EXPLORING WATER INSECURITY SITUATION IN CANADIAN INDIGENOUS COMMUNITIES: THE EFFORTS OF THE FLAT BAY INDIAN BAND TO RESOLVE ITS WATER CHALLENGES

By

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Abstract

Despite generating national concern in recent years, the state of water insecurity in Indigenous communities across Canada remains alarming[1]. This continuing challenge permeates Indigenous communities across the country and is deep-rooted in the colonial history that has brought about a state of disconnectedness among many Indigenous people, their water and its governance. In recognition that little is known about how some Indigenous communities are resolving their water challenges and to address this existing scholarship deficit, this research sought to understand the efforts of one of such community, a Mi'kmaw community, the Flat Bay Indian Band, Newfoundland.

This study employed an environmental justice theoretical framework and critical, interpretivist paradigm to explore the historical narratives, culture and actions of the residents of Flat Bay with respect to their water situation. In examining the water security challenges in Flat Bay, this study drew on a qualitative single case study approach and ethnographic research methods, including document review, participant observation and semi-structured interviews. This study had three main objectives which were: (1) to understand the nature of the water challenges Flat Bay has experienced and the factors that have contributed to these challenges; (2) to understand how Flat Bay has responded to and/or resolved the water challenge(s) it has faced; and (3) to investigate the application of the concept of environmental justice to the Flat Bay water situation.

The data from the study were analyzed via content analysis, developing themes and codes. The developed themes were discussed in relation to the three interrelated elements of environmental justice and each of the research questions. For the challenges to water security in Flat Bay to be

[1] Indigenous is the terminology that includes First Nations, Inuit, and Metis in Canada. Globally, it is used to identify those who are Indigenous to their homelands, and not settlers

fully addressed, this study emphasizes the need for local capacity to be enhanced, recognition of the Indigenous status of the community under the Indian Act and the boosting of the limited participation by Flat Bay in decision making processes relating to water. The potential limitations of the study including the difficulty of generalization were also identified.

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CHAPTER 1: INTRODUCTION

1.0. Introduction

Canada is a rich country in terms of its abundance of natural resources, including access to vast reserves of water (Bakker, 2007) and it is fortunate to have 7% of the world's renewable fresh water (Natural Resources Canada, 2017). There is a high level of water security in Canada as 100% of urban residents are classified as having access to potable drinking water and sanitation (Boyd, 2011). This is buttressed by another study which adds that the majority of Canadians have access to piped water (Hanrahan et al., 2017).

Unfortunately, this portrays a false sense of security (Castleden et al., 2017), as the circumstances of the majority described above are not reflective of those in many rural, remote and Indigenous communities in Canada, where "pockets of darkness still exist" (Boyd, 2011, pg.83). Safe drinking water continues to remain a challenge for Indigenous people in Canada (Lam et al, 2017) as the level of water insecurity in many of Canada's Indigenous communities is on an "extreme scale" (Hanrahan et al, 2014, pg.1). These communities are "at ground zero" for many of the water security-related issues in Canada (Norman & Bakker, 2010, pg.1) and continue to experience inequitable access to safe drinking water (White et al, 2012). Drinking water problems are more prevalent in Indigenous rather than non-Indigenous communities across Canada, with many Indigenous communities facing "deplorable water sources and standards" (Castleden et al., 2017, pg. 72). "Indigenous people are ninety times more likely than other Canadians to lack piped water" (Hanrahan et al., 2017, pg. 69). This presents a paradox considering that many Indigenous communities lack access to potable drinking water in a

country that is observed to be the world's second-largest per capita user of water (Sarkar et al., 2015).

1.0.1 Roots of the Indigenous Drinking Water Disconnect

The genesis of this disparity in access to safe drinking water as well as the continuing water security problems in Indigenous communities across Canada have been attributed to the colonial relationship between Canada and Indigenous people (Sarkar et al., 2015; White et al., 2015). Castleden et al. (2016) explain that the reasons underpinning this inequality can be traced to "entrenched colonial and racist policies, programs and practices" (pg. 69), which have persisted over time. LaBoucane et al. (2012) explain that the present feeling of despair ('pomewin') in Indigenous communities and the state of disconnectedness of Indigenous people from their water and its governance can be traced to colonization. For example, LaBoucane noted how the distortion of the sacred relationship of the Cree people in Alberta with their water was facilitated through colonization and its associated policies. The longstanding colonial power dynamics and struggle between Canada and Indigenous people stems from Indigenous exclusion arising from the opposition by Indigenous people to neo-liberalist ideas, which Hanrahan et al. (2017) explain poses a threat to the Canadian identity. In many cases, these colonial processes also brought about coerced relocation to sites with fewer water resources, contaminated water and deplorable water conditions (Sarkar et al., 2015).

The status of Indigenous people as politically autonomous with self-governance systems and controlling access over Indigenous lands became jeopardized with the Indian Act in 1876 (LaBoucane et al., 2012). The Indian Act brought about acts of oppression on Indigenous people and divorced them from their distinctive cultures, changed the Indigenous governance, land-use

patterns, coerced to relocate from their lands, and forced into residential schools, amongst other affects (Hanrahan et al., 2017; LaBoucane et al., 2012). The oppressive and discriminatory nature of the Indian Act is well studied (See Lavoie et al., 2010; Verwaayen, 2013; Kirmayer et al., 2003 & Coates, 2008) and this explains the statement by LaBoucane et al (2012) that "the Indian Act was in no way a fair or equitable piece of legislation; rather, it was an Act to institute internal colonization" (pg.11).

While provision of drinking water is typically the responsibility of provincial governments in Canada, the Indian Act and the Constitution (section 35) mean that the Government of Canada has a fiduciary responsibility to Indigenous peoples with the implication that the management of water in Indigenous communities is a federal responsibility (White et al., 2015). This position is maintained by Morales (2013) who emphasized that the federal government is responsible for the management of potable drinking water for First Nations on reserves (2013). This responsibility of the federal government is captured by the Safe Drinking Water for First Nations Act, 2013 and with the following preamble: "it is important for residents of First Nation lands to have access to safe drinking water" (Safe Drinking Water for First Nations Act, 2013).

Through the Indigenous & Northern Affairs Canada and Health Canada (INAC), the federal government manages the provision of potable drinking water in Indigenous communities. INAC is saddled with the primary responsibility of meeting the responsibilities of the federal government to Indigenous communities and it does this via the provision of funding and advisory activities. Health Canada is responsible for the monitoring of water quality in Indigenous communities and in accordance to the Guidelines for Canadian Drinking Water Quality (GCDWQ). On the other hand, Indigenous communities themselves are saddled with the responsibility for the daily maintenance of water systems including addition of chlorine.

The situation in Newfoundland and Labrador differs, however, because of the exclusion and non-recognition of Aboriginal groups in the 1949 Terms of Union between Canada and Newfoundland and Labrador[2] (Discussed in Chapter 3). In a study of rural Newfoundland & Labrador drinking water systems, Vodden & Minnes (2014) reported that the lead authority for drinking water management in Indigenous communities in Newfoundland is the provincial government as water systems in these communities are mainly managed by the provincial government and with local community governments.

The water governance structure in Newfoundland as depicted by Daniels (2014) is such that the federal government publishes the unenforceable Guidelines for Canadian Drinking Water Quality (GCDWQ)[3]; the provincial government through the Departments of Environment & Conservation[4], Health & Community Services[5], Municipal & Intergovernmental Affairs[6] and Government Services[7] is responsible for the provision of clean drinking water in the province while the testing of chlorine and source water protection enforcement lies within the purview of local governments.

Linked to this colonial history and present, the water security challenges experienced in Canadian Indigenous communities revolve around water quality and quantity, accessibility, wastewater and sewage management (Hanrahan et al., 2017). Various factors have been offered as underlying challenges to safe, clean drinking water in Indigenous communities across Canada,

[2] As of the time Newfoundland joined Confederation in 1949, Indigenous groups were not recognized.
[3] The GCDWQ is unenforceable because jurisdictions in Canada are not mandated to follow these guidelines as adherence is optional. However, the province of Newfoundland follows these guidelines.
[4] The lead agency and responsible for overseeing development activities within protected public water systems
[5] Responsible for analysis of water samples and reports, manages the Public Health Laboratory and regional water testing locations for bacteria, safety initiatives and review of guidelines
[6] Responsible for the provision of financial support for drinking water infrastructure and manages the Drinking Water Initiative throughout the province.
[7] Responsible for bacteriological testing in water samples and acts through health officers to issue a boil water advisory

including: lack of funding; lack of trained water operators; infrastructural setbacks (e.g. equipment malfunction); jurisdictional overlap between federal/provincial government and Indigenous communities; climate (e.g. summer temperatures, high level of turbidity); gaps in legislation; as well as lack of implementation of water policies & legislation and of accountability mechanisms (Boyd, 2011; Galway, 2016; Hanrahan, 2017; McGregor, 2012; Hanrahan et al., 2014).

Jurisdictional overlap in terms of water governance is complicated by the lack of a unified governance system and the decentralised water structure in Canada, which involves a multiplicity of actors and institutions[8]. The lack of a unified system is encapsulated in the statement of Hanrahan (2017, pg.75) that, "there is no national unified water governance system, no national enforceable drinking water standards and no standardised measures for water governance". The provinces and territories are saddled with the primary responsibility of providing safe, drinking water. They then further delegate service delivery to municipal governments (Mercer & Hanrahan, 2017). This offloading from provincial governments to municipal governments and rural and Indigenous communities has the effect of saddling small, rural and Indigenous communities with tasks that are within the province's domain of responsibility (Hanrahan & Dosu Jnr, 2017). The implication of this for small and rural communities is that it often includes off-loading to smaller communities often with limited means. This is true for Indigenous communities as well, which have taken on greater responsibilities for service provision in recent decades (Alcantara & Nelles, 2014; Coombs et al., 2012).

[8] The responsibility for provision of drinking water is a shared one between various levels of government: federal, provincial and local governments.

Yet Indigenous communities have employed and are still employing various strategies to cope with and adapt to these water challenges. Some of these strategies are water conservation practices such as water recycling (the use of the same water for more than one purpose), reliance on bottled water or distilled water, infrastructural developments, source water protection, user-pay based water treatment systems etc. (Sarkar et al., 2015; Hanrahan et al., 2016, Hanrahan & Dosu, 2017). This study seeks to document the strategies employed in one particular Indigenous community in Newfoundland and Labrador, those of the Flat Bay Band and in doing so, I join other scholars who according to Coombes et al. (2012, pg.692), are "casting aside their past treatment of Indigenous peoples as victims of neo/colonial relations and are instead detailing small triumphs in Indigenous service provision and in the other activities of Indigenous organizations".

1.0.2 Consequences of Water Insecurity for Indigenous Communities

'Water is life' for many Indigenous people (Chief et al., 2016) and the impact of water insecurity can be alarming, if not disastrous. Health related hazards have been associated with water insecurity in Indigenous communities across Canada. These include cases of gastro-intestinal infections, giardia infections, influenza, whooping cough (pertussis), shigellosis, impetigo and aggravated obsessive compulsive orders (Boyd, 2011; Lam et al., 2017; Hanrahan et al., 2014).

Water insecurity transcends beyond physical or mental health impacts for Indigenous people as it also impacts their spiritual wellbeing and cultural way of life (Lam et al., 2017). Since water is considered as life by many Indigenous people, it is often treated as sacred (Assembly of First Nations; McGregor, 2012; Boyd, 2011; Chief et al., 2016), and has a connection to their spiritual wellbeing (Lam et al, 2017). It is used by many for religious and cultural purposes such as

purification, prayers and other ceremonies (Chief et al, 2016; McGregor, 2012), which water insecurity therefore adversely impacts. For instance, the Water Walkers movement in Wikiwemikong Unceded First Nation, Ontario, Canada embarked on a spiritual walk in 2002 around the perimeter of Lake Superior with buckets of water to challenge the desecration of their community lakes and traditional waters as a result of environmental pollution. As explained by one of the leaders of this movement, Josephine Mandamin, "This journey with the pail of water that we carry is our way of Walking the Talk...Our great grandchildren and the next generation will be able to say, yes, our grandmothers and grandfathers kept this water for us!!" (Bedard, 2008, pg. 104, cited by Corntassel, 2012, pg.94).

Another example is the Water Ceremony by the Mi'kmaq, which is an important component of traditional events and highlights the cultural significance of water. During this ceremony, the Mi'kmaq people give offerings and honour the relationship of the Mi'kmaq with the water, the fish and Mother Earth. The essence of this ceremony is to emphasize the need to give thanks to the water, honour and protect it as water sustains life and without it, Mother Earth and its inhabitants cannot exist (Western Star, 2015). For all of these reasons, water insecurity poses an existential threat to Indigenous people (McGregor, 2012).

1.0.3 Policy Responses

Water security disparities between Indigenous and non-Indigenous communities led the Canadian federal government in 1977 to promise water and sanitation of comparable standards (Boyd, 2011). Interestingly, 39 years after this failed promise, Justin Trudeau (Liberals) also promised during the 2015 election campaign to end all long-term drinking water advisories in First Nations across Canada within five years. (CBCnews, 2015). To this end, the Trudeau

government dedicated $1.8billion in the 2016 budget (CBCnews, 2016). Although this promise signals a ray of hope for Indigenous communities, it also raises the question: to what extent will this promise be fulfilled? The answer to this question will, to a large extent, depend on the relationship between the federal and Indigenous governments. The actions of the Indigenous communities themselves will also play a vital role in determining the extent to which the promise by Trudeau will be fulfilled.

This study discusses the efforts of one of such Indigenous community in Canada, Flat Bay[9], to resolve its water security challenges despite substantial barriers. More details about this community and the factors that necessitated my choice of Flat Bay as a case study community are provided in the next chapter.

[9] Flat Bay is a Mi'kmaw community located in Western Newfoundland and with an approximate of 210 people (Discussed further in Chapter 2).

