

**Local Water Collaboration to Enhance Community Source Water
Protection at Chippewas of the Thames First Nation, Ontario**

by

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ABSTRACT

LOCAL WATER COLLABORATION TO ENHANCE COMMUNITY SOURCE WATER PROTECTION AT CHIPPEWAS OF THE THAMES FIRST NATION, ONTARIO

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First Nations in Canada are disproportionately affected by chronic drinking water insecurity. Water security, sustainable access to adequate quantities of water of acceptable quality, can be improved through source water protection (SWP). Due to the ubiquitous nature of water, upstream and downstream users must collaborate to ensure successful SWP. The goal of this research is to understand how collaboration between water actors from Chippewas of the Thames First Nations, local conservation authorities and municipalities can support First Nations SWP. A conceptual framework for water governance was created which framed collaboration as both a process and a structure. Key findings include perspectives of water actors towards collaboration, activities that enable collaboration, and challenges that constrain water collaboration. This research defines what collaboration means to water actors, what kinds of collaborations occur, what barriers exist, and helps to inform the development of future water collaboration among multiple actors.

DEDICATION

I would like to dedicate this thesis to my parents, Lynne and Phil Garrod for supporting all my accomplishments, big and small.

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LIST OF ABBREVIATIONS AND ACRONYMS

COTTFN	Chippewas of the Thames First Nation
CWA	Clean Water Act
CIRNAC	Crown Indigenous Relations and Northern Affairs Canada
FNLMA	First Nations Land Management Act
LTRCA	Lower Thames Region Conservation Authority
INAC	Indigenous Northern Affairs Canada
ISC	Indigenous Services Canada
ITK	Indigenous Traditional Knowledge
MECP	Ministry of the Environment, Conservation and Parks
SCRCA	St. Clair Region Conservation Authority
SWP	Source Water Protection
TRCWR	Thames River Clear Water Revival
TRC	Truth and Reconciliation Commission

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1 Introduction

Access to clean, safe drinking water is integral to human health, environmental sustainability, ecosystem diversity, economic development, and political stability (Bakker, 2012). Water security may be defined as “an acceptable level of water-related risks to humans and ecosystems, coupled with the availability of water of sufficient quantity and quality to support livelihoods, national security, human health and ecosystem services” (Bakker & Morinville, 2013, p 1; Cooke & Bakker, 2012, p 97). Water security involves achieving a balance between supplying water for human demand while safeguarding it for ecosystem services and biodiversity (Bakker, 2012).

Water security is an important topic of research garnering increased academic and policy interest over the last decade (Bakker & Morinville, 2013; Cooke & Bakker, 2012). According to Bakker (2012) the concept of water security has been the subject of more than 400 peer-reviewed publications (as of 2012) across social, natural, and medical science in the past 20 years. Research on water security has a breadth of scope. Research on water security is particularly relevant for First Nations communities in Canada who chronically lack water security. According to Patrick et al. (2019), one in five First Nation communities in Canada is on a boil water advisory at any one time. According to Indigenous Services Canada (2018), a boil water advisory is “issued to warn people not to drink water that based on water quality testing may be unsafe or is known not to be safe” (n.p.). As of February 2020, the most available data, there are 61 long-term drinking water advisories in effect on First Nations communities across Canada (Government of Canada, 2020a). Boil water advisories are 2.5 times more frequent for First Nation communities as opposed to non-First Nation communities in Canada (Patrick et al., 2019).

Water insecurity, or a lack of water security, on First Nations reserves in Canada is not a new problem. In 1991, Indigenous Northern Affairs Canada¹ (INAC), now Indigenous Services Canada (ISC), committed to achieving equality amongst Canadians and First Nations concerning access to safe water by 2001 (Boyd, 2011). In 1995, INAC reported that serious problems with drinking water quality existed on one in four First Nations reserves, and committed to remedying poor water systems (Boyd, 2011). In 2005, the Commissioner of the Environment and Sustainable Development Report stated, “when it comes to the safety of drinking water, residents of First Nations communities do not benefit from a level of protection comparable to that of people who live off reserves” (Boyd, 2011, p. 89). More recently, in 2015, the federal government committed to ending all long-term drinking water advisories on public systems on reserves by March 2021 (Government of Canada, 2020a)

Peer-reviewed articles report on the causes of First Nations drinking water contamination (Bakker, 2012; Boyd, 2011; McGregor, 2012; Patrick et al., 2019). They attribute it to colonialism and poor infrastructure planning (Patrick et al., 2019), funding and policy limitations (Boyd, 2011), inadequate source water protection (SWP) planning (Marshall et al., 2018), socio-economic implications and lack of collaboration (Bakker, 2012), and a gap in knowledge between traditional knowledge and technical knowledge informing policy (Black & McBean, 2017). No one cause exists and it is fair to infer that potential solutions will be equally varied and diverse.

A lack of water security can have many impacts on First Nations community health, affluence, and economic development (McGregor, 2012; Patrick et al., 2019). Water insecurity also inhibits First Nations ability to exercise their inherent responsibilities to water (McGregor, 2012). Most First Nations communities have cultural teachings around

¹ On July 2019, INAC was dissolved and two new departments were formally established Indigenous Services Canada (ISC) and Crown Indigenous Relations and Northern Affairs. ISC is responsible for water services to Indigenous communities in Canada (Government of Canada, 2019a).

the importance of taking care of water, and water plays a significant role in daily needs as a source of food, and culturally, in passing knowledge onto younger generations to ensure sustainability (McGregor, 2012). Women are believed to have a special relationship with water, many practice traditional ceremonies for water, and seek to raise awareness of our responsibility to water (Longboat, 2013). In doing so, they fulfil the creators' original instructions, to care appropriately for all of the environment and its resources (McGregor, 2012; McGregor et al., 2020).

How water is governed, or the processes and decision-making that impact water, contributes to First Nations drinking water insecurity. The responsibility for drinking water provisioning across Canada is complex and fragmented (McGregor, 2012). Responsibilities for water management is divided across federal, provincial, and international jurisdictions (McGregor, 2012). Generally, the responsibility for drinking water and wastewater operations belong to the provincial and territorial governments, who delegate these responsibilities to municipalities, where applicable. Robust provincial water management systems are in place to ensure safe drinking water.

However, for First Nations, the provision of safe drinking water on reserves falls under federal jurisdiction, with the exception of those who have negotiated agreements. Section 91(24) of the *Constitution Act, 1867* grants the federal government exclusive jurisdiction over "Indians and lands reserve for Indians" (p.2). This means that provincial water management systems and drinking water standards that ensure safe drinking water to most Canadians do not apply to First Nations communities (White et al., 2012).

The federal government administers First Nations water and wastewater management responsibilities in a decentralized² structure across three federal departments: Indigenous Services Canada, Health Canada, and Environment Canada

² Decentralization occurs when powers are not centralized by one overarching authority, rather powers are spread between multiple actors (Bakker & Cook, 2011).

(White et al., 2012). “The government’s position is that they provide funding, while the First Nations is responsible for delivery” (White et al., 2012, p. 2). The First Nation is also responsible for designing, building, and operating their water systems. First Nations can receive from ISC capital funding for projects on a discretionary basis, and 80% of operating and maintenance costs, while the First Nation is required to supply the remaining 20% (White et al., 2012).

Given persistent water insecurity in First Nations communities in Canada, tools that can be used to address these challenges are necessary. Source water protection (SWP) is one approach to addressing water insecurity and is part of a multi-barrier approach for drinking water protection. It is considered “the best method for ensuring safe drinking water and is preferred over treating a contaminated water supply to render it suitable for consumption” (Ivey et al., 2006a, p. 945). SWP refers to “keeping raw water as clean as possible through watershed-based risk management planning that considers the vulnerability of surface and groundwater sources and major contaminant pathways” (Ivey et al., 2006a, p. 945).

While provincial and municipal governments enforce water standards and administer safe drinking water within their jurisdictions (Bereski et al., 2017), other organizations contribute to protecting public drinking water supplies such as conservation authorities. In Ontario, conservation authorities are responsible for “undertaking watershed-based programs to protect people and property from natural hazards and to conserve natural resources for economic, social, and environmental benefits” (Conservation Ontario, 2020, n.p.). Conservation authorities also work in partnership with the province to support Source Water Protection Committees for 19 regions in Ontario (Conservation Ontario, 2020, n.p.).

To protect the source of First Nations drinking water requires water actors³ within a shared watershed to collaborate their efforts. Collaboration in water governance⁴ is well suited to address water issues since the threats to water quality and quantity can occur upstream and affect downstream users (Melnychuk & de Loë, 2017). Collaboration in SWP involves decision-making for water that includes multiple actors with diverse interests, working together to solve common problems (Melnychuk & de Loë, 2017).

This MSc research aims to add new insights and fill a knowledge gap identified by Marshall et al. (2018) who completed a scoping review on the nature of published peer-reviewed literature around the adoption, implementation and outcomes of SWP programs involving Indigenous populations in Canada. The study indicated there is a lack of depth in which the literature describes Indigenous involvement in source water protection programs; and within existing programs, there is poor quality of Indigenous involvement. This research, therefore, seeks to understand the perspectives of First Nations and local water actors around water collaboration and experiences in source water protection in the southern Ontario context.

1.1 Goal and Objectives

The goal of this research is to understand how collaboration between local water actors can support First Nations community-level source water protection. To achieve this goal, there are three objectives:

³ “Individuals and organizations within the study system boundaries that make water-related decisions, including operational (i.e., use and management) and planning, design, and policy decisions” (Hale et al., 2015).

⁴ Water governance is “a form of decision-making for water that involves multiple actors with diverse interests working together to solve common problems” (Melnychuk & de Loë, 2017).

1. To understand the attitudes, opinions, and experiences of water actors from First Nations, conservation authorities and municipalities as it relates to water collaboration.
2. To identify and examine collaborative approaches that currently exist for their application to First Nation source water protection in southern Ontario.
3. To generate understandings of the process and structure of current water collaborations in this case study to support First Nations local-level source water protection.

1.2 Notes on Terminology

In this research, the term “water actor” is used to describe “individuals and organizations within the study system boundaries that make water-related decisions, including operational (i.e., use and management) and planning, design, and policy decisions” (Hale et al. (2015) p. 115). While this definition includes both individuals and organizations, this thesis only uses individual actors’ attitudes, opinions, and experiences of those interviewed from the municipality, conservation authority, First Nation, or government department. This definition limits water actors to include only four primary areas of expertise however this study included individuals who make water decisions related to finance, water infrastructure, and water conservation/restoration. Therefore, the term “water actor” will be used in this thesis to describe individuals within the case study that make water-related decisions, including operational, planning, design, policy, conservation, restoration, finance, and infrastructure decisions.

The term Aboriginal, Indigenous, First Nation and Indian are all used in literature to describe the population of first inhabitants in Canada. Similarly, these terms are used in the thesis to be consistent with the original literature referenced. The term “Aboriginal”, as defined in Section 35 (2) of the Canadian Constitution Act 1982, refers to “Indian, Inuit, and Métis peoples of Canada” (Government of Canada, 2020b). The term “Indigenous” is used to encompass a variety of Aboriginal groups and refers to “peoples of long settlement and connection to specific lands who have been adversely affected by

incursions by industrial economies, displacements and settlement of their traditional territories” (Indigenous Corporate Training, 2020, n.p.). The term “Indian” is the legal term used to define an Indigenous person who is registered under the Indian Act (Indigenous Corporate Training, 2020). The term “Indian”, considered derogatory and outdated today, will only be used in this thesis only in reference to the language stated in the *Canadian Constitution Act, 1982*.

The phrase “water actors from local organizations” will be used when referring to participants who represent the municipality or conservation authorities in this case study. The term “organizations” will be used to describe conservation authorities and the municipality in this case study because they are “an organized body of people with a particular purpose”, organizations are businesses, societies, or associations (“Organization”, 2020, n.p.).

As well, the term “local” will be used in the phrase because it implies those who inhabit a particular region, in this case the Thames Sydenham Watershed. As well, the provincial and municipal organizations are differentiated as the focus of this study is to understand the attitudes, opinions, and experiences of municipal actors and conservation authorities’ actors, not provincial actors.

The phrase “water actors from the First Nation” will be used when referring to participants who represent the First Nation in this case study. This phrase was decided upon because it helps to differentiate the water actors are from the First Nation versus the water actors from the municipality and conservation authorities.

1.3 Researcher Positionality

I would like to acknowledge my position in this research as a non-Indigenous researcher engaged in Indigenous community research. I acknowledge that I come from a position of unearned privilege. Coming from a place of unearned privilege, I cannot fully embrace Indigenous worldviews as my world is a result of the colonization of Indigenous peoples

in Canada. It is difficult for a person to “perceive of something they do not know”, meaning that I do not possess a deep understanding of First Nations culture or beliefs, but do strive to respectfully listen and keep an open mind to new learning

I have spent a great deal of time immersed in academic literature written by both Indigenous and non-Indigenous academics, in a classroom taught by a First Nations professor whose goal was to educate students on historical and current Indigenous experiences, visiting reserves in Canada and at home reading books and studying artwork created by Indigenous people. These teachings have taught me about my position of privilege, and about what techniques that can be used to assist in a self-process of decolonization and towards -what is hoped to be- a neutral worldview. It is my hope, that by engaging in this research I can better understand the world that exists within and beyond myself.

1.4 Outline and Organization

This thesis is organized into chapters: 1) introduction, 2) literature review, 3) methodology and case study, 4) research results, 5) discussion and 6) conclusion, contribution, and future research. Chapter 2 is a presentation of the literature review where foundational concepts are discussed including policy around source water protection (SWP) and collaboration. In Chapter 3, the research methodology, case study, data collection and analysis, and research limitations are detailed. In Chapter 4, the research results are presented. This includes findings from the semi-structured interviews: perspectives on collaboration, challenges, collaborative examples, and rationale for COTTFN pursuing SWP planning outside of the *Clean Water Act* (CWA). In Chapter 5, a discussion on the process and structure of a collaboration identified within this case study called the Thames River Clear Water Revival (TRCWR). Last, in Chapter 6, concludes the thesis with a summary of key research findings and contributions.

2 Literature Review

This section is a review of two topics, source water protection (SWP) and collaboration, which are the primary conceptual areas that inform the data analysis, results and discussion. The chapter begins with a definition of SWP, why it is important, and how it is situated within a larger multi-barrier approach. The evolution of SWP in the Province of Ontario is explained, key legislation such as the *Ontario Clean Water Act, 2006*, its governance of SWP, and how it relates to First Nations communities. Next the federal approach to SWP on First Nations reserves in Canada, specifically the *First Nations Land Management Act, 1999*. From here, the discussion shifts to examine the definition of collaboration in academic literature, the process of collaboration as outlined by Ansell & Gash (2007) and the structure of collaborative governance as outlined by the Fraser Basin Council (2015). Next, introduced are the actors responsible for decision-making on water resources in Canada in relation to First Nations. Last, the chapter ends with the presentation of a conceptual framework that draws together key literature concepts. This conceptual framework guides the research approach, analysis and results.

2.1 Source Water Protection

2.1.1 What is Source Water Protection?

Source waters are defined as “untreated surface or groundwater used to supply private wells and public drinking water systems with potable water for human consumption or use” (CELA, 2019, p. 9). Source water includes both surface water, found in lakes, rivers, streams, and wetlands, and groundwater or water from rain or snow that seeps into the ground through the earth’s surface and is stored in aquifers (CELA, 2019). SWP is the first part of a multi-barrier approach to drinking water protection that includes multiple lines of defence from the water source to treatment to tap (Marshall et al., 2018). The protection of source waters is important as natural and anthropogenic contaminants can impact the quality of surface and groundwater (Marshall et al., 2019). Contamination can be non-point source, such as agricultural fertilizers and road salt, and point sources, such

as chemical leaks, septic systems, and landfills (Marshall et al., 2019). Due to the nature of water and its ability to cross jurisdictional boundaries, it is difficult to implement protections for source water (Ivey et al., 2006a). Land and water management decisions in one community can affect the quality and supply of drinking water for neighbouring, downstream communities (Ivey et al., 2006a). SWP is part of an integrated water resource management framework which encourages decision makers to work collaboratively to decide on water management goals (White, 2013). Integrate water resource management considers economic, environmental, and social impacts (White, 2013).

A multi-barrier approach to drinking water protection is “an integrated system of procedures, processes and tools that collectively prevent or reduce the contamination of drinking water from source to tap” (Dyck et al., 2014, p. 205). A multi-barrier approach involves source protection, treatment, inspection, testing, and distribution (Gowda, 2016). This process is displayed in Figure 2.1. Source waters can be protected at the local level by the use of “water-related policies in municipal plans, watershed-scale planning, zoning of sensitive water supplies (wellheads, buffers around reservoirs), use of conservation easements, redevelopment of brownfields, shoreline protection, and wetland conservation” (Ivey et al., 2006a, p. 949). The different measures that can be implemented to protect source water are only effective if local actors can implement such protections. Ivey et al. (2006a) has identified factors that shape municipal capacity to implement source protection measures, they include: (1) legal authority to manage land and water uses and activities that threaten source water, (2) integration of land and water management policies since land-use activities can affect water quality, (3) social and political support to ensure it is a priority, and (4) access to knowledge and key resources (human, financial, technical) to assess, monitor, and report on water quality (Ivey et al., 2006a).

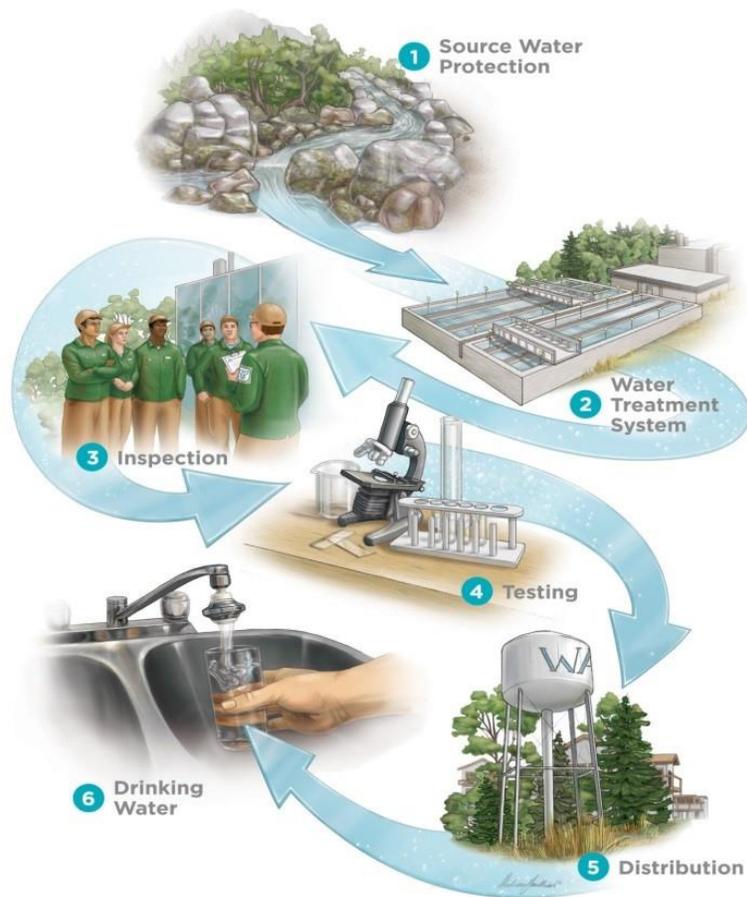


Figure 2.1 Multi-Barrier Approach to Drinking Water Protection (Gowda, 2016)

2.1.2 Source Water Protection in Ontario

The importance of source water protection gained attention in 2000 when the Town of Walkerton Ontario experienced a water tragedy. Briefly, the communal source of drinking water became contaminated with *Escherichia coli* bacteria from manure spread on a nearby farm after heavy rainfall triggered surface water runoff (Salvadori et al., 2009). This contamination killed seven people and left more than 2300 seriously ill (Marshall et al., 2019). This incident led to the illumination of water management problems in the Province of Ontario by Justice Dennis O'Connor's *Report of the Walkerton Inquiry (2002)*; it also led to the development of SWP legislation in Ontario: the

Ontario Clean Water Act (CWA) in 2006. The CWA introduced a new water governance structure to manage and enhance the quality of Ontario source water that supplies drinking water systems (Ivey et al, 2006a; Minnes, 2019). The design of the *Clean Water Act* (CWA) integrates a science-based approach with both public and private water actors to create SWP plans for designated watersheds in Ontario (Minnes, 2019). The responsibilities for implementing SWP plans lies with local municipalities and conservation authorities (Marshall et al., 2019), and related drinking water source protection programs are administered by the Ministry of Environment, Conservation and Parks (Conservation Ontario, 2019).

