response to crisis by Plummer *et al.* (2010), incremental policy adjustment (i.e., when newly introduced or overlapping policies conflict with existing policies or lack feasibility and therefore adaptations are necessary) (e.g., (Puszkin-Chevlin and Esnard 2009) and on policy failure (e.g., (Brown, *et al.* 2005); (Howlett 2009). This research could be an excellent starting point to assess how government responds to feedback.

Further research is also needed to examine how coordination between government is currently being carried out within the case study context in order to understand the jurisdictional issues and transboundary issues that were raised within the case study. Understanding collaboration beyond the local context and between various government organizations, is an important aspect of source water protection, especially where jurisdictional authority poses a limitation on what the source protection committees and regions can address. Research into institutional arrangements (IA) (i.e., legislation and regulations, policies and guidelines, administrative structures, economic and financial arrangements, and political structures and processes) has evaluated the extent to which institutional arrangements for land use planning and

water management enhance or constrain the capacity of local governments (Ivey, *et al.* 2006). Additionally, research has been carried out by Armitage (2005) to examine the relationship among adaptive capacity, community-based resource management performance, and the socio-institutional determinants of collective action. This research would be useful for understanding the influence of a variety of institutional arrangements on the process and outcomes of collaboration. (Raadgever, *et al.* 2008) has developed a framework to assess the adaptive capacity of transboundary river basin management regimes. This research may be a useful starting point to assess transboundary issues occurring within the case study.

REFERENCES

- Advisory Committee on Watershed-based Source Protection Planning. 2003. *Protecting Ontario's Drinking Water: Toward a Watershed-Based Source Protection Planning Framework*. Ontario Ministry of the Environment.
- Agrawal, A. and Lemos, M. C. 2007. A greener revolution in the making?: environmental governance in the 21st century. *Environment: Science and Policy for Sustainable Development* 49(5): 36-45.
- Ansell, C. and Gash, A. 2007. Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory* 18(4): 543-571.
- Armitage, D. 2005. Adaptive capacity and community-based natural resource management. *Environmental Management* 35(6): 703-715.
- Bakker, K. 2007. *Eau Canada: The Future of Canadian Water Governance*. Vancouver: University of British Columbia Press.
- Bentrup, G. 2001. Evaluation of a collaborative model: a case study analysis of watershed planning in the Intermountain West. *Environmental Management* 27(5): 739-748.
- Berkes, F. 2009. Evolution of co-management: role of knowledge generation, bridging organizations and social learning. *Journal of Environmental Management* 90(5): 1692-1702.
- Bidwell, R. D. and Ryan, C. M. 2006. Collaborative partnership design: the implications of organizational affiliation for watershed partnerships. *Society and Natural Resources* 19: 827-843.
- Bi-National.net n.d. What Is The Lake Erie LaMP? Online: <http://binational.net/erie/whatis-e.html> (Accessed 10/20/10).
- Bonnell, J. E. and Koontz, T. M. 2007. Stumbling forward: the organizational challenges of building and sustaining collaborative watershed management. *Society and Natural Resources* 20(2): 153-167.
- Born, S. M. and Genskow, K. D. 2001. *Toward Understanding New Watershed Initiatives. A Report From the Maddison Watershed Workshop*. Madison, WN: University of Wisconsin.
- Brinkerhoff, J. M. 2002. Assessing and improving partnership relationships and outcomes: a proposed framework. *Evaluation and Program Planning* 25: 215-231.
- Brown, B., Weersink, A., and de Loë, R. C. 2005. Measuring financial capacity and the effects of regulatory changes on small water systems in Nova Scotia. *Canadian Water Resources Journal* 30(3): 197-210.

- Brown, D.T., Middleton, J. and Vaughan, K. 2010. The Land Between the Lakes: An Overview of the Niagara Region, in *Niagara Birds* eds. Black, John and Kayo J. Roy. St. Catharines, ON: Brock University Printing and Digital Services.
- Bulkeley, H. and Mol, A. P. J. 2003. Participation and environmental governance: consensus, ambivalence and debate. *Environmental Values* 12: 143-154.
- Carlsson, L. and Berkes, F. 2005. Co-management: concepts and methodological implications. *Journal of Environmental Management* 75: 65-76.
- Carr, D, Selin, S, and Schuett, M. 1998. Managing public forests: Understanding the role of collaborative planning. *Environmental Management* 22(5): 767-776.
- Chambers, S. 2003. Deliberative democracy theory. *Annual Review of Political Science* 6: 307-326.
- Charmaz, K. 2006. *Constructing grounded theory: A practical guide through qualitative analysis*. London: Sage Publications.
- Cheng, A. S., Kruger, L. D., and Daniels, S. E. 2003. "Place" as an integrating concept in natural resource politics: propositions for a social science research agenda. *Society and Natural Resources* 16: 87-104.
- Conley, A. and Moote, M. A. 2003. Evaluating collaborative natural resource management. *Society and Natural Resources* 16(5): 371-386.
- Connick, S. and Innes, J. E. 2003. Outcomes of collaborative water policy making: applying complexity thinking to evaluation. *Journal of Environmental Planning and Management* 46(2): 177-197.
- Conservation Ontario 2009. Find Information about your local Drinking Water Source Protection Region or Area. Online: http://www.conservation-ontario.on.ca/source_protection/otherswpreionsindex.htm (Accessed 04/22/11).
- Corbin, J. and Strauss, A. 2008. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory*, 3rd edition. Thousand Oaks, CA: Sage Publications Inc.
- Cortner, H. J. and Moote, M. A. 1999. *The Politics of Ecosystem Management*. USA: Island Press.
- CTC Source Protection Region (2008-2010). CTC SPC Members. (Accessed 05/15/11) <http://www.ctcswp.ca/Source-Water-Committee/ctc-spc-members.html>
- Daly, K.J. 2007. *Qualitative Methods for Family Studies and Human Development*. Thousand Oaks, CA: Sage Publications Inc.