1.1. Research Problem

Growing concern with the inequitable access to water between non-Indigenous and Indigenous communities in Canada has brought about increased research support, activities and strategies with a bid to mitigating this disparity (Castleden et al., 2016). Nonetheless, safe drinking water remains elusive for many Indigenous people across the country. As of 30th June 2017, Health Canada reported a total of 132 drinking water advisories in 87 First Nations communities across Canada, which comprised of 99 long-term drinking water advisories and 33 short-term drinking water advisories (Health Canada, 2017). According to the information on the portal of the Department of Municipal Affairs & Environment, a total of 230 active boil water advisories (BWAS) are presently in place in the province of Newfoundland, with no breakdown on the number of long-term and short-term (Municipal Affairs & Environment, 2017). However, in Newfoundland, long-term water advisories are mostly common in communities of 1,000 residents or less[10] because of lack of finances, inadequate human capacity and other associated challenges (Minnes, 2015)

Despite a growing body of literature on water security in Indigenous communities, little research attention has been directed towards the steps taken by Indigenous communities to resolve the water challenges they face. The narratives around water security in Canadian Indigenous communities have largely focused on the water quality, accessibility, coping strategies, socio-economic dynamics and health impacts (Galway, 2016; Boyd, 2011; Lam et al., 2017, Hanrahan, 2017; Castleden et al., 2016; Sarkar et al., 2015; Hanrahan et al., 2014), to the exclusion of how Indigenous communities approach such challenges.

[10] With no breakdown provided on the number of Indigenous communities involved.

This represents a scholarship deficit and an area where more research is needed. It is in acknowledgment of this gap that that I have directed the focus of this study on the efforts of the Flat Bay community to resolve its water challenges despite substantial barriers. Through better understanding and sharing how Flat Bay has responded to its water challenges, the community may serve as a reference point that other Indigenous communities and non-Indigenous, small, rural communities may learn and gain ideas from on how to resolve their own water security challenges

1.2. Research Purpose

This study sought to understand water challenges facing the Mi'kmaw community of Flat Bay and how the community has responded to these challenges. As noted above, despite national concern about water insecurity in Indigenous communities, steps taken by Indigenous communities to resolve their water challenges have received little attention, thereby revealing a research gap upon which this study is premised. This study has investigated the efforts and capacity of one of these communities, Flat Bay, to address the water challenges they face. As discussed further in the chapter that follows, the neglect and, in some cases, lack of potable water/water systems in Indigenous communities suggests important inequities, which may be better understood through the lens of environmental justice. This investigation was therefore, carried out via the theoretical concept of environmental justice.

1.3. Research Objectives

This study had three research objectives as follows:

(1) The first objective was to understand the nature of the water challenges Flat Bay has experienced and the factors that have contributed to these challenges. This objective was aimed at understanding the historical perspectives and complexities surrounding the water situation in Flat Bay as well the specific water challenges that Flat Bay has faced.

(2) The second objective was to understand how Flat Bay has responded to and/or resolved the water challenge(s) it has faced. To meet this objective, the study focussed on the steps, efforts and capacity of Flat Bay at addressing it's water challenges.

(3) The third objective was to investigate the application of the concept of environmental justice to the Flat Bay water situation. This objective aimed at ascertaining the applicability of the concept of environmental justice to the Flay Bay water situation. This objective was tied to the three interrelated elements of environmental justice outlined in the chapter that follows: distribution, recognition and participation.

1.4. Research Questions

Keeping these objectives in mind, the questions addressed by this study include:

(1) What are (or were) the impediments to water security in Flat Bay?

(2) How has Flat Bay responded to or resolved the water security challenges it has faced?

(3) Does the concept of environmental justice provide any insight into understanding the Flat Bay water situation?

1.5. Approach to the Study

In approaching this study, I employed a single case study approach in an Indigenous context, making use of data gathered through document review, semi-structured interviews and participant observation, through ethnographic techniques (discussed further in the chapter that follows). Considering that the neglect and lack of potable water/water systems in Indigenous communities suggests important inequities, I employed the theoretical framework of environmental justice with a view to better understanding the Flat Bay situation.

Pursuant to earlier discussions with the Chief of the Flat Bay community, I arrived in Flat Bay on the 19th February, 2017 to commence a three-month Masters of Arts in Environmental Policy (MAEP) internship with the Flat Bay Indian Band. This enabled me integrate into the community and carry out interviews. During these three months, I was able to appreciate the unique culture of the Flat Bay people and came to better understand the water situation in the community and the efforts that had been taken in attempts to provide clean, safe drinking water to residents.

1.6. Thesis Structure

This study is divided into six chapters as follows:

This first chapter provides an introductory background to the study. It introduces the nature of the study and reveals the knowledge gap that necessitated the research, contributing to the uniqueness of this study. It also presents the research purpose, objectives and questions

underpinning this study and explains the foundation upon which the approach to the study is premised.

The second chapter introduces the research process within the context of the methodology, philosophical considerations and theoretical framework for the study. It then provides the rationale for the case study community, as well as the data collection and analysis methods of the study.

The third chapter explores the water issues within the selected research community (Flat Bay), focussing on the nature of water challenges experienced by the community and the different experiences of the residents.

The fourth chapter lies at the core of this study; it revolves around the investigation of the solution focused efforts of the Flat Bay community to resolve the water challenges in the community. It identifies the steps undertaken by Flat Bay (West, East & St Teresa's, as depicted in figure 1 below) towards resolving each of the identified challenges. It further provides an overview of the present water situation in the community.

The fifth chapter discusses the findings from the study within the context of the tripartite elements of environmental justice.

Finally, the sixth chapter draws overall conclusions on and lessons from the study. It discusses the contributions of the study, offers recommendations and discusses implications for future research.

CHAPTER 2: RESEARCH METHODOLOGY, THEORY & METHODS

2.0. Introduction

In this chapter, I discuss the methodological framework underlying this research, which is described as a qualitative, single case study approach premised within critical theory and interpretivist research paradigms. I further present my theoretical and conceptual framework, which revolves around environmental justice and its associated elements. Lastly, I discuss the specific methods used in this study, including data collection: interviews, participation observation, and document review and the procedure employed for data analysis.

2.1. Ethical Clearances

Since this research involved human participants, I completed the Tri-Council Policy Statement; Ethical Conduct for Research Involving Humans Course on Research Ethics (TCPS; Core 2) and received my certificate of completion on 12th August, 2016. In compliance with the requirements of the Research Ethics Board, I applied for ethics approval via application number #20171398# and secured the ethics clearance from the Grenfell Campus Research Ethics Board (GC-REB). I received my ethics clearance for this study on the 22nd February, 2017.

It is recognized that communal consent and clearance must be obtained before a research study of such nature can be undertaken. In accordance with TCPS 2 Article 9.2 and 9.3, review and approval of my research proposal was sought from the Chief of Flat Bay, Liz Lasaga, as a representative of the designated body and formal leader of the community. Approval was subsequently obtained from Chief Lasaga, which was facilitated via the assistance of Kelly Anne Butler, the Student Aboriginal Affairs Officer, Grenfell Campus. Armed with these clearances, I

subsequently commenced with the data collection needed for this study. As a researcher, I was cognizant of the fact that participation in research is voluntary and that consent must be informed; as such, participants were assured of this and that there would be no issues nor negativity when some of the identified and referred participants declined participation. I endeavoured to read out a copy of the informed consent form to every prospective participant, made sure that the content was understood before signatures were secured, and then I handed copies of the form to the participants of the study.

2.2. Methodological Framework

2.2.1. Qualitative Approach

Qualitative research has been defined as a holistic approach to research that involves a voyage of discovery by a researcher (Williams, 2007). Importantly, it takes place in a natural setting (local context) of the participants, through which the researcher is able to understand what is to be studied from the viewpoint of the participants (Ospina, 2004). By nature, the qualitative approach primarily employs an inductive stance and relies heavily on the data to be studied (Ospina, 2004; Williams, 2007). There is a reciprocal relationship between the researcher, those who participate and the information or "data" they provide to be studied, with the implication of that the researcher is also a part of the research (Williams, 2007). It has been described as an inquiry from the inside, which allows for an in-depth understanding of historically unique situations, where idiosyncrasies are important for meaning (Ospina, 2004). Reduced to its simplest form, the qualitative approach seeks for a deeper truth by studying things, people or phenomena in their local context and thereafter places reliance on the interpretation and meanings people ascribe to the studied things or phenomena (Greenhalgh & Taylor, 1997). This

formed an important consideration for this study, which sought to understand the water situation in Flat Bay from the perspective of the research participants (residents) in their local Indigenous environment.

I felt that the quantitative approach was less desirable because numerical descriptions and quantifications would not adequately reflect the respective experiences, behaviours and viewpoints associated with the Flat Bay water situation. Furthermore, there was a need to carry out this research in the natural settings of the Flat Bay community. The need for a direct relationship and rapport between myself and the participants of the study also influenced the choice of the qualitative approach and this stands in contrast to the quantitative approach where the researcher is placed outside of the phenomena being investigated (Williams, 2007).

2.2.2. Case Study Approach within an Indigenous Community Setting

(a) Single Case Study: Flat Bay Case Study Selection

A case study approach employs a multiplicity of data sources to investigate a phenomenon within its context (Baxter & Jack, 2008). The case study approach is a research strategy through which a researcher gets to understand and examine the data within a specific context or setting ((Eisenhardt, 1989; Zainal, 2007). It is usually carried out within a small geographical area or a limited number of individuals (Zainal, 2007).

My choice to employ the case study approach was influenced by the need to carry out an in-depth investigation and understanding of the water situation in Flat Bay and most importantly, from the viewpoint of participants of the study. This aligns with the statement that case study research facilitates an in-depth understanding of an issue and from the perspective of participants

(Harrison et al., 2017). Additionally, I chose the case study approach because it is well aligned with the interpretative paradigm through which a researcher interacts and participates in the study (Stake, 2006). One community was selected so as to situate the single case study within the broader picture of water issues in Indigenous communities across Canada while recognizing the uniqueness of the particular situation under study. A multiple case study approach was undesirable for this study because it does not allow for an in-depth understanding of any situation (at least to the same extent) but rather aims to draw a comparative analysis between two or more situations (Gustafsson, 2017).

In addition to being categorized as a single or multiple case study (Eisenhardt, 1989), case studies have been classified as falling within the categories of exploratory, descriptive and explanatory (Yin, 1984). I employed a single case exploratory study. An exploratory case study is primarily centred on the exploration of the unknown (Streb, 2010) or for situations with no clear, single set of outcomes (Yin, 2003). Given that the efforts and steps undertaken by Flat Bay to resolve its water crisis could not have been ascertained until the completion of the interviews with participants of this study it aligned with the exploration of the unknown under the exploratory case study category. Furthermore, considering the personal nature of the effects of the water situation on the participants of this study and the multiple water systems within the community a single set of outcomes was unlikely. The adoption of the exploratory case study is thereby justified.

(b) The Choice of Flat Bay

Flat Bay is a predominantly self-governed remote Mi'kmaw community located in Western Newfoundland. It is located some ten kilometres from St. George's, the nearest town (see figure 1) and is approximately nine kilometres off the Trans-Canada Highway (Hanrahan et al, 2016).

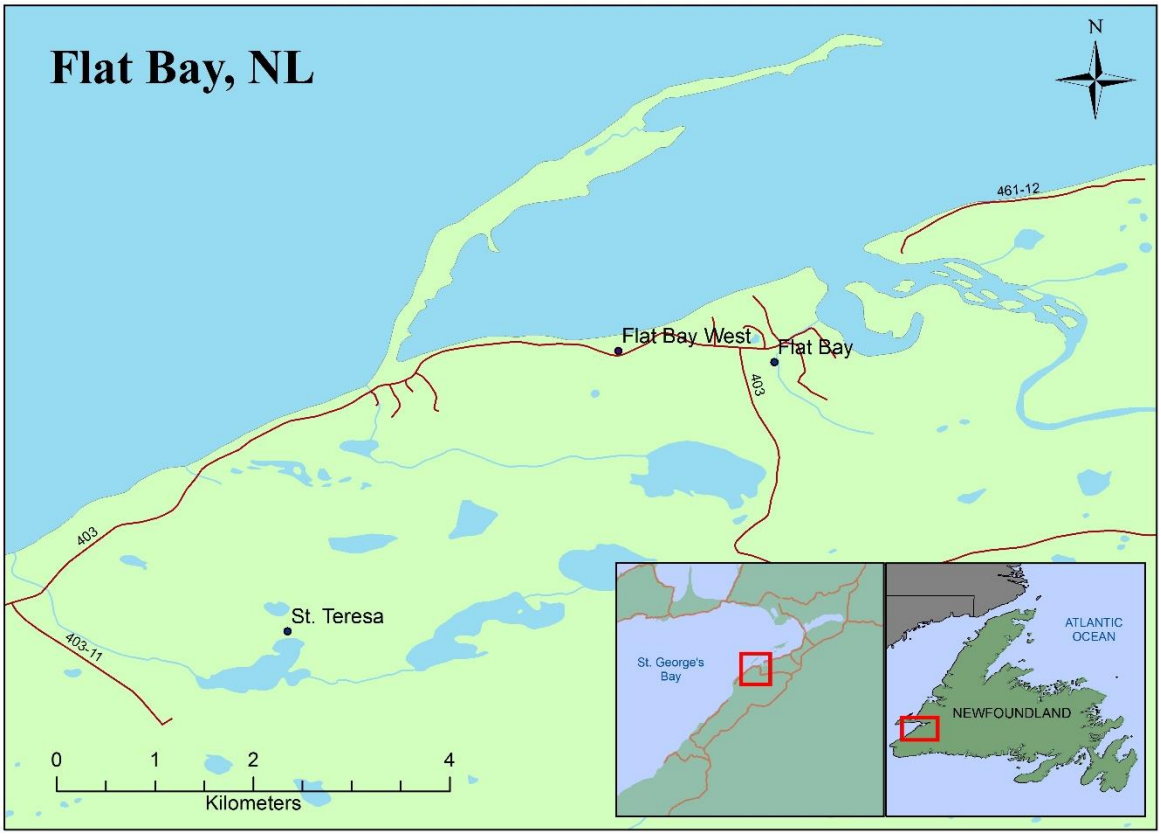

Figure 1: Map Showing Location of Flat Bay

Source: Myron King, Environmental Policy Institute, 2017

It has a population of about 210 people and consists of three separate areas: Flat Bay West, Flat Bay East and St Teresa's (See figure 1 above and table 1 below). Residents from all three areas, however, consider themselves members of the community of Flat Bay.