Under the CWA, 36 Ontario conservation authorities are required to develop watershed-based SWP plans (Marshall et al., 2019) for 19 SWP regions that extend from southern Ontario to as far north as Mattagami and North Bay-Mattawa (Minnes, 2019). SWP takes a watershed approach, using the natural boundaries of the watershed to determine the SWP region (Ivey et al., 2006a). Conservation authorities have jurisdiction within their designated watershed to control surface water and alter any river, canal, brook, stream, or watercourse within the watershed (Government of Ontario, 1990). Some SWP regions are amalgamated with two or more conservation authorities (Minnes, 2019), and each region has an associated SWP committee. There are multiple stakeholders on each SWP committee, each tasked with coordinating the process, providing technical support, and overseeing the assessment report, planning, and ongoing implementation of the source protection process (Minnes, 2019). Source water committees are made up of commercial, agricultural, industry, municipal, academic, professional, First Nations, non-governmental, and the general public (Minnes, 2019). The First Nations role is described further in this section. The design of SWP under the CWA demonstrates two guiding principles: integration and collaboration (Simms & de Loë, 2009). Integration is evident as many actors are brought together to make decisions, and collaboration occurs through the process of decision-making as consensus-oriented decision making is encouraged (Simms & de Loë, 2009).

Minnes (2019) conducted a study to evaluate the extent to which Ontario's CWA is an example of collaborative watershed governance. Minnes (2019) found that the SWP planning process under the CWA improved communication among water actors, it encouraged collaboration, created transparency of decision-making processes, integrated many sectors of the water industry, facilitated in knowledge sharing and trust amongst watershed actors, and allowed for the creation of context-appropriate policies. The CWA provides tools to be used by conservation authorities, municipalities, provincial ministries and other agencies to manage threats to source waters such as incentive programs, prohibition, restricting land uses, and risk management plans (Grand River Conservation Authority, 2020). Land use planning policies can direct new developments to appropriate areas and prohibit developments in vulnerable areas that would create threats. These powers are enabled through *Section 57, 58, and 59 of the Clean Water Act*. Section 57 discusses the prohibition of certain activities, section 58 discusses regulated activities where activities that apply to this section should not be engaged unless a risk management plan is in place, and section 59 discusses restricted land uses (Government of Canada, 2019b). A challenge with this tool is that bylaws restrict classes of land use which therefore can restrict benign land use activities as well (Ivey et al., 2006a).

The CWA provided the opportunity for First Nations to opt-in into provincial SWP planning at the early stages of threat and vulnerability assessment. Of the 27 First Nations located in a source protection area who could opt-in to CWA SWP, only three chose to do so: Rama First Nations, Chippewas of Kettle and Stoney Point, and Six Nations of the Grand River (Marshall et al., 2019). Many scholars have provided a rationale for why First Nations have chosen not to opt-in to the CWA. As Collins et al. (2017) explain, of the 19 SWP regions only 27, First Nations are within the geographical boundaries of a watershed managed by conservation authorities; and opting-in to the CWA requires passing a band council resolution to comply with the provincial SWP planning process which is seen by First Nations as an abrogation of inherent and Treaty rights. Furthermore, there is a lack of funding to implement measures to mitigate identified

threats and some First Nations claim that SWP planning methods did not suit the needs of the community because they did not address on-reserve issues. Last, private wells were not included in SWP plans as they are meant to address municipal raw water sources.

Collins et al. (2017) conducted a study comparing the experiences of First Nations who opted into SWP under the CWA versus First Nations who have conducted their SWP planning outside of that process. At Six Nations of the Grand River, as example, Collins et al. (2017) found both benefits and challenges to this process. Six Nations have included their Ohsweken water treatment plant in the overall Grand River SWP plan under the Lake Erie Region Source Protection Committee and have been able to leverage highly technical processes to create the intake protection zones for the water treatment plant (Collins et al., 2017). As well, through this process, the Six Nations of the Grand River and area municipalities were able to facilitate the sharing of information about water contamination which contributes to the capacity of the Nation (Collins et al., 2017). Some challenges were identified in this process, one being that the First Nation has no regulatory control over the action taken by the area municipalities towards the plan (Collins et al., 2017). The provincial system does not address on-reserve threats to drinking water, only off-reserve threats that occur upstream of the nation (Collins et al., 2017). Also, residents who use private wells on reserve are not included in the SWP plan (Collins et al., 2017). The protections are only directed towards sources of drinking water for the water treatment plant on reserve. This is important to acknowledge since the treatment plant only supplies water to a small portion (9% of the total population on-reserve) of the community, including public buildings and some residences (Collins et al., 2017). Finally, the provincial system does not fund on reserve planning or mitigation which is a challenge since the First Nation already has limited capacity to fund operations and maintenance of the treatment plant (Collins et al., 2017), and enforcement of SWP plans requires additional financial resources.

While the Walkerton water tragedy brought to light the water challenges faced by municipalities in Ontario, it also highlighted the state of water on First Nations reserves in Ontario. Justice O'Connor classified the water on First Nations reserves in Ontario as the poorest quality water in the province (Marshall et al., 2019). First Nation communities in Ontario have been facing these challenges long before the Walkerton incident, this report condemned the federal government's approach to water management for First Nation peoples across Canada.

2.1.3 Federal Source Water Protection and First Nations

One approach Indigenous Services Canada (ISC) used to address First Nation's drinking water management was the introduction of new policy. *The Protocol for Safe Drinking Water in First Nations Communities* in 2006 contains standards for design, construction, operation, maintenance, and monitoring of drinking water systems intended for use by First Nations communities (Government of Canada, 2010).

The *Protocol for Safe Drinking Water in First Nations Communities* states, "any water system that produced drinking water destined for human consumption, that is funded in whole or in part by ISC, and that serves five or more households or a public facility, must comply with the requirements of this protocol" (Government of Canada, 2010, p. n/a). These standards are legally enforceable once implementation of regulations occurs, however, there are no regulations as this time. The protocol supports the use of a multi-barrier approach for SWP by outlining requirements for the protection of raw water sources (Government of Canada, 2010). It states that "First Nations authorities that are responsible for drinking water systems under the protocol shall participate with other stakeholders in the development and implementation of a watershed and aquifer protection plan" (Government of Canada, 2010, p.3); and it supports the use of community-specific source protection plans to prevent and control potential sources of contamination near the raw water source (Government of Canada, 2010). This protocol also guides the development of a source protection plan by defining steps for creating a SWP plan for First Nations communities (Government of Canada,

2010). It recommends that source protection is completed in consultation with local stakeholders such as local and regional municipalities, organizations such as universities, and governmental agencies, agriculture, industry, commercial enterprises, public and private interest groups and technical consultants (Government of Canada, 2010).

In addition, First Nations under the *Indian Act*⁵ have the opportunity to develop a SWP plan through the 1999 *First Nations Land Management Act* (FNLMA) with the implementation of a land code (CELA, 2019). The FNLMA allows First Nations to opt out of 34 land-related sections of the *Indian Act* so that they can govern their reserve lands and resources through the development of their land code (CELA, 2019). The FNLMA enables First Nations to enact laws on reserve concerning land, the environment, and resources without the approval of the Minister of ISC. CELA (2019) claims that there are currently 140 First Nations operating under their own Land Codes. A land code is an alternative governance structure that replaces land management provisions of the *Indian Act*, it excludes ISC from being involved in the management of First Nations reserve lands and it usually reflects unique aspects of the First Nations culture, traditions and decision-making processes (CELA, 2019). To assume control over reserve lands, the First Nation must ratify the Individual transfer agreement which transfers land from Canada to the First Nations and the land code (CELA, 2019).

For those First Nations who have chosen not to sign the Framework Agreement on First Nations Land Management and develop a land code, the *Indian Act* provides very little environmental protection for reserve lands (CELA, 2019). No federal laws deal with local matters except those through the general applicability of national environmental

⁵ The Indian Act is the “principal statute through which the federal government administers Indian status, local First Nations governments, and the management of reserve land and communal monies” (Henderson, 2006). This piece of legislation is relevant to this research because it contains 40 provisions related to land, environment and resources which means it yields a great deal of control over these decisions relating to these areas (Henderson, 2016).

laws such as the *Fisheries Act (1985)*, the *Species at Risk Act (2002)*, and the *Canadian Environmental Protection Act (1999)* (CELA, 2019). Under the *Indian Act*, environmental management is only made possible through First Nations by-law making authority under section 81 (CELA, 2019). Section 81 of the *Indian Act* allows band councils to enact by-laws “not inconsistent with” any federal regulation or *Indian Act* regulation, they can relate to garbage disposal, burning of contaminants, use of dangerous materials, and management of animal waste (CELA, 2019). While these by-laws relate to environmental management, enforcement capacity is another issue, and often weak as “offences must be prosecuted through summary conviction and maximum penalties are a fine of \$1000, imprisonment for a term not exceeding 30 days or both” (CELA, 2019, p. 24). These penalties are not considered strong enough to deter hazardous activities (CELA, 2019).

2.1.4 Section Summary

Source water protection is part of a multi-barrier approach to water management and an integral to ensure clean and safe drinking water. The Province of Ontario has legislated the CWA in an attempt to address SWP for municipal sources of drinking water. The CWA establishes a framework for SWP through the creation of local committees to facilitate collaborative decision-making, through the identification of vulnerable areas, the development of protection mechanisms, and monitoring and reporting activities. The inclusion of First Nations in SWP committees is limited, few First Nations have opted-in to the CWA, and those who have to face some implementation challenges. While the federal government requires First Nations to develop on-reserve SWP plans, under the *Indian Act* there are limited powers to enforce actions necessary to fully implement SWP plans. First Nations under the *Indian Act* have to enter into the FNLMA to opt-out of *Indian Act* land and resource management provisions. Developing a land code would enable powers for First Nations to implement actions for SWP, and similar those of CAs under the CWA, if desirable. Those First Nations who remain under the *Indian Act* have limited options to ensure the protection of source water other than by-laws which are considered weak forms of environmental protection as enforcement is difficult.

2.2 Collaboration

Collaboration among government, public, and private organizations for the goal of environmental management is difficult. It requires the crossing of boundaries, jurisdictions, disciplines, and organizations (Perz et al., 2010). Furthermore, “different types of organizations have distinct structures, goals and priorities which complicates collaboration” (Perz et al., 2010, p. 419). Collaborations can be impacted by different levels of human capital (i.e. income and education) and social capital (i.e. trust, networks) (Hardy & Koontz, 2009). Despite these challenges, collaboration is endorsed for addressing complex environmental management problems because they are inherently social problems (Perz et al., 2010).

2.2.1 What is Collaboration?

There are multiple perspectives on collaboration in the peer-reviewed academic literature, as illustrated below in the summary Table 1: Definitions of Collaboration. For this research, the definition from Black & McBean (2017) is adopted

The bringing together of diverse groups of stakeholders to work towards a consensus and resolve conflicts, drawing on local knowledge to inform decision-making, attempting to address and solve issues related to diverse and unequal interests. (p. 710)

This definition was selected over others in academic literature because it provides a broad perspective of collaboration that includes many of the key terms identified by other academics, see Table 2.1. There are two terms used in the definition worth noting for further discussion: stakeholder and consensus-oriented. Academics refer to those who have decision making power, in collaboration, as a stakeholder (Plummer & FitzGibbon, 2004; Black & McBean, 2017; von der Porten & de Loë, 2013, Minnes, 2019). The stakeholders involved in a collaboration can be both governmental and/or non-governmental (Melnychuk & de Loë, 2017; Minnes, 2019). Stakeholders have an invested

interest in the problem at hand. Stakeholders can be categorized into either “high level”⁶ decision-makers such as those with legitimate authority designated through the democratic process or “local level” actors who are directly affected by the problem (Minnes, 2019). Decisions in collaboration are consensus-oriented⁷ (Ansell & Gash, 2007; Black & McBean, 2017; Minnes, 2019). Consensus-oriented meaning that a consensus is not always achieved, it promotes the representation of individual viewpoints and encourages more cooperation; however, sometimes it leads to decision stalemates⁸ (Ansell & Gash, 2007). While a collaboration aims to reach a consensus, they can revert to other procedures such as majority rules, in case of a stalemate (Ansell & Gash, 2007).

⁶ High-level meaning that they have power over many aspects and tend to set policy, they are not on-the-ground operational stakeholders (Ansell & Gash, 2007).

⁷ Consensus-oriented decision making is when all parties are consulted on the decision and an attempt to reach general agreement occurs (“Consensus”, 2019).

⁸ A decision stalemates is one where a consensus cannot be reached meaning a decision cannot be achieved (Ansell & Gash, 2007).

Table 2.1 Definitions of Collaboration Found in Academic Literature

AUTHOR	DEFINITIONS OF COLLABORATION	KEY TERMS
MELNYCHUK & DE LOË (2017)	Collaboration is the “process and structure of public decision making and management that engages people across many boundaries,” government and non-government and civil spheres to carry out a public purpose that could not be accomplished otherwise (p. 4).	Decision making Engage people Government & non-governmental
PLUMMER & FITZGIBBON (2004)	Collaboration is the pooling of resources by multiple stakeholders to solve problems, it is typically a bottom-up approach involving negotiations among a variety of stakeholders who share a similar interest.	Bottom-up Negotiations Stakeholders Goal Solve problems
MINNES (2019)	Collaboration is the bringing together of “public and private stakeholders in collective forums to engage in consensus-oriented decision making” (p. 402).	Bringing together Public & Private stakeholders Engage Consensus Decision making
BLANEY (2016)	Collaboration is about creating a “one” by connecting institutions and people to find a solution.	Connecting institutions Solutions
VON DER PORTEN & DE LOË (2013)	Collaboration is the “pooling of resources by two or more actors to solve a set of problems that cannot be solved individually” (p. 151).	Resources Actors Problems solving
BLACK & MCBEAN (2017)	Collaboration is the bringing together of “diverse groups of stakeholders to work towards a consensus and resolve conflicts, drawing on local knowledge to inform decision-making, attempting to address and solve issues related to diverse and unequal interests” (p. 710).	Bringing together Stakeholders Consensus Resolve conflict Decision making Solving problems

There are many reasons to justify the need for collaboration among stakeholders. Collaboration can allow for the state to delegate some of its responsibilities for the sake of efficiency by outsourcing decision-making to non-state actors (Simms et al., 2016).

Wondolleck & Yaffee (2000) in their comprehensive study of over 200 cases of collaborative arrangements in natural resources management, claim that collaboration helps to achieve four benefits: (1) fostering the exchange of information and ideas among stakeholders, (2) providing a mechanism for effective decision making by focusing on common problems, (3) getting work done by coordinating cross-boundary activities and mobilizing an expanded set of resources, and (4) developing the capacity of stakeholders involved to deal with challenges.

It is important to note, the term collaboration is often used interchangeably with terms such as “partnerships” or “co-management” but is different from these terms. Plummer & Fitzgibbon (2004) assert that collaboration is about the processes and interactions among actors and emphasizes inclusion, power, and decision-making (Plummer & Fitzgibbon, 2004). Whereas partnerships are referred to as “a shared undertaking by more than one party...with a mutually agreed-upon objective” (Plummer & Fitzgibbon, 2004, p. 64). In partnerships, there is typically a balance of power, respective autonomy and mutual respect (Plummer & Fitzgibbon, 2004). Co-management involves the formal sharing of rights and responsibilities over a project between actors (Melnychuk & de Loë, 2017). A central component to co-management is power, which is defined as the ability to control and exercise authority, this can make co-management more exclusionary and undemocratic (Plummer & Fitzgibbon, 2004). An important difference between collaboration and co-management is that collaboration involves consensus-based decision making with a range of actors that may or may not involve the state whereas co-management have joint decision making with the state (Melnychuk & de Loë, 2017). Of these forms of relationships, this research focuses on collaboration or the processes and structures between water actors.

2.2.2 Collaboration as a Process

Ansell & Gash (2007) have created a framework to describe the process of collaboration in a series of five stages. Shown below in Figure 2.2, they posit the collaborative process is cyclical and dependent on communication, trust, commitment, understanding, and

outcomes (Ansell & Gash, 2007). While these terms are a great simplification of the collaborative process, it shows how this cyclical process can positively or negatively influence further collaboration (Ansell & Gash, 2007).

As detailed by Ansell & Gash (2007), the collaborative process starts 1) Face-to-Face Dialogue between stakeholders; important because it can break stereotypes and related barriers to communication and is the core of 2) Trust Building which is important since it is common for stakeholders not to trust one another. Trust must be built before the collaboration otherwise stakeholder may not risk working together. Following Trust Building is 3) Committing to the Process which is related to the original motivation to participate in the collaboration in the first place. Commitment to collaboration usually stems from the desire to ensuring their perspective is not neglected and to secure legitimacy for their position or to fulfil a legal obligation. Commitment to collaboration is difficult to achieve because it means the stakeholder must be willing to abide by the results of the collaboration even if they do not support the final direction. To receive full commitment, stakeholders must feel that the deliberation process and decision-making procedures have integrity. Following Commitment to the Process is 4) Shared Understanding. Shared Understanding involves having an idea of what the stakeholders can achieve together sometimes referred to as “common ground”, “common mission”, “shared vision”. Finally, 5) Intermediate Outcomes are small “wins” from the collaboration that helps to build momentum in the collaborative process.

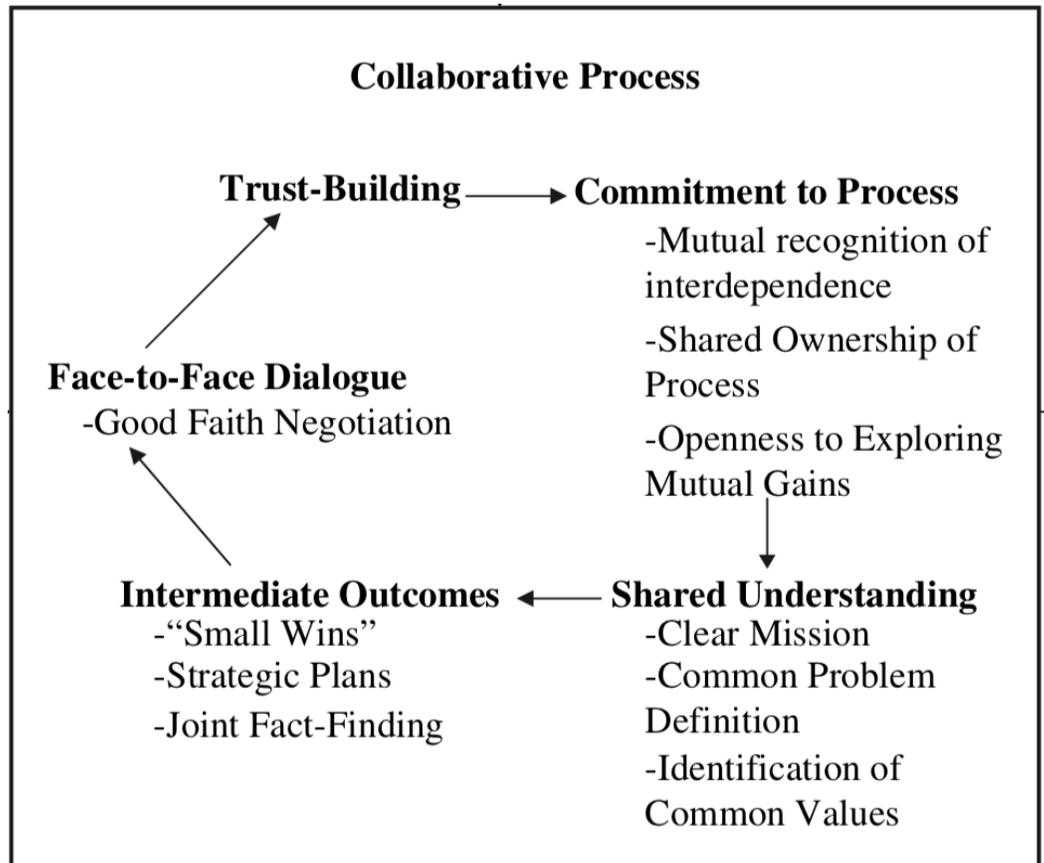


Figure 2.2 Collaborative Process by Ansell & Gash (2007)

2.2.3 Collaboration as a Structure for Water Governance

In their study on watershed-scale collaboration among government and First Nations actors in British Columbia, the Fraser Basin Council (2015) have provided a structure for collaborative water governance. They identified factors that emerged across five case studies involving First Nations: the Cowichan Watershed Board, Okanagan Basin Water Board, Coquitlam River Watershed Roundtable, Shawnigan Basin Authority, and Shuswap Watershed Council. In this section, four success factors are discussed. “Success” here is refers to the extent to which the collaboration is likely to lead to a better outcome for water quality (Cradock-Henry et al., 2017). The definition of success is unique to each collaboration and is constantly evolving which is why it cannot be defined in certain terms (Cradock-Henry et al., 2017).