- de Loë, R., Varghese, J., Ferreyra, C., and Kreutzwiser, R. 2007. *Water Allocation and Water Security in Canada: Initiating a Policy Dialogue for the 21st Century*. Guelph: Guelph Water Management Group, University of Guelph.
- de Loë, R. C., Armitage, D., Plummer, R., Davidson, S., and Moraru, L. 2009. *From Government to Governance: A State-of-the-Art Review of Environmental Governance*, Solicitation Number 2009/ES-001. Guelph, ON: Rob de Loë Consulting Services.
- Ebrahim, A. 2004. Institutional Preconditions to Collaboration. *Administration and Society* 36(2): 208-242.
- Environment Canada. 2001. Agreement respecting the Great Lakes. Online: http://www.ene.gov.on.ca/environment/en/subject/great_lakes/STDPROD_077640. Accessed May 21, 2010.
- Esty, D. C. and Ivanova, M. H. 2002. Revitalizing Global Environmental Governance: A Function-Driven Approach in *Global Environmental Governance: Options and Opportunities*, ed. D. C. Esty and M. H. Ivanova. New Haven, CT: Yale School of Forestry and Environmental Studies.
- Fennell, D., Plummer, R., and Marschke, M. 2008. Is adaptive co-management ethical? *Journal of Environmental Management* 88(1): 62-75.
- Ferreyra, C. and Beard, P. 2007. Participatory evaluation of collaborative and integrated water management: insights from the field. *Journal of Environmental Planning and Management* 50(2): 271-296.
- Ferreyra, C., de Loë, R. C., and Kreutzwiser, R. D. 2008. Imagined communities, contested watersheds: challenges to integrated water resources management in agricultural areas. *Journal of Rural Studies* 24(3): 304-321.
- Fitzgibbon, J. E and Plummer, R. 2004. Drinking Water and Source Protection: a Challenge for Integration in Watershed Management in *Canadian Perspective on Integrated Water Resources Management*, ed. D. A. Shrubsole. Cambridge, ON: Canadian Water Resources Association.
- Fleeger, W. E. and Becker, M. L. 2008. Creating and sustaining community capacity for ecosystem-based management: Is local government the key? *Journal of Environmental Management* 88: 1396-1405.
- Friends of the Greenbelt Foundation n.d. *About the Ontario Greenbelt*. Online: <http://www.greenbelt.ca/>. Accessed October 21, 2010.
- Genskow, K. D. 2009. Catalyzing collaboration: Wisconsin's agency-initiated basin partnerships. *Environmental Management* 43: 411-424.

- George, A.L. and Bennett, A. 2005. *Case studies and theory development in the social sciences*. Cambridge, MA: Belfer Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University.
- Gerlak, A. and Heikkila, T. 2006. Comparing Collaborative Mechanisms in large-scale ecosystem governance. *Natural Resources Journal* 46: 657-707.
- Gray, B. 1985. Conditions facilitating interorganizational collaboration. *Human Relations* 38(10): 911-936.
- Gray, B. 1989. *Collaborating: Finding common ground for multiparty problems*. San Francisco: Jossey-Bass.
- Hardy S.D. and Koontz, T. M. 2010. Collaborative watershed partnerships in urban and rural areas: Different pathways to success? *Landscape and Urban Planning* 95: 79-90.
- Heikkila, T. and Gerlak, A. 2005. The formation of large-scale collaborative resource management institutions: Clarifying the roles of stakeholders, science, and institutions. *The Policy Studies Journal* 33(4): 583-612.
- Howlett, M. 2009. Governance modes, policy regimes and operational plans: a multi-level nested model of policy instrument choice and policy design. *Policy Science* 42: 73-89.
- Huxham, C. 1996. *Creating Collaborative Advantage*. Thousand Oaks, CA: SAGE Publications Ltd.
- Imperial, M. T. 1999. Institutional analysis and ecosystem-based management: the institutional analysis and development framework. *Environmental Management* 24(4): 449-465.
- Imperial, M. T. 2005. Using collaboration as a governance strategy: lessons from six watershed management programs. *Administration & Society* 37(3): 281-320.
- Imperial, M. T. and Hennessey, T. 2000. Environmental governance in watersheds: The role of collaboration. In *8th Biennial Conference of the International Association for the Study of Common Property*, Environmental Governance in Watersheds, 5-31-2000. School of Public and Environmental Affairs, Indiana University.
- Innes, J. and Booher, D. 2004. Reframing public participation: strategies for the 21st century. *Planning Theory and Practice* 5(4): 419-436.
- Innes, J. E. and Booher, D. E. 1999. Consensus building and complex adaptive systems: a framework for evaluating collaborative planning. *Journal of the American Planning Association* 65(4): 412-422.
- International Joint Commission. 2002. *Great Lakes Water Quality Report*, 11th Biannual Report. Ottawa, ON: International Joint Commission.