Flat Bay as a whole is considered a self-governed community, with a registered non-profit village/band council, No'kmaq Village (Flat Bay Band Inc.), which oversees the affairs of the community in general. The Band is the largest employer within the community and the leadership structure is comprised of a chief, vice chief and five other council members. The Band Council serves as a link of direct representation between the community and the provincial and federal governments and is mandated to protect the village citizenship and the Indigenous rights of members. This duty of the Band became more manifest recently during the Qalipu enrolment process[11] as the Band intensified efforts to assist with the appeals of Flat Bay members who were denied their Indian status (discussed further in Chapter 3). It is important to note that majority of the members of Flat Bay Band are members of the Qalipu Mi'kmaq First Nation. For the purpose of this study, Flat Bay is restricted to the three separate areas of the community described above and under the Flat Bay Band.

Flat Bay Demography[12]

The tables below are based on 2016 Census data and highlight the population (table 1), age (table 2) and economic characteristics (table 3) of Flat Bay.

Table 1: Flat Bay Population

	Flat Bay	**Newfoundland and Labrador (Province)**
Population in 2016	210	519, 716
Population in 2011	229	514,536
2011 to 2016 population Change	-8.3	1.0
Total private houses	100	265, 739
Private houses occupied by	94	218, 673

[11] The Qalipu Enrolment process is one through which the Mi'kmaq of Newfoundland are recognized and granted their Status under the Indian Act. This process is currently underway, as described further in Chapter 3.
[12] Bearing in mind that English is the language of communication within the Flat Bay, there were no linguistic barriers and as a result, there was no need for an interpreter throughout the period of the study.

usual residents		
Population density per square kilometer	47.4	1.4
Land area in square kilometres	4.43	370,514.08

Source: Statistics Canada, 2016 Census of Population

Table 2: Age Characteristics

Total age groups and average age of the population - 100%	210	519,745
0-14 years	25	74,440
15 to 64 years	140	344,245
65 years and over	40	101,025
Average age of the Population	47.3	43.7
Median age of the population	53.6	46.0

Source: Statistics Canada, 2016 Census of Population

Table 3: Economic Information

	Flat Bay	**Newfoundland & Labrador**
Median total income in 2015	21,440	31,754
Median after-tax income in 2015	20,544	28,883
Median employment income in 2015	18,155	31,528
Economic Self-Reliance Ratio (Year: 2012)	66.1	81.9
Prevalence of low income based on the Low-income measure, after tax (LIM-AT)	38.0	15.4

Source: Statistics Canada, 2016 Census of Population

In terms of municipal government and related services, Flat Bay West and St. Teresa's are without federal or provincial recognition (referred to provincially as unincorporated areas). On the other hand, Flat Bay East is a local service district (LSD) and with the implication that it is directly managed by the Band in partnership with the Flat Bay East LSD. Local Service Districts are created and governed under the Local Service Districts Regulations under the Municipalities

Act, 1999 and as Hanrahan et al (2016) explains, LSD's provide "certain services to communities or areas that have 2 similar needs within a geographic zone including the provision of potable water" (pg. 1-2). This differs from communities that are not LSD's, where residents do not enjoy or have access to some of the services provided by LSD's. As clarified by a community leader, the Band governs and manages the areas where resources are lacking in Flat Bay East (such as water) and partners with them on the areas where there are resources (waste, fire control, employment, infrastructure, social development, tourism, culture, health, etc.).

The selection of Flat Bay as the research community for this study stemmed from a previous study by Dr. Maura Hanrahan (2016) which showed that Flat Bay, a self-governed community has over the years had its share of water challenges but is currently implementing measures such as source water protection (SWP) as a means of safeguarding and protecting its water source as well as flow metering. The selection of the volunteer water operator of Flat Bay, Mr. Harold Legge as the 2015 provincial water operator of the year by the Province of NL (Hanrahan et al., 2016) further drew my attention to the Flat Bay community and the need to further investigate the steps taken by the community to resolve their water challenges.

As explained by Johl & Renganathan (2010), it is acknowledged that one of the challenges for a researcher engaging in ethnographic research is the difficulty of gaining access to the research site or participants. To lessen this difficulty, researchers commonly engage the use of a "gatekeeper" (Johl & Renganathan, 2010; Wanat, 2008). A gatekeeper is an individual with the controlling or influencing power to grant or refuse the researcher's access to research participants (Berg & Lune, 2004). To mitigate the hardship of getting access to the research participants since I was an outsider, I employed the use of a gatekeeper (or community liaison), Liz Lasaga, the Chief of Flat Bay to assist in accessing the participants. It is recognized that one

of the dangers involving the use of a gatekeeper is the possibility of denial of access to research participants or in some instances, attempts by gatekeepers to control the nature or pace of research (Wiles et al., 2004; McFadyen & Rankin, 2016). Direct access to residents as a result of the nature of my three-month internship, which involved regular communication with residents, helped me to overcome these identified dangers. I also regularly partook in cultural and social activities through which I was able to integrate into the community, earn the trust of residents and have direct access to research participants.

2.3. Research Paradigms (Philosophical Considerations)

Research paradigms are the belief systems that guide the conduct of a researcher (Bhattacherjee, 2012). They are the shared belief systems that guide researchers and how they interpret gathered evidence in the quest for knowledge (Morgan, 2007). According to Scotland (2012), a research paradigm consists of four components as follows: (a) Ontology - what constitutes reality? (b) Epistemology - what is the nature of knowledge? (c) Methodology - how a researcher goes about finding out whatever they believe can be known and (d) Methods - how data are collected and analyzed. This study will employ critical theory and an interpretivist paradigm, as further described below.

2.3.1. Critical Theory & Interpretivist Research Paradigms

(a). Critical Theory

Critical theorists reject abstraction and advocate for attention to daily live struggles using the 'interests of the researcher' as the underlying factor for any research (Murray & Ozanne, 1991). Critical theory is underpinned by the historical realism ontology (Guba & Lincoln, 1994), which suggests that historical statements can be relied upon to interpret past historical

events (McCullagh, 1980). My research, which also employs an interpretivist lens, aligns with the interpretation of Lincoln & Guba (2000) that the historical realism ontology is shaped by the crystallization of reality over time, which is influenced and directed by social, political, cultural, economic, ethnic and gender values. One thing which can be deduced from this description is that the critical theory is value-laden. Epistemologically, research findings within the critical theory paradigm are value-mediated and transactional/subjectivist (Guba & Lincoln, 1994). This epistemology helps to provide a bridge to the interpretivism paradigm, which also offers unique perspectives for this study. In terms of methodology, the critical theory paradigm takes a dialogic and dialectical approach consisting of interactions between the researcher and the participants of the study (Guba & Lincoln, 1994).

(b). Interpretivism

The interpretivist view argues that human behaviour is shaped by the environment and associated environmental considerations (Willis, 2007). This view places emphasis on how the world around humans is interpreted and as such, relies on the subjective interpretation of the world by the group or person to be studied (Willis, 2007). Ontologically, the interpretivist paradigm is underscored by relativism (Scotland, 2012). Relativism implies that reality is based on 'individual perception', described as a subjective view between individuals (Guba & Lincoln, 1994; Scotland, 2012).

The interpretivist position, epistemologically enshrined in subjectivism, integrates an individual perception of the world around him/her into reality. Humans are viewed as actors from whose perspective the social construct of the environment can be ascertained and taken into consideration. This could not have been better captured than by Crotty (1998), who viewed

humans as constructs whose interplay with the environment brings about the transmission of social context. Willis & Nilakanta (2007) add that the interpretivist paradigm is underscored by a socially constructed reality. The implication of this is that humans/individuals are viewed from a particular lens, not existing in a vacuum but rather viewed from the standpoint of the whole context of their life. In summary, the interpretivist paradigm derives reality from the individual perspectives of people – a socially constructed reality.

The choice of the critical theory and interpretivist paradigms for this study supports the use of participants' narratives as "data". For this study, I relied on the narratives provided by participants (current and historical) to establish the events leading to the water situation and issues in Flat Bay. I also relied on the narratives from participants of the study to establish the socio-political struggles, cultural and economic dimensions of the water situation in Flat Bay.

2.4. Theoretical and Conceptual Framework

2.4.1. Environmental Justice

(a). Historical Perspective

Environmental justice was originally captured under the term environmental racism, a term used by Benjami Chavis in 1982 (Lazarus, 2000). Its roots can be traced to the United States, which has continued to dominate the environmental justice scholarship (Perez et al., 2015). The civil right struggles witnessed in the United States in the late 1970's and 1980's when African-American communities protested against the unequal distribution of environmental hazards gave birth to the environmental justice concept (Finger et al., 2013).

Racial and ethnic inequalities in exposure to environmental hazards brought about local activism and grassroots movements, which facilitated national attention to local struggles (Pedersen, 2010). Central to the origin of environmental justice were multiple cases of siting of waste and toxic facilities in minority communities. As early as 1979, a waste facility was sited in Northwood Manor, Houston, an African-American community (Pedersen, 2010). Similarly, in 1982, there was grassroots activism against the siting of a polychlorinated biphenyl (PCB) landfill in the community of Warren County, North Carolina, a predominantly black community (U.S. Department of Energy). This event led to the arrest of over 500 people for civil disobedience and eventually facilitated research into the environmental health of those communities (Finger et al., 2013). This culminated into the 1987 Toxic Wastes and Race Report, which singled out race as the most important metric in the siting of hazardous wastes in the United States (Finger et al., 2013; Sze et al., 2008). According to Pedersen (2010, pg.27), the reaction via "local activism, grassroots networks and campaigning" to the lack of attention to

race and class issues gave rise to the environmental justice movement. The same view was shared by Bullard (cited in Pellow and Brulle, 2006) who noted that the environmental justice movement was borne as a result of grassroot activism relating to racial discrimination in the distribution of hazardous pollution and environmental harms. In the same vein, Pellow (2016, pg.2) emphasized that the 1982 grassroot activism noted above "sparked the growth of environmental justice studies".

In relation to Indigenous people, the environmental justice scholarship has been extended to Indigenous land & resource management, Indigenous rights, Indigenous water management, Indigenous health and Indigenous mobilization (Booth & Skelton, 2011; Perrett, 1998; Peterson, 2015; Tsosie, 2007; Wiebe, 2016; McLean, 2007). It is acknowledged that while early work focused on the siting of hazardous waste, there is a growing body of work on the effects of climate change in relation to Northern Indigenous communities where Indigenous lands are targeted for development related activities. One example of a Northern Indigenous land targeted for development activities is the Mista-Shipu (Grand River) Indigenous land on which the Muskrat Falls hydroelectric project in Labrador is being constructed and which poses a threat to the traditional homelands of the Innu and Innuit (Native Solidarity, 2017). In relation to Indigenous water management, a study by McLean (2007), examined the Indigenous water rights in rural and remote Australia by situating water justice within the elements of environmental justice framework canvassed by Schlosberg (2004) as recognition of difference, plurality of participation and equitable distribution of resources. The study found out that the lack of appropriate recognition of cultural differences represents one of the reasons for the elusiveness of water justice in rural and remote Indigenous communities in Australia.

(b). What is Environmental Justice?

Environmental political theory has witnessed series of attempts to define environmental justice (Schlosberg, 2004), yet, no consensus as to a universally acceptable definition of environmental justice has developed (Aradhyula et al, 2006). The difficulty in defining environmental justice probably stems from the rather expansive nature of environmental justice as a concept, described as "broad, vague and nebulous" (Pedersen, 2010, pg.29). However, different notions of environmental justice have been conceived, including distributive, bivalent and trivalent (Xie, 2011; Schlosberg, 2004).

Environmental justice was traditionally limited to the distributive equity element of social justice as canvassed for by Rawls, who advocated for the equal distribution of all social goods and for an alternative form of distribution only if an unequal distribution would benefit the least disadvantaged (Rawls, 1971; Finger et al, 2013; McLean, 2007). Environmental scholars in this vein documented the inequitable distribution of environmental ills (McLean, 2007; Pellow, 2017; Schlosberg, 2013).

The restriction of environmental justice solely to the distributive paradigm has been critiqued, however, as incomplete, insufficient and inadequate (Schlosberg, 2004). This bears relevance to the argument of Young, which concedes that while issues of distribution are an integral part of justice, social justice should not be reduced to distribution (Young, 1990). Instead, Schlosberg advocated for a trivalent conception of justice, which will incorporate the threefold elements of distribution, recognition and participation as the cornerstone of environmental justice (Schlosberg, 2004). This study recognizes a work by Pellow and Brulle (2006) which canvasses for the examination of social factors which causes environmental inequalities before

environmental justice can be realized. Pellow and Brulle contend that before environmental inequalities can be addressed; there must be social change since environmental inequalities are "outcomes of the social dynamics of the society" (pg. 3.5). In a more recent study, Pellow (2016, pg.2), distinguishes environmental scholarship studies into the realm of "first-generation and second-generation", with the explanation that while the first-generation movement saw environmental justice from the viewpoint of distribution as pertains to race and class, the second generation involved a more holistic approach with consideration of issues such as how the interplay of gender, sexuality and others shape environmental justice. Pellow expands on the second generation studies by making use of the term "critical environmental studies" to denote that social change has a great role in helping to bring about environmental justice (pg.3).