First, the Fraser Basin Council (2015) identified that enabling policy framework is necessary to establish clear roles, responsibilities, and commitments by various jurisdictions in a collaboration. This helps to establish external legitimacy as it creates credibility of those influencing decisions and therefore, credibility of outcomes (Fraser Basin Council, 2015). In Ontario, the CWA provides a framework for collaborative SWP planning. The legislation acts to legitimize the collaboration since it involves both government and non-governmental actors such as representatives from local First Nations and the agricultural industry.

Second, the Fraser Basin Council (2015) identified that the organizational design, a contextually based organizational structure, is necessary for successful collaboration. For example, forming a roundtable or board that has a clear and common purpose, procedures, and guiding principles (Fraser Basin Council, 2015). Clear and common purpose is an element of the organization design meant to create a successful collaboration (Fraser Basin Council, 2015). Developing procedures for the decision-making process are necessary for successful collaboration according to the Fraser Basin Council (2015). Procedures allow for clarity on the process of tackling inevitable conflict or divergent perspectives (Fraser Basin Council, 2015).

Third, capacity and resources such as funding, access to data, information, and traditional ecological knowledge is also necessary for successful collaboration. It was identified that accessing project-based funding is necessary for successful collaborative watershed governance (Fraser Basin Council, 2015). Human resources were also identified as necessary for successful collaboration, meaning that building relationships among actors within a watershed contributes to the success of a collaboration (Fraser Basin Council, 2015).

Last, human-related success factors such as mutual respect and interpersonal trust are important for collaboration (Fraser Basin Council, 2015). Trust seemed to be difficult to achieve in the case studies identified by the Fraser Basin Council (2015), the lack of trust was attributed to histories of conflict. Showing respect to First Nations in

collaborative water governance initiatives might be shown through the use of terminology that pays respect to their nationhood and rights. This means that they would not be referred to as stakeholders but rather as nations or actors.

In addition to the Fraser Basin Council recommendations, Von der Porten & de Loë (2013) offer a similar set of attributes for effective collaboration. From their findings, the first requirement for successful collaboration is that the actors involved must be willing to participate (von der Porten & de Loë, 2013). Willingness to participate might be influenced by the terminology used, by the other actors involved, by the capacity to participate, and by the openness to work together. The second requirement is that knowledge, values, and ideas are gathered and incorporated into policy. This is similar to the first success factors identified by the Fraser Basin Council (2015) who suggest that a policy framework is necessary to establish legitimacy. Finally, von der Porten & de Loë (2013) recommend that those involved are empowered by involvement in the process. Empowerment can be classified as a human-related success factor which is the final recommendation by the Fraser Basin Council (2015).

2.3 Water Governance and First Nations

As mentioned in the introduction, responsibility for decision-making on water resources in Canada is shared between federal, provincial/territorial, and municipal governments and self-governing First Nations (Bereski et al., 2017). The federal government is “responsible for specific matters such as waters flowing across provincial/territorial boundaries and international boundaries, and a general oversight role” (including leadership, research and development, and recommendations for safe drinking water practices (Bereski et al., 2017). The federal government through Health Canada has established guidelines for safe drinking water (Bereski et al., 2017). A list of federal legislation governing water resources is summarized in Appendix 1 and Appendix 2 and includes those specific to First Nations.

The provincial governments are responsible for the development, conservation and management of natural resources, production of electricity from water, water takings, and flood control, and municipalities. The Province of Ontario has legislations related to water governance, and delegate authority for municipal drinking water servicing to the municipalities (see Appendix 3). Municipal governments are mainly responsible for administering the maintenance and operations of drinking water sources, treatment, and distribution systems through adherence to drinking water quality guidelines and participating in SWP (Bereski et al., 2017). In Ontario, conservation authorities are watershed-based agencies responsible for preventing flooding and managing the flow of waterways (Bakker & Cook, 2011). The relationship between the three tiers of government and responsibilities for each tier of government is illustrated in Figure 2.3.

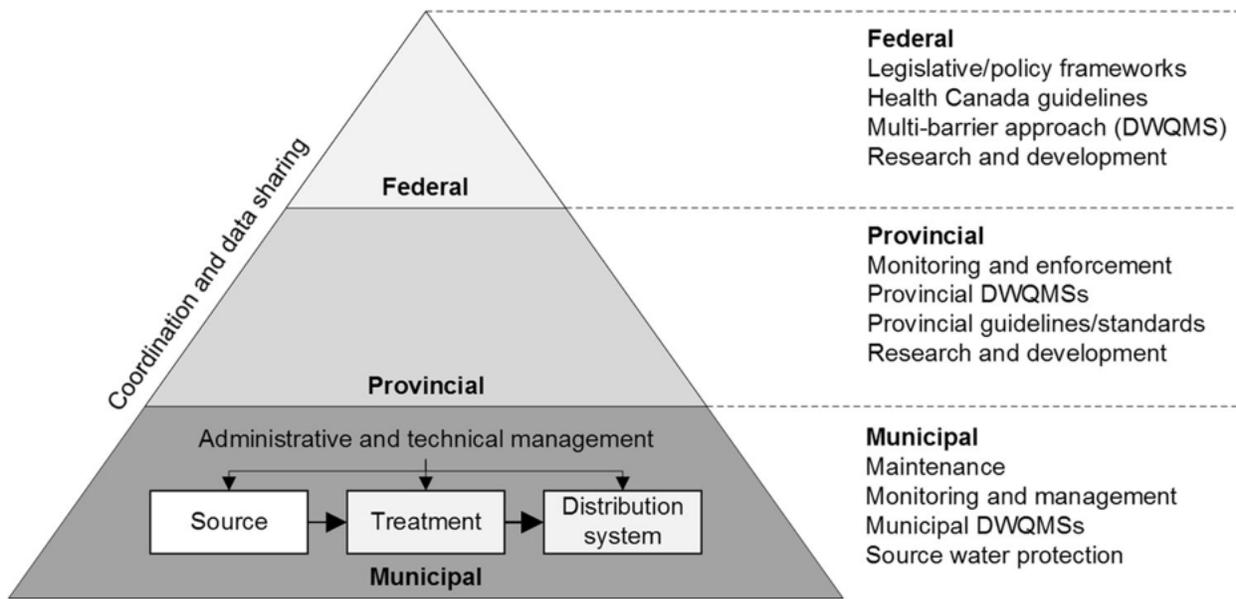


Figure 2.3 Roles and Responsibilities of Water Governance in Canada (Bereski et al., 2017)

The roles and responsibilities of First Nations in water governance are not included/considered in the Bereski et al. (2017) illustration. However, it is important to note, Section 91(24) of the *Constitution Act, 1982* grants the federal government exclusive jurisdiction over “Indians and lands reserved for Indians” (McGregor, 2012; White et al., 2012, p. 2). It allows the federal government to make laws concerning First Nations and their land such as the *Indian Act* (Olthius et al., 2012). The application of provincial laws on First Nations people and their reserve lands is not always clear. The Parliament of Canada (2001) states that

Provincial laws, services and programs that do not specifically single out Indigenous people apply to all people residing in that province; however, the application of provincial laws to Indigenous people must not infringe on: areas that are exclusively federal jurisdiction; rights to take game and or fish for food; and treaty rights protected under Section 35 of the *Constitution Act, 1982*. (n.p)

2.4 First Nations Water Rights

The *Constitution Act* is also important because Section 35 (1) recognizes and affirms Aboriginal and treaty rights for Métis, Inuit, and First Nations (Hanson, 2009; Olthius et al., 2012), and many rights relate to water. Treaty rights are those that exist in land claim agreements (Hanson, 2009). Aboriginal and treaty rights range from cultural, social, political, and economic rights, rights to hunt and fish and practice their own culture (Hanson, 2009). While the scope of rights is not defined in the *Constitution Act, 1982* they continue to be defined through court cases when First Nations sue for infringements of rights, such as *R. v. Calder* and *R. v. Sparrow*⁹ (Hanson, 2009). Aboriginal rights continue to evolve as the courts interpret current and historic treaties (Ivey et al., 2006b). The water governance landscape is further complicated by this patchwork of historic treaties, modern treaties, and outstanding First Nation land and water claims yet to be established under a modern treaty (Bakker & Cook, 2011).

First Nations as governments and individual rights-holders have specific water-related rights that predate confederation and are active participants in water-related decision-making (Ivey et al., 2006b; Johns and Rasmussen, 2008; von der Porten & de Loë, 2010). These rights include those that stem from Aboriginal and treaty rights, and riparian rights/common-law rights (Johns & Rasmussen 2008; von der Porten & de Loë, 2010).

⁹ The Sparrow case was the first time that the Canadian legal system acknowledged that Aboriginal title to land and that the title exists outside of colonial law (Salomons & Hanson, 2009). The Calder case confirmed that First Nations have the right to fish and that it was not extinguished by the rewriting of the Constitution Act, 1982 (Salomons & Hanson, 2009). This decision relates to water as it protects First Nations rights to fish and therefore implies the right to a quantity and quality of water that is needed to catch healthy consumable fish. These court decisions established legal precedence to support pre-existing rights and to assert that these rights were never extinguished by the repatriation of the Constitution Act 1862-1982 (Phare, 2009).

Riparian rights are source water rights founded upon occupation of riparian land by First Nations people (Johns & Rasmussen, 2008). Riparian rights “form the foundation of water rights, use, and access in Canada” (Johns & Rasmussen, 2008, p 60). Riparian is the term used to refer to people who hold land adjacent to or under a waterbody (Johns & Rasmussen, 2008). Riparian rights relate to the quantity and quality of water. Riparian rights are not equally applicable across Canada and are contested because prairie provinces claim they were abrogated by the *Northwest Irrigation Act of 1894* (Johns & Rasmussen, 2008). As well, riparian rights are overruled by statutory and constitutional law (Johns & Rasmussen, 2008).

Treaties may also include First Nations with some water rights. Treaties in Canada are formal agreements between First Nations people and the Crown (Olthius et al., 2012). The Crown government views treaties as an exchange of Aboriginal title for reserve lands and payment as reserve lands are held in trust and managed by the federal government (Olthius et al., 2012). However, First Nations people argue that when they signed treaty agreements, they did not cede rights to water. “Indigenous people maintain that this is an unjust and unilateral interpretation of the treaty relationship and that Indigenous sovereignty and title persist” (Baijius & Patrick, 2019, p. 5). This argument is supported by the fact that European settler concepts of rights to property and ownership of land and water resources were foreign to First Nations because they view their relationship to land and water drastically different (Baijius & Patrick, 2019). First Nations believe in holding land and water communally (Baijius & Patrick, 2019). Adopting the notions of property and ownership is a significant departure from traditional First Nations views.

Finally, *the Charter of Rights and Freedoms*, 1982 some rights related to water which applies to First Nations, these include a legally enforceable constitutional right to water, based on the “right to life, liberty, and security of the person” under section 7 of the Canadian Charter of Rights and Freedoms (Boyd, 2011, p. 87). The right to security of a person includes physical and psychological components (Boyd, 2011). Safe, clean,

drinking water is essential to ensuring the right to security of a person as physical and psychological health is threatened without clean drinking water.

The bundle of rights in the preceding paragraphs shows the recognition of rights that First Nations have in relation to water in Canada. These rights are changing the relationship between water actors, which provides an impetus for collaboration.

2.4.1 First Nations Water Management

Within the Canadian water governance system, the federal government has constitutional responsibility for the delivery of safe drinking water for First Nations communities, and three federal departments are involved in this oversight (White et al., 2012). ISC provides advice and funding for the design, construction, operation, and maintenance of water and wastewater systems as well as funding for water operator training and certification (White et al., 2012). Health Canada works with First Nations south of 60 degrees latitude to identify potential drinking water quality problems by monitoring, reviewing and interpreting results of drinking water (White et al., 2012). Environment Canada provides advice and guidance on areas of SWP (White et al., 2012). Essentially the government is responsible for funding and advice for drinking water systems on reserves but places responsibility for the delivery of drinking water on First Nations (White et al., 2012).

In terms of resources, the federal government is responsible for 80% of the operations and maintenance costs and the First Nation is required to cover the remaining 20% of costs (White et al., 2012). First Nations Chief and council are responsible for administering water and wastewater system design, construction and upgrades, and training for water operators. The water operators are responsible for operations and maintenance of water and wastewater systems, sampling and testing the quality of drinking water, and recording maintenance and monitoring corrective activities (INAC, 2010). If a boil water advisory is necessary because of known or potential contamination in drinking water, it is the responsibility of the First Nation community to declare the

advisory (White et al., 2012). No standards exist that govern the quality of drinking water provisions on First Nations reserves in Canada (McGregor, 2012).

The Protocol for Safe Drinking Water in First Nations Communities, 2006 contains standards for design, construction, operation, maintenance, and monitoring of drinking water systems intended for use by First Nations communities (Government of Canada, 2010). The use of the word standards as opposed to guidelines is important to note as standards generally provide a superior level of protection for human health as compared to guidelines because standards are legally binding and enforceable which means remedial action can occur if there is violation of the standards (Boyd, 2006). Whereas guidelines may not result in remedial action when violations occur (Boyd, 2006).

2.5 Conceptual Framework

Based on the reviewed literature, a conceptual framework has been constructed that is used to guide this research. Figure 2.4 is an illustration of the way collaboration is examined between water actors from the First Nations and water actors from local organizations in relation to SWP. The framework consists of six spheres. At the core, is water governance, it is defined as “a form of decision-making for water that involves multiple actors with diverse interests working together to solve common problems” (Melnychuk & de Loë, 2017, p. vi). A multi-barrier approach to water governance, recommended by Justice O’Connor in *the Report of the Walkerton Inquiry*, puts in place multiple lines of defence to keep water contaminants from reaching drinking water sources (O’Connor, 2002). The first phase of a multi-barrier approach is source water protection, which is the second sphere in the diagram. SWP is meant to maintain raw water sources meant for treatment, distribution, and consumption. Moving outward, the third sphere, collaboration, is integral to SWP as actors within a watershed must collaborate their efforts to ensure upstream users are not negatively impacting water that flows downstream to other neighboring communities. Collaboration is viewed as both a structure of governance and a process that participants engaged in. The fourth sphere is separated into two and labelled “collaborative governance structure” and “collaborative

process”. Both are characterizations of collaboration used to analyze research results. The “collaborative governance structure” is a framework created by the Fraser Basin Council (2015) and the “collaborative process” was created by Ansell & Gash (2007).

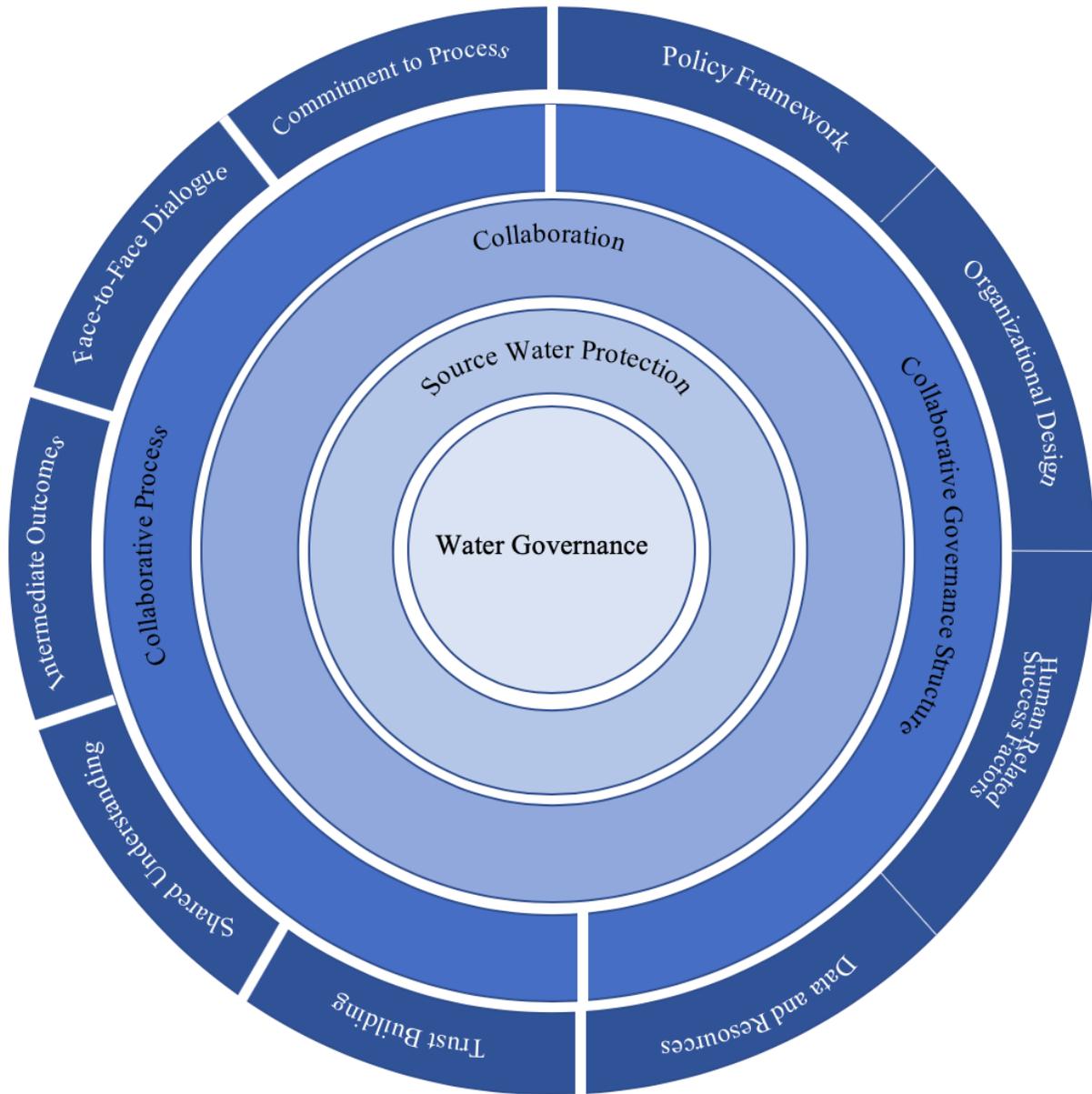


Figure 2.4 Conceptual Framework

3 Methodology

This research used a case study approach, literature review, and semi-structured interviews to understand how collaboration between local water actors could enhance community-level source water protection. This involved a literature review to develop a conceptual framework (detailed in Chapter 2) and in-depth semi-structured individual interviews with water actors from a First Nations and water actors from local organizations. Also completed was a review of relevant federal and provincial water legislation, and First Nations water management and water-related rights to establish the background and context. Last, publicly available reports and news articles were used to fill information gaps and to help understand the historical, geographic, political, social, and present context.