- Ivey, J. L., de Loë, R., Kreutzwiser, R., and Ferreyra, C. 2006. An institutional perspective on local capacity for source water protection. *Geoforum* 37(6): 944-957.
- Kapoor, I. 2001. Towards participatory environmental management? *Journal of Environmental Management* 63(3): 269-279.
- Kvale, S. 1996. *Interviews: Introduction to qualitative research interviewing*. Thousand Oaks, CA: Sage Publications Inc.
- Kvale, S. and Brinkmann, S. 2008. *InterViews: Learning the craft of qualitative research interviewing*, 4th edition. Thousand Oaks, CA: Sage Publications Inc.
- Kearney, J, Berkes, F., Charles, A., Pinkerton, E., and Wiber, M. 2007. The Role of Participatory Governance and Community-Based Management in Integrated Coastal and Ocean Management in Canada. *Coastal Management* 35: 79-104.
- Kiser, L. L., and Ostrom, E. 1982. The three worlds of action: a metatheoretical synthesis of institutional approaches. In E. Ostrom (Ed.), *Strategies of political inquiry*: 179-222. Beverly Hills, CA: Sage.
- Koehler, B. and Koontz, T. M. 2008. Citizen participation in collaborative watershed partnerships. *Environmental Management* 41: 143-154.
- Koontz, T. M. 2003. An Introduction to the Institutional Analysis and Development (IAD) Framework for Forest Management Research. In *First Nations and Sustainable Forestry: Institutional Conditions for Success*,
- Koontz, T. M. 2005. We finished the plan, so now what? Impacts of collaborative stakeholder participation on land use policy. *The Policy Studies Journal* 33(3): 459-481.
- Koontz, T. M. 2006. Collaboration for sustainability?: A framework for analyzing government impacts in collaborative-environmental management. *Sustainability: Science, Practice and Policy* 2(1): 15-24.
- Koontz, T. M. and Johnson, E. M. 2004. One size does not fit all: matching breadth of stakeholder participation to watershed group accomplishments. *Policy Sciences* 37: 185-204.
- Koontz, T. M., Steelman, T., Carmin, J., Korfmacher, K. S., Moseley, C., and Thomas, C. W. 2004. *Collaborative Environmental Management: What Roles for Government?* Washington D.C.: Resources for the Future Press.
- Koontz, T. M. and Thomas, C. W. 2006. What do we know and need to know about the environmental outcomes of collaborative management? *Public Administration Review* 66(Supplement 1): 111-120.
- Krajnc, A. 2000. Wither Ontario's environment? Neo-conservatism and the decline of the Environment Ministry. *Canadian Public Policy* 26(1): 111-127.

- Leach, W. D. 2004. *Is Devolution Democratic? Assessing Collaborative Environmental Management*. Sacramento, California: Centre for Collaborative Policy.
- Leach, W. D. 2006. Collaborative public management and democracy: evidence from western watershed partnerships. *Public Administration Review*(special issue): 100-110.
- Leach, W. D. and Pelkey, N. 2001. Making watershed partnerships work: a review of the empirical literature. *Journal of Water Resources Planning and Management* 127(6): 378-385.
- Leach, W. D., Pelkey, N. W., and Sabatier, P. A. 2002. Stakeholder partnerships as collaborative policymaking: evaluation criteria applied to watershed management in California and Washington. *Journal of Policy Analysis and Management* 21(4): 645-670.
- Lebel, L., Anderies, J. M., Campbell, B., Folke, C., Hartfield-Dodds, S., Hughes, T. P., and Wilson J. 2006. Governance and the capacity to manage resilience in regional social-ecological systems. *Ecology and Society* 11(1): Online.
- Lemos, M. C. and Agrawal, A. 2006. Environmental Governance. *Annual Review of Environment and Resources* 31: 297-325.
- Lubell, M. 2004. Collaborative watershed management: a view from the grassroots. *The Policy Studies Journal* 32(3): 341-361.
- Lubell, M. and Leach, W. D. 2005. Watershed partnerships: evaluating a collaborative form of public participation. In *National Research Council's Panel on Public Participation in Environmental Assessment and Decision Making*, 2-3-2005.
- Margerum, R. D. 2007. Overcoming locally based collaboration constraints. *Society and Natural Resources* 20(2): 135-152.
- Margerum, R. D. 2008. A typology of collaboration efforts in environmental management. *Environmental Management* 41: 487-500.
- Margerum, R. D. and Whittall, D. 2004. The challenges and implications of collaborative management on a river basin scale. *Journal of Environmental Planning and Management* 47(3): 407-427.
- McClenaghan, T. 2002. CELA Appointed to Source Protection Advisory Committee. *Intervenor*, 27, 3 – 4. Online: <http://www.cela.ca/article/source-water-protection-faqs/cela-appointed-source-protection-advisory-committee> (Accessed 10/21/10).
- Meadowcroft, J. 2004. Deliberative Democracy in *Environmental Governance Reconsidered: Challenges, Choices, and Opportunities*, ed. R. F. Durant, D. J. Fiorino, and R. O'Leary. Cambridge, MA: MIT Press.
- Mitchell, B. 2002a. *Resource and Environmental Management*, 2nd edition. Harlow, England: Pearson Education Ltd.