Furthermore, this study also acknowledges the productive and ecological aspect of environmental justice. Productive justice challenges the decisions that "present a potential environmental risk before such decisions are implemented" (Pedersen, 2010, pg.28). Ecological justice canvasses for the application of environmental justice to the "non-human sphere of the environment and animals" (Pedersen, 2010, pg.28). However, for the purpose of this study, the notion of environmental justice put forward by Schlosberg (2004) and highlighted above as recognition of difference, plurality of participation and equitable distribution of resources will be adopted.

2.4.2. The Three Elements of Environmental Justice

(i). Distributional Equity

Inequality exists in the distribution of environmental hazards and more often than not, the burden of this disproportionality falls on the already economically marginalized (McLean, 2007). In reality, minority and low-income communities usually suffer the lopsided risk for environmental harm arising from indiscriminate exposure to land, air and water contamination (Aradhyula et al., 2006). The central theme of the distributive equity paradigm of environmental justice is premised on the inequitable distribution of environmental harm (Dobson, 1998). Instead, fairness in the distribution process is encouraged and the inequitable distribution of environmental bads is strongly discouraged (Schlosberg, 2004). Attention to the inequality in the distribution of environmental hazards has been attributed to Marxist theory, which highlights the production of institutional classism, racism and market imperatives (Xie, 2011).

(ii). Recognition of Differences

Central to this element of environmental justice is that differences and diversity of participants must be recognized (Schlosberg, 2004). Environmental justice calls for the respecting of group differences, including varying social characteristics of class, ethnicity, cultural and institutional exclusion (Xie, 2011). The recognition of differences serves as a window through which different sorts of knowledge are acknowledged as everyone has the right to possess and express knowledge on environmental issues and affairs ((McLean, 2007; Xie, 2011). Traditional and cultural identities must be recognized and this in McLean's words has the tendency to "open up environmental decision making processes to non-mainstream involvement" (McLean, 2007, pg. 27). Lack of recognition has been described as the foundation for distributive injustice

(Schlosberg, 2004) or as the condition precedent for distributive justice (McLean, 2007). The implication of this is that where differences are not recognized, distributive injustice is unavoidable.

(iii). Participation

The recognition element of environmental justice as discussed above is directly linked to participation and was explained by one researcher as follows: "if you are not recognized, you do not participate" (Schlosberg, 2004, pg.519). This implies that recognition is key for participation. The participatory element of environmental justice calls for an all-inclusive decision-making institution and process (Schlosberg, 2004), which would involve the participation of communities in environmental decisions that impact them through consultative processes (McLean, 2007; Xie, 2011). Such democratic procedures and practices in the political processes underlying environmental policy making are strongly recommended (McLean, 2007). This has been described as the right to a voice, to be heard and to participate (Xie, 2011) and to authentic, community-based participation (Schlosberg, 2004).

2.4.3. Why Environmental Justice and this Study?

As noted above, lack of potable water/water systems in Indigenous communities suggests important inequities, which may be better understood through the lens of environmental justice. According to McLean (2007), the environmental justice framework is justified for the study of water issues and challenges arising from the diverse valuing systems that surrounds water, which require a special analysis (pg.27). The core of this framework is that if differences are not recognized and participation is disallowed, the probable outcome is the inequitable distribution of resources (pg.25). This aligns with the view of Pellow (2017, p.17) that "where we find social

.inequities by race and class, we tend to also find environmental inequalities in the form of marginalized groups being exposed to greater levels of pollution, as well as their exclusion from policy-making bodies that influence those outcomes."

2.5. Methods

2.5.1. Ethnography

Ethnography is the study of cultures or the branch of anthropology that aims at understanding the daily lives of people (Singer, 2009, Basilov, 1994). It is said to be an instrument that provides a descriptive account of social life, culture and observations (Singer, 2009). Reduced to its simplest term, Singer defines ethnography as the studying of a cultural environment via the lens of the fieldwork of a researcher who investigates this environment (Singer, 2009). Incorporating and aligning with the definition of Lindlof and Taylor, Singer describes ethnography as the holistic description of cultural membership (Singer, 2009). This view is supported by Palmer, who stated that ethnography is rooted in extensive fieldwork through which a researcher studies the daily lives and cultures of the people (Palmer, 2001). During my stay in the community, I headed out with other members of the community for ice-fishing, rabbit snaring and snow shoe walking, which are some of the revered traditional and cultural activities in the community (see figures 2, 3, & 4 below). While my focus in on drinking water systems within the community, this more holistic understanding helped me to integrate into community and build direct interactions with residents.

Figure 2: Preparatory Ice- fishing

Ethnography provided me with the opportunity to understand the subjective realities and perspectives of the residents of the Flat Bay community with respect to the water situation. This aligns with the primary goal of ethnography, which has been put forward as understanding the subjective realities, perspectives and life-world of others (Hitzler & Honer, 2015). Consistent with ethnographic methods, I opted for intensive fieldwork, including participant observation techniques and interviews with community members to understand the Flat Bay water situation and which aligns with the work of Yates & Harris (2017) on understandings related to water. As a researcher, I further understood based on preliminary ethnographic studies that I had to be cognizant of my dual role, which involved striking a balance between the views of the

participants on the one hand and my own personal biases on the other hand. In doing this, I carefully listened to all the interviewees and avoided asking leading questions (where possible). Elmendorf & Luloff (2006, pg. 58) emphasized that by "using a well-constructed interview schedule and by listening rather than engaging in leading questions and dialog", personal biases will be reduced during the interview process and the quality of information will be enhanced.

` **Figure 3: Ice-fishing with Residents**

Figure 4: Snowshoe Walking with Residents

2.5.2. Interviews

One of the primary methods of data collection in the qualitative research is the interview (DiCicco-Bloom &Crabtree, 2006) through which the researcher gets to direct the participant to respond to one or more specific research questions (Stuckey, 2013). Generally, there are three types of interviews as follows: structured, semi structured and unstructured (Edwards & Holland, 2013; Gill et al., 2008). For the purpose of this study, semi-structured interviews were employed.

Semi-structured interviews are interviews where the researcher gets to ask the interviewee previously determined open-ended questions (Jamshed, 2014) and the response of the interviewee determines the direction of the interview (Stuckey, 2013). I adopted semi-structured

interviews in this study because of the flexibility this affords a researcher in accessing information that the researcher might not have previously determined was needed (Gill et al., 2008).

This study employed a total of 14 interviews, including 12 interviews with Flat Bay residents and two with government officials: a member of Parliament and an official of the Department of Municipal Affairs, Corner Brook (the responsibility of this Department is discussed in Chapter 1 above). Additionally, a member of the Qalipu Council was interviewed so as to incorporate the Indigenous water ceremony perspective.

The community interviews were structured to reflect an even number of participants from the three communities that make up Flat Bay (four participants from each community). These included a water operator, three water committee members, two community elders and a community leader. These interviewees were selected as key informants. Key informants are people who are considered knowledgeable about a particular subject and from whom; detailed information is sought (Luloff & Elmendorf, 2006). The selection of key informants varies from organization, community positions, knowledge of issues under study and reputation (Bailey, 1994, cited in Luloff & Elmendorf, 2006, pg. 54). The key informants in this study were selected because of their positions in the community and knowledge of the water issues in the community. In order to verify the accuracy of information from the key informants and provide insights from the viewpoint of general residents, five general residents were also interviewed. The information from all the interviewees was devoid of discrepancies.

The majority of the participants were identified by the Chief of the community and others were identified by snowball sampling. Snowball sampling, often referred to as chain referral sampling,

is one of the commonly used qualitative social sciences research techniques (Biernacki & Waldorf, 1981; Chaim, 2008). It is defined as a research procedure through which a researcher accesses other participants based on referrals by others (Chaim, 2008), making use of the social network of participants to access the target group or population (Brown, 2005). The advantage of snowball sampling is that it provides an avenue for a researcher to access new participants when initial contacts might have dried up (Chaim, 2008). The snowball method is desirable for sensitive issues and those which require the knowledge of insiders to locate people for the study (Biernacki & Waldorf). The desirability of the snowball sampling for this study was premised on the sensitive nature of the water challenges experienced by the community, most especially being an Indigenous community.

The recruitment or identification of participants for this study would have been quite difficult without the help of an insider. This study acknowledges that selection biases have been identified as the central weakness of the snowball sampling technique and this is because the selection of respondents is based on what Atkinson & Flint (2001) refers to as the "subjective choice of the initially accessed respondents" (pg. 2). Taking cognizance of this limitation and that I had established the trust of community members, I was able to have direct interaction with other residents by becoming integrated into the community through a three-month internship (albeit with the Band Council). By so doing, I was able to directly approach other residents without relying on referrals and before the commencement of the interviews; I distinguished my role as a researcher who was out to examine the water issues in the community from my affiliation with the Band Council as an intern. This was done to further guarantee the participants of my attempt to ensure objectivity and impartiality to the greatest extent possible (recognizing at the same time the researcher's role and presence in qualitative research).

The interviews took approximately between 30-40 minutes per participant. The participants were given the options of meeting at the Band Office, their offices, houses or any neutral and convenient place for them. The interviews were structured to one participant at a time and in the absence of any other person or other participant to guarantee confidentiality. All but one interview was conducted in person as the participant declined a face-to-face interview and preferred to respond to the interview questions in a written format. Ten interviews were conducted at the Band Office, one interview in a personal residence, another in an office and two telephone interviews. Where possible all interviews were recorded. Some participants agreed to be audio recorded while others declined. In these cases, detailed notes were taken during the interview.

The interview questions were all tailored towards meeting the needs of the research objectives for this study as outlined in Chapter 1. The questions for the resident key informants were structured around their current and historical narratives about water resources, effects of the water challenges experienced in the community and steps taken to alleviate them. The answers to the interviews provided me with in-depth information about the water situation in the community from the viewpoint of the residents, particularly those in community leadership and water management roles. The questions for the government officials focused more on the responsiveness of the government to water challenges in Indigenous communities and challenges faced by the government in responding to these issues.

2.5.3. Participant Observation

Participant observation is a research technique that situates the researcher in the natural settings (local context) of the people, things or activities to be studied (Kawulich, 2005). Through this

method, a researcher is immersed in the daily activities and cultural settings of the things/people to be studied and as such, gets to observe, listen and ask questions (Becker & Geer, 1957). A study by Baker (2006) highlighted nonparticipation, complete observation and observer-as-participant as the degrees of participation to which a researcher can be involved. By nonparticipation, a researcher does not directly get involved with insiders as the researcher is not present in the situation but rather observes from a completely different environment. The complete observer is present but does not participate with his insiders, such a researcher only listens and observes. The observer-as-participant is on ground at the scene, observes and at the same time participates with the insiders while not being member of the insider group.

I was able to immerse myself within the Flat Bay community as I stayed there for three months while undertaking my internship at the Band Council. Through this experience, I was able to partake as an observer-as-participant in some of the major daily activities of the people such as skidooing and quad riding (see figures 6 & 7). By living in the community and working at the Band Council, I had become integrated and accepted within the community as I had daily contact and communication with the people. Through these experiences, I was seen less as an outsider and more as part of the community and I was able to learn, observe and obtain firsthand information from the residents. I was also shown around the community by some of the interviewees and with emphasis on the water infrastructure in the community.

`` **Figure 5: Skidoo Ride**

Figure 6: Quad Riding

I chose participant observation as a method for this study as I recognized the need to understand the water situation in Flat Bay by positioning myself within the community and as a result allowing community residents to become at ease with me. The advantage of this method is that it affords a researcher the opportunity of establishing a rapport within a community and to blend within it so that the members of the community can act naturally, allowing the researcher to study and observe (Bernard, 1994). It is acknowledged that although my presence in the community provided a level of comfort with the residents, my position as an outsider might have also had some influences on participant responses and behaviours.

2.6. Document/Secondary Source Review

This study also relied on secondary sources such as textbooks, journal articles, encyclopedias', government reports, water portal data, media stories, online materials as well as the use of desk-based methods of Internet searches, including Memorial University's library systems, to critically review existing literatures and debates on the environmental justice theory and water insecurity in Indigenous communities across Canada. This review was vital as it helped to shape and influence the direction of this research.

Specifically, the previous work of Dr. Maura Hanrahan noted above in 2.2.2 (b) was relied on to provide an insight into the research community, water system and some of the steps being implemented to address the water challenges in the community. This study also relied on government reports, water portal data to document the demographic information of the province as well as the demographic and economic information of the research community, drinking water advisories across Canada in general and those peculiar to Newfoundland in particular. This study further relied on media stories with respect to the drinking water situation across Canada as a whole and those specific to the Flat Bay water situation.

2.7. Data Analysis

The data from the study were analyzed via content analysis, developing themes or codes from a review of all data sources. Content analysis is widely used in qualitative research (Shannon & Hsieh, 2005) and in the social sciences (Wilson, 2016). According to White & Marsh, (2006), it can be defined as a research tool used for exploring and systematically analyzing written, verbal or visual documentation. Content analysis has also been defined as a systematic and replicable way of reducing large amount of texts into less content based on coding for further analysis

(Stemler, 2016; Mayring, 2000). Content analysis can be derived from videotapes, discourses, protocols of observation (Mayring, 2000), transcripts of interviews, books, manuscripts, recorded conversations, drawings etc. (Wilson, 2011). Coding lies at the heart of content analysis and is used to transform raw data to a standardized form (Kohlbacher, 2006). Wilson (2016) posited that coding and codebooks offer stability to the content analysis process. After the documents have been coded, key themes or concepts are to be analysed (Wilson, 2016).

After the end of the interview process, I moved all the content of the files to my password protected flash drive and transcribed them[13]. Considering the limitation of time and the small quantity of audio-recorded interviews (11), I opted for the manual analysis as opposed to the use of a coding software.

The analysis of data was carried out on paper and as a result of which I had to extensively go through the notes (data from participant observation + the interview participants who opted for non-audio) and audio data. I read through the notes several times, listened to the audio recorded interviews on different occasions so as to eliminate any form of personal bias and after which I penciled down the major words that resonated throughout the interviews such as finances, development, status.