3.1 Case Description

This research used a case study approach, which is an investigation of a “bounded system” that includes individuals or an activity (Johnston, 2010). This case study is an in-depth exploration of the attitudes, opinions, and experiences of water actors from the Chippewas of the Thames First Nation and water actors from local organizations within the Thames watershed, located in southwestern Ontario, see Figure 3.1.



Figure 3.1 Location of the Thames River Watershed in Ontario (Wilcox et al., 1998)

Within the watershed, the Thames River flows from the uplands of Lake Huron, Lake Erie, and Lake St. Clair southwest past the town of Woodstock, London, Chatham and through COTTFFN reserve (Quinlan, 2013). The Thames River is 273 km long and it is the second-largest watershed in southwestern Ontario (Quinlan, 2013). Approximately 550,000 people live within the defined watershed boundary (Quinlan, 2013). The Thames River is located within an ecologically rich area called the “Carolinian Zone” which means it has a high diversity of plants and animals and a large number of species at risk (Quinlan, 2013).

3.1.1 Chippewas of the Thames First Nation

The Chippewas of the Thames First Nation community is located along the north bank of the Thames River, 20 km south or downstream of the City of London (COTTfN, 2019a). The land base is of 3,331 hectares (COTTfN, 2019a).



Figure 3.2 Chippewas of the Thames First Nation Community (shown in green) (COTTfN, 2014)

As of March 2020, COTTfN had a total registered population of 2,966, with 993 on reserve and 1,959 off-reserve (Government of Canada, 2020c). COTTfN is the single

signatory of the Longwoods Treaty¹⁰ (1818-1822) and the community was established in 1760 (COTTfN, 2019a). COTTfN are Anishinaabeg in the territory of Deshkan Ziibing; Anishinabek means “the original people” (COTTfN, 2019a). The original name of the Thames River was “Askunesippi” or Antler River by the neutrals and was later renamed La Tranche by French explorers and settlers (Quinlan, 2013). The Thames River was given its current name in 1972 by the lieutenant governor of Upper Canada after the Thames River in England (Finkelstein, 2006).

COTTfN is currently governed under the *Indian Act* and operate under a Chief and Council system; however, they have exercised their rights to self-determination and have drafted a community constitution called *Chippewas of the Thames First Nation Deshkan Ziibing Anishinaabeg Constitution* (COTTfN, 2019a). The constitution talks about their essential sovereignty and inherent rights as a nation to land, water, culture, language, and traditions. This constitution is meant to act as their “supreme law” meaning that in the event of a conflict or inconsistency, this law shall prevail (COTTfN, 2014). The constitution allows them to pass laws over various areas of jurisdiction from government structures to traffic and parking and lays out their rights and freedoms (COTTfN, 2014). The COTTfN constitution is important as it expresses community the willingness and capabilities of the nation to move towards self-governance.

In terms of water services, COTTfN has a water treatment plant and a wastewater treatment plant on reserve (Neegan Burnside, 2011). It the water plant is classified as a level 1 water treatment system, and it was constructed in 1992 (Neegan Burnside, 2011). Drinking water systems and facilities are classified from class 1 to 4 depending on their complexity and the classifications determine the requirements for individuals operating

¹⁰ Longwoods Treaty negotiations occurred between 1818-1822, this treaty occurred between the Government of Upper Canada and COTTfN. There were three written versions, 1819, 1820, and 1822; renegotiations occurred as the payment for the land was reconsidered. More information can be found at <https://www.cottfn.com/chief-council/our-history/#1483992540260-b9ee9860-3f36>

those systems (“Facility Classifications”, 2020). The Ontario Water Wastewater Certification Office (2020) claims that water treatment plants located on “First Nation lands...do not require certificates or licences of classification under O. Reg. 128/04 or O. Reg. 129/04; however, they may be notionally classified. While notional classifications are not formal classifications, they identify the type of subsystem or facility the ministry considers the system comparable to” (n.p.). Further information was not provided as to how First Nation’s treatment classification are determined.

COTTFN source water is groundwater under the direct influence (GUDI) of surface water which means there is physical evidence of surface water contamination and surface water organisms (London District Chiefs Council Drinking Water Protection, 2020). The surface water that directly influences COTTFN’s drinking water source is the Thames River (London District Chiefs Council Drinking Water Protection, 2020).

COTTFN face local water challenges common to many First Nations. These challenges include a growing population, limited land base, ageing water infrastructure, fear of increasing threats to source water, and uncertainty around the health of aquatic ecosystems (Longboat, 2018). Multiple activities threaten the quality of the source water supplying the drinking water system. The Canadian Environmental Law Association (CELA, 2019) in their work on developing community source water protection by-laws, identified water quality threats to drinking water through community consultation. These include historical land uses since the reserve was used as a test site for bombing during World War Two, current land uses such as the reserve’s proximity to nearby highway 401 a transportation corridor which produces runoff from impervious surfaces that have high salinity, land applications of fertilizer and pesticides, hazardous materials from a nearby landfill, leakages of naphthalene from the furnace of what was once a residential school, unused and abandoned contaminated wells which create preferential pathways to contaminating the groundwater, and the potential effects of the Line 9 Enbridge pipeline which runs bitumen through COTTFN territory and underneath the Thames River should leakage occur (COTTFN, 2019b).

The Thames River water quality is threatened by upstream users such as the City of London. When a large rainfall event occurs, wastewater from the City of London's treatment plant releases partly treated sewage into the Thames River causing pollutants such as farm runoff and industrial waste to enter directly into the river (Stacey, 2018). The City of London announced its intent to stop London's sewage from entering the Thames River in 2018 and committed \$285 million over the next 20 years (Stacey, 2018). However, sewage overflows continue to occur as a result of their combined stormwater and wastewater sewers (Stacey, 2020). In January 2020, more than 68 million litres of sewage poured into the Thames River from London's treatment plant when the runoff from heavy rain was too much for the system to (Stacey, 2020).

It is important to note that the community also faces water quantity challenges that limit the potential for development projects needed for economic growth; moreover off-reserve community members are prevented from moving back due to a limited supply of drinking water available (CELA, 2019a). This relates to a lack of adequate infrastructure and system capacity.

Neegan Burnside (2011) completed a *National Assessment of First Nations Water and Wastewater Systems* on reserves and created risk profile for each communal system. Risk categories were ranked from low (1) to high (10) with low risk meaning the systems operates with minor deficiencies and usually meets the water quality parameters of the Guidelines for Canadian Drinking Water Quality (GCDWQ), medium risk systems have deficiencies which pose a risk to the quality of water and human health, and high risk systems have major deficiencies which pose a high risk to the quality of water and human health (Neegan Burnside, 2011). They found, COTTFN's water treatment facility source risk to be rated at 9 out of 10 (Neegan Burnside, 2011).

COTTFN recently conducted benthic water quality testing in the Thames River before, within, and after the COTTFN reserve boundary (COTTFN, 2019c). Benthic testing is the measurement of organisms that live in the sediment in the top layer of the riverbed (COTTFN, 2019c). The amount and type of organisms found indicate the water

quality based on the Family Biotic Index which ranges from 0.00-3.50 (excellent) to 7.26-10.00 (very poor) (COTTfN, 2019c). Figure 3.3 displays the COTTfN reserve boundary and the locations of benthic testing and some results (COTTfN, 2019c). The provincial target for benthic water quality rating is 5.0 and below, only 3 or the 17 locations reached that target (COTTfN, 2019c). The average benthic testing rating for COTTfN was 5.66 which is equivalent to “fair” (COTTfN, 2019c). These results demonstrate that the Thames River, a source of water which influences COTTfN’s drinking water supply may have negative effects on the quality of water that enters their infiltration gallery.

Chippewa of the Thames - Benthic Locations

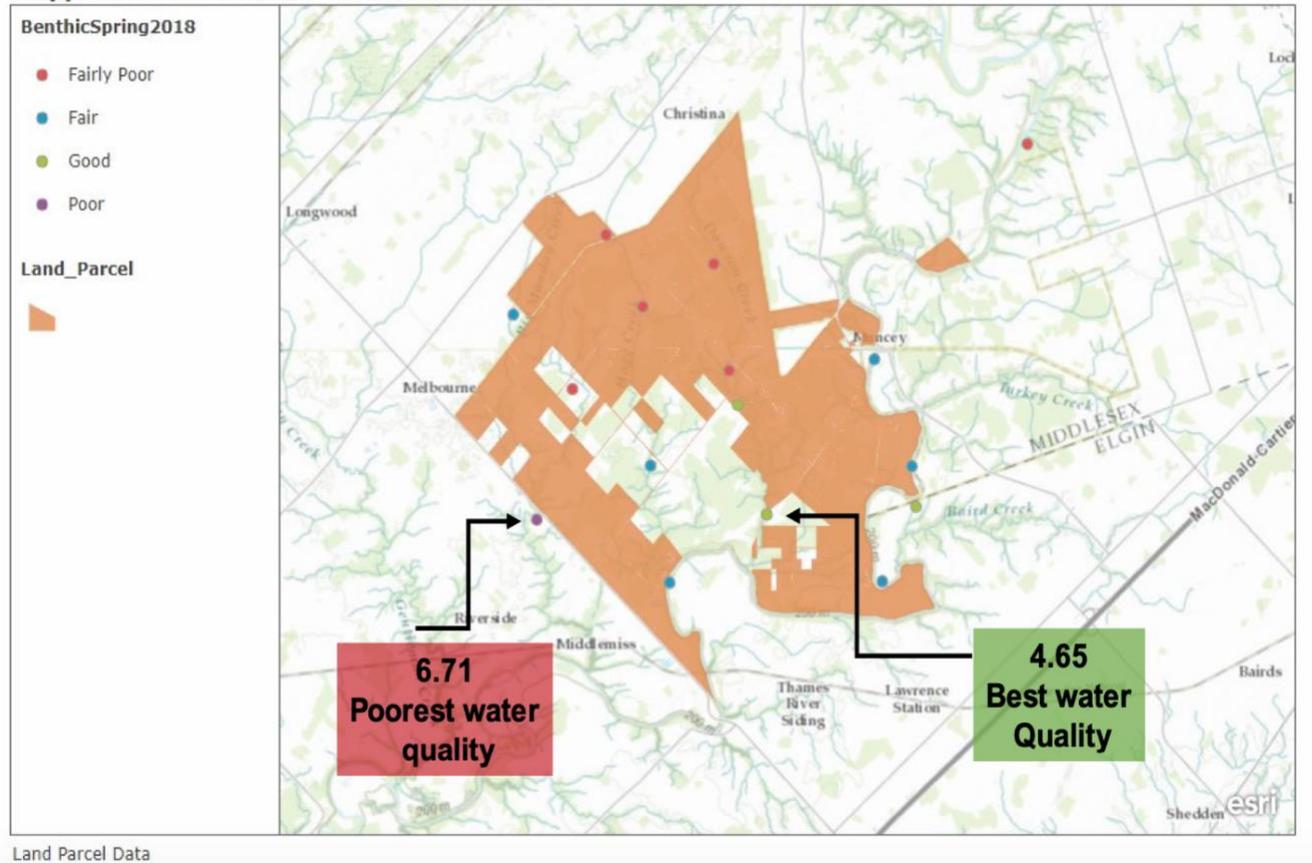


Figure 3.3 Chippewas of the Thames Benthic Testing Locations (COTTfN, 2019c)

3.1.2 Primary Water Actors within the Case Study

The City of London is a primary actor within this case study. The Thames River watershed spans 81% of London (City of London, 2019). Their drinking water supply and treatment is curated by the London Regional Water Supply System which is an independent authority who is responsible for operating and maintaining the water treatment plants as well as transmission of treated water to the municipalities connected to the line (City of London, 2020). The London Regional Water Supply draws its supply from Lake Huron and Lake Erie (City of London, 2019). The City of London derives its source of drinking water from three different watersheds and hence participate in three source water protection committees: Thames Sydenham Region SWP (see section 3.1.3. below for more), Lake Erie Region SWP, and Ausable Bayfield Maitland Region SWP (City of London, 2019). There are approximately 383,822 people in the City of London; 9,725 of those are Indigenous people as of 2016 (City of London, 2019).

Conservation authorities in Ontario are important actors because they have responsibilities related to floodplain management, SWP, and environmental resource preservation and conservation (LTRCA, 2019a). Three conservation authorities have jurisdiction in the areas surrounding COTTFN which include the St. Clair Region Conservation Authority (SCRCA), Lower Thames Region Conservation Authority (LTRCA) and the Upper Thames Region Conservation Authority (UTRCA) (Government of Ontario, 2020). All three conservation authorities sit on the Thames Sydenham Source Water Protection Committee (Government of Ontario, 2020). The UTRCA is located upstream of COTTFN, and their protection areas include all areas draining into the Thames River above the community of Delaware (Government of Ontario, 2020). The UTRCA manages the water that eventually flows through to the COTTFN drinking water source, it is located right next to and below COTTFN and their protections includes lands draining into the Thames River from the community of Delaware to Lake St. Clair (Government of Ontario, 2020). The SCRCA boundary runs parallel with the LTRCA and

adjacent to COTTFFN reserve (Government of Ontario, 2020). The SCRCA includes the Sydenham River drainage basin (Government of Ontario, 2020).

Figure 3.4 displays where each conservation authority boundary is within the Thames Sydenham SWP region. COTTFFN reserve is located within the bright red circle.

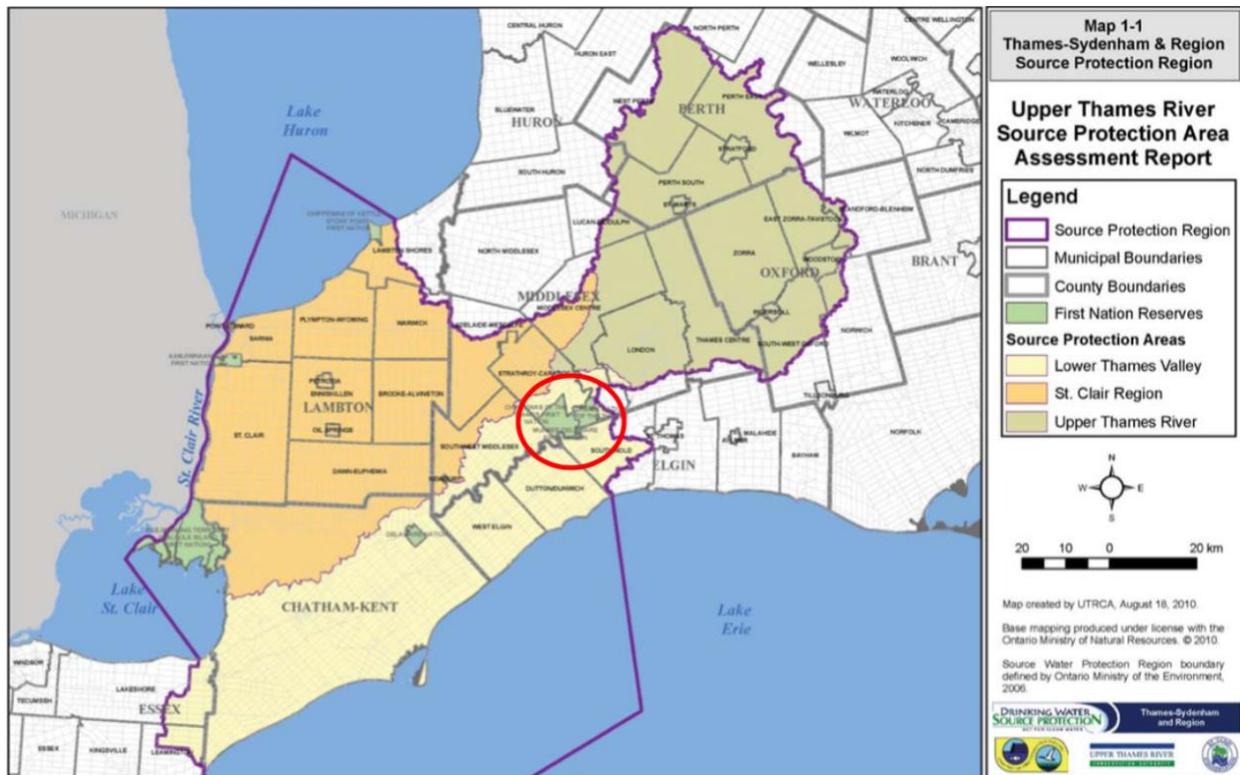


Figure 3.4 Conservation Authority Boundaries within the Thames Sydenham Source Water Protection Boundary (Thames Sydenham and Region Source Water Protection, 2020).

3.1.3 Thames Sydenham and Region Source Water Protection Area

Together the UTRCA, LTRCA and SCRCA form the Thames Sydenham Source Protection Committee with a mandate to coordinate the development and implementation of Source Protection Plans within the Thames Sydenham region (Thames Sydenham and Region Source Water Protection, 2020). The Thames Sydenham SWP committee include representatives from the municipalities of Lambton, London and Middlesex, Elgin, Essex, Chatham-Kent, Oxford, Perth, Stratford, St. Mary’s and Huron, as well as representatives

from agriculture, industry and commercial, gas and oil industry, First Nations representatives, and some liaisons (Thames-Sydenham and Region, 2015).

Currently, there two First Nations representatives on the committee, a COTTFN councillor, and a water operator from the Delaware Nation of the Thames (Thames-Sydenham and Region, 2019). As described on the SWP Committee website, First Nations communities were engaged and played an active role in the development of the source protection plan. The First Nations in the region were given a notice of the commencement of the SWP planning, a First Nation Liaison Committee was developed (eight meetings occurred), they were allowed to comment on the policies that were being developed, and they were sent a letter to notify them of the Draft Proposed SWP Plan (Thames-Sydenham and Region, 2015). The only First Nation who choose to opt into the SWP plan was the Chippewas of Kettle-Stoney Point whose intake zone was added to the list of vulnerable areas (Thames-Sydenham and Region, 2015). COTTFN groundwater sources are not currently protected under the Thames-Sydenham SWP Plan (Thames-Sydenham and Region, 2019).

3.1.4 Chippewas of the Thames First Nation Source Water Protection

While COTTFN did not opt-in to the CWA SWP process, they are engaged in SWP efforts on-reserve. COTTFN has participated in developing *Legal and Policy Tools for Source Water Protection in Indigenous Communities* with the Canadian Environmental Law Association (CELA, 2019). This initiative is in collaboration with two adjacent First Nations communities, the Oneida Nation of the Thames and Munsee-Delaware Nation, At COTTFN, they have progressed through a five phased approach to developing local tools. Specifically, they advised on and completed community-based water sampling, monitoring, and research initiatives (CELA, 2019). COTTFN created environmental by-laws through their Justice Department related to agricultural and nutrient management, waste management, septic systems, and wetlands (CELA, 2019). COTTFN is working to protect their drinking water source through legal mechanisms, policy mechanisms, and on-the-ground action informed by the community rather than the provincial legislation.

3.2 Research Methods

3.2.1 Sampling and Participants

Purposive sampling was used to select interview participants (Baxter and Eyles, 1997). Two processes were used to identify research participants that were contacted, one for the First Nation and a separate approach was used for local water actors from the municipality and the conservation authorities.

Potential research participants from the Chippewas of the Thames were identified through a key informant from the First Nation who knows the community. The criteria included: individuals whose work directly or indirectly affect water quality and quantity such as those who sit on the Environment and Sustainability Committee, who are working within the Lands, Treaty, and Environment Department, who work in Public Works Department, and who participate in local source water protection initiatives. Based on this, a list of 12 individuals was generated.

Potential water actors within the Thames River Watershed were selected through the identification of key water management actors within the watershed using websites, grey literature on water management, and previous knowledge from Advisory Committee members. From this, an initial list of primary water actors was identified. From organizational web searching, a list of 57 names and titles were generated, across 5 local water organizations. The primary criterion to identify specific individual roles included those who have current or past active professional roles related to water within the Thames Sydenham Region and watershed. The participants have worked in a professional capacity in water management, water operations, risk management, community relations, project coordination, SWP planning, environmental and engineering services, and water supply management.

Snowball sampling (Baxter & Eyles, 1997) was also employed through the data collection phase. Research participants were asked to identify other actors who should

be interviewed based on their prior knowledge and experience in the field (Baxter & Eyles, 1997). Melnychuk & de Loë (2017) claim that snowball sampling can be used to diversify interview participants from all societal sectors. The experience and knowledge of additional interview participants helped to inform and broaden the knowledge gained.