- Mitchell, B. 2005. Participatory partnerships: engaging and empowering to enhance environmental management and quality of life? *Social Indicators Research*(71): 123-144.
- Moore, E. A. and Koontz, T. M. 2006. A Typology of Collaborative Watershed Groups: citizen-based, agency-based and mixed partnerships. *Society and Natural Resources* 16(5): 451-460.
- Moote, A. and Lowe, K. 2007. *What to Expect From Collaboration in Natural Resource Management: A Research Synthesis for Practitioners*. Flagstaff: Northern Arizona University, Ecological Restoration Institute.
- Morse, R. S. 2010. Integrative public leadership: Catalyzing collaboration to create public value. *The Leadership Quarterly* 21: 231-245.
- Naiman, R. J., Fetherston, K. L., McKay, S., and Chen, J. 1997. Riparian Forests in *River Ecology and Management: Lessons from the Pacific Coastal Ecoregion.*, ed. R. J. Naiman and R. E. Bilby. New York: Springer-Verlag.
- Nasser, N. 2003. Planning for Urban Heritage Places: Reconciling Conservation, Tourism, and Sustainable Development. *Journal of Planning Literature* 17(4): 467-479.
- Neef, A. 2009. Transforming rural water governance: towards deliberative and polycentric models? *Water Alternatives* 2(1): 1-8.
- Niagara Economic Development Corp. 2010. Investment, Growth and Development: Niagara Canada. Online: <http://www.niagaracanada.com/>. Accessed January 4, 2010.
- Niagara Peninsula Source Protection Committee. n.d. www.SourceProtection-Niagara.ca.
<http://www.sourceprotection-niagara.ca/index.html>. Accessed September 7, 2009.
- Niagara Peninsula Source Protection Committee. 2007. Meeting Minutes: December 10, 2007. Online: http://www.sourceprotection-niagara.ca/pdf/12_10_07_minutes.pdf. Accessed January 10, 2010.
- Niagara Peninsula Source Protection Committee. 2009a. Meeting Minutes: September 29, 2009. Online: http://www.sourceprotection-niagara.ca/pdf/12_10_07_minutes.pdf. Accessed January 10, 2010.
- Niagara Peninsula Source Protection Committee 2009b. Notice of Decision: Source Protection Committee Composition. Online: <http://www.sourceprotection-niagara.ca/pdf/SPCCCompositionInternetNotice09-20-07.pdf>. Accessed November 29, 2009.
- Niagara Peninsula Source Protection Committee. 2009c. Terms of Reference. Online: http://www.sourceprotection-niagara.ca/pdf/MOE_approved_TOR_-_April_2009.pdf. Accessed June 10, 2009.

- Niagara Region, 2010a. The Regional Agricultural Economic Impact (RAEIS). Online: http://www.niagararegion.ca/living/ap/raeis_download.aspx Accessed May 5, 2011.
- Niagara Region 2010b. Water and Wastewater Rate Increase - Question and Answers. Online: <http://www.niagararegion.ca/living/water/water-rates-faq.aspx> (Accessed 10/21/10).
- O'Connor, D. R. 2002a. *Report of the Walkerton Inquiry: Part One, The Events of May 2000 and Related Issues: A Summary*. Toronto, Ontario: Queen's Printer for Ontario.
- O'Connor, D. R. 2002b. *Report of the Walkerton Inquiry: Part Two, A Strategy for Safe Drinking Water*. Toronto, Ontario: Ontario Ministry of the Attorney General, Queen's Printer for Ontario.
- Ontario. 2004a. *Summary Report: Consultation Sessions on the White Paper on Watershed-Based Source Protection Planning*. Ontario: Queen's Printer for Ontario.
- Ontario. 2004b. *Watershed-Based Source Protection: Implementation Committee Report to the Minister of Environment*. Queen's Printer for Ontario.
- Ontario. 2004c. *Watershed-Based Source Protection Planning. Science-Based Decision-Making for Protecting Ontario's Drinking Water Resources: A Threats Assessment Framework*. Queen's Printer for Ontario.
- Ontario 2004d. *White Paper on Watershed-Based Source Protection Planning*: Queen's Printer for Ontario (Integrated Environmental Planning Division, Strategic Policy Branch Ministry of the Environment).
- Ontario 2005. *Assessment Report: Guidance Modules: Source Water Implementation Group*. Online: <http://www.ene.gov.on.ca/envision/water/spp-guidencemodules.pdf>. Accessed October 12, 2010.
- Ontario 2006a. *The Clean Water Act: Preparing and Implementing Source Protection Plans*, Ontario: Queen's Printer for Ontario.
- Ontario 2006b. *The Clean Water Act: Roles and Responsibilities*, Ontario: Queen's Printer for Ontario.
- Ontario 2007a. LakeWide Management Plans (LAMPS), Online: <http://www.ene.gov.on.ca/envision/water/lamps/index.htm>. Accessed October 21, 2009.
- Ontario 2007b. *Source Protection and the Great Lakes*, Ontario: Queen's Printer for Ontario.
- Ontario 2007c. *The Clean Water Act: A Plain Language Guide*, Ontario: Queen's Printer for Ontario.
- Ontario 2008a. *Ontario Minister of the Environment: Annual Report on Drinking Water 2008*, Ontario: Queen's Printer for Ontario.

- Ontario 2008b. *Tables of Drinking Water Threats*. Ontario: Queen's Printer for Ontario.
- Ontario Ministry of the Environment. 2005. *Source Water Implementation Group Guidance Modules*. Online: <http://www.ene.gov.on.ca/envision/water/spp-guidencemodules.pdf>. Accessed November 29, 2009.
- Ontario Ministry of the Environment 2006-2010. *Safe, Clean Water*. Online: http://www.ontario.ca/ONT/portal61/drinkingwater/General?docId=STEL01_047769&breadcrumbLevel=1&lang=en. Accessed May 9, 2010.
- Ontario Ministry of the Environment. 2009a. *Clean Water Act: The Science Behind Drinking Water Source Protection*, Ontario Queen's Printer For Ontario.
- Ontario Ministry of the Environment. 2009b. *Request for Ontario Drinking Water Stewardship Program Grant Proposals*, Ontario Queen's Printer For Ontario.
- Ontario 2009c. *Tables of Drinking Water Threats*. Ontario: Queen's Printer for Ontario.
- Ontario 2009d. *Technical Rules: Assessment Report*, Ontario: Queen's Printer for Ontario.
- Ontario 2009e. *The Clean Water Act: Facts*, Ontario: Queen's Printer for Ontario.
- Ontario's Niagara Escarpment 2010. *About the Niagara Escarpment*, Ontario: Queen's Printer for Ontario.
- Ontario Power Generation (2000-2011). Niagara Plant Group. Online: http://www.opg.com/power/hydro/niagara_plant_group/. Accessed May 8, 2010.
- Ontario's Niagara Escarpment (2007). Niagara Escarpment Plan Statistics. Online: http://www.escarpment.org/_files/file.php?fileid=filemyLjpXVEvx&filename=file_2.1.1_statistics_plan_area.pdf. Accessed May 8, 2010.
- Ostrom, E., Gardner, R., and Walker, J. 1994. *Rules, Games and Common-Pool Resources*. USA: University of Michigan.
- Parkins, J. R. and Mitchell, R. E. 2005. Public participation as public debate: a deliberative turn in natural resource management. *Society and Natural Resources* 18(6): 529-540.
- Plummer, R. and FitzGibbon, J. 2004a. Co-Management of natural resources: a proposed framework. *Environmental Management* 33(6): 876-885.
- Plummer, R. and FitzGibbon, J. 2004b. Some observations on the terminology in co-operative environmental management. *Journal of Environmental Management* 70: 63-72.