The text relating to these key words was then grouped into categories (emerging themes) and responses under each from various respondents were juxtaposed for similarities. From this, themes were then identified from the like concepts and the differences were grouped under areas of concern by the participants. The main themes that emerged were marginalization, status and recognition (discussed further in Chapter 5).

[13] Content of files includes data from the interviews and those from participant observation which were typed on my mobile device.

2.8. Limitations of the Research

This study is premised on the ethnographic method and a limitation identified with the ethnographic method lies in the interpretation of subjective realities. Since ethnography involves the understanding of the subjective realities, perspectives and life-worlds of others, as put forward by Hitzler & Honer (2015), the findings from this study are to a large extent based on the subjective realities and interpretations of the study participants (residents of the Flat Bay community). Notwithstanding, it is important to bear in mind that the level of credibility involved in ethnography is high as it involves a high level of time commitment and expertise (Perlmutter, 2015; Basilov, 1994). Further, I interviewed individuals from outside of the community (e.g. government and academic water experts) to provide an external view and add to the perspectives offered by residents who were experiencing water issues in Flat Bay firsthand.

Another potential limitation of this study mirrors one of the drawbacks of a single case study, which is the impossibility of generalization. For this study, a single case research site was preferred as opposed to multiple research sites. The context of this study was specific to the Flat Bay water situation. Mariotto et al. (2014) caution against generalization in single case studies. It is recognised that the findings from this study are unique to the Flat Bay community. Although this study might be able to provide an insight into the water security challenges in other Canadian Indigenous communities, it is acknowledged that the different cultures, social and political actors, behavioural patterns and historical narratives in other Canadian Indigenous communities might not make the findings from this study applicable. Therefore, this study offers potential insights for others but does not attempt to generalize.

This study acknowledges one of the limitations of content analysis, which according to Stemler (2016) is the faulty definition of categories and identified themes. In mitigating this limitation, I carried out a thorough analysis of the written and recorded interviews before identifying the themes and codes. I read the recorded notes several times, listened to the recorded interviews over and over before the identification of themes into categories which I painstakingly reviewed. According to Kohlbacher (2006), content analysis produces a high range of reliable data since it involves a step-by-step analysis and adopts a strictly controlled methodology.

The accessibility to participants also hindered the schedule of the interviews to some extent, as I had to work around the personal work schedule and availability of the participants. In the case of one of the interviewed government officials, I was unable to conduct the interview until after the scheduled period for data collection arising from the extremely busy nature of the official. In some other cases, I had to reschedule the interviews to evenings and weekends. Through these experiences, I was able to appreciate the flexibility and persistence attribute which every researcher must possess. Researchers must be flexible and consistent in carrying out their research work taking into consideration that occurrences could bring about the distortion of data collection (Shagrir, 2016).

Despite the limitations identified above, the uniqueness and richness of this study is buttressed by the fact that an ethnographic, single case study approach facilitated an in-depth understanding of the water challenges and efforts to resolve them in Flat Bay.

CHAPTER 3: THE COMMUNITY OF FLAT BAY AND THE YEARS OF WATER CRISIS

3.0. Introduction

In this chapter, I began by providing an overview of the Qalipu Mi'kmaq First Nation Band which is the umbrella body which oversees the Mi'kmaq population in Newfoundland (outside of Miawpukek or Conne River) and to which majority of the members of the Flat Bay Indian Band belong.[14] I thereafter proceeded to discuss the water issues in the Flat Bay community and by so doing, I reflect on the history and causes of the water challenges in the community, as well as the nature and effects on residents. Responses to these challenges and their effects are discussed in the chapter that follows (Chapter 4).

3.1. The Qalipu Mi'kmaq First Nation Band

The exclusion and non-recognition of Aboriginal groups in the 1949 Terms of Union between Canada and Newfoundland and Labrador has placed Newfoundland and Labrador as the only province in which the fiduciary responsibility to First Nations people was entirely ignored by Canada (Hanrahan, 2003). This perspective is evidenced by the statement of Grammond (2014, pg. 469) that, "the authorities took the stance that no one would be legally considered Indigenous" when Newfoundland joined Confederation in 1949. Grammond (pg. 480) stated further that the "Canadian officials doubted the authenticity of the Indigenous identity of the Mi'kmaq of Newfoundland". This, according to Daniels (2014, pg. 1) was borne as a result of their perceived "lack of Indianness by the Canadian government".

[14] While the Flat Bay Band is an independent non-status Band, majority of the members of the Flat Bay Band are also members of Qalipu and the Flat Bay area in general is one of the nine wards of Qalipu.

The implication of this was that Mi'kmaw communities, alongside others were not recognized as status Indians under the Indian Act in Newfoundland and Labrador (Higgins, 2009; Anger, 1983; Tulk, 2008; Tanner et al., 1994). At that time, the legal status of the Mi'kmaq was uncertain and Mi'kmaq people were not entitled to the privileges enjoyed by other status Indians across Canada (Mackenzie, 2010; Hanrahan, 2003).

This led to the formation of the Federation of Newfoundland Indians (FNI) in 1972, which was saddled with the primary goal of obtaining the Government of Canada recognition of Mi'kmaq eligibility for registration under the Indian Act (Newfoundland and Labrador Heritage, 2009). Early success was recorded in the 1980's as the Miawpukek -Mi'kmaq of Conne River, (with the exclusion of those outside of Conne River) became recognized as status Indians (Tulk, 2007; Mackenzie, 2010). It was not until September 2011 that the Mi'kmaw people of Newfoundland outside of the Miawpukek First Nation became recognized as status Indians under the Indian Act (Daniels, 2014).

The exploratory discussions between the FNI and the Government of Canada in 2002 culminated in the initialling of the 2007 Agreement-in-Principle (AIP), which provided the guidelines for recognition of the Mi'kmaq of Newfoundland as status Indians under the Indian Act (Parrill, 2012). Consequently, this led to the official creation of the Qalipu First Nation Band by order-in-council on the 22nd September, 2011 with 21,429 members (Grammond, 2014). The surge in applications following the Band creation led to the 2013 Supplemental Agreement (SA) which sought to address the surge in application and clarify the process for enrolment. The implication of the Supplemental Agreement was that all applications, with the exception of the previously rejected ones were reassessed (Indigenous & Northern Affairs, Qalipu Website).

In compliance with a 2015 court decision, a consensus was reached between Canada and the FNI to allow for the reassessment of 6500 applications which were previously determined to be invalid on the basis of a missing signature and/or long form birth certificate (CBCnews, 2016; Gowling WLG, 2017. Consequently, there was a second extension to 31st January, 2017 to allow the Enrolment Committee review applications. The deadline for appeals was extended to 30th September, 2017. Letters notifying applicants of the status of their applications were sent out by the Enrolment Committee on 31st January, 2017 with 15th March, 2017 as the appeal deadline. All appeals will be concluded by the fall of 2017 and the updated membership list will be provided no later than 28th February, 2018 (Indigenous & Northern Affairs, Canada).

3.2. Water Challenges & Insecurity in Flat Bay

Water security connotes the "access by all individuals at all times to sufficient safe water for a healthy and productive life" (Webb, & Iskandarani, 1998, pg. 1). It has also been defined as the sustainable use and protection of water resources, safeguarding access to water functions and services for humans and the environment, and protection against water-related hazards (Penn et al., 2017). Therefore, it follows that the absence of one or more of the elements in the definitions described above brings about water insecurity.

Just like many of its counterparts across Canada, Flat Bay is an Indigenous community that has also experienced water insecurity. The origin of water insecurity in Flat Bay dates back over 40 years when there were no wells or piped communal systems in place and the community relied on streams and unmonitored open springs. However, documented recent challenges dates to 2010 when one of the wells in Flat Bay East was placed on a non-consumption order and in 2014 when the water system of Flat Bay West collapsed (referred to here as the water crisis era). This

water insecurity has had considerable impacts on the community, which has brought about the continuous exploration and consideration of different ways of resolving same. As stated by the interviewees, water is deemed essential and a necessity for survival. This was expanded on by an interviewee who explained that "*as Indigenous people, we are care givers of water, protectors of mother earth and we have a duty to respect and keep our water clean"*.

The source of water supply to the Flat Bay West is an artesian well that is about 190ft deep and 35 years old and supplies piped chlorinated water to all households in the community (Hanrahan et al, 2016). The well is managed by a volunteer seven-member water committee of Flat Bay West, headed by a volunteer water operator. Newfoundland & Labrador Water Resources Portal documents that tap water from the community was last sampled in March 2017 and the drinking water quality was rated as excellent, with no concerns about any of the metrics or parameters (Newfoundland & Labrador Water Resources Water, 2017).

Flat Bay East has three artesian wells that serve approximately 75 households with piped water, 25 households per well. These wells are about 80-100ft deep, 30-35 years old and managed by a three-member volunteer water committee of Flat Bay East. Information on the water resources portal of Newfoundland & Labrador document that one of the wells in Flat Bay East was placed on a boil water advisory on 5th March, 2010 as the result of a non-consumption order (Newfoundland & Labrador Water Resources Portal, 2017).

The situation in St. Teresa is a bit different as there is no communal source of water. Instead the majority of the households have personally dug wells. Apart from the communal wells in Flat Bay West, East and the individual wells in St. Teresa's, another source of water in Flat Bay is an

unmonitored open spring, which serves Flat Bay in general (the three communities) (see figures 8 & 9 below).

Since each of the three areas that together make up the community of Flat Bay have independent drinking water systems, the history and challenges of each are discussed separately below. In analyzing the interviews and other data, financial and infrastructural challenges were identified as a major challenge for each area of the community and these challenges are further discussed below.

Figure 7: Source of Spring Water in the Community

` **Figure 8: Point of Water Collection in the Community (sourced from the open spring**

3.2.1. Causes & Challenges

(1). Flat Bay West

(a). Infrastructural Limitations

Infrastructural limitations have played a major part in inhibiting water security in Flat Bay West, the genesis of which has been linked to the aging artesian well that has continued to deteriorate according to one interviewee. According to one study, the well was not constructed with good materials and was done as cheaply as possible (Hanrahan et al, 2016). Identified infrastructural constraints by the interviewees were leakages and rusting associated with old pipes, which needed to be upgraded.

The infrastructural limitation noted above became fully-fledged in the summer of 2014 when Flat Bay West suffered a major water crisis (Hanrahan et al, 2016). Interviewees noted that this

was as a result of the collapse of the aging artesian well. According to one of the interviewees, the collapse of the well was not unexpected as it had continued to deteriorate over time. This collapse left some parts of the community without water for days and in other parts, a longer duration was experienced. Birchy Brook, also part of Flat Bay West was left without water throughout the summer according to two interviewees. Two others added that the duration of the absence of water in Birchy Brook was for approximately three months.

Figure 9: Collapsed Birchy Brook Well

(b). Financial Limitations[15]

The non-availability of financial resources is central to the water insecurity issues in Flat Bay West, especially considering that it is a small and self-governed native community with limited funds and without any federal or provincial recognition. As a result of financial constraints in maintaining the aging infrastructure, the community witnessed the final collapse of the well in 2014 gradual deterioration. A community elder lamented how financial constraint has continued to threaten water security in the community: *"Due to the fact that we are aboriginal, we are not a municipality, we don't qualify for federal funding and this challenges the upkeep and regular maintenance of our water supply"*.

Similar concern was voiced by a community leader who identified the lack of funds as a central militating factor to the provision and maintenance of water supply in the community. "*We don't have funds to maintain and sustain our water systems"*, noted the leader. Continuing further, the leader noted how financial constraints have threatened manpower capacity, "*volunteers started losing courage because the water system became complex and there was no money for training that a normal local service district (LSD) will get"*.

(2). **<u>Flat Bay East</u>**

(a). Infrastructural Limitations

Infrastructural challenges associated with aging infrastructure have continued to hamper water security in the community of Flat Bay East as well. According to an interviewee, *"the water pressure from two of the three wells could sometimes be an issue"*. Further to infrastructural

[15] It is acknowledged that the Flat Bay West received a one-time grant from the provincial government in 2014 (discussed further in Chapter 4). For more information on this, see Hanrahan, M., Dosu, B., & Minnes, S. (2016). Government and Community Responses to Drinking Water Challenges and Crises in Rural Newfoundland and Labrador: Final Project Report.

limitations, the third well in the community was discovered to contain arsenic (slightly above the recommended maximum quantity of 0.010 mg/L by government) and as a result was placed on a non-consumption order in 2010 said the interviewees.

Arsenic is a natural element found widely in the earth's crust (Rageh et al, 2007), highly toxic and a known human carcinogen (Javed, 2014). The exposure to arsenic can have adverse health effects (Health Canada, 2006), principal among which are increased risks of bladder and kidney cancers (Saint-Jacques et al, 2014). According to Rageh et al (2007), wells contaminated by arsenic could either be treated or an alternate source of water could be found and some of the arsenic water treatment plan according to the Department of Municipal Affairs & Environment include reverse osmosis, some filters and distillation units (Municipal Affairs & Environment). Rageh et al (2007), noted however, that the cost of digging a new well was almost the same with the cost of treating a well contaminated with arsenic.

The implication of the non-consumption order in Flat Bay East is that the 25 households which rely on the well for drinking water have been disconnected from potable water for the past seven years. However, the well serves all other domestic needs aside from drinking for personal consumption, noted the interviewees.

(b).Financial Limitations

Although Flat Bay East is a local service district (LSD) that might qualify for certain levels and forms of governmental financial support, financial constraints have nevertheless continued to impede water security noted an interviewee. Another clarified that the community survived and relied on communally generated fees as the governmental support was only limited to large projects. The interviewee further noted how the bureaucratic processes surrounding

governmental support remained a challenge to accessing funding from the government. *"We once applied for government funding and it took over two years to get started"*, explained the interviewee. Another interviewee linked the financial constraints to the exorbitant cost of constructing a new well and as a result of which the community continues to depend on government for financial support. *"We cannot really put on any effort except to solicit for government support*", the interviewee said.

