



September 2012

Water and Indigenous Peoples: Canada's Paradox

Jerry P. White

Western University, white@uwo.ca

Laura Murphy

Western University, lmurph33@uwo.ca

Nicholas Spence

Western University, nspence@uwo.ca

Follow this and additional works at: <http://ir.lib.uwo.ca/iipj>

 Part of the [Inequality and Stratification Commons](#), [Politics and Social Change Commons](#), and the [Public Policy Commons](#)

Recommended Citation

White, J. P., Murphy, L., Spence, N. (2012). Water and Indigenous Peoples: Canada's Paradox. *The International Indigenous Policy Journal*, 3(3). Retrieved from: <http://ir.lib.uwo.ca/iipj/vol3/iss3/3>

DOI: 10.18584/iipj.2012.3.3.3

This Policy is brought to you for free and open access by Scholarship@Western. It has been accepted for inclusion in The International Indigenous Policy Journal by an authorized administrator of Scholarship@Western. For more information, please contact nspence@uwo.ca.

Water and Indigenous Peoples: Canada's Paradox

Abstract

The condition of water safety and quality on reserve has been a growing concern in Canada. Despite a substantial amount of funding allocated toward improving water infrastructure on reserve, an alarming proportion of communities face boil and drinking water advisories. To understand why this paradox and problem persists, this article will work through the issues and nuances that have created unsafe drinking water on reserve, proposed remedies, and policy implications. To do so, the role of the Government of Canada is reviewed first because reserve land is under federal jurisdiction. Following this, the article will discuss the standpoints of the Assembly of First Nations and other Indigenous groups on the water crisis, and will draw upon focus groups within First Nations that we conducted. To contextualize the water issue on reserve in Canada, a comparison with the United States is then drawn.

One of the main themes of this paper with regard to the issue of safe drinking water on reserve is how the legacy of colonization has limited community capacity. This theme is then discussed in depth by comparing Indigenous to non-Indigenous communities, looking to the social determinants of water quality, and possibilities and limitations of building sustainable development allowing for safe drinking water on reserve. To understand what processes consistently intervene in the way of sustainability of safe water in Indigenous communities, regulatory frameworks are examined, funding mechanisms are reviewed, and Aboriginal governance is discussed along with the direction that policy should take.

Keywords

water, Indigenous, community capacity, capital, sustainable development

Acknowledgments

The research that supported this paper was funded by a strategic grant from the Social Science and Humanities Research Council: May 2009 –“The Social Determinants of Safe Water and Community Wellbeing in Aboriginal Communities.”

Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-No Derivative Works 4.0 License](https://creativecommons.org/licenses/by-nc-nd/4.0/).

Water and Indigenous Peoples: Canada's Paradox

Canada is in a very fortunate position given it has approximately 9% of the world's renewable water supply and less than 0.5 percent of the world's population (Biro, 2007; Natural Resources Canada 2007). However, not all Canadians have regular, protected access to safe drinking water. Specifically, we find that true for the Indigenous peoples of Canada, particularly for First Nations and Inuit¹. If this issue were simply a matter of funding shortfalls, the problem would be more easily solved. However, it is not simply about dollars. Since 1996, Canada has spent over 2.5 billion dollars in Indigenous communities building new or improving existing infrastructure. More than 50% of that funding has been spent since 2006. In June 2011, the Auditor General of Canada reported that, "...First Nations' reserves may still be years away from having drinking water protection comparable to what exists off-reserve in Canada" (Auditor General, 2011, Section 4.34). The most recent data indicates that, "...more than half of water systems on reserves still posed a medium or high risk to the community members they served" (Auditor General, 2011, Section 4.34). Demonstrating this, several severe situations have come to the public's attention over the last few years. In October 2005, the community of Kasheshewan in northern Ontario had to be evacuated because of bacteria in the water system. In late 2011, the community of Attawapiskat came into public view for poor housing as well as water problems. As of August 2012, 119 communities, out of over 600 First Nations communities in Canada, were under water advisories requiring residents to either boil their water or to heed 'do not drink warnings' (Health Canada, 2012).