- Plummer, R., Kulczycki, C., and Stacey, C. 2006. How are we working together?: A framework to assess collaborative arrangements in nature-based tourism. *Current Issues in Tourism* 9(6): 499-515.
- Plummer, R., Velaniskis, J., de Grosbois, D., Kreutzwiser, R.D. and de Loë. 2010. The development of new environmental policies and processes in response to a crisis: the case of the multiple barrier approach for safe drinking water. *Environmental Science and Policy* 13: 535-548.
- Pollution Probe. 2004. *The Source Water Protection Primer*. Toronto, Ontario: Pollution Probe.
- Prudham, S. 2004. Poisoning the well: neoliberalism and the contamination of municipal water in Walkerton, Ontario. *Geoforum* 35: 343-359.
- Puszkin-Chevlin, A. and Esnard, A. M. 2009. Incremental evolution and devolution of Florida's Coastal High Hazard Area policy. *Journal of Environmental Planning and Management* 52(3): 297-313.
- Raadgever, G. T., Mostert, E., Kranz, N., Interwies, E., and Timmerman, J. G. 2008. Assessing management regimes in transboundary river basins: do they support adaptive management? *Ecology and Society* 13(1): Online.
- Resources for the Environment and the Law Catalogue. 2004. Source Water Protection FAQs: Online: <http://www.ecolawinfo.org/WaterFAQ-SWP.aspx>. Accessed June 30, 2009.
- Rogers, P. and Hall, A. W. 2003. *Effective Water Governance*, TEC Background Papers No. 7, Global Water Partnership Technical Committee (TEC) Background Papers. Stockholm, Sweden: Global Water Partnership.
- Sabatier, P., Leach, W. D., Lubell, M., and Pelkey, N. 2005. Theoretical Frameworks Explaining Partnership Success in *Swimming Upstream: Collaborative Approaches to Watershed Management*, ed. P. Sabatier et al. Cambridge, MA: MIT Press.
- Schuett, M. A., Selin, S. W., and Carr, D. S. 2001. Making it work: keys to successful collaboration in natural resource management. *Environmental Management* 27(4): 587-593.
- Selin, S. and Chavez, D. 1995. Developing a collaborative model for environmental planning and management. *Environmental Management* 19(2): 189-195.
- Singleton, S. 2002. Collaborative environmental planning in the west: the good, the bad and the ugly. *Environmental Politics* 11(3): 54-75.
- Skogstad, G. 2003. Who governs? who should govern? political authority and legitimacy in Canada in the Twenty-First Century. *Canadian Journal of Political Science* 36(5): 955-973.

- Sommarstrom, S. 1999. An evaluation of selected watershed councils in the Pacific Northwest and Norther California.
- Stake, R. E. 1995. *The Art of Case Study Research*. Thousand Oaks, California: Sage Publications.
- Stoker, G. 1998. Governance as theory: five propositions. *International Social Science Journal* 50(155): 17-28.
- The Centre for Land and Water Stewardship, University of Guelph, 1994. *The Uniqueness of Carolinian Canada*. Online: http://www.carolinian.org/FactSheets_CCUniqueness.htm. Accessed October 21, 2010.
- Waddock, S. A. 1989. Understanding Social Partnerships. *Administration and Society* 21(1): 78-100.
- Willis, J.W. 2007. *Foundations of Qualitative Research: Interpretive and Critical Approaches*. Thousand Oaks, CA: Sage Publications Inc.
- Wondolleck, J. M. and Yaffee, S. L. 2000. *Making Collaboration Work: Lessons From Innovation in Natural Resources Management*. Washington, DC: Island Press.
- Yin, R. K. 2009. *Case Study Research: Design and Methods*, 4th edition, Applied Social Research Methods Series, vol. 5. Thousand Oaks, California: Sage Publications.
- Zachrisson, A. 2010. Deliberative democracy and co-management of natural resources: The case of Funäsdalen snowmobile regulation area. *International Journal of the Commons* 4(1): 273-292.

APPENDICES

Appendix A – Dialogue for Introduction to Committee Chair

CC = Committee Chair;

I=Interviewer

Dialogue

I – May I please speak to [committee chair’s name]?

CC – Hello, [committee chair’s name] speaking. How may I help you?

I – My name is Katelyn Vaughan and I am a Graduate student in the Department of Environment at the University of Waterloo. I am currently conducting research under the supervision of Dr. Rob de Loë from the University of Waterloo and Dr. Ryan Plummer from Brock University on source water protection in the Niagara Source Protection Area. As part of my thesis research, I would like to attend the source protection meetings in order to observe how the committee is carrying out the process of source water protection. I wanted to speak with you and introduce myself before attending the meeting to explain the purpose of my study and to answer any questions that you may have.

Is this a convenient time to give you further information about my research?

CC – No, could you call back later (agree on a more convenient time to call this person back).

OR

CC – Yes, could you provide me with some more information regarding your research?