Using two lists, 57 individuals were contacted through email using an introductory letter and consent form (Appendix 4). Twenty-nine responses were received, some agreed to be interviewed and some declined the interview request. Of the 29 responses 15 participants agreed to be interviewed. As a result of snowball sampling, 6 additional individuals were identified, 5 of which agreed to be interviewed, making a total of 20 participants in this study.

Greater participation was attempted by reaching out to interview participants through emails and phone calls. If a response was not received within two weeks, a second reminder email was sent. A representative of the organizations advised against further contact of participants; explaining they chose one or two people to participate in the interview process and that those employees would be the voice of others from the organization.

Of the total 20 interviews, 7 were representatives of the municipality, 6 were representatives from the First Nation, 5 were representatives from conservation authorities, 1 from the Ministry of Environment, Conservation and Parks, and 1 from the Ontario Water Works Association.

3.2.2 Data Collection

Semi-structured interviews were used because perspectives can be better understood through targeted research questions (Johnston, 2010). Semi-structured interviews are also informal and allow for direct questions while keeping the discussion open to a variety of answers that can expand beyond what the question has asked (Whiting, 2008; Johnston, 2010). Lastly, semi-structured interviews allow for flexibility and responsiveness to individuals (Carter, 2014). Carter (2014) claimed that semi-structured

interviews generate more ideas, as opposed to other methods such as focus groups, and discussion of some sensitive topics is more likely to occur in an in-depth individual interview.

Twenty semi-structured interviews with research participants occurred between August and September of 2019. Interviews occurred with participants from Chippewas of the Thames, Lower Thames Region Conservation Authority, St. Clair Region Conservation Authority, Longwoods Road Conservation Area, City of London, Ontario Water Works Association, and Ministry of the Environment, Conservation and Parks. A standard set of questions were used for each interview (See Appendix 5). To ensure confidentiality, a code was created to identify each participant based on the actor group they represented and assigned a number to each actor; this was used throughout the thesis to cite the data from each individual.

Interviews were conducted at water actor's offices, over the phone, and at a secure and private location at COTTFN. The interviews lasted between 45 minutes to an hour. To document the interviews, participants were provided with the option of an audio recording, written notes or both. Of the twenty participants, nineteen chose to be audio recorded and one chose to be documented using written notes.

3.2.3 Procedures and Consent

The procedures for each interview went as follows: 1) the participants were emailed an invitation to take part in interviews, then a follow-up phone call was made; 2) when they choose to participate, a date, time, and location were selected; 3) they were required to sign a consent form to participate; 4) the interviews took place in person; 5) they received a follow-up email with a copy of the interview transcript; 6) they reviewed it and sent revisions.

Informed consent was required to conduct this study as the investigator was engaging with human participants. University of Guelph Research Ethics Board approval was obtained REB#: 19-03-023, including the Supplemental form for Cross-Cultural

Research. Once the participations agreed to an interview, they were provided with a paper copy of the consent form before the interview. They were asked to read the consent form to ensure they understood the potential outcomes. To commence the interview, they were required to sign the form or provide verbal consent.

3.2.4 Data Analysis

The initial phase of data analysis involved transcribing each interview. For the participant who did not feel comfortable recording the interview, the interview notes were typed word for word. For those participants who allowed audio recording, transcription of the interviews occurred using Temi software, a transcription service that produces a copy of the interview transcript with 85% accuracy.

After receiving the transcription from Temi each recording was played and the transcript was edited to ensure it was an exact match with the audio recording. Filler words (ex. ahh and umm) and identifiers were eliminated by changing the names to Speaker 1 and Speaker 2. A copy of the transcription was sent to each interview participant with a request to review and provide required changes or final approval for use of the transcription for data analysis. Eleven participants chose to edit their interview transcripts through the track changes word function. All changes were accepted that were requested and the final versions of the interview transcripts were saved.

Once approved, the transcriptions were coded using NVivo, a qualitative research software (Welsh, 2002). It was beneficial to use software. As Zamawe (2015) explains, NVivo boosts the accuracy and speed of the analysis process, and NVivo allowed me to remain in control of data organization in a systematic way. Axial coding was used to identify patterns, emergent themes, and relationships among themes (Brisbois & de Loë, 2017; Allen, 2017), which allowed for the data to be organized into small groups, called “nodes” in NVivo to facilitate further analysis (Weber 1990). Axial coding is defined as the process of inductively locating linkages between data, it can occur in numerous ways, the

linkages draw can include behaviors, events, activities, strategies, states, meanings, participation, relationships, conditions, consequences, and settings (Allen, 2017).

Each “node” was named according to the theme of each question; there were 9 primary nodes. For example, the first question asked the participant to explain what collaboration meant to them, the corresponding “node” was titled Perspectives on the Meaning of Collaboration. This process was done for each interview question where a corresponding node was created in NVivo and the information was coded for emerging themes. Within the primary nodes, secondary coding was also used, and sub-nodes were created in NVivo which further analyzed responses to determine predominant themes within that node. A sample of the coding framework, nodes and sub-nodes is shown in Appendix 6.

Once the data was coded and answers to each question were combined, the conceptual framework that was presented in Chapter 2 was used to further analyze the data. To analyze answers to question 1 (“what is the meaning of collaboration to you?”), Ansell & Gash’s Collaborative Process framework in section 2.2.2. was used to identify whether participants understood the fundamentals of collaboration and where the interview participants converged and diverged in their meaning of collaboration. Finally, a discussion on the Thames River Clear Water Revival (TRCWR), a collaboration identified by participants in this case study will be conducted using the conceptual framework in section 2.5. This discussion is regarding the structure of collaborative governance and process of collaboration within the TRCWR informed by interview results and a document published by the TRCWR called *The Shared Waters Approach*.

3.2.5 Data Triangulation

Triangulation is the use of multiple methods and data sources in qualitative research to develop an understanding of phenomena (Carter et al., 2014). Carter (2014) defined four different types of triangulation: theory triangulation, data source triangulation, investigator triangulation, and method triangulation. Data source triangulation was used, which is the

collection of data from different people to gain multiple perspectives and allows the research to validate the results. 20 participants from was interviewed from different actor groups, water actors from a First Nation, and water actors from local institutions such as a municipality and two conservation authorities to gain perspectives of different actors within the watershed. Interview participants were water actors with either technical expertise, political expertise, financial expertise, environmental expertise, social expertise, or operations expertise. Different perspectives were gained as water is influenced by policy, politics, economics, the environment and society. As well, relevant documents were collected and reviewed to allow for a compare and contrast or to verify, what was heard with what was read across interviews and documents.

There are some research limitations which should be acknowledged.

- The research is a snapshot of collaboration within this case study at the current period of time (2019) and may not reflect the full knowledge of past relations or collaborations within the case study. Responses are representative of actors within the case study; therefore, the results and discussion are specific to those who chose to participate.
- Some actors chose not to participate in the study which limits the data from that actor group.
- **Federal water actors were not included in the initial list of water actors since the focus was on local collaboration and relations.**

4 Results and Discussion

This chapter presents results for research Objective 1: To understand the attitudes, opinions, and experiences of First Nations, conservation authorities and municipalities as it relates to water collaboration. This is completed through four sections: 4.1) perspectives on the meaning of collaboration; 4.2) collaborations within the Thames Sydenham watershed; 4.3) key challenges to water collaboration; and 4.4) a discussion on why COTTFN does not participate in existing SWP collaboration under the Ontario Clean Water Act. Section 4.2 also includes results related to Objective 2: to identify and examine collaborative approaches that currently exist.

4.1 Perspectives on Collaboration

To understand perspectives on collaboration, participants were asked to discuss what collaboration means to them. Several key themes emerged for how participants described collaboration; these include understanding and respecting one another, finding commonalities, agreeing to a resolution, working together, making decisions that are consistent with each party's mandate, committing to one another, engaging in good dialogue, and building a strong relationship.

These themes are listed below, and the results are presented from the interviews to demonstrate the overall broad convergence among actors and where the actors diverged in their perspectives on key elements of collaboration. Quotes from participants are used to demonstrate richer understandings that come from what the participants shared. Where possible, supporting evidence was contributed from documents to triangulate and further explain the results.

What emerged from the interview results is a shared belief across all actor groups on the importance of understanding and respecting those with whom you collaborate. Of the twenty individuals interviewed, five participants shared this perspective.

For the First Nation, understanding one another means knowing what jurisdiction each actor governs, what kinds of authority each actor can exercise over their jurisdiction (Participant #13), what rights they can exercise (Participant #14), and what values they uphold (Participant #15). A water actor from the First Nation stated

Well good collaboration would mean that each side has a good understanding of where each other's coming from, the values that each side has and that they bring.... I think those are items that outside the reserve, the municipalities, they don't really have a good understanding of what, what's involved with treaties and what's involved with taxation and jurisdiction issues and within first nations. (Participant #13)

Understanding and respecting other collaborators means similar things for water actors from local organizations, it means “respecting their jurisdiction, essentially their rights to govern themselves and manage themselves” (Participant #3), respecting other’s priorities even when you do not understand their situations or internal processes (Participant #18), and treating First Nations as a nation (Participant #14). One water actor from a local organization stated:

One of the things about working with First Nations, you have to be invited. And, therefore you don't go in and say, I'm going to solve your problems to a First Nation. First Nation is a Nation. They're inviting you and therefore that's the terms of which you work with the First Nation. (Participant #14)

Through the interviews, it became clear that some water actors from local organizations attempt to understand and respect local First Nations with whom they collaborate. Their efforts were acknowledged by COTTFN. One water actor from the First Nation stated:

We're trying to reach agreements on the conservation and purity of the Thames River. Our ancestral significance to the River and being respected. And I think that the municipalities are lately being more

compliant in recognizing our ancestral jurisdiction of that waterway.
(Participant #11)

Another key theme frequently used to describe collaboration was “common”. This was used by both water actors from local organizations the water actors from the First Nation. Each actor used the word common in different ways but with the same intent: “achieve a common outcome” (Participant #12), “working for a common goal” (Participant #16), “towards a common goal” (Participant #1), and “looking for commonalities” (Participant #13). One water actor from a local organization identified common goals that they believed they shared with water actors from the First Nation, they stated:

So looking for commonalities, obviously clean water, safe drinking water, adequate supply, protection from contaminants, all of these are things that would be common ground to both sides. (Participant #13)

One water actor spoke about collaboration in relation to the results, or how collaborations can serve to resolve issues that may arise between collaborators (Participant #11). This was mentioned by a water actor from the First Nation; however, other actors did not speak about results they might hope for out of a collaboration.

We don't have enough water to accommodate for more housing and businesses. So that's one possible avenue to go with, in terms of collaboration with a municipality. (Participant #11)

Water actors from the First Nation, conservation authorities and municipality all spoke about collaboration about creating an environment for people to work together (Participant #12, #1, #11, and #16). It was also noted, that working together as collaborators can be difficult and can sometimes cause actors to decide not to work together in the future. As a follow-up question when asked, “How do you know when the collaboration is good?”. A water actor from the First Nation stated, “When we continue to work together” (Participant #11). This statement points to the importance of the process

of collaboration and the outcomes of collaboration because they are factors that can lead to either further collaboration or separation.

A water actor from the First Nation highlighted the importance of making decisions within a collaboration that are consistent with each actor's mandate, and highlighted the relationships to planning. The water actor stated: "as long as it's consistent with our comprehensive community plan and if it is consistent with our mandate as an organization, as a First Nation and a department, the collaboration ought to be a good collaboration" (Participant #9). Other water actors did not speak about the type of decision making that might occur within a collaboration.

A water actor from the First Nation stressed the importance of steadfast commitment to a workload to achieve goals that were originally set out in a collaboration (Participant #12).

To me good collaboration is listening and communicating while putting in the effort and committing to the workload to achieve partnerships or agreements. (Participant #12)

Commitment can take many forms, whether it be funding, personnel, resources, or time. Commitment is essential for building trust among collaborators.

Good dialogue is another commonly shared theme that emerged from participant perspectives on collaboration. One participant shared that good dialogue involves two elements: "listening and communicating" (Participant #12). A water actor from the First Nations stated:

It starts with communication and talking and trying to build those relationships. And I think the collaboration becomes good when it moves just beyond the communication and things started happening. (Participant #15)

Ansell & Gash (2007) stated that good dialogue occurs through face-to-face interaction. Many participants spoke about the challenges of good dialogue as a result of changes in leadership from frequent election cycles hindering the ability to create long-term relationships (Participant #2, #3, #4, #14, #15). COTTFN chief and council elections occur every two years and elections for municipal council are every four years (Participant #4).

Many participants pointed to the value of collaboration as a way of bringing people together to build relationships that last (Participant #15, #9, #18,). A water actor from the First Nation stated: "As individuals, we have a weaker voice, but collectively we can have a stronger voice that can withstand changes in political leadership" (Participant #9,). As mentioned in phrase #7 Engaging in Good Dialogue, political leadership often changes which can hinder the longevity of relationships. Collaborations can overcome these changes and allow for long-lasting relationships beyond the current political climate.

Below is a statement, which summarizes what was heard overall based on the themes of collaboration shared by all three actor groups (First Nation, municipality and conservation authority), and is believed to represent a shared practical definition:

Collaboration involves a common problem shared amongst actors who understand one another and want to achieve an agreed upon resolution by showing respect, working together, and engaging in good dialogue.

It should be noted: three themes were not included in this definition since they do not repeat, a member of all three actor groups. These phrases were "committing to one another", "Decision making that is consistent with each party's mandate" and "building a relationship". Excluding these phrases from the above statement does not mean that other actors would not agree with them, they were simply not shared across all groups.

Perspectives on collaboration present similarities and differences between academic literature and the case study results. There are differences in the perspectives of what defines collaboration. This study used Black and McBean's

(2017) definition of collaboration, they claim it is “the bringing together of diverse groups of stakeholders to work towards a consensus and resolve conflicts, drawing on local knowledge to inform decision-making, attempting to address and solve issues related to diverse and unequal interests” (p. 710). Whereas, participants in this case study claim that collaboration involves a common problem shared amongst actors who understand one another and want to achieve an agreed upon resolution by showing respect, working together, and engaging in good dialogue. Similarities can be drawn between the words used to describe the process of collaboration by Ansell & Gash (2017) and the words used to describe collaboration by the interview participants in the case study. The process of collaboration is described as face-to-face dialogue, commitment to the process, shared understandings, trust building and intermediate outcomes (Ansell & Gash, 2017). Similar words such as dialogue, understanding, and resolution or outcomes are found in both descriptions. This suggests that participants in this case study view collaboration as a process.

4.2 Collaborations within the Thames Sydenham Watershed

To address Objective 2: to identify and examine collaborative approaches that currently exist for their application to First Nation source water protection in southern Ontario. Each participant was asked to describe any known activities that enabled collaboration between 1) the First Nation and the local municipalities (the City of London and other surrounding municipalities), and 2) the First Nation and the conservation authorities.

From the first question, which focused on First Nation and municipal relationships, participants identified a number of activities that enabled collaboration: a notification system for wastewater treatment overflows during stormwater events, a roads maintenance agreement, a joint board for a local hockey arena, Thames River Clear Water Revival (TRCWR), political and administrative communications, an inner-city powwow, symposiums, and consultation outreach under the Duty to Consult. These are summarized in Table 4.1.

Table 4.1 Collaboration Between COTTFN and the Local Municipality

Focus	Description
Wastewater Overflow	The City of London will notify COTTFN when wastewater overflows occur causing raw or partially treated sewage into the Thames River. This results from storm events that overwhelm the combined sewer systems. The notification allows COTTFN to monitor the quality of water in their intake to ensure the correct treatment is applied (Participant #1, #2, #3, #4, #6, #9, #13, #19).
Road Maintenance	There is an informal agreement between COTTFN and a local municipality in terms of road maintenance. COTTFN has agreed to maintain a township road that runs on the inside of the reserve and the township will maintain a Chippewa road near the outside of the reserve (Participant #9, #11).
Hockey Joint Board	The tri Township Arena is an organization governed by a board of directors and in partnership with COTTFN and the Municipality of Strathroy-Caradoc (Participant #11).
Communications	There are informal communications between the City of London and COTTFN about developments within the City of London (Participant #4).
Powwow	For Indigenous Solidarity Day a Pow Wow takes place on The Green in Wortley Village within the City of London. It brings together Indigenous crafters to share their jewellery and arts (Participant #2, #4).
Symposiums	The River Talks gathers at Thames River for three days of indoor and outdoor talks, walks, and art focused on river ecology, and history. These talks feature Indigenous leaders and water protectors (Participant #2).
Duty to Consult	Formal communications initiated by the City of London to COTTFN about developments that have the potential to impact treaty rights. Communications are documented and follow Ontario consultation guidelines (Participant #2, #4, #7, #12).

The activities listed in Table 4.1 demonstrate how the First Nation and the municipality have engaged in the collaborative process. Section 2.2.2 talks about Ansell & Gash’s (2007) collaborative process framework, the elements in this process are apparent in these results. The two entities engaged in face-to-face dialogue through the Indigenous Solidarity Day Powwow and the informal communications. They achieved intermediate outcomes when The River Talks came to fruition within the City of London.

The City of London built trust with COTTFN by respecting the Duty to Consult processes. These examples demonstrate that water collaboration is a process that can be achieved through a number of activities over time.

In response to the second question, participants identified activities that enabled collaboration to occur between the First Nation and the conservation authorities, a greater number of examples emerged. These include floodplain mapping projects, Antler River Guardians of the Four Directions, phosphorus reduction projects, tree planting projects, freshwater mussel workshops, wetland restoration projects, seed gathering workshops, construction of park structures on reserve, interpretative signage on trails, and car passes for access to Conservation Areas. These are summarized below in Table 4.2.

Table 4.2 Collaborations Between COTTFN and Local Conservation Authorities

Focus	Description
Antler River Guardians from the Four Directions	First Nations youth engagement program based in the watershed of the Thames River meant to provide First Nations youth with work experience and an awareness and appreciation of opportunities in the environmental field (<i>Antler River Guardians from the 4 Directions</i> , 2020). Programming works in partnership with local Conservation Authorities (Participant #2, #14, #15).
Phosphorus Reduction Collaborative	To reduce toxic algal blooms the Phosphorus Reduction Collaborative was initiated. The Thames River PRC Steering Committee members include both the Upper Thames Conservation Authority and Lower Thames Region Conservation Authority (LTRCA), COTTFN, and the City of London as well as many other stakeholders who have an interest in reducing phosphorus in the Thames River (<i>Thames River Phosphorus</i> , 2020; Participant #8, #9, #11, #14, #15)
Tree Planting Partnerships	The LTRCA sold root seedlings to COTTFN for their tree planting initiative. LTCA delivered the stock and provided technical assistance to the community planting crew (“COTTFN Receives Stewardship Award”, 2017; Participant #14, #16, #17).
Freshwater Mussel Identification Workshops	To enhance watershed health LTRCA organized a freshwater mussel identification workshop with Chippewas of the Thames First Nation (LTRCA, 2019b; Participant #14, #16).

Wetland Restoration Projects	LTRCA worked with COTTFN to restore and increase the resilience of wetlands on reserve (#7, #16, #17).
Seed Gathering Workshops	LTRCA has worked in partnership with local First Nations from COTTFN to complete a feasibility study at the Longwoods Road Conservation Area in order to rebuild aspects of the conservation area. This area has Ska-Nah-Doht Village which is reflective of a native settlement found among the Thames River (“Feasibility Study Investment in Longwoods Road”, 2018; Participant #16).
Construction of Park Structures on Reserve	LTRCA had an agreement with COTTFN to create a park structure on reserve. The idea was to make a medicine wheel garden near their daycare & preschool (Participant, #16, #17)
Interpretive Signage on Reserve Trails	The LTRCA helped COTTFN with enhancing trails along the Thames River through planting vegetation to control erosion and interpretive signs along the edge of the river, meant to share some educational/traditional knowledge (Participant #14, #17).
Guest Passes for Access to Conservation Areas	The LTRCA offered car passes for COTTFN members to across the Longwoods Road Conservation Area for free to gather traditional plants and medicine (Participant #14, #16).