Technology is also not the issue. We have the capacity to deliver clean water and treat wastewater anywhere in this country². Canada is an advanced industrial country with one of the highest standards of living and United Nations development index ratings (White, Beavon, & Spence, 2008) and an enviable level of technological development. Given this, we should not see a significant section of the population facing problems accessing safe drinking water. This paper examines the current understanding of why this problem exists, the current proposals on the table to deal with this problem, and our analysis of which policy directions should be explored.

Stakeholders Views of the Water Problem and its Solution

Recently, global movements have emerged to advocate the right to safe water (Knight, Hartl, & World Health Organization, 2003; United Nations, 2010). One of the most influential statements driving these movements is the United Nations' (2000) Millennium Declaration. This declaration addresses the safe drinking water issue by calling for environmental protection, sustainable development, and the maintenance of sufficient and safe resources for all peoples. In the ten years since the declaration, availability of safe drinking water worldwide has improved in rural areas (United Nations, 2010). Overall, the gap between rural and urban access to water has been closing, but the "safety of water supplies remains a challenge and urgently needs to be addressed" (United Nations, 2010, p. 58). However, while the issues regarding the availability of safe drinking water are global, the primary focus of the UN's call has been in developing nations (United Nations, 2010). Safe drinking water is assumed to be universally accessible within countries in the global North, such as Canada. Nonetheless, public media accounts, research, and government reports have recently been released reporting

¹ In Canada, there are three main groups of Indigenous peoples who are collectively called Aboriginal peoples. The largest group is First Nations; some of whom have legal status as 'Indians' under the Indian Act and Constitution, which gives them rights to reserve lands. The Inuit are Indigenous peoples who traditionally lived in the Arctic regions. The Métis peoples are those with mixed North American Indian and European ancestry.

² We recently talked with the Vice President Research of one of the world's leading water treatment corporations and she said that we have the capacity to deliver safe water to every Indigenous household for cost of an HD color TV (personal communication, May 10, 2012).

on real problems regarding drinking water for Indigenous people's communities in Canada (Auditor General, 2011; Simeone, 2010).³

The processes that maintain the current crises, critiques of these processes, and recommendations for moving forward have been discussed by Indigenous people's organizations, responsible government agencies, auditors and commissions, academics, as well as non-governmental organizations. All have all put forward their interpretation of the issues, along with proposals on how to proceed. In this section of our paper, we will present a brief overview of these views. In the section following, we will outline our conclusions on the issue and our policy proposals.

Government of Canada

In Canada, there is a complex system of water regulation. Dating from 1763, the Crown (now Federal Government of Canada) has assumed responsibility for "Indians and lands reserved for Indians⁴." For all others in the country, water and wastewater are normally the responsibility of provincial and territorial governments. Three federal departments are responsible for delivering safe drinking water to Aboriginal communities: Aboriginal Affairs and Northern Development Canada (AANDC), Health Canada, and Environment Canada.

AANDC (2010) "...provides advice and funding assistance for the design, construction, operation, and maintenance of water and wastewater systems. It also provides funding for the training and certification of water system operators" (p. 5). Next, "Health Canada works with First Nation communities south of 60° latitude to identify potential drinking water quality problems, including: verification monitoring of the overall quality of drinking water, and reviewing, interpreting and disseminating results to First Nations; providing advice, guidance and recommendations about drinking water safety and safe disposal of onsite domestic sewage; and reviewing water and wastewater infrastructure project proposals from a public health perspective" (AANDC, 2010, p. 5). Finally, "Environment Canada provides advice and guidance material in the areas of source water protection and sustainable water use" (AANDC, 2010, p. 6).