I – Background Information:

- The growing recognition of the need for environmental governance and the effectiveness of collaboration as a strategy for governance have led to new legislation in Ontario that specifically mandates collaboration. Ontario’s source water protection legislation is one example of this type of approach to watershed-based collaboration. Questions about how mandated collaboration will influence the processes and outcomes are of key importance. The purpose of my research is to understand mandated collaboration, in order to assess the potential roles and impacts that government can and should play and have in this process.
- I would like to attend the public meetings held between July and December 2009 in order to gain first-hand insights into how the process is being carried out by the Source Protection Committee. I would also like to inquire if anyone attending the meeting would be interested in taking part in an interview.

- If you have any questions regarding this study, or would like additional information, please feel free to contact Dr. Rob de Loë at 519-888-4567, Ext. 38648 or Dr. Ryan Plummer at 905-688-5550 ext. 4782
- I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. Should you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes in the Office of Research Ethics at 519-888-4567, Ext. 36005 or ssykes@uwaterloo.ca.

With your permission, I would like to email you an information letter that has all of these details along with contact names and numbers on it.

CC - – No thank you.

OR

CC – Sure (get contact information from potential participant i.e., email address)

I - Once again, if you have any questions or concerns please do not hesitate to contact me at 289-668-1832 or by my email address kvaughan@uwaterloo.ca.

CC – Good-bye

I – Good-bye

Appendix B – Participant Invitation to Participate in Study

(Date)

Dear (*participant*):

This letter is an invitation to participate in a study I am conducting for a Master's thesis at the University of Waterloo. My faculty supervisors are Dr. Rob de Loë from the University of Waterloo and Dr. Ryan Plummer from Brock University. I would like to provide you with more information about this project and what your involvement would entail if you decide to take part.

It has been recognized that collaboration is an effective strategy for watershed-based management, for this reason Ontario's source water protection legislation has specifically mandated collaboration through source protection committees. Questions about how mandated collaboration will influence the processes and outcomes are of key importance within the field of collaborative watershed management. The purpose of my research is to understand collaboration, which is mandated, in order to assess the potential roles and impacts that government can and should play and have in this process. Through interviews and observations at source protection meetings, I hope to gain insights into how collaboration is occurring within the Niagara Source Protection Area and to gain a greater understanding of some of the challenges, advantages and disadvantages of taking on a collaborative approach to source water protection. This information will be used to generate a summary of how collaboration is expected to be undertaken, based on formal government documents, and what is actually occurring in practice, based on the interviews and observations. The data collected during interviews will also contribute to a better understanding of the interests and issues that concern stakeholders involved in this issue, and is meant to aid in the development of more effective source water protection policy in Ontario.

I have chosen to contact you because I feel that you possess valuable knowledge that is relevant to my study based on your involvement in source water protection issues in the Niagara Source Protection Area. Participation in this study is voluntary. It will involve an interview lasting approximately one hour, at a mutually convenient location and time. I will provide you with a copy of the interview questions prior to the interview and you may decline to answer any of the interview questions if you wish. Further, you may decide to withdraw from this study at any time. With your permission, I would like to audio record the interview. Shortly after the interview has been completed, I will send you a copy of the transcript to give you an opportunity to confirm the accuracy of our conversation and to add or clarify any points that you wish.

With your permission, I would like to be able to quote things that you tell me in my thesis and other publications. You will have the opportunity to review and approve the quotations as they are written in the paper prior to finalizing the paper. I would also like to use your name and affiliation in my thesis. However, if you prefer you can remain anonymous, including the name of the company/organization with which you are associated. If you indicate that you would like to remain anonymous, then all information you provide will be considered confidential. All data will be securely stored on a password protected computer, and upon completion of the study will be erased or destroyed. Only authorized researchers will have access to the information

collected. There are no known or anticipated risks to you as a participant in this study. Finally, after I've completed my thesis, I will send you an executive summary of the research results.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me by email at kvaughan@uwaterloo.ca. You can also contact Dr. Rob de Loë, at 519-888-4567 ext. 38648 or by email (rdeloe@uwaterloo.ca) or Dr. Ryan Plummer, at 905-688-5550 ext. 4782 or by email (rplummer@brocku.ca).

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes, Director, Office of Research Ethics at 519-888-4567 ext. 36005 or by email at ssykes@uwaterloo.ca.

I very much look forward to speaking with you and thank you in advance for your assistance in this project.

Yours Sincerely,

Katelyn Vaughan
Student Investigator

Appendix C – Participant Consent Form

I have read the information presented in the information letter about a study being conducted by Katelyn Vaughan of the Department of Environment at the University of Waterloo. I have had the opportunity to ask any questions related to this study, to receive satisfactory answers to my questions, and any additional details I wanted.

I am aware that I have the option of allowing my interview to be audio recorded to ensure an accurate recording of my responses. I am aware that I will have the opportunity to review and approve the quotations as they are written in the paper prior to finalizing the paper.

Below I have indicated my preference regarding attribution. If I indicate that I can be quoted, I understand that excerpts from the interview may be included in the thesis and/or publications to come from this research.

This project has been reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. I was informed that if I have any comments or concerns resulting from my participation in this study, I may contact Dr. Susan Sykes, Director, Office of Research Ethics at 519-888-4567 ext. 36005 or by email at ssykes@uwaterloo.ca.

With full knowledge of all foregoing, I agree, of my own free will, to participate in this study.

YES NO

I agree to have my interview audio recorded.

YES NO

Regarding quotation and attribution of things that I say during the interview in the thesis and or publications to come from this research, the following is my position:

My comments may be used in any of the research, written report or subsequent publications and I may be identified by my name and the name of my organization.

My comments may be used in any of the research, written report or subsequent publications where no individual identifiers beyond type of stakeholder involvement are used (e.g., local business owner, farmer, source protection committee member) and pseudonyms are used for verbatim quotes.