There are many examples of activities within this case study that enable the process of collaboration. The Thames River Clear Water Revival (TRCWR) was mentioned by many participants as an example of an activity that brought about collaboration in the Thames Sydenham Watershed. The TRCWA created a document called *The Shared Waters Approach (2019)* and while describing the nature of this activity, one water actor from a local organization shared a quote an elder once said to them:

We are in two canoes going down a river, keep your paddle in your own canoe and we’ll go together with it. (Participant #14)

This quote is a metaphor for the nature of a collaborative relationship between two actors. Each actor in separate canoes which is representative of their laws, values and jurisdiction, the paddles representing individual actors’ rights that they can exercise, and the river representing the path that both actors take to work together.

4.3 Key Challenges to Water Collaboration

There were several key challenges to water collaboration identified by participants within this case study, these include competing priorities, different understandings of the value of water, budgeting for collaboration, navigating governance structures and uncertainty, lack of impetus to collaborate, and historical mistrust. It is important to understand these challenges so that water actors can be aware of their existence.

4.3.1 Competing Priorities

When asked to discuss what challenges might hinder collaboration, it was identified by a water actor from a local organization that securing a commitment from the First Nation to engage in a collaboration can be difficult if they have competing priorities (Participant #15). Competing priorities limit their ability to devote funding and human resources towards a collaboration (Participant #19). While they have an interest in working together, they also face emergence circumstances that may take precedence (Participant #19). The challenge was acknowledged by a water actor from the First Nation who stated that the “capacity of the First Nation plays a key role in the negotiation of these agreements” (Participant #12).

4.3.2 Different Perspectives of Water

It was identified by participants that the perspectives of water to water actors from the First Nation and water actors from local organizations differ as a result of different understandings of the world which can hinder actors from wanting to engage in collaborations. Their perspectives of water differed in three ways: the value of water, the terminology used to describe water, and the frameworks in which they view water.

Throughout the interviews, the term “value” reappeared many times. The “value” of water was discussed in different terms. Some participants spoke of the value of water in terms of dollars, while others spoke about the value of water to their lives or environmental ecosystems. One water actor from the First Nations participant explained

that they view water as “an extension of one’s self... like having limbs. It’s cultural. It’s a spiritual viewpoint as well” (Participant #6). A water actor from the First Nation explained that they do not measure the value of water in terms of dollars, because it is not seen as just a commodity meant for human consumption, it is seen as the lifeblood of mother earth (Participant #11).

Caring for water is considered caring for one’s relations (Participant #11). Most of the water actors from local organizations used language that communicated water is valued as a commodity. The municipal and conservation authority participants spoke about how much water costs to treat it (Participant #1, #2, #3, #4, #5 #7, #18, #20), to transport it to a home (Participant #19), and how much water is used per home (Participant #1, #19), and used the term “resource” to describe water (Participant #4). Resources are defined as a stock of assets that can be drawn on by a person (Oxford, 2020). Based on this definition, resources have value because they can be used for the use/benefit of humans.

One water actor from a local organization acknowledged that while the perspective on water is different, they could learn new perspectives. This participant stated that:

There are certainly things we can learn from them (First Nations) in terms of their relationship with water. Some of us treat it as a commodity...you take it for granted that it comes out of the tap (Participant #19).

As well, contrasting worldviews create challenges when it comes to deciding how water should be treated which limits water actor’s desire to collaborate. One water actor from the First Nation stated that the municipality talks about the cost of water as opposed to how sacred it is which is the main reason they do not jump into more discussions about water with the municipality (Participant #10).

However, water actors from local organizations did point out their efforts to use terminology that is respectful of First Nations worldviews. The TRCWR is a great example of a collaboration that committed to respect local First Nations worldviews (Participant, 59

#6). The TRCWR created a report on efforts that could be made by local actors to reduce the water quality threats on the Thames River titled the *Shared Waters Approach (2019)*. A participant explained that during the process of completing this report, it was titled Water Management Plan. The term “management” did not resonate with the First Nations as it is a westernized term used to describe the treatment of environmental resources for which they did not have a term for in their language (Participant #6). This report is supposed to be representative of a collaboration between the First Nation, conservation authorities, and the municipality so it was only fitting to ensure it represented all parties involved therefore the title was adjusted to *Shared Waters Approach (Participant #6)*.

The scope of municipal water management is limited in that it often does not focus on water protection on a watershed level due to the regulatory framework that enforces jurisdictional separation of one municipality from another (Participant #19). One water actor from a local organization stated:

I think municipalities have been focused on providing the best possible water to their customers. And if you live in Toronto, I’m not worried about what people in Mississauga are drinking. We have the same source of water, but it’s fundamentally not my problem (Participant #19).

Thinking about protecting water from a watershed scale is more effective and allows municipalities to target specific areas that need attention (Participant #7). First Nation participants in this case study tended to concern themselves with the health of the water for the ecosystem (Participant #9). For example, a water actor from the First Nation stated that:

We're planning to reforest a certain area on the First Nation. A lot of these things well may not speak directly to water. It is part of the natural environment in that forests and meadows are important and ought to be weighted higher in terms of the way you look at development...those have to be in consideration (Participant #9).

This statement is a great example of how First Nation participants considered water beyond their jurisdiction as they understand that water permeates through many aspects of the natural environment and does not end at jurisdictional lines.

The different perspectives between water actors from the First Nation and those from local organizations create challenges for collaborative water governance. “Cultural differences in understanding human–nonhuman relations and perceptions about stewardship responsibilities can become a source of disagreement in landscape scale multi-party initiatives” (Reo et al., 2017, p.7).

4.3.3 Budgeting for Collaboration

The governance and revenue structure of conservation authorities in Ontario does not support or enable collaborations with water actors from the First Nation (Participant #15). The *Conservation Authorities Act* allows municipalities in a common watershed to establish a conservation authority and set out objectives for programs to achieve watershed management (Government of Ontario, 2017a). Conservation authorities have a board of directors appointed by member municipalities (Government of Ontario, 2017a).

The *Conservation Authorities Act* Part II section 2.1 states that “the council of each municipality may appoint representatives to attend the meeting” (Government of Ontario, 2019a, n.p.). Under the *Conservation Authorities Act* “municipality” means a local municipality and includes “a band under the Indian Act that is permitted to control, manage, and expend its revenue money under section 69 of that Act” (Government of Ontario, 2019a). COTTFN are listed as “permitted to control, manage and expand their revenue money” under the Subsection 69(1) Indian Band Revenue Money Order of the Indian Act (Government of Canada, 2020d). Yet COTTFN has no representation on local conservation authority boards in their region (Participant #15). One water actor from a local organization argued that First Nations Treaty Rights should allow for them to sit on the conservation authority board of directors (Participant #15). The participant stated,

London for instance, is with the Upper Thames Conservation Authority, if you're looking at Treaty Rights, the community should be sitting on that board. But that provincial piece of legislation doesn't allow for that.
(Participant #6)

Being that the conservation authorities' board of directors directs water management within the COTTFN territories and ancestral lands, water actors from COTTFN should have the right to sit on these boards and represent their interests. As it was established in section 2.4, First Nations as governments and individual are rights-holders, with rights that specifically relate to water and are active participants in water-related decision-making (Ivey et al., 2006b; Johns and Rasmussen, 2008; von der Porten & de Loë, 2010). The board of directors for each conservation authority within these territories have the authority to direct conservation authority funding (Participant #15). The board decides where the funding will be allocated and without First Nation representation on the board, one water actor from a local organization stated that "it is difficult to justify, from a financial perspective, spending resources to assist them" (Participant #15).

There are four revenue sources for a conservation authority, "municipal levies – 53%, self-generated revenue – 35%, provincial funding – 9%, and federal funding – 3%" (Government of Ontario, 2017a, p. 5). Nearly 50% of conservation authority funding is made up of municipal levies which means they have an interest in allocating those funds towards municipal projects, not towards projects that involve First Nations.

Funding, allocated by the provincial government, for the implementation phase of SWP under the CWA decreased in 2019 which has reduced the level of communication and decreased relationship building between SWP committee members (Participant #16). This is important and relevant as communication and relationship building are underlying factors that contribute to successful collaboration.

The office of the auditor general conducted a study on the value-for-money of source water protection planning under the CWA (Government of Ontario, 2014). The

report is titled *Source Water Protection Follow-Up on Value-For-Money Section 3.12, 2014 Annual Report*. This report surveyed municipalities, source protection committees and conservation authorities and found 80% of respondents felt uncertainty in the funding of the plan implementation which is causing loss of momentum that threatens the program (Government of Ontario, 2014). Due to the loss in momentum committee members are losing interest in the process causing them to resign (Government of Ontario, 2014). This report is consistent with the research results. Several participants observed a dramatic decrease in funding during the implementation phase of the plan which is reducing the number of times the source protection committee meets (Participant #16). There were two First Nations committee members on the Thames Sydenham SWP Committee representing the interests of the eight First Nations in the region (Participant #16). A water actor from a local organization stated:

First Nations are going back on their own, which is really unfortunate. Because we spent five years developing the rapport and the relationship only to have the funding dry up. And essentially, they just went back to the way they had been doing it. (Participant #18)

With fewer committee meetings to allow for communication among actors, relationships falter, which can impact the level of collaboration that occurs. As well, recent changes in legislation have created barriers to collaboration between First Nations and conservation authorities. The Government of Ontario passed Bill 108, the *More Homes, More Choices Act, 2019* which amended the *Conservation Authorities Act* creating barriers for conservation authorities who wish to allocate time and funding towards projects with First Nations (Participant #15, #16). The barriers include limiting the scope of their programming and creating bureaucratic barriers to accessing funding (Participant #9, #13, #15, #16, #18).

Prior to Bill 108, the conservation authority's mandate was to provide "programs and services designed to further the conservation, restoration, development, and management of natural resources" (Section 20 of the Conservation Authorities Act).

Since the current Conservative government has taken power, the Minister of Environment, Conservation, and Parks has directed conservation authorities to focus funding on their core programs (Participant #16). The Minister of the Environment Conservation and Parks sent a letter to conservation authorities directing them to “begin preparations and planning to wind down those activities that fall outside the scope of your core mandate” (Peacock, 2019). Since First Nations land is not owned or controlled by conservation authorities, continuing projects with them would be considered operating outside of their mandate (Participant #9, #13, #15, #16, #18). If the conservation authority wished to operate outside of their core mandate and conduct non-mandatory programs, they must agree to secure the funding from each participating municipality (Coburn & Grochalova, 2019).

The Government of Ontario has cut funding related to the conservation authorities core mandate: flood-management (Participant #16). There are many great examples identified by participants. Provincial funding cuts have eliminated collaborative projects between the LTRCA and First Nations in the area (Participant #16). For example, the Antler River Guardians from the 4 Directions was initiated in 2015, it was a First Nation youth engagement program based in the Thames River watershed that worked in partnership with the LTRCA (Participant #16). The goal of the program was to provide youth with work experience and awareness and appreciation of opportunities in the environmental field (Participant #16). In 2018 the Ford Government cut funding that supported the program and it has been put on hold until funding can be secured (Participant #16).

As well, the Wynne provincial government previously funded the 50 Million Tree Program; the goal of this program was to have 50 million trees planted by 2025 (Participant #16). Annually this program cost \$4.7 million until the Ford Government eliminated the program (Zimonjic, 2019). This tree planting program fostered collaboration as it allowed conservation authorities to work with local First Nations to plant

trees (Participant #16). A water actor from a local organization reflected on the experience:

We also learned a lot from the different nations because they were providing us with information that was helpful for our own tree planning people. They offered indigenous information, traditional knowledge about trees. And then they had also helped work together, with gathering of seeds. (Participant #16)

Fortunately, the federal government acknowledged the value of this program and has committed \$15 million over four years to rescue the program (Participant #16). Had the federal government not stepped in with financial support, this collaboration would not have been possible. While conservation authorities are facing funding challenges to engage and collaborate with First Nations some conservation authorities within this case study took it upon themselves to apply to outside funding sources to enable them to continue engaging the First Nations in their region.

4.3.4 Navigating Governance Structures and Uncertainty

Water actors from local organizations expressed frustration with the inability to build long-term relationships with the First Nation (Participant #4, #15). Some attribute this barrier to collaboration from high turnover rates as a result of the short First Nations election cycle (Participant #4, #15). COTTFN operates under the *Indian Act* that requires an election for Chief and Council every two years (Government of Canada, 2019c). This system forces outside organizations to build new relationships with COTTFN every two years, which limits their ability to engaging in good dialogue. A water actor from a local organization stated that:

Relationships are definitely important for long term collaboration. If you have a lot of turnover either if it's on the community side or on the city side, then that's difficult to maintain a relationship because you don't have that existing trust and you don't even know who to contact. (Participant #4)

As well, the new Chief, councillors, or staff members might not feel equipped to navigate the foreign systems and structures necessary to collaborate with outside organizations (Participant #4).

While establishing relationships are important, it is also important that each actor has knowledge and understanding of the governance structure within the First Nation. A water actor from the First Nation stated that

The municipalities don't really have a good understanding of what's involved with treaties and what's involved with taxation and jurisdiction issues and within First Nations. (Participant #13)

A similar comment was echoed by a water actor representing a local organization who felt that the First Nation

lacked an of understanding of how municipal governance works and who is responsible for what under a parliamentary type of governance structure in Ontario and in Canada. (Participant #3)

Both water actors from the First Nation and water actors from local organizations do not feel that their governing system has been seen and understood. Understanding the underlying governing systems of each actor in a collaboration is important. For example, the First Nation expects to be engaged through the processes laid out in the *Wiindmaagewin Consultation Protocol* (Participant #12). Therefore, if the municipality seeks to collaborate and engage with the First Nation, the municipality must understand these expectations outlined in the protocol.

4.3.5 Lack of Impetus to Collaborate

For collaboration to occur, it must be initiated by a champion who is driven and supported through policy and funding. A water actor from a local organization felt that there was no

impetus¹¹ to collaborate with local First Nations as there have been limited directives from the province regarding when and how to initiate that process (Participant #1). A water actor from the local organization stated that “to look beyond our borders and start saying, well, what else can we do? There has to be, you know, an impetus” (Participant #1). Provincial policies and directives are important as they can have a profound impact on the relationships that exist between municipalities and First Nations. McLeod et al. (2015) states that

If guiding provincial policies are incapable of identifying and recognizing First Nations as significant and distinct communities, there may be minimal incentive for municipalities and other non-First Nation organizations, beyond a moral impetus or a legal challenge, to engage with First Nations and understand treaty relations and obligations (p. 9).

Fortunately, the City of London was able to initiate and successfully carry out projects that enabled collaboration with the local First Nations as a result of a person in upper management who showed an impetus to do so (Participant #1). Some examples provide relate to water specifically. The municipality hires a training provider that runs water operator training programs every spring and fall for the municipal water operators to ensure their training is up to date (Participant #1). The municipality invites the local First Nations every year to attend at no charge (Participant #1). The water actor representing one of the local organizations who organized this collaboration claimed that the impetus to initiate such a collaboration came from the municipalities corporate review of the TRC Report, they stated: “we took that back and thought of where we overlap on things that are common” (Participant #7). This is a great example of how water actors from local organizations can go beyond their day to day activities and reach out to local First

¹¹ Impetus is defined as “something that encourages a particular activity or makes that activity more effective” (“Definition of Impetus”, 2019).

Nations. This example also highlights the importance of conducting broader organizational level reviews of the TRC Report to determine where local organizations can act to implement change.

4.3.6 Historical Mistrust

Trust amongst actors is an essential element of the collaborative process (Ansell & Gash, 2007). A First Nation participant characterized the relationship between the First Nation and the municipal, provincial, and federal governments as a relationship fraught with “mistrust discourse” (Participant #9). “Mistrust discourse” in that the First Nation does not feel able to speak openly and honestly about their affairs.

Throughout the interviews, it was identified that the mistrust stems from past events and policy. As examples, at COTTFN was the Mount Elgin Industrial Institute which operated from 1841-1949 (Participant #9). It was one of the first residential schools in Canada (Participant #9). A water actor from the First Nation stated that mistrust comes from “An anger that still prevails if you can't trust people to educate your children. How can you trust them to do other things?” (Participant #9). Trust is not easily attained with COTTFN as the *Wiindmaagewin Consultation Protocol* talks about the impact of the Canadian governments attempt to “civilize” the First Nation through the colonial imposition of the Indian Act which has caused a strain on the First Nations well-being and limited their control over their lands and environment (COTTFN, 2016).

Lastly, a water actor from the First Nation expressed their fears over the threat of the City of London expanding and developing energy projects in the COTTFN treaty lands, and intentions to protect their lands and traditional territory (Participant #9). Responding to mistrust is motivated by the need to protect the First Nation from further mistreatment (Participant #9). It is evident that mistrust, past mistreatment, and feeling threatened are not conducive to collaboration with local organizations.

4.4 Chippewas of the Thames First Nations and Source Water Protection Under Clean Water Act

Since the goal of this research is to understand how collaboration between local water actors can support First Nations community-level source water protection, it was important to understand perspectives around First Nations involvement in Ontario source water protection. As mentioned in Section 2.1.2, Ontario has a robust water governance system for SWP, enabled by the *Clean Water Act*, which is administered by conservation authorities, implemented by the municipalities, and informed by scientific data. While COTTFN did not opt-in to SWP under the CWA, they did have some representation on the Thames Sydenham SWP committee. Each participant interviewed for this research was asked if they could provide their perspectives on why they thought COTTFN had not opted-in to the CWA SWP. A few notable results emerged.

From the First Nation perspective, one water actor communicated that COTTFN wants to take responsibility for creating and implementing a community SWP plan that best suits their needs and operates under their authority (Participant #9). Since the CWA operates under provincial rule they decided not to opt-in. The First Nation wants to take cautious steps towards SWP, they are building up their competency to give their membership confidence in their decision-making ability (Participant #9).

COTTFN is a signatory to the *Framework Agreement on the First Nations Land Management Act* (FNLMA) which is the first step towards developing a Land Code that will allow the First Nation to opt out of 32 sections of the *Indian Act* related to land management (Gailus, 2016). To date, COTTFN completed a Land Code however, it has not yet been ratified (Participant #9). A Land Code will give them the ability to manage their lands based on rules set forth by the community (Participant #9). Specifically, under their own land code, “First Nations exercise powers without supervision or approval of ISC [Indigenous Services Canada] and the First Nation holds and manages revenue from their lands instead of ISC holding funds in trust” (Gailus, 2016, p. 5). For this reason, a

water actor from the First Nation questioned why they would accept provincial legislation such as the CWA that exercises control over lands at the whim of external governments (Participant #9).

Another participant from the First Nation explained that through the introduction of new legislation and amendments to previous legislation, the Ford government has attempted to “water down” pieces of environmental legislation (Participant #9). This participant may have been referring to the recent sweeping legislative changes to Bill 57 which eliminated the office of the Environmental Commissioner of Ontario (McClenaghan & Lindgren, 2018). A report from the Environmental Commission of Ontario proved that there is evidence that “protections for Ontario water are insufficient for its long-term security, with a number of convergent threats” (Westcott, 2018, n.p.). Given provincial legislative changes, the First Nation feels that having authority over policy on reserve would allow them to ensure that the environmental guidelines (ie., Land Code) could only improve with time and build their internal abilities (Participant #9). The Land Code allows them to resume and exercise control over environmental protection and land uses (Participant #9).

Water actors from local organizations also provided perspectives. Some thought COTTFFN has not opted-in to the CWA because COTTFFN would only engage in nation-to-nation relationships. Nation-to-nation relationships are bilateral relations “between an Aboriginal nation and either the federal or provincial government in right of the Crown” (Abele & Prince, 2006, p. 569). Furthermore, since SWP under the CWA is provincial legislation implemented through municipalities (low-tiers of governments) many water actors from local organizations believed that COTTFFN would only engage with high-tier governments such as the Federal Government (Participant #2, #10, #14, #15, #18).