Furthermore, the limitation of financial resources is reflected in the situation of four houses in Flat Bay East that are about three kilometres from the town centre and are not connected to the Flat Bay East water system. These four houses remain unconnected to the central water system as a result of the lack of needed financial capacity to connect them. In elaborating on this, an interviewee had noted that connecting the four houses would be financially intensive as it would require lots of pipes and digging to cover the three km stretch. These houses rely on personal wells which unfortunately often go dry in the summer and as a result the households have to rely on alternative sources of drinking water.

(3). **St Teresa's**

(a) Infrastructural Limitations

Infrastructural limitations in St Teresa's have revolved around the absence of a communal well, which has continued to plague water security in the community. This, an interviewee attributed to the distances between the houses. Another interviewee agreed that the houses are far apart and as a result, it would be infrastructurally challenging, if not impossible to run a pipe of about four to five kilometres to connect just 40 homes.

The implication of the absence of a communal well is that each household relies on a personal well for water, the quality of which has been adversely affected by the topography in some parts of the community. As a result of the topography, some households have "good water while others have bad water", one of the interviewees explained. This interviewee explained that during the digging and construction of wells, the topography of the land prevented some households from reaching water level while some others accessed brownish water.

According to another interviewee, infrastructural limitations stem from the lack of regular testing and maintenance of the personal wells to ensure that the water is good and fit for consumption. This corresponds to concerns about the quality of water in private wells in Newfoundland and which incidentally accounts "for about a quarter of the province's drinking water" (Sarkar, 2016, paragraph 3). This places the onus and responsibility on private well owners to adequately monitor the quality of their water via regular testing (Sarkar et al., 2012).

The water quality of private wells continues to remain an issue in the province because of lack of regular testing by the well owners and stands in contrast to public water sources which continue to be regularly tested by the provincial government. Sarkar et al. (2012) further emphasized that the difficulty surrounding the lack of testing by owners of private wells can be attributed to the cost of testing and the fact that there is no accredited lab in Newfoundland and Labrador.

However, private well owners can submit their water samples to the Environmental Health Department or a Government Service Centre for bacteriological testing (Health & Community Services, 2017). Other concerns relate to inconsistent policies & regulations, poor maintenance record by private well owners, improper construction of dug wells (in most cases) and which stands in contrast to drilled wells (Sarkar et al., 2012). While there is a requirement for owners of private wells to document with the Department of Environment & Conservation, the proficiency

of well drillers they engage, there is no such requirement for owners of dug wells (Sarkar et al., 2012).

(b). Financial Limitations

The lack of a communal well in St Teresa's has been attributed to the capital intensive nature of connecting the houses, which are far apart, via a communal water system. This is compounded by the fact that the community has limited financial resources as it is without any federal or provincial recognition as a community and as such, directly operated and administered by the Flat Bay Band Council. *"The government has not paid particular attention to taking care of it's people as regards water, particularly Indigenous people", noted an interviewee.* Financial constraint is also evident in the cost of constructing a personal well which an interviewee put at an approximate of $20,000 compared to average income (see table 3 above).

3.3. Effects & Experiences

The central narratives surrounding the water insecurity and water issues in Flat Bay revolve around those of gloom, despair and neglect but also perseverance. An interviewee in Flat Bay West noted that the duration of water crisis era well (noted above) was a "*tough period for residents as the community was without potable water for some time and residents had to rely on bottled water".* An interviewee in Flat Bay East said "*I have not had water in years, people either have to go to get water from an household with good water, walk into the convenience store in the community to fetch water or have to fetch water from an open and unmonitored spring water around the community"* (see figures 8 & 9 above). Continuing further, the interviewee explained that fetching water from the unmonitored spring meant consuming water from an untested source.

One interviewee from St Teresa's lamented with anger the lack of potable drinking water in the community. According to this interviewee, *"I have to buy water from Stephenville, meaning that I have to carry about five gallons of water per week which is hectic as I am 66 years at the moment. The quality of water in our community is comparable to those of third world countries. There is an open spring along the road* (see figures 8 &9 above) *and which serves the whole of the Flat Bay community in general. Personally, I will never drink water from that source, not even to save my life."* Another interviewee from St Teresa's noted that after about three loads of laundry, the sulphuric smell in her water comes out and as a result she often has to run out to her neighbours to get water during such period. She also clarified however that her water system normalizes after about an hour or two.

A community leader of Flat Bay summarized and reflected on the mood of the community of Flat Bay West during the water crisis as follows:

"We felt really hopeless, it was a trying period as some residents were getting sick due to improper hygiene. The water was yellow and brownish in colour, had a very foul odour. It was really hard for families with young kids; kids had to start school in September. Some of our older women were reporting cases of yeast infections; others reported cases of hair breakages. Our summer students had to go to springs to fill up buckets with water and bring to families. My house ended up getting infested with mice as there was no water to keep the house clean, a lot happened".

CHAPTER 4: POST WATER CRISIS & MOVING FORWARD

4.0. Introduction

In this chapter, I focus on the core of this study and discuss the steps and efforts undertaken by Flat Bay to respond to and resolve the challenges to water security in the community. By so doing, I provided an holistic picture by capturing the multiplicity of efforts, ranging from those of the provincial government, to the Band Council, to the residents and general public. Together these actions have made an invaluable contribution to resolving Flat Bay's water security challenges despite substantial barriers and continuing concerns.

The steps employed in each of the three areas that together make up the community of Flat Bay will be discussed below. These steps cut across lobbying, revenue generation, infrastructural development amongst others.

4.1. Efforts of the Flat Bay Community at Resolving its Water Challenges

4.1.1. Flat Bay West

(1). Attempted Regionalization

The possibility of a near solution to the water challenges in Flat Bay West came to the fore in 2010. During this year, the municipal government of Newfoundland proposed to consider Flat Bay West as eligible for 90% funding of a water infrastructure project, subject to the condition that Flat Bay West acceded to regionalization. By regionalizing, the community would have joined with a local service district (LSD) explained a community leader. Considerable efforts were made via the Band to regionalize by joining the community of St. Teresa's, which was once

an LSD but was dormant at that time. According to a community leader, this attempt was futile as the offer was rebuffed by St. Teresa's, which declined to be identified with any government controlled structure as a result of the generations of damage to many Indigenous communities since colonization by associating with government controlled structures. Just to mention a few, examples include forced relocation from Indigenous lands, suppression of Indigenous identities, forced out of subsistence lifestyle and vulnerability to racism (Lawrence, 2009; Sarkar, 2015). Consequently, the attempt at regionalization failed and Flat Bay West was back to ground zero, with no financial assistance and had to continue grappling with the water challenges, reported a community leader.

(2). Lobbying

Lobbying by the Band Council has been one of the key steps employed in responding to the water challenges in the community. According to a community elder, "*the creator intervened*" as it was the election time. A community leader explained that the summer of 2014 was the crux of provincial elections, which the community took advantage of. The Band Council lobbied the government as it invited the media to the community, which in turn made the Flat Bay water situation a public issue. An elder in the community explained that the Band Council brought together politicians, opposition and the media and educated them on the water crisis in the community. "*It was better dealt with locally than to explode to national awareness",* said the elder.

The lobbying was productive as it facilitated the granting of a one-time special fund of $275,000 CAD from the provincial government to fix the collapsed wells in Flay Bay West (another well in Flat Bay West – Birchy Brook also collapsed during the lobbying interval). The provincial

representatives made it explicit that this was a one-time grant and that the community won't be entitled to any form of financial assistance again.

(3). Finance & Revenue Generation

In response to the financial constraints that were identified as key impediments to water security in Flat Bay West in the preceding chapter, various financial and revenue generating strategies were employed by the Band Council dating back to the mid 1970's. A job creation arrangement with the federal government (make-work partnership) was utilized in the 1970's under which the community applied to hire some people to carry out the installation of water lines to each of the homes. The community lacked the prerequisite materials needed for this installation and the generation of revenue was strictly prohibited as part of the job creation arrangement noted a community elder. Ingenuity was employed by the Band Council and as a result the community went out to cut wood to sell to raise money for the purchase of the needed materials, continued the elder.

During the water crisis era, the Band Council had approached Qalipu First Nation, the only recognized Indigenous entity representing Flat Bay, for financial assistance. The response from Qalipu was unfavourable and the request for financial assistance was declined noted a community elder. The one-time fund provided by the provincial government was based on a 90/10 basis and the Band Council had to explore additional ways and means of meeting the remaining 10%. It was a difficult phase as raising the money was challenging (Hanrahan et al, 2016). This led to the Band Council obtaining a loan of about $35,000CAD from the bank and which is to be repaid over a seven to eight-year stretch at an approximate of $350CAD per month, explained a community leader.

Another revenue generating strategy that was employed was the levying of monthly water fees on the residents. A community leader had explained that after the construction of the communal well over 30 years ago, it became imperative to explore ways of maintaining the water system and this culminated into the monthly water fee. The water operator and a community elder explained that the water fee was initially pegged at about 25-30 cents per day but was increased to $1 per day after the 2014 water crisis. The implication of this is that the annual water fee was tripled and residents now have to pay an annual fee of $365 whereas they were previously paying an annual fee of $90.

Community representatives explained that the increase in the monthly water fee was necessary and premised on the following grounds:

(a). need to meet eligibility for the bank loan as the Band Council had to establish that revenue was coming in and on a regular basis.

(b). need for money to pay back the bank loan

(c). need to save money for the regular maintenance of the water system since the Band was not entitled to any form of further financial support.

(4) Infrastructural Development

"We are presently enjoying the honeymoon of the novelty of a new water system", noted a community leader. The one-time grant provided by the provincial government and the loan secured by the Band Council have been instrumental in facilitating infrastructural developments pertaining to the water system. The water operator explained that the one-time fund and loan brought about the installation of new water lines, a secured pump house, water curb stops,

reservoir tanks and chlorine, all which have led to a long term resolution of the water crisis in Flat Bay West.

Figure 10: Outer Picture of the Secured Pump House in Flat Bay West

Figure 11: New Reservoir Tanks in Flat Bay West

Prior to 2014, Birchy Brook-Flat Bay West had an independent water system but subsequently became connected to the water system in Flat Bay West as a result of these infrastructural developments. Consequently, new water lines within the range of 1.5km to the East and 1km to the West were installed with the implication that the same water system now serves the whole of Flat Bay West. According to an interview participant, *"Birchy Brook, which had pretty bad water before, now has a different story to tell as a result of the new installations".*

Infrastructural development can be seen in the light of the reasonable steps and preventive measures undertaken by the Band Council and water committee to deal with future emergencies in the event of the breakdown of the water system in the community. As a result of being proactive, there is a spare well (though not presently not in use), a spare reservoir tank and other related materials on hand.

Figure 12: Spare Well in Flat Bay West

Figure 13: Spare Reservoir (far right)

Figure 14: Spare Materials

(5). Community & Public Support

The residents of the community were resilient during the duration of the water crisis and have continued to be supportive even years after. This is demonstrated via the payment of the monthly water fees. The community accepted that the monthly water fee had to be increased to maintain the new water system according to an elder. Another community elder praised the resilience of the residents and noted that although the monthly water fee was on the high side given the financial situation of residents (the majority of the residents are aging people who depend on social services.)[16], the residents nevertheless remained dedicated to the monthly payment. A similar view was echoed by a community leader who described the residents as financially supportive even though majority were low-income earners who had difficulty affording the annual $365 water fee (See table 3 above). Nevertheless, the community has pulled together, explained the leader.

[16] See Table 2 above

The togetherness and communal support of the of the community members was described as an "*interesting dynamic*" by one of the interviewed government officials. "*This is an interesting sort of dynamic. Flat Bay has good leadership, good sense of community and recognizes the importance of working together"*, noted the government official.

Furthermore, the commitment, dedication and support from the residents is reflected through volunteerism. The water system of the Flat Bay West is managed by a Water Committee, which is comprised of six members, headed by the water operator. All members of the committee serve on a solely volunteer basis. The water operator noted that the period of the water crisis was a really tough one as it required him and another member of the water committee "*to regularly carry out repairs"*. An interviewee noted that the water quality in the community had greatly improved as a result of aggressive monitoring by the water committee. In recognition of the dedication and commitment of the water operator in ensuring water security in the community that he earned the 2015 volunteer water operator award throughout the province, said the community leader.

The support of the public during the duration of the water crisis was described as *"tremendous and phenomenal"* by a community leader. Donations were sent to the Band Council by members of the public, which were judiciously utilized by the Band Council to ensure that cartons of bottled water, cleaning wipes, house sanitizers and other germane items were circulated within the community to all households without water.

Another form of public support that acted as a catalyst for the early resolution of the water crisis was via linkages to the media (Hanrahan et al, 2016). The Canadian Broadcasting Network (CBN), which was invited to the community during the water crisis era, assisted with the

snowballing of the water crisis into the public domain. With the help of other media networks such as Western Star, the water issues in Flat Bay West became a topic of discourse throughout the province and attracted attention across all levels.

4.1.2. Flat Bay East

(1). Infrastructural Development

Directed towards addressing water insecurity in the community, Flat Bay East embarked on infrastructural development by attempting to construct a new well in 2009. This was enabled via a 90/10% funding ratio from the provincial government, with the implication that the community had to source for the remaining 10%. The cost of building this well was $139,500CAD, the community secured $125,550 from the government and had to come up with the remainder of $13,950.

Unfortunately, this project did not eventually work out as the new well produced brownish water that stains clothing according to an interviewee. The water committee took a further step by adopting the pellet system to clear the water but this proved unsuccessful said another interviewee. Consequently, the well is no longer in use. One of the interviewees also noted that new pipes are put in every year to prevent rust and leakages and the wells were also regularly monitored by the Flat Bay East water committee.

(2) Arsenic Removal Initiative

In line with the previous chapter which noted that wells contaminated by arsenic could either be treated or an alternate source of water could be found Flat Bay East commenced with an application in 2013 to have the arsenic removed from the contaminated well and got the required

approval in 2015. However, the engineering department of the Department of Municipal Affairs was unable to guarantee that the arsenic removal was going to be a success because the PH level in the well was slightly higher than the required standard.