In the case of verbatim quotes with identifiers, my comments are either not used or the identifiers are removed.

Participant Name (Please Print)

Witness Name (Please Print)

Date

Signature of Participant

Witness Signature

Date

Appendix D – Follow-Up Letter to Study Participants

(Date)

Dear (*participant*);

I would like to thank you for your participation in this study. As a reminder, the purpose of this study is to understand collaboration, which is mandated.

The data collected during interviews will contribute to a better understanding of the interests and issues that concern stakeholders involved in this issue, and is meant to aid in the development of more effective source water protection policy in Ontario.

Any data you provide will be kept confidential should you choose. Once all the data are collected and analyzed for this project, I plan on sharing this information with the research community through seminars, conferences, presentations, and journal articles. If you are interested in receiving more information regarding the results of this study, or if you have any questions or concerns, please contact me at either the phone number or email address listed at the bottom of the page. If you would like a summary of the results, please let me know. When the study is completed, I will send it to you. The study will be completed by September 2010.

If you have any questions regarding this study, or would like additional information to assist you in reaching a decision about participation, please contact me by email at kvaughan@uwaterloo.ca. You can also contact Dr. Rob de Loë, at 519-888-4567 ext. 38648 or by email (rdeloe@uwaterloo.ca) or Dr. Ryan Plummer, at 905-688-5550 ext. 4782 or by email (rplummer@brocku.ca).

As with all University of Waterloo projects involving human participants, this project was reviewed by, and received ethics clearance through, the Office of Research Ethics at the University of Waterloo. Should you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes, Director, Office of Research Ethics at 519-888-4567 ext. 36005 or by email at ssykes@uwaterloo.ca.

Katelyn Vaughan

University of Waterloo
Department of Environment Studies
289-668-1832
kvaughan@uwaterloo.ca

Appendix E - Letter for Committee Chairperson

(Date)

Dear (*committee chair*):

Thank you for speaking with me the other day to talk about a study I am conducting for a Master's thesis in the Department of Environment and Resource Studies at the University of Waterloo. My faculty supervisors are Rob de Loë from the University of Waterloo and Ryan Plummer from Brock University. I would like to provide you with more information about this project .

It has been recognized that collaboration is an effective strategy for watershed-based management, for this reason Ontario's source water protection legislation has specifically mandated collaboration through source protection committees. Questions about how mandated collaboration will influence the processes and outcomes are of key importance within the field of collaborative watershed management. The purpose of my research is to understand collaboration, which is mandated by government, in order to assess the potential roles and impacts that government can and should play and have in this process.

As part of my thesis research, I would like to attend the public meetings held between July and December 2009 in order to gain first-hand insights into how the process is being carried out by the Source Protection Committee. I would also like to inquire if anyone attending the meeting would be interested in taking part in an interview.

If you have any questions regarding this study, or would like additional information, please contact me by email at kvaughan@uwaterloo.ca. You can also contact Dr. Rob de Loë, at 519-888-4567 ext. 38648 or by email (rdeloe@uwaterloo.ca) or Dr. Ryan Plummer, at 905-688-5550 ext. 4782 or by email (rplummer@brocku.ca).

I would like to assure you that this study has been reviewed and received ethics clearance through the Office of Research Ethics at the University of Waterloo. If you have any comments or concerns resulting from your participation in this study, please contact Dr. Susan Sykes, Director, Office of Research Ethics at 519-888-4567 ext. 36005 or by email at ssykes@uwaterloo.ca.

I very much look forward to speaking again and thank you in advance for your assistance in this project.

Yours Sincerely,

Katelyn Vaughan
Student Investigator

Appendix F - Script to give introduction at Committee Meeting

Hello, my name is Katelyn Vaughan and I am a Graduate student in the Department of Environment and Resource Studies at the University of Waterloo. I am currently conducting research on source water protection in the Niagara Source Protection Area. I would first like to thank all of you for welcoming me to attend this meeting. I would also like to provide you with a brief overview of my research and my purpose for being here. To begin, it has been recognized that collaboration is an effective strategy for watershed-based management and, for this reason, Ontario's new source water protection legislation has specifically mandated collaboration through source protection committees. Questions about how mandated collaboration will influence the processes and outcomes are of key importance within the field of collaborative watershed management. The purpose of my research is to understand collaboration, which is mandated by government, in order to assess the potential roles and impacts that government can and should play and have in this process. Please feel free to speak with me after the meeting if you have any questions about my research or any information that you feel may be useful. I am also looking to conduct interviews with individuals involved with source water protection in the Niagara Source Protection Area. If you are interested in being interviewed for this study I would look forward to speaking with you.