Nation-to-nation relationships do not necessarily define the relationship that First Nations want with municipalities or conservation authorities. When asked to provide a rationale for why COTTFFN has not opted-in to the CWA, not one water actor from the First Nation used nation-to-nation relationships as the rationale. The perception that only

nation-to-nation relations must occur can act as a barrier to collaboration for local SWP. Regardless of the COTTfN pursuit for self-determination and governance, collaborative efforts between lower-tier governments such as municipalities still prove valuable. COTTfN has chosen to engage in collaboration with local organizations such as the City of London despite the fact that they are lower-tier governments, as shown in Tables 4.1 and 4.2. The range and scope of activities between the examples demonstrate how COTTfN has shown an open attitude towards collaboration with local organizations.

4.5 Chapter Conclusion

For the research participants, collaboration means 1) understanding and respecting one another, 2) finding commonalities, 3) agreeing to a resolution, 4) working together, 5) making decisions that are consistent with each party's mandate, 6) committing to one another, 7) engage in good dialogue, and 8) building a strong relationship. These results correspond with Ansell & Gash's (2007) cyclical five-stage collaborative process framework with states that collaboration is dependent on communication, trust, commitment, understanding, and outcomes.

Through the identification of past and current activities between the First Nation and the City of London, as well as the First Nation and the local conservation authorities, the process of collaboration has occurred. These actors have engaged in face-to-face dialogue, committed to engaging with one another, achieved outcomes, shared their understandings of the world, and built trust.

A number of barriers limit or hinder water collaborations among the First Nation and local water actors, participants spoke about competing priorities, different understandings of the value of water, budgeting for collaboration, and navigating governance structures and uncertainty, lack of impetus to collaboration, and historical mistrust.

Last, it was found that COTTFN did not enter into SWP under the CWA because they sought to engage in activities (FNLMA and Land Code) that would preserve their governing authority over lands, waters and resources on-reserve, and to ensure they provide protections for water upstream within the treaty lands. The local water actors believed the lack of COTTFN involvement in SWP was related to nation-to-nation relations which did not correspond the perspectives of the COTTFN research participants.

These findings provide understandings that contribute to discussion in the next chapter.

5 Discussion

This chapter contributes to Objective 3 to generate understandings of the current water collaboration within the case study to support COTTFN local-level SWP through an examination of the Thames River Clear Water Revival (TRCWR). The conceptual framework presented in section 2.5 is used to examine the TRCWR process of collaboration (Ansell and Gash, 2007), and to understand the collaborative governance structure (Fraser Basin Council, 2015). A discussion on these frameworks can be found in section 2.5. The TRCWR was selected for detailed examination because it is an existing collaboration and aims to enhance the quality and quantity of the Thames River, a source of surface water that influences COTTFN's drinking water source. As discussed in section 3.1.1, COTTFN sources their drinking water through two connected infiltration galleries situation on the righthand side of the Thames River, it is classified as GUDI (groundwater under the direct influence of surface water) which makes it vulnerable to risk of both surface and groundwater contaminants (CELA, 2019). Those involved in the TRCWR recognize the impact the Thames River has on downstream users. As one water actor from a local organization articulated:

So as part of that really early work, the City of London had engaged the First Nations because they're just downstream of London and they had expressed concerns in the past about London's wastewater discharges. Then as those discussions got more and more in depth, it kind of became clear that people's concerns were not just about the wastewater treatment plants. It was broader, concerns about water management issues on the Thames River. (Participant #15)

Furthermore, the TRCWR was also selected for examination because it involves three primary water actor groups within the case study: COTTFN (First Nation), LTRCA (conservation authority), and the City of London (municipality).

In 2019, the TRCWR published *the Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quality and Quantity* to “provide a context to unite and strengthen

individual efforts for the benefit of the river” (TRCWR, 2019, p. vi). It contains the watershed strategy for the Thames River which includes three mission statements, goals and planned steps to reach those goals (TRCWR, 2019). The TRCWR *Shared Waters Approach* document and interview results are used to inform this section. (For more information visit <https://www.thamesrevival.ca/>).

5.1 Background of the Thames River Clear Water Revival

The Thames River received attention for its role in impacting the health of the Great Lakes since it is located within the agricultural heartland of southwestern Ontario. This area is undergoing rapid population growth and development which is expected to test the assimilative capacity of the river (TRCWR, 2013). While there are many organizations tasked with monitoring and reporting on the quality and quantity of the Thames River, the TRCWR was to encourage a collaborative approach to a watershed strategy. Initiated in 2009 by the City of London to engage local organizations and First Nations to renew efforts towards addressing water management problems in the Thames River watershed (TRCWR, 2019), the TRCWR is described as a “long-term partnership that is committed to a healthy and vital Thames River watershed” meant to ultimately benefit Lake St. Clair and Lake Erie (Tchir, 2018, p. n/a).

This partnership involves four local First Nations (Aamjiwnaang First Nation, Caldwell First Nation, Chippewas of the Thames First Nation, Bkejwanong Walpole Island First Nation); federal and provincial governments (Ministry of Environment & Climate Change Canada (MOECCC), Ministry of Environment, Conservation, and Parks (MECP), Ministry of Agriculture, Ministry of Food Agriculture & Rural Affairs, Ministry of Natural Resources and Forestry); local conservation authorities (Upper Thames Region Conservation Authority & Lower Thames Region Conservation Authority); and a municipality (City of London) (Tchir, 2018). Three subcommittees were developed in 2012: First Nations Engagement Committee, Water Quality Technical Committee, and Water Quantity Technical Committee (TRCWR, 2019).

5.2 Examination of the TRCWR Structure

Four factors for successful collaborative water governance are used to examine the TRCWR structure: organizational design; access to data and resources; human-related success factors; and enabling policy framework (Fraser Basin Council, 2015).

The first factor that provides structure to a collaboration is strong organizational design which includes clear and common purpose, procedures, and principles (Fraser Basin Council, 2015). The TRCWR has three separate mission statements from each committee (First Nation, Water Quality, and Water Quantity) that provides purpose to the collaboration. The First Nation mission statement is (1) to recognize and include Indigenous Traditional Knowledge (ITK) in resolving environmental issues. The water quality technical committee mission statement is (2) to protect and improve water quality in the Thames River watershed to improve stream health. The water quantity mission statement is (3) to encourage a flow regime that provides sustainable environmental flow while reducing the risk of flooding (TRCWR, 2019). Each group has created goals to support the achievement of their missions (TRCWR, 2019). Within the organizational design are procedures that are usually articulated in a Terms of Reference or Governance Manual that outlines the decision-making process, roles and responsibilities and meeting ground rules (Fraser Basin Council, 2015). The TRCWR has created *Terms of Reference A Component of the Thames River Clearwater Revival Watershed Strategy* that includes a list of deliverables, a schedule between 2011-2016, and the governance structure (TRCWR, 2013).

The governance structure consists of a steering committee to oversee the plan, a technical working group for ad hoc committees to organize and achieve objectives, and a project manager to liaise between the committee and the working group (TRCWR, 2013). Each member of governance is given a list of responsibilities, core values and governance policies (TRCWR, 2013). Finally, principles are typically incorporated into the Terms of Reference or Governance Manual (Fraser Basin Council, 2015). The TRCWR Terms of Reference identified governance policies for the committees and working

groups which lays out principles that must be followed. The principles include consensus decision making by obtaining consent but not necessarily agreement, accountability practices, and commitment to ethical conduct (TRCWR, 2013).

Access to data and resources provides structure to a collaboration which can help in the realization of goals (Fraser Basin Council, 2015). There are three elements of data and resources, including human resources, financial resources, and data such as Indigenous Traditional Knowledge (ITK) (Fraser Basin Council, 2015). In terms of financial resources, the TRCWR was successful in securing short-term funding for projects and funding for core operations (Participant #16). For example, the TRCWR secured funding from The Ontario MECP for a First Nations youth engagement program called the Antler River Guardians of the 4 Directions for 2015-2017 (TRCWR, 2020; Participant #15). The MECP and Canada-Ontario Agreement provided funding for staffing. This funding provided access to resources such as water information software meant to integrate water quality and quantity data across the entire watershed. As well, the funding allowed the TRCWR to perform a gap analysis of the LTVCA water quality monitoring program and to do a survey analysis for “Rural Landowner Behavior’s and Attitudes in the Upper Thames and Grand River Watersheds” (TRCWR, 2020).

Funding for water management plan projects has been provided by the MOECCC Showcasing Water Innovation program. This program is conducted by the province to “demonstrate leading edge, innovative and cost-effective solutions for managing drinking water, stormwater and wastewater systems in Ontario communities” (TRCWR, 2020, p. n/a). The total funding for the Showcasing Water Innovation project is \$1,078161.98 which was raised through contributions from UTRCA, MECP, City of London, MOECCC, Clean Water Project, Sustainability Fund Diversity Grant, Western University, Job Creation Program and LTVCA (TRCWR, 2020). While the TRCWR has been successful in securing short-term funding, access to long-term funding for the continuation of TRCWR commitments is a challenge. For example, in 2018, the Provincial Conservative Government put funding on hold for the Antler River Guardians program until further

funding could be secured (TRCWR, 2020). There is a need to supplement the base level of funding required and beyond the initial five years of the program (Tchir, 2018). Access to sustained financial resources for core operations and projects is crucial for collaborative water governance initiatives (Fraser Basin Council, 2015).

The TRCWR has access to ITK through their partnership with local First Nations. The TRCWR created a steering committee that placed a high priority on establishing a First Nation Outreach and Engagement Committee (Tchir, 2018). The TRCWR supported the committee's vision to engage youth in initiatives focusing on sharing knowledge, enhancing education and furthering traditional knowledge (Participant #15; Tchir, 2018). The youth engagement program provided training opportunities and technical training to the youth (Tchir, 2018). A water actor from a local organization explained how the TRCWR value and use of both Traditional Ecological Knowledge and scientific knowledge. They stated,

Traditional knowledge is a knowledge of ecology from a spiritual perspective. So, when you talk about a tree, that tree has a relationship with you, both you to it and it to you. You have responsibilities to it, and it has responsibilities to you in what you give it, what it gives you. And that that relationship is the relationship being taught by the clan mothers. And the science behind that tree is what we would be providing such as, how you would plant it and all those types of things. So that's that blending that.
(Participant #14)

The TRCWR has access to resources and data necessary to bring about change required to reach their goals.

Human-related success factors such as trust, mutual respect, effective leadership, and commitment creates strong relationship which provides structure to a collaboration (Fraser Basin Council, 2015). The TRCWR has many effective leaders within the partnership to facilitate change. The City of London hired a person who worked in a local

First Nation as well as the Ministry of Environment, Conservation and Parks (Participant #2). A water actor from a local organization described the role of the employee as “directly involved with the Clearwater revival pretty much from the beginning so we’ve been very fortunate to have the employee on staff as a resource, which makes the conversation with First Nations a little bit easier. This employee is a de facto ‘cultural coach’” (Participant #2). This First Nation employee can bridge the gap between the province, municipality, and First Nation from an insider’s perspective (Participant #2). As well, one participant identified the Treaty, Lands, and Environment Department at COTTFN as strong members of the TRCWR who have contributed immensely in creating relationships and communicating (Participant #14).

However, other human-related success factors can be difficult to achieve and can threaten the longevity of the TRCWR. Trust between actors within the TRCWR has yet to be achieved as one participant pointed out, “I think there is a lack of trust. Trusting the municipality. And I don't know why, I mean maybe it's our impression or our views or our perception of non-native people” (Participant #9). Without trust, resolving conflicts between actor groups will prove to be a challenge that will not allow for continued collaboration.

While the TRCWR brings together many actors who share responsibility for managing and protecting the Thames River through policy, there is no single enabling policy governing within the TRCWR. Enabling policy frameworks provide structure within a collaboration as they eliminate overlap and allow for clear roles and responsibilities (Fraser Basin Council, 2015). The TRCWR policy framework could be described as decentralized since there are seven different actors with related mandates who have some degree of responsibility for upholding the vitality and health of the Thames River. This structure aligns with the definition of decentralization provided by Bakker & Cook (2011) which states that decentralization occurs when powers are not centralized by one overarching authority, rather powers are spread between multiple actors.

The decentralized governance structure of the TRCWR was discussed by a water actor from a local organization, “It's really more of a piecemeal approach, I'm not saying it's bad, but it's a piecemeal approach where each of our areas have their community contacts” (Participant #4). According to Bakker & Cook (2011) and Bereski et al. (2017) decentralization leads to a lack of coordination or clarity about how final decisions are made. Decentralization also creates governance gaps, overlapping responsibilities, and duplication of efforts (Bakker & Cook, 2011; Bereski et al., 2017). While the TRCWR has seven actor groups with overlapping mandates the TRCWR has been described as a successful collaboration within this case study by several participants (Participant #12, #15, #2). As outlined above, the TRCWR has data and resources, effective leadership, strong organizational design, and achieved some intermediate outcomes. As well, decentralization can provide better results because local governments understand the local community needs (Bakker & Cook, 2011). Decentralization allows for the development of community-based initiatives, such as the TRCWR; these grassroots initiatives fill gaps in governance (Bakker & Cook, 2011). The idea of a collaboration operating successfully outside of an enabling policy framework may be context-specific to this case study.

This partnership and its structure enhance local-level SWP for COTTFFN as it approaches water management by considering the interrelated nature of the problem. The TRCWR allows decision makers to collaboratively decide on the goals of the Thames Rivers and implements different instruments to achieve their mandates. These mandates consider the quality and quantity of the Thames River as well as the social impacts on the Thames River.

5.3 TRCWR Collaborative Process

In order to understand the process of collaboration within the TRCWR, Ansell & Gash's (2007) collaborative process framework will guide the discussion: face to face dialogue, trust building, intermediate outcomes or “small wins”, shared understandings, and committing to the process.

Face-to-face dialogue is part of the collaborative process. The Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quality and Quantity demonstrates goals made by the TRCWR to ensure ITK has been considered and incorporated. The document stated that this goal will be achieved through dialogue with “Chief and Council, Environment Committee, and with the Elders and Youth Advisory Council” (TRCWR, 2019). Several participants gave examples of face-to-face dialogue that has already occurred through the TRCWR. One water actor from a local organization spoke about how the TRCWR introduced actors to one another and creates connections that allows for dialogue. This participant explained, “So when the Chippewas (COTTFN) wanted to talk about setting up a water quality monitoring program they called me and then a water quality tech and myself went down and talked to them” (Participant #15). Another water actor from a local organization spoke about the opportunities the TRCWR creates for face-to-face dialogue, they stated “Through the Clearwater Revival we've actually had a rapport, which enabled us to say, we'd like to come and chat with you about four or five different times” (Participant #2).

The collaborative process involves intermediate outcomes or “small wins”. “Small wins” provide momentum to keep people engaged and working towards the greater goal (Ansell & Gash, 2007). The TRCWR initiated a project called the Antler River Guardians of the Four Directions which is a First Nation youth group supported by the TRCWR to develop awareness about the Thames River and the TRCWR initiatives (TRCWR, 2019). This initiative is considered a “small win” by participants. A water actor from a local organization stated, “The Antler River Guardians from Four Directions certainly is a perfect opportunity for a little pilot project, which I think in everyone's mind was very successful to be expanded” (Participant #2). Through this program the project partners learnt from the First Nation about historical and current uses of the Thames River and the way they think and feel about it (TRCWR, 2019). Conversely, the First Nations involved learnt about the stewardship initiatives and ecosystem approaches being implemented by partner organizations (TRCWR, 2019).

Creating shared understandings is another part of the collaborative process which is a goal set by the TRCWR. Within the TRCWR's First Nation mission statement they have made it their goal to formalize a process where "the spirit of water is recognized" (TRCWR, 2019). In order to engage in this stage of the process, they have committed to "fostering an understanding that water is more than just a resource" (TRCWR, 2019). While the TRCWR has made this commitment, there is evidence that this stage of the collaborative process has not yet been realized. A water actor from the First Nation stated, "we talked about how sacred water is and it's, connection to the people. And I don't know if the municipality has that sense of understanding or hold water in the same regard" (Participant #11).

Finally, committing to the process of collaboration is something the TRCWR has undertaken. Commitment is written in their *Shared Waters Approach* document which states that "There is a commitment from all levels of government to work with Indigenous partners to address the legacies of colonialism" (TRCWR, 2019). The TRCWR has shown commitment in their actions as well as their words since it was initiated in 2012 and is still active today in 2020.

There is a fifth stage to the collaborative process is building trust; however, it is also found in the Fraser Basin Council's (2015) collaborative governance structure. Trust as part of the TRCWR collaborative process was covered in section 5.2. A summary of the TRCWR collaboration process and status of achievement can be found in Table 5.1.

Table 5.1 TRCWR Collaborative Process Initiatives

Collaborative Process	TRCWR Initiatives	Status
Face-to-Face Dialogue	Dialogue between Chief and Council, Environment Committee, and with the Elders and Youth Advisory Council	Achieved
Intermediate Outcomes	Antler River Guardians of the Four Directions	Achieved
Shared Understandings	Mission Statement: “fostering an understanding that water is more than just a resource”	In Progress
Commitment	Commitment from 2012-2020 and beyond as stated in their <i>Shared Waters Approach to Water Quality and Quantity</i> document.	Achieved
Building Trust	N/A	In Progress

5.4 Chapter Conclusion

Throughout this chapter, the conceptual framework (found in section 2.5), which presents collaboration as both a structure and a process, is applied to the TRCWR. It was found that while the Fraser Basin Council (2015) has identified factors of successful water governance in collaborations, the absence of these factors does not mean the collaboration is without success. The TRCWR has a clear organizational design with procedures, principles, and mission statements guiding their decision making, has access to data and resources to support the realization of their goals, and has effective leadership. The TRCWR does lack an enabling policy framework and while some

academics have claimed decentralized approaches can lead to overlap and duplication of efforts (Bakker & Cook, 2011; Bereski et al., 2017), the TRCWR partnership has seen positive outcomes such as The Antler River Guardians of the Four Directions. Furthermore, collaboration is also a process, which the TRCWR has and continues to engage in. Elements of this process include face-to-face dialogue, producing some intermediate outcomes, fostering a shared understanding of water, building trust and committing to working together. Since collaboration is a process and not about a destination or achieving an end result, the elements found in this process will require continuous work.

6 Research Conclusions, Contributions, and Future Research

This chapter will conclude the thesis by revisiting the research objectives and providing a summary of key findings. This chapter will finish with the contributions of the research to the academic world and practical contributions for water actors looking to engage in informal collaborative arrangements.

6.1 Research Goal and Objectives

The introduction highlighted the realities of water insecurity on First Nations reserves in Canada and explained the important role for water governance and SWP. Due to the ubiquitous nature of water and its interaction with many actors within a watershed, the importance of collaboration for SWP was stressed. This justified the research goal, to understand how collaboration between water actors representing local organizations can support First Nations community-level SWP; and research objectives: (1) to understand the attitudes, opinions, and experiences of water actors from First Nations, conservation authorities and municipalities as it relates to water collaboration, (2) to identify and critically examine successful collaborative approaches that currently exist for their application to First Nation SWP in Ontario, and (3) to generate understandings of the collaborative process and governance structure within the watershed to support First Nations local-level SWP.

6.1.1 Summary of Key Findings

The literature review of foundational concepts identified that water governance requires a multi-barrier approach which starts with SWP, which then requires the collaboration of multiple actors within a watershed. It was identified that collaboration is both a process (Ansell & Gash, 2007) and a structure (Fraser Basin Council, 2017). This was presented the development of a conceptual framework which was used to analyze the data to generate research results.

The semi-structured interview results generated new knowledge on the attitudes, opinions, and experiences of water actors around collaboration from the perspectives of First Nations and local water organizations. It was found that there are eight different perspectives of collaboration among participants, these include understanding and respecting one another, finding commonalities, agreeing to a resolution, working together, making decisions that are consistent with each party's mandate, committing to one another, engaging in good dialogue, and building a strong relationship. Figure 6.1 is an illustration of the eight perspectives of collaboration from the two organizations and First Nation in this case study.