An interviewee noted that the uncertainty surrounding the success of this initiative made the provincial government hesitant to provide the needed funding as it was a big project estimated at about $40,000CAD. The interviewees further noted that the community had considered drilling a new well but were hesitant because of the high probability of it being contaminated by arsenic. This correlates to a study by Rageh et al., (2007, pg. 2287) that noted that in building a new well as a result of arsenic contamination, "there is the risk that the new source will also be contaminated".

(3). Revenue Generation

Similar to the revenue generating strategy of Flat Bay West, a yearly water fee is levied on each household in Flat Bay East by the water committee. An interviewee explained that each household is charged $200 per year in the absence of major issues or repairs. However, major issues might require more financial commitment. The interviewee further clarified that the yearly fee paid by each household amounts to $15,000CAD per year and that the money has to be well managed so as to last throughout the year.

(4). Community Support

The strong will of the residents in contributing to water security in their own way can be seen from the payment of the annual water fees. Furthermore, Flat Bay East has a water committee

which consists of three members, all volunteers and who continuously keep striving to ensure that water security is maintained in the community.

4.1.3. St Teresa's

All of the interviewees (residents) from St. Teresa's confirmed that no action has been taken so far to rectify the water security issues in the community. As explained by an interviewee, this is partly due to the fact that majority of households have personal wells and are content with the water quality and quantity of their wells. However, there are other households without any source of potable drinking water and who rely on bottled water, water from the open spring in the community or have to fetch from houses with potable water.

4.2. Present Situation

4.2.1. Flay Bay West

There has been a long-term resolution of the challenges to water security in Flat Bay West and, according to the key informants interviewed, this has brought about a general consensus within the community that the water quality and quantity are of good value, suggesting water security. According to a community elder, the quality of the water supply is good and the quantity is sufficient. The well produces about 8 – 10 gallons per minute. This was buttressed by an interview participant who noted that the quality and quantity of the water supply was rated excellent and 100% by the yearly tests[17].

[17] This is highlighted in the preceding chapter, which stated that based on the last test; the drinking quality of tap water in Flat Bay West was rated as excellent according to the information on the water resources portal of Newfoundland.

By describing the water quality and quantity as impeccable, a community leader explained that the community is one of a minority of areas in the province, particularly smaller communities, without a boil water advisory in place. This is confirmed by a recent report on boil water advisories for public water supplies in Newfoundland and Labrador issued by the Department of Environment and Climate Change on 21st August, 2017 and which excludes Flat Bay West (Department of Environment & Climate Change, 2017).

4.2.2. Flat Bay East

Two of the three wells in Flat Bay East are fully functional, with good water quality and sufficient supply. However, the third well is on a non-consumption order as a result of arsenic contamination and the 25 households which rely on this well remain disconnected from potable water. Furthermore, four households outside of the town centre are not connected to the central water system and are often challenged by the drying up of their wells in the summer. The 25 households without potable water and the four houses with water challenges in the summer indicate water insecurity in the community.

4.2.3. St. Teresa's

Water insecurity in the community of St Teresa's is influenced by the lack of a communal well and further aggravated by the topography of land which provides some households with, clean water and others with brownish and unclean water. As stated in the preceding chapter, other contributory factors to water insecurity in the community are the lack of regular maintenance of the private wells by owners and lack of testing which is influenced by the high cost of testing and the absence of any accredited lab in Newfoundland and Labrador. Sarkar (2016) emphasizes the need for accredited testing of water in private wells at least once a year as the only way of

ensuring the drinking water quality of the wells and further advocated for the establishment of an accredited lab in the province which will be affordable and accessible to the public.

4.3. Outstanding Concerns

(i) One of the major concerns expressed by the interviewees in Flat Bay West was about the chlorine used in treating the water. These interviewees were of the view that the taste of water was disrupted by the addition of chlorine. This was clarified by the water operator in Flat Bay West who noted that the addition of chlorine was a requirement by the government and that had to be strictly adhered to. *"We add just a little to purify the water",* noted the water operator. The water operator further explained the need for a new chlorinator which the community could not afford.

(ii) The interviewees in Flat Bay East also expressed the concern that residents no longer want to go out to fetch water. These interviewees expressed the desire to have the arsenic from the contaminated well removed.

(iii) Majority of the interviewees in St. Teresa's (three participants) expressed a need for a communal well with potable drinking water as a top priority; a minority (one participant) expressed the need for a communal well only as an alternative source of water supply.

(iv) One interviewee in Flat Bay West expressed concern over the absence of fire hydrants in the community and expressed the need for the installation of fire hydrants to help fire fighters in the case of any fire emergency.

4.4. Challenges in Moving Forward

The central identified challenge in moving forward as stated by the interviewees in Flat Bay West is the lack of access to funding. A community leader in Flat Bay West noted that although there was already a long-term resolution of the water challenges in the community, the lack of financial capacity continued to be an hindrance and which would reflect in the case of any eventual breakdowns. *"Our major challenge now is moving forward and taking care of our water because if anything happens, we won't have access to funding from the government again*", the leader noted. The leader was however optimistic that over the next couple of years, increased economic growth and activities in the community would generate funding for the management of the water systems and would put an end to the lack of financial capacity to manage the communal water system presently experienced by the community. The leader also expressed the view that as a last resort, access to federal funding will also play an important role in assisting the community in managing its water system. The leader expressed as follows: "*with our history of being able to do so much with so little, the access to federal funding will go a long way in assisting us".*

The major challenge in moving forward as stated by the interviewees in Flat Bay East was the need to find ways for the arsenic to be removed from the contaminated well. A member of the water committee noted that although the water situation was not yet remedied, the water committee remains unrelenting in its efforts at finding a solution to have the arsenic removed. As identified by the interviewees, the financing and construction of a communal well was the major challenge in moving forward in St. Teresa's.

CHAPTER 5: DISCUSSION OF FINDINGS THROUGH A CRITICAL ENVIRONMENTAL JUSTICE LENS

5.0. Introduction

In this chapter, I present the findings from this research in relation to the three key elements of environmental justice outlined in Chapter 2. This chapter focusses on how distributional inequity, non-recognition of differences and lack of participation have played a role in the water situation in Flat Bay.

5.1. Distributional Equity

Although the interviewees were divided, a central theme that resonated during the interviews and has direct relevance to distributional equity was that of marginalization. Some of the interviewees linked marginalization to being Indigenous, which according to them has aggravated the lack of access to funding to carry out the regular maintenance of the water system in the community. These interviewees felt that the experienced water insecurity could have been better resolved if the communities were non-Indigenous.

An interviewee in Flat Bay West noted that the community lacked the necessary resources to support and maintain the communal water system because it was Indigenous and had no municipal legislation or water budget. This interviewee noted the peculiarity of the situation in Flat Bay West as a self-governed community and further pointed out that while other Indigenous communities with LSD's or town councils had access to funding and water budgets to resolve their water challenges, Flat Bay West had no access to such (except in the emergency situation experienced in 2014 and after considerable public pressure).

Similar sentiments were expressed by another interviewee who acknowledged that not being an LSD is a serious concern. The effect of this is best exemplified by the statement of a community elder, "*what happens when a resident of Flat Bay turns on the tap and no water comes out*? As a result of not being an LSD, Flat Bay West and St.Teresa's do not have access to amenities and finances available to LSD's. Another interviewee in Flat Bay West used the word "*negligent*" to describe the lack of attention by the federal government to ensuring a clean supply of water in Indigenous communities. This interviewee noted that despite an historical disconnection and contamination of the water supply to Indigenous communities, the federal government has not been forthcoming with solutions. This interviewee described as questionable the responsibility of the governmental department in charge of provision of potable water to Indigenous communities. As mentioned in Chapter 3, another interviewee attributed the compromised drinking water in St Teresa's to a lack of accountability and attention on the part of the government in taking care of it's people, particularly Indigenous people as regards water.

Other interviewees noted that although there were lots of other rural and Indigenous communities undergoing similar water struggles, they were uncertain as to if being Indigenous affected the security or otherwise of water in the community. These interviewees explained that since the responsibility of water management lies with the provincial government, water quality will be the same in all communities regardless of being Indigenous or not. This same position was maintained by the interviewed government officials who noted that other rural communities across Canada face similar challenges pertaining to water which could not be attributed to being Indigenous or not. These officials also highlighted lack of financial resources as a major challenge for the government in the provision of safe drinking water to rural communities across Canada. The magnitude of the existing water challenges in rural communities in comparison to

the available limited financial resources was acknowledged by one of the officials. According to the second official, *"only about 10-15% of all received water projects are approved due to financial constraints"*.

The identified theme of marginalization is not peculiar to Flat Bay as the extent of compromised drinking water quality in Indigenous communities across Canada is pervasive (Patrick, 2011). According to Patrick (2011), the rate of compromised drinking water quality is 2.5 times more in First Nation communities when compared to non-First Nation communities and this revolves around the inequitable access to safe drinking water for Indigenous people (Lam et al, 2017). The continuing marginalization of Indigenous communities in Canada with regards to potable water has been attributed to the place of residence and social status, "If you are First Nation living on reserve, the likelihood of having access to safe drinking water is greatly compromised*"* (Patrick, 2011. pg. 3).

The distributional inequity in the access to clean and safe drinking water between Indigenous and non-Indigenous communities in Canada is reflective of the decentralised water governance system in Canada (Mercer & Hanrahan, 2017). By decentralised water governance, a top-down water management hierarchical structure is implied with a multiplicity of institutions and involving delegation of responsibilities from senior to junior governments, more often than not, with limited resources to ensure water security (Mercer & Hanrahan, 2017).

Consequently, Indigenous communities such as Flat Bay continue to remain vulnerable to water insecurity. As revealed by this study, water insecurity in Flat Bay is centred on limited means and financial constraints in meeting up with infrastructural developments. The Flat Bay West struggled with water insecurity for more than 30 years until it lobbied its way through a

resolution in 2014. The situation in Flat Bay East is more precarious as 25 households are presently disconnected from potable drinking water and have been in this situation for seven years as a result of arsenic well contamination. Reports of water insecurity were also noted in four other households in Flat Bay East. Water insecurity also exists in St. Teresa's as some households have no access to safe drinking water. These are worrisome situations and Patrick (2011, pg. 1) has rightly noted that "the contamination of a public water supply in a developed country such as Canada is unexpected".

5.2. Recognition of Differences

Another theme that came up throughout the interviews was that of status and which an interviewee put forward as follows: "*Although Flay Bay was a federal responsibility, we continue to be non-recognized by the federal government*".

The non-recognition of the Indigenous status of Flat Bay under the Indian Act dates back to 1949 as stated in Chapter 3 and is further reflected in the recent Qalipu Enrolment Process, which has left many of Flat Bay members unrecognized as status Indians. The non-recognition of the Indigenous status of the community under the Indian Act has been a major setback to the efforts to resolve the water crisis in the community. The implication of the non-recognition of Indigenous status of the community translates to the undermining of Indigenous position, which results in the lack of eligibility to access federal funding to address water challenges. Furthermore, since Flat Bay West and St. Teresa's are not LSD's or municipalities as explained in Chapter 2, they remain ineligible to access provincial funding to manage their water systems.

In furtherance of the above referenced non-recognition, which has resulted in the ineligibility for federal funding by the community, various strategies are being explored to access funding for the

community. In a recent interview with the media, an elder in the community emphasized that since the community was ineligible to access funding like a LSD or municipality, an ideal option would be to have the federal government to "allocate a pot of money" directly to Flat Bay or to administer funding to the Flat Bay Band via Qalipu (Western Star, 2017). The elder further noted that the community might consider a pull away (separation) from Qalipu "as a last resort" if all other efforts to obtain funding for the community were exhausted (NTV News, 2017; Western Star, 2017). During the interview process, as noted in Chapter 4, a community leader highlighted that considering the prudency of the Band Council, the access to federal funding will be of invaluable assistance in addressing water challenges/maintaining the water system in the community: *"the access to federal funding will go a long way in assisting us"*, explained the leader.

Despite the diversity in terms of culture, language, identity, governance and traditions among First Nations in Canada, one thing that connects them all is water (McGregor, 2012). Water is regarded as a critical and scared element directly tied to the survival of Aboriginal people in Canada (Safe Water Project, 2016). This is recognized by the Assembly of First Nations in Canada, which has described the sacredness of water for Indigenous people in Canada as crucial and tied to the interconnectedness of all life (AFN, 2011). Therefore, water insecurity poses a potential threat to the traditional philosophies and Indigenous ways of life (McGregor, 2012).

Water is vital and extremely important for survival noted all the interviewees and similar to other Indigenous communities, water serves religious, ceremonious and cultural purposes in Flat Bay. The cultural connection of water to Flat Bay is evident in its Mi'kmaw name, Ewipkek which means calm waters. Furthermore, water serves a crucial role in the annual Powwow celebration hosted by Flat Bay. The 2016 Powwow witnessed the celebration of a traditional water

ceremony, which was to highlight the importance of water (Western Star, 2016). According to one of the interviewees, the traditional water ceremony is to give thanks for everything that water provides and to raise awareness that water should be kept clean and free from pollutants. The interviewee drew a link to the role of Indigenous people as care givers of water, protectors of mother earth and with a corresponding duty to respect and keep the water clean. The Flat Bay Powwow is one of the largest cultural and social Mi'kmaw gatherings in Atlantic Canada and which attracts thousands of people from all over Canada (Qalipu Website, 2016). Water is also used in heating the fire for the purification exercise of the sweat lodge, which is a major component of the Flat Bay Powwow, noted the interviewees.

Regrettably, the traditional knowledge and way of life of Indigenous people in many Canadian communities is gradually becoming eroded, as explained by White et al., (2012), and reliance on westernization and colonialism has brought about colonial encroachment on Indigenous homelands (Corntassel & Bryce, 2012). The consequence of this is the separation of Indigenous people from their place-based existence (pg.152). These oppressive forces of colonization have undermined Aboriginal worldviews, philosophies, traditional knowledge and forms of governance (Corntassel & Bryce, 2012; McGregor, 2008).