Appendix G – Timelines for Source Protection Committees

SOURCE PROTECTION COMMITTEE FORMATION

Time following SPC Regulation Promulgation

Key Tasks	Jul-07	Aug-07	Sep-07	Oct-07	Nov-07	Dec-07	Jan-08	NOTES
SPA to post notice with the functions and proposed composition of the SPC on Internet and within general circulation newspapers (NOTE: specific information required in notice set out in regulation)	→							Notice on Internet & in newspapers no later than Aug. 3, 2007
SPA to notify Chief of each band where a reserve is within the SPA/SPR requesting a joint selection for First Nation representative(s) to the SPC (NOTE: specific information required in notice set out in draft regulation)	→							Notice to Chiefs no later than Aug. 3, 2007 No timeline for selection of First Nation representative. Seat(s) is/are reserved indefinitely. Seat(s) is/are in addition to SPC composition set out in Regulations
SPA provides a notice to the clerk of each municipality in the SPA/SPR requesting appointment of members to SPC (NOTE: specific information required in notice set out in regulation)	→							Notice to clerks no later than Sept. 3, 2007
Written comments to be received on proposed composition of SPC		→						Comments due within one month of the notice on Internet/Newspapers
SPA to consider written comments on SPC composition and make their final decision on how to divide up appointments for sector and other interests members. SPA to publish a notice on the internet and in newspapers with final decision on SPC composition.		→						Within 45 days of original notice on Internet/Newspapers
SPA receives applications from potential candidates for the SPC			→					Date applications of potential SPC candidates are due to SPA shall not be earlier than two months after the request for expressions of interest is published in the newspaper
Council of municipalities must submit the list of municipal members to the SPA (based on groupings of municipalities)				→				Due date that names are required to SPA shall not be earlier than two months after notice to clerks
SPA to appoint members of SPC			→					SPA appoints members to SPC 75 days after date of notice to clerks/date of notice in newspaper (which ever is later)
SPC prepares written: *Procedure for conducting committee business *Code of conduct *Conflict of Interest Policy						→		Within 2 months after sufficient number of members to constitute a quorum of the SPC, SPC develops written rules of procedure for conducting business and code of conduct and conflict of interest policy

TIME LINES FOR TERMS OF REFERENCE, ASSESSMENT REPORT, AND SOURCE PROTECTION PLAN

Assumes SPC Chair appointed by Minister by September 2007.

Key Tasks	2007	2008	2009	2010	2011	2012	NOTES
SPC to prepare draft Terms of Reference and publish on Internet and make available to public before submitting to SPC	→						
SPC to host at least one public meeting providing an opportunity for public review, questions and comments on draft Terms of Reference		→					at least 21 days after notice is published
Written comments on the draft Terms of Reference due to the SPC		→					comments within 35 days after notice is published
SPC submits proposed terms of reference to SPA, including providing copy to clerks of each municipality, Chief of Band Council, Chair of every other SPC where consultation is require, relevant Great Lakes bodies, and publishing on internet/making available at public location for comment	→						within 12 months of SPC Chair appointment
SPA to accept written comments on Terms of Reference		→					within 30 days after notice is published
SPA submits proposed terms of reference to Minister	→						within 14 months of the first SPC Chair appointment
SPA submits proposed assessment report to Director			→				within 1 year of the approved Terms of Reference
SPA submits proposed source protection plan to Minister	→						within 5 years of the first SPC Chair

Appendix H – Background of Committee Members (NPSP Committee, n.d.)

Position	Name	Background
Chair	Mark Neufeld	Has a strong background in the agriculture, insurance and environmental sectors, as well as experience working on committees throughout the Area.
<i>Municipal Representation</i>		
Niagara Region	Tim Rigby	Has extensive community involvement in a variety of activities and is a past Mayor for the City of St. Catharines. He is also currently a Regional Councilor and sits on the Region's Planning and Public Works and Utilities Committee.
Haldimand County	Don Ricker	Has served on the Haldimand county council and for the last fifteen years has owned and operated a water treatment business. He also has experience in the dairy and cash crop farm operations and has helped to implement a land stewardship program as the field inspector and board member.
City of Hamilton	Chris Shrive	Is currently employed by the City of Hamilton's Wastewater Division of Public Works and is a Senior Project Manager in the Source Protection Planning section, which is dedicated to ensuring the City's responsibilities under the Clean Water Act are met. In addition to his current work, Mr. Shrive has considerable experience in environmental investigations, watershed studies, impact assessments, natural treatment technology research and implementation and watershed planning. He also holds an honours B.Sc. (Agriculture) specializing in Resources Management, and a Master of Science, specializing in Soil Science and is registered in Ontario as a practicing Professional Agrologist.
<i>Sector Representation</i>		
Agriculture	Robert Bator	Has been a landowner and tender fruit and grapes farmer in Area for over 30 years. He is heavily involved in the agriculture community through participation on various Federations, committees and task groups (e.g., Director of the Ontario Federation of Agriculture, Vice-president of the Niagara North Federation of Agriculture, sits on the Agriculture Sub-committee of the Region of Niagara, was a member of the task group that completed the Agricultural Impact Study for Niagara). Mr. Bator also holds an honours B.Sc. in Biology and

		Chemistry.
Industrial	Maria Ballentino	Has been working in the environmental field for over 20 years in both the government and industrial sectors. She is currently the Environmental Control Supervisor for Vale Inco Limited and had extensive involvement in the Community Based Risk Assessment (CBRA) process to address soil contamination.
Commercial	Brian Antonsen	Is the owner of a local golf course and has experience working on a steering committee for the Tourism Strategy and Annual Action Plan.
<i>Public Interest Representation</i>		
	Dean Ostryhon	Has been employed in the municipal government sector for over 20 years including 15 years as a senior manager in public works and operational services, including experience working as the Chair of the Water Quality Sub-committee. Mr. Ostryhon also holds a Bachelor of Arts degree in urban geography and environmental studies and is a member of the Ontario Association of Certified Engineering Technicians and Technologists (OACETT) as a Certified Technician.
	David Renshaw	Served as a Canadian Forces combat engineer officer, and later as a construction engineer officer in various positions across Canada, including Officer Commanding Construction Engineering Company. Mr. Renshaw has served as the Director of the Buildings Division with Indian & Northern Affairs, Director Technical Services for National Capital Region for Public Works Canada, the Director of Technological Development & Environmental Services, and as Acting Director General, Strategic Management. In addition to his career experience, he has an undergraduate and Masters degree in Civil Engineering.
	Erwin Schneider	Is a retired local businessman, but has stepped down from his position on the committee.
	Drew Semple	Is a recently retired Senior Policy Planner with the Integrated Community Planning Department for Niagara Region and holds an honours degree in Urban Geography and a Masters of Science in Urban and Regional Planning.