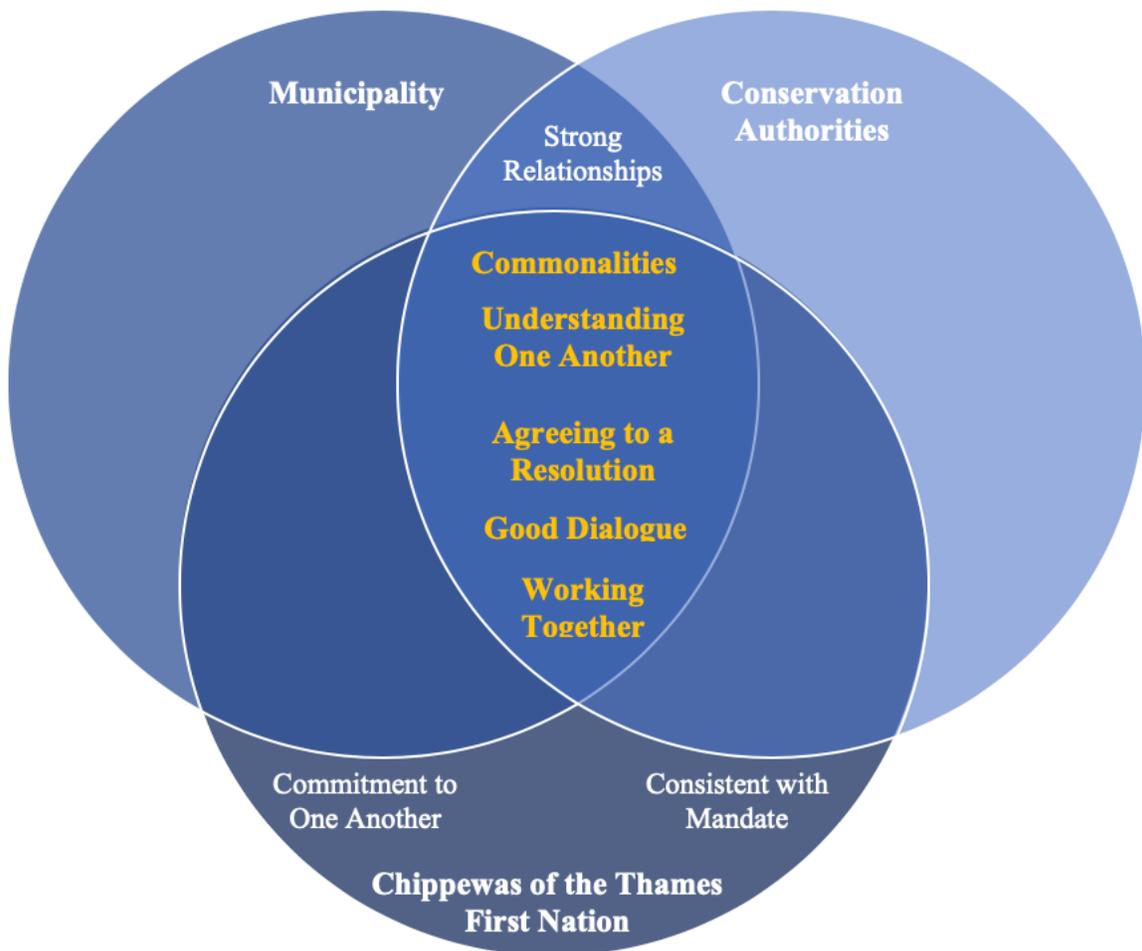


Figure 6.1 Perspectives of Collaboration

Two of the perspectives were only discussed by First Nations participants which indicated that they had a broader view of collaboration than water actors from local organizations. Furthermore, it was found that many different activities enable collaboration to occur between the First Nation and local organizations. The First Nation and local municipality have a notification system for wastewater treatment overflows during stormwater events, a roads maintenance agreement, a joint board for a local hockey arena, Thames River Clear Water Revival (TRCWR), political and administrative communications, an inner-city powwow, symposiums, and consultation outreach under the Duty to Consult. The First Nations and local conservation authority engaged in collaboration through floodplain mapping projects, Antler River Guardians of the Four Directions, phosphorus reduction projects, tree planting projects, freshwater mussel workshops, wetland restoration projects, seed gathering workshops, construction of park structures on reserve, interpretative signage on trails, and car passes for access to Conservation Areas.

While many activities enable collaboration in this case study, several challenges that constrain collaboration were also identified. Participants spoke about competing priorities, different understandings of the value of water, budgeting for collaboration, and navigating governance structures and uncertainty, lack of impetus to collaboration, and historical mistrust.

Finally, the opinions of water actors were discussed with regards to COTTFN's decision to engage in SWP planning outside of the Ontario Clean Water Act. It was important to learn from the existing provincial SWP system. It was found that ensuring self-sufficiency in decision making over SWP was preferred rather than opting into the Ontario system. The COTTFN has initiated steps to develop their own internal laws around water and signed the federal Framework Agreement on First Nations Land Management Act allowing them to create a Land Code and by-laws relating to source water protection informed by their values and needs.

6.2 Future Research

There is a need for future research to understand local-level collaboration between First Nations and local organizations in regions beyond southwestern Ontario. First Nations located in southwestern Ontario have the option to consider participating with local organizations and therefore have developed attitudes, opinions, and experiences of collaboration. However, some northern Ontario First Nations are not within close proximity to a local water organization to engage in collaborations, therefore their attitudes, opinions, and experiences will differ and could bring about different conclusions than those found in this research. Northern Ontario First Nations may collaborate with national or provincial organizations to protect their source of drinking water in which case their definition of collaboration, barriers, and collaborative arrangements may differ. There is a need for future research that looks at collaboration in different contexts and locations throughout Ontario and elsewhere.

6.3 Concluding Remarks

The goal of this thesis was to understand how collaboration between local water actors can support First Nations community-level source water protection. Through a case study approach, it was found that collaboration allows for the integration of social, cultural, political, and environmental perspectives, which is important in SWP planning because it allows for decision making that is reflective of all perspectives. This is specifically important when collaborating with First Nations as it was found that they have a broader perspective of collaboration, they can share new knowledge such as Indigenous Traditional Knowledge, and they value water differently than water actors from the local organizations: as though it is one's relation. These differences are important because they may offer alternative water management approaches in SWP planning. The *Clean Water Act* supports the use of technical approaches informed by scientific knowledge; however, informal collaborative SWP planning involving First

Nations may inspire new approaches as a result of the differences found in this case study.

In terms of practical applications, water actors looking to engage in informal collaborations who share a vision with a local First Nation could start by acknowledging the difference in perspectives towards water. This was identified as one of the key challenges, therefore water actors could approach the First Nation with an openness to learn and accept different values, worldviews, and terminology regarding water. Second, it was found that water actors from both sides did not feel that their fellow collaborators understood their governing systems. It would be beneficial to enter into a collaboration with a thorough understanding of fellow actors' jurisdiction and water rights. Finally, it was identified that historical mistrust permeated through collaboration which limited dialogue and relationship building; two important elements of the collaborative process. Therefore, collaborators should acknowledge the land and waters they occupy, how they came to be here, whose land they are currently on, and move forward by engaging with local First Nations beyond formal events. As it was found, personal relationships can outlast external barriers such as election cycles or changes in employment.

We are in two canoes going down a river, keep your paddle in your own canoe and we'll go together with it. (Participant #14)

This quote summarizes the relationships between actors within a collaboration. Sharing the Thames River means caring for the health and well-being of the river. As we know from water security, that when we secure ecosystem health, we secure water for humans. This involves building strong relationships and upholding responsibilities to the river.

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APPENDICES

Appendix 1 Federal Water Related Legislation

POLICY	DEPARTMENT	RELEVANCE TO WATER
GUIDELINES FOR CANADIAN DRINKING WATER QUALITY, 1968	Health Canada	Provides parameters for providing clean, safe, drinking water used in every jurisdiction in Canada to establish requirements for drinking water quality (Bereski et al., 2017).
CANADA WATER ACT, 1970	Environment and Climate Change Canada	Allows for the establishment of federal-provincial-territorial arrangements to establish intergovernmental committees in relation to water resource management (Government of Canada, 2017a). Provides federal-provincial/territorial authority to governments where water quality is an urgent national concern (Government of Canada, 2017a).
CANADIAN NAVIGABLE WATERS ACT 1985	Department of Fisheries and Oceans	Strengthening the environmental protection of navigable water by regulating major work or obstruction of navigable waters. It considers Indigenous knowledge and traditional use of waters (Government of Canada, 2020e).
FISHERIES ACT, 1985	Department of Fisheries and Oceans	Gives power to the federal government to prevent and control pollution that affects fish and their habitats (Bereski et al., 2017)

<p>FEDERAL WATER POLICY, 1987</p>	<p>Environmental and Climate Change Canada</p>	<p>“It encourages the use of water in an efficient and equitable manner consistent with social, economic, and environmental needs of present and future generations” (Government of Canada, 2017b)</p>
<p>ENVIRONMENTAL PROTECTION ACT, 1999</p>	<p>Environment and Climate Change Canada</p>	<p>Supports and promotes management, protection of the environment from toxic substances and pollution (Boyd, 2016). It provides a framework for source water protection from hazardous contaminants (Bereski et al., 2017)</p>
<p>CANADIAN ENVIRONMENTAL ASSESSMENT ACT 2012</p>	<p>The Canadian Environmental Assessment Agency</p>	<p>Prevents significant adverse environmental effects from resource development projects that trigger an environmental assessment by taking precautionary steps and measuring the potential impacts of the projects (Government of Canada, 2019d).</p>

Appendix 2 Federal Policy Relating to Water and First Nations

POLICY & LEGISLATION	DEPARTMENT	RELEVANCE TO WATER
INDIAN ACT, 1876	Aboriginal Affairs and Northern Development	Governs First Nations affairs. Gives band councils the ability to make bylaws governing the construction, operation, and regulation of use of public wells, cisterns, reservoirs, and other water supplies (Boyd, 2011). It also assigns responsibilities of issuing a drinking water advisory to chief and council.
DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT ACT, 1985	Aboriginal Affairs and Northern Development	Assigns decision making powers to the department of Indian Affairs and Northern Development over First Nations, Metis, and Inuit affairs (Boyd, 2011)
FIRST NATIONS LAND MANAGEMENT ACT, 1999	Aboriginal Affairs and Northern Development	Allows First Nations to develop their own land code in accordance with the Framework Agreement (Jobin and Riddle, 2019). The Land Management Act ratified the Framework Agreement on First Nations Land Management (Jobin and Riddle, 2019). This allows First Nations to opt out provisions relating to land management under the Indian Act and gives them the authority to create their own system for managing lands

		and environmental resources on reserve lands (Jobin and Riddle, 2019).
PROTOCOL FOR SAFE DRINKING WATER IN FIRST NATIONS COMMUNITIES, 2013	Aboriginal Affairs and Northern Development	Contains standards for design, construction, operation, and maintenance and monitoring of drinking water systems for First Nations water operator staff (Government of Canada, 2010).
FIRST NATIONS ON-RESERVE SOURCE WATER PROTECTION PLAN, 2014	Aboriginal Affairs and Northern Development	A guide to provide necessary tools to assist First Nations in developing their own community-based source water protection plan (Government of Canada, 2014).

Appendix 3 Ontario Provincial Legislation Directly Involving Municipalities

LEGISLATION	DEPARTMENT	RELEVANCE TO WATER
ONTARIO PROVINCIAL POLICY STATEMENT, 1996-2014	Ministry of Municipal Affairs and Housing	A consolidated statement meant to guide municipal government policies on land use planning to ensure protection of the environment and resources while also allowing for economic development (Government of Ontario, 2019b).
HEALTH PROTECTIONS AND PROMOTION ACT, 1990		Regulates wastewater and water treatment in municipalities (Government of Ontario, 2019c).
ONTARIO WATER RESOURCES ACT 1990	Ministry of the Environment, Conservation, and Parks	Manages water use and quality of surface water and groundwater, regulate sewage and pollutant discharges to water courses, well construction, construction and operation of water and sewage works (Ivey et al., 2006a).
ENVIRONMENTAL PROTECTION ACT 1990	Ministry of the Environment, Conservation, and Parks	Prohibits the discharge of contaminants into the environmental including water and remediation of spills (Ivey et al., 2006a).
ONTARIO ENVIRONMENTAL	Ministry of the Environment,	Requires development undertakings to undergo an environmental assessment

ASSESSMENT ACT, 1990	Conservation, and Parks	process to mitigate threats to the environment and limit impacts (Government of Ontario, 2017b).
SAFE DRINKING WATER ACT, 2002	Ministry of the Environment, Conservation, and Parks	Consolidates legislative and regulatory requirements regarding the treatment and distribution of drinking water by creating drinking water quality standards, licensing for water testing laboratories, approvals for private wells, enforcement mechanisms, and annual drinking water reporting (CELA, 2011).
NUTRIENT MANAGEMENT ACT, 2002	Ministry of the Environment, Conservation, and Parks	To manage materials containing nutrients to enhance protection of the environment which aids in the protection of drinking water sources from contamination (Government of Ontario, 2012).
CLEAN WATER ACT, 2006	Ministry of the Environment, Conservation, and Parks	Ensures the protection of community drinking water supplies by enabling water actors to participate in watershed-based source water protection plans (Westcott, 2018).
WATER OPPORTUNITIES AND WATER	Ministry of the Environment, Conservation, and Parks	Gives the Minister of the Environment authority to set targets with regard to conserving water to strengthen municipal

CONSERVATION ACT, 2010	water planning and allow for economic opportunities (Buttigeg, 2010).
GREAT LAKES PROTECTION ACT, 2015	Ministry of the Environment, Conservation, and Parks To protect and restore ecological health of the Great Lakes and St. Lawrence River Basin. Also established the Great Lakes Guardian Council which encouraged collaboration from stakeholder groups such as First Nations to identify priorities for action and share information (Government of Ontario, 2015).

Appendix 4 Introductory Letter and Consent Form

[Letterhead]

Date

Dear Participant,

Goal of the research is to understand how collaboration between First Nations, Municipalities, and Conservation Authorities can support community-level SWP to enhance water security on-reserves in southern Ontario. The first step of the project involves understanding perspectives on collaborative agreements between Chippewa of the Thames First Nation (COTTFN), local municipalities, and Conservation Authorities to achieve water security through alternative models for source water protection planning. Approximately 6 administrative members from COTTFN, 6 staff from local Conservation Authorities, and 6 staff from the City of London have been identified as having a related role in water management or governance, and you have been identified as someone with insight to contribute. This means in your professional capacity; you have either a direct role in water management, or your activities can influence or be influenced by water. We hope you will contribute to this important project. Your insights are essential to holistic water security.

Project Description

COTTFN are engaging in water security planning and have identified the need to enhance source water protection planning through a collaborative approach with actors in the shared watershed.

This phase of the research project seeks to (1) establish a document which summarizes the attitudes, opinions, and experiences of First Nations, Municipalities, and Conservation Authorities as it relates to water collaboration and (2) Identify and critically examine successful collaborative approach that currently exist for their application to First Nations SWP in Ontario.

We seek to address fundamental questions around:

What aspects of the Clean Water Act limit Indigenous communities from participating in regional SWP planning?

How can the process of collaboration among Indigenous communities, Municipalities, and Conservation Authorities foster local water security for all actors within a shared watershed?

What other models exist that work to ensure collaborative SWP in a shared watershed?

Interview Process

The interviews are semi-structured and meant to be conversational. Interviews will be about an hour in length, and can be done in person, or via telephone, or email. **I will take notes during the interviews and they will be audio-recorded with your expressed consent.**

Interview Questions

You will be asked questions around your role in water and from that perspective, more specifically around

How many collaborative arrangements or partnerships, formal or informal has your municipality negotiated with First Nations in the region?

In general, how would you characterize the relationship of your municipality to First Nations in this region?

In general, what have you been the most significant challenges to collaboration or the negotiation of cooperative agreements?

In your view, what were the conditions that contributed to successful collaborations or agreements?

Please note, you may choose to withdraw from the study and remove your contributions at any time.

What are the risks of participating in this work?

As a participant, you may experience some emotions e.g. being worried, anxious or upset about sharing your views. Please know, we will respect all views, perspective and knowledge shared. Provisions are made to ensure the strictest confidentiality and you may withdraw at any time.

What are the benefits of participating in this work?

There will be no immediate direct benefits other than the opportunity to contribute to future water security planning. You will also receive aggregated results of this research which could be used to inform current and future collaborations.

What will be done with the information?

Interview notes will be sent back to you for input, clarification or revision as needed. Those documents will then be summarized with others, analyzed for general themes and trends, and reported back to you and other partners during a Fall gathering within the community. Your identity will remain confidential unless you choose otherwise.

The information collected during interview may be used for academic publications and for educational purposes. The knowledge shared by you will only be used for this research project. All original written, typed, and audio recordings of your interview will be stored in locked cabinets or on encrypted computer drives in the office of Dr. Sheri Longboat, University of Guelph. They will be retained until the end of the research project (estimated for May 2020) after which they will be destroyed. Only collective and de-identified knowledge will be retained and stored in locked cabinets or in a secure cloud.

Consent Statement

	Yes	No
Confidentiality Do you grant the University of Guelph researchers permission to use your direct identifiable information (e.g. names, community positions, titles) in community feedbacks, theses, reports and publications?		
Use of Individual Stories and Direct Quotes (Indirect Identifiable information) Do you grant the University of Guelph researchers permission to use your individual stories and direct quotes in community feedbacks, theses, reports and publications?		
Recording of activities Do you grant the University of Guelph researchers permission to record the activity through:		
Audio modes?		
Written modes?		
Permission to (re)contact you Do you grant the University of Guelph researchers permission to re(contact) you for transcript accuracy and should further clarity be required?		

This project has been reviewed by the University of Guelph Research Ethics Board for compliance with federal guidelines for research involving human participants. If you have any questions regarding your rights and welfare as a research participants in this study (REB# 19-03-023), please contact: Director, Research Ethics, University of Guelph; reb@uoguelph.ca; (519) 824-4120 (ext, 56606)

Participant – Printed Name _____

Participant – Signature _____

Date _____

You may wish to choose “implied consent”. That is, you do not wish to provide a signature and you grant consent by your participation in the research.

Appendix 5 Interview Questions for Participants

1. What kinds of collaborative agreements or partnerships, formal or informal has the First Nations/Conservation Authority/Municipality negotiated in the past?
2. In your perspective, what does collaboration mean to you? How do you know when it is good collaboration?
3. Is there a need for water/watershed collaborative in the Thames Sydenham Watershed?
4. Are there different considerations in collaborating with municipalities?
5. What aspects of collaboration might lead to tension or conflict?
6. Few First Nations participated in SWP under Clean Water act, why do you think this is?
 - a) Are there any issues? Reasons? Aspects of the CWA?
 - b) If they have an opinion on why. Ask: How could First Nations be included?
7. What impact has the provincial and federal governments, or their policies had on encouraging or discouraging collaboration?
8. What opportunities for water collaboration exist in your perspective?
 - a) If there is an opportunity, how do we enable this opportunity? Change in attitude? Policy? Roles?
9. Is there anything else you would like to add that we have not asked you about?
10. Who else do you recommend that I speak with about these agreements or source water protection?

Appendix 6 Sample of Nodes and Sub Nodes in NVivo

The screenshot displays the NVivo software interface with a dark theme. The top navigation bar includes 'Home', 'Create', 'Data', 'Analyze', 'Query', 'Explore', 'Layout', and 'View'. The left sidebar is organized into several sections: **DATA** (Files, File Classification, Externals), **CODES** (Nodes), **CASES** (Cases, Case Classification), **NOTES** (Memos, Annotations, Memo Links), **SEARCH** (Queries, Query Results, Node Matrices, Sets), and **MAPS** (Maps). The main pane shows a tree view of nodes under the heading 'Name'. The nodes are as follows:

- Challenges to Collaboration
 - Cultural
 - Financial
 - Political
 - Social
 - Consideration for collabor...
 - Consideration for Collabo...
- FederalProvincial impact...
 - Federal
 - Province
- Meaning of collaboration (highlighted)
 - Committment to Eacho...
 - Consistency with Mand...
 - Finding Commonalities
 - Good Dialogue
 - Reaching Resolutions
 - Relationship Building
 - Understaning Values a...
 - Need for collaboration
 - Opportunities for water c...
 - Suggestions for future S...
 - SWP with FN
 - Whats collaborations exist