However, Indigenous people have the responsibility to continuously strive to pass on and maintain the traditional perspectives and worldviews (McGregor, 2009). This is evident from the commitment of Flat Bay to showcasing its Indigenous traditions via the yearly Powwow celebration. The backlash associated with the years of colonialism can be seen from the failed regionalization attempt carried out by Flat Bay West in a bid to resolve its water insecurity challenges as noted in the preceding chapter.

The reliance on the western approaches of science and technology in combating water security challenges in provincial and local communities has been described as limiting (McGregor, 2012). This reinforces the argument by Castleden et al., (2016) on the need for the recognition of differences in water management and the need to incorporate traditional knowledge in addressing water security challenges.

In this case, there is the need for the recognition of the traditional knowledge and Indigenous water culture of Flat Bay and could take the form of civic science also known as democratization of science in which democratic principles are applied to science. By so doing, a mutual blend between science and the local knowledge of the Flat Bay people with respect to water will be maintained. This buttresses the view of McGregor (2012) that the recognition of differences in water management and the incorporation of traditional knowledge in addressing water security challenges will bring about a mutual blend and collaboration between western science and traditional knowledge.

5.3. Participation

Despite the fact that water related issues disproportionately impact Indigenous communities in Canada (Castleden, 2016), Indigenous communities continue to remain marginalized as a result of lack of recognition and its attendant non-participation, among other contributory factors. This is evident from the Flat Bay case study where participation by the community in environmental decisions relating to water management is limited. With the exception of St. Teresa's with no form of representation or participation, the interviewees stated that participation by the community is solely limited to communication with government officials.

The interviewees in Flat Bay West noted that the community gets to meet and communicate with the provincial government via meetings initiated by the water operator or the Band Council. The interviewees in Flat Bay East noted that although the provincial government gets to monitor the water quality and provides a report of the carried out tests. There is really no need to contact the government except there is a major issue or challenge stated the interviewees in Flat Bay East. *"We really don't have anything to contact the government for except to apply and seek for grants*". The interviewees in St Teresa's noted that there was no form of participation through which the community liaises with the government on water issues.

This lack of representation was attributed by the interviewees to the absence of a water committee and this was further attributed to individual households owning water wells, although participation is limited for the two areas represented by a water committee as well. This lacuna buttresses a study by Vodden & Minnes, (2014, pg. 64) which emphasized the lack of communication with local actors and non-governmental organizations in the formulation of drinking water policy and guidelines and further suggested for more communication between various levels of governments "in a formalized setting" so as to better understand roles, responsibilities and challenges.

As earlier noted in Chapter 1, the water governance system in Canada is decentralized, with a fragmented structure that delineates responsibilities within the federal, provincial and municipal tiers (Cook & Bakker, 2011). This includes off-loading to smaller communities often with limited means (Hanrahan & Dosu Jnr, 2017; Mercer & Hanrahan, 2017), leaving these smaller communities (and in this case Flat Bay) vulnerable to water challenges (Mercer & Hanrahan, 2017). This has placed increased roles and responsibilities on community leaders and members (Norman et al, 2015, cited by Hanrahan, 2016).

As noted in Chapter 3, community members have played an increased role in the management of the water system in Flat Bay, which is dependent on volunteer community members. The Flat Bay West water system is managed by a volunteer 7-member water committee spearheaded by a water operator, while the Flat Bay East relies on a volunteer 3-member water committee. The implication of the lack of a communal well in St Teresa's is that there is no central water committee and this has placed increased responsibilities on households to ensure that their individual water systems are well managed and maintained.

While the provincial government monitors the water quality by carrying out routine tests, the water treatment via addition of chlorine is carried out by volunteer community members in Flat Bay West and East. The reliance on the use of volunteers by small communities has been described as unsustainable, partly due to aging population and financial constraints (Hanrahan & Dosu Jnr, 2017). This bears direct relevance to Flat Bay in general which is majorly comprised of an aging population. "*We are an aging population"*[18] noted a community elder in Flat Bay West. An interviewee in Flat Bay East also lamented the absence of a succession plan as a constraint to the management of the water system in the community by volunteers in an aging population. *"Two of the members of the water committee are elderly and advancing in age, I do not see them carrying on in future and people are not willing to take responsibility",* said the interviewee.

As demonstrated by this study, the reliance on volunteers is further impeded by inadequate water operator training arising from financial constraints. The water operator in Flat Bay West noted that he had over the years learnt through self-development and few courses via the Municipal Affairs. The leader of the community also elucidated on how inadequate training facilitated by

[18] See Table 2 above

the lack of funds eroded the confidence of the volunteers in the water system which had become complex during the 2014 crisis.

However, the good news is that in line with global calls for increased participation, there are ongoing efforts to incorporate Indigenous consideration into the decision-making processes that impact them. McGregor (2012) refers to this as "ongoing struggles to have Indigenous voices heard in decision-making processes that affect their lives, lands and water" (pg. 1). Indigenous communities are beginning to actively seek a voice and participation in policy making and this has been interpreted as the demand for a "place at the table" and the right to "speak for ourselves" (Schlosberg, 2004, pg. 522-523). There is the need for the government to adopt participatory policies which will bring about a "place at the table" and the right to "speak for ourselves" (noted above) for Indigenous communities, otherwise, communities such as Flat Bay will continue to remain marginalized and might not be able to participate in the decision making process related to their water management.

CHAPTER 6: LESSONS & CONCLUSIONS, CONTRIBUTIONS, RECOMMENDATIONS & FUTURE RESEARCH

6.0. Introduction

In this chapter, I discuss the contributions from the study, recommendations for policy makers and the government, the directions which future research could take and finally, I drew an overall conclusion by incorporating the central themes from this study and pointing out the lessons from the study.

6.1. Lessons & Conclusions

This study has investigated the efforts and capacity of Flat Bay at resolving the water challenges it faces/has faced despite substantial barriers and in doing so, examined the applicability of the environmental justice theory to the Flat Bay water situation. As highlighted in Chapter 3, capacity issues and constraints have been identified as central to the water insecurity situation in Flat Bay and which continues to hinder the efforts and steps to resolve the water challenges in the community. These issues relate to institutional, financial and human capacity constraints. Institutional and financial constraints relate to the lack of necessary infrastructural upgrades and inadequate financial base to maintain the water system. Human capacity constraints relate to inadequate volunteer training and aging population which hinders succession.

The identified capacity constraints in Flat Bay are an indication of the spate of insufficient capacity in Indigenous communities across Canada (Timmer 2007, cited by Hanrahan & Dosu Jnr, 2017). This reinforces the argument for the enhancement of local capacity as a catalyst for resolving drinking water challenges in Indigenous communities across Canada (Hanrahan & Dosu Jnr, 2017; White et al, 2012). The capacity deficit in Flat Bay as revealed by this study

buttresses a previous study by Mines & Vodden (2017) that the lack of sufficient capacity remains a constraint to water security in Newfoundland and that in order to address drinking water challenges in Newfoundland, local capacity must be enhanced (Mines & Vodden, 2017).

Despite a number of considerable steps and initiatives to resolve the water challenges in the Flat Bay community as identified in Chapter 4, only the Flat Bay West has been successful so far. The long-term resolution of the water security challenges in Flat Bay West has been attributed to the dynamic interplay of efforts between the leadership of the Band Council, strength of the water committee and a communal sense of togetherness.

The interplay of these efforts in bringing about the resolution of the water security challenges in Flat Bay West was described as tremendous by one of the interviewed government officials as noted in Chapter 4. According to the official, "*this is an interesting sort of dynamic, Flat Bay has good leadership, good sense of community and recognizes the importance of working together"*. Continuing further, this interviewee acknowledged that while "*other small and rural communities with proximity to Flat Bay face similar challenges, the strategic approach and effort of Flat Bay have made Flat Bay more successful than others in resolving its water challenges"*. This indicates a conscious and positive effort on the part of Flat Bay to resolve its water challenges and suggests that there must be a strong resolve and resilience by Indigenous communities as parts of the efforts to resolve water challenges they face.

As identified in Chapter 5, the environmental justice scholarship has featured as a central and applicable theme to the water issues in Flat Bay. This study has revealed the non-recognition of the status of Flat Bay under the Indian Act and the lack of or limited participation in the

environmental decision making relating to water and with the attendant inequitable distribution of water resources.

Present efforts and steps notwithstanding, this study underscores the need for local capacity to be enhanced, cultural differences to be recognized by the government and the boosting of the present limited participation by Flat Bay in the environmental decision making process relating to water for the challenges to water security in Flat Bay to be fully addressed.

6.2. Contributions

(a) Theoretical Contributions

As stated in Chapter 1, this study recognizes an existing literature deficit, with little known about how some Indigenous communities are approaching and resolving their water security challenges. By investigating the steps and efforts of the Flat Bay Indian Band to resolve its water challenges, this study presents a novel and unique contribution to the scarce literature on the efforts of how some Indigenous communities are resolving the water security challenges they face. As identified in Chapter 4, this research has shown that a number of steps and initiatives were adopted by Flat Bay with a view to resolving the water challenges it has faced and experienced.

This study also contributes to the environmental justice scholarship discourse, a theory which was traditionally limited to environmental pollution and the siting of dump sites in minority communities, by extending the application of environmental justice to the Flat Bay water situation. The application of the environmental justice framework to the Flat Bay water situation was carried out via the three elements of environmental justice explained in Chapter 2 as distributional equity, recognition of differences and participation. These three elements were

further discussed in Chapter 5 in relation to the identified themes of marginalization, status and recognition, which arose from the available data sources.

(b) Practical Contributions

This study offers practical contributions by providing insights which other small, rural and Indigenous communities facing water challenges can tap into on how to resolve their water challenges, particularly by drawing experience from the Flat Bay West where a long term resolution of the water challenges in the community has been attained. Two key recommendations based on these insights are provided below.

6.3. Policy Recommendations

(1). There is the need for practitioners, policymakers and the government to be cognizance of the uniqueness of status and cultural identities of Indigenous people with regards to water. Water serves religious and cultural purposes for Indigenous people and water insecurity threatens the unique relationship of Indigenous people to water. Consequently, policies that incorporate both Indigenous knowledge on water and that of western science should be considered.

(2). Policy makers should seek to adopt decision-making processes that will incorporate Indigenous participation in regards water. Indigenous communities should have a say and be carried along in environmental decisions that affect and impact them. This could take the form of a consultative and feedback approach. Indigenous communities will continue to be susceptible to marginalization if they have no voice in decision-making.

6.4. Future Research

(1) Although the scope of this study was restricted to the efforts and capacity of Flat Bay in resolving its water challenges, future research could be directed at investigating how other Indigenous communities are resolving their water challenges since little is known about how some Indigenous communities are resolving their water challenges. It is pertinent to consider how other Indigenous communities are approaching and resolving the water security challenges they face since existing literature on this aspect of water security is in deficit.

(2) This study has canvassed for the incorporation of Indigenous participation in environmental decision making and building on that, future research could be directed towards the ways and steps on how to facilitate Indigenous participation in decision-making. Indigenous communities should be carried along and consulted before environmental decisions and policies affecting them are made/implemented, otherwise, Indigenous communities will continue to remain vulnerable to environmental injustices.

(3) Furthermore, the environmental justice framework can also be potentially applied to investigate water challenges or other perceived environmental inequalities in other small, remote, rural and Indigenous communities. This is an important consideration because the environmental justice framework has proven to be a useful tool for investigating environmental injustices.

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Appendix 1: Interview Questions for Residents Key Informants

1. What is the source of the water supply to your community? (well, groundwater, surface water etc)
2. How important is drinking water to your community? Perhaps, a special connection to water (If any)?
3. How would you describe the quality and quantity of your local drinking water?
    - Are you content with the drinking water quality in your community?
    - Do you like the taste/appearance?
    - Has your opinion on the drinking water quality in your community changed overtime?
4. What are the positive aspects of the publicly supplied water in your town?
5. What have been the challenges your community has faced in the past or is facing regarding drinking water?
    - For how long have these challenges been in existence?
    - Can you state or describe what efforts that have been carried out to remedy each of the stated challenges?
    - How has the community fared/carried on since then? (present situation)
    - What would you consider the most recent challenge (s) for your community's drinking water supply?
6. In your view, are there any negative impacts of the challenges with public drinking water on your town? (impacts can be economic, social, environmental etc)
7. Do you have suggestion or suggestions on how the present water system in the community could be improved?
8. How would you consider the water quality between Non-Indigenous and Indigenous communities?
9. To what extent does the Flat Bay community have representation in decisions affecting its water management?
10. Do you think being indigenous affects your community's drinking water quality and supply?
    - If yes, in what way?
11. In the next 10 years, how would you like to see the water system in the community?
12. Is there anything else you would like to add or comment on?

Appendix 2: Interview Questions for Government Officials

1. Which government oversees the provision of water for Indigenous communities? (Federal, provincial, municipal etc.)
    a. Is there any specific governmental department in charge of provision or management of water for Indigenous communities?
    b. If yes, which department?
    c. Any overlap in functions?

2. Are you aware of the water crisis experienced by the Flat Bay community? If yes, what year was this crisis?
    a. What will you describe as the cause of the water crisis?
    b. What has the government done to help in this regard?
    c. Any idea as to the present situation / how the community has progressed since then?
    d. What is the government doing to address the lack of clean, safe drinking water in Indigenous communities across the Province?

3. What will you consider the post water crisis management plan for communities or Indigenous Communities by the provincial government?
4. How would you consider the water quality between Non-Indigenous and Indigenous communities?
5. To what extent would you say that the Flat Bay community has representation in decisions affecting its water management?
6. What are the challenges faced by the government in providing clean, safe drinking water to Indigenous communities?
7. What suggestions would you proffer on how Indigenous communities can better and effectively manage their water systems?
8. Any other comment?