The government's position is that they provide funding, while the First Nations is responsible for delivery. Chiefs and band councils are responsible for designing, building, and operating their water systems. They receive full capital funding for projects that AANDC approves and 80% of "...of operating and maintenance costs" (Simeone, 2010, p. 2). The community is responsible for the remaining 20% of costs. In addition, communities are "...responsible for ensuring that water systems are operated by trained operators as well as for monitoring drinking water quality through effective sampling and testing programs" (Simeone, 2010, p. 2). Health Canada verifies that they are monitoring the water supply, but First Nations' themselves issue 'Drinking Water Advisories' (DWAs) in their communities, as advised by Health Canada (AANDC, 2010).

The federal initiatives 2003 - 2012: AANDC and Health Canada. In response to a growing number of complaints and emergencies regarding threats to safe drinking water, the Federal Government of Canada developed the First Nations Water Management Strategy (FNWMS) (AANDC, 2003). The strategy was a five year, 600 million-dollar program aimed at dealing with issues from source of water to consumption at home. It was targeted at both drinking water and wastewater treatment. In March 2006, a Plan of Action for Drinking Water in First Nations Communities was put forward that would guide spending of the remaining FNWMS funding and commit a further \$60 million for the post-2008 period. The Action Plan was aimed at

³ In the balance of this paper, we will use the term 'First Nation' when describing Indigenous peoples in Canada. This is the term these communities use to describe themselves and government documents utilize this term.

⁴ First Nations and Inuit have been historically been referred to as 'Indians' in both the United States and Canada. The term 'Indian' is in the Constitution, but current best practice has been to talk about 'Aboriginal,' 'Indigenous,' or First Nation, Métis, or Inuit peoples. Federal responsibility is outlined in section 35 of the Constitution Act (Department of Justice, 1982).

reducing risk in Aboriginal communities and targeted 193 high-risk water systems (AANDC, 2008b). This plan included:

- “The Protocol for Safe Drinking Water for First Nations Communities... standards for the design, construction, operation, maintenance, and monitoring of drinking water systems in First Nations communities and is intended for use by First Nations staff responsible for water systems” (AANDC, 2006, p. 1);
- Mandatory training for all treatment-plant operators and a regime to ensure that all water systems are overseen by certified operators. Various initiatives such as remote monitoring of water systems and the contracting of independent certified operators to provide necessary oversight will be put in place;
- Complete specific remedial plans for First Nations communities with serious water issues, starting with the 21 communities most at risk;
- A panel of experts to advise on the appropriate regulatory framework, including new legislation, developed with all partners; and
- A clear commitment to report on progress on a regular basis (AANDC, 2006).

Furthering this plan of action, an expert panel was put in place to focus on the issue of legislative and regulatory frameworks (AANDC, 2008a). This was the result of a 2005 report by the Auditor General that pinpointed regulation as a key problem (Auditor General, 2005; 2011). In addition, the federal government made three substantial financial commitments to increase funding for safe water on reserve. In the 2008 budget, \$330 million dollars were promised over two years; in 2009, \$165 million was earmarked for specific treatment projects; and in 2011, a further \$330 million was guaranteed.

Over this period, changes were also made to the Plan of Action, which included:

- A national engineering assessment to determine the state of existing water and wastewater facilities. The assessment, to be completed in 2009, was to propose solutions for every First Nations community in Canada;
- Consultations on a new federal legislative framework for safe drinking water;
- Doubling the funding for the Circuit Rider Training Program in an effort to increase the number of Circuit Rider trainers from the current level of about 44 to over 70;
- AANDC (formerly called Indian and Northern Affairs Canada or INAC) would modify existing policies and develop a protocol to facilitate investments in small water systems, such as individual and community wells, trucked water, septic systems, or agreements with neighboring municipalities to buy or provide water or wastewater services;
- Investments in a National Wastewater Program; and
- Waterborne illness procedures (AANDC, 2008a).

Each year of the Action Plan, the Government has reported on what it sees as achievements. By the 2010 report, the government identified some of the following updates:

- Out of the initial 21 communities with high risk drinking water systems, only 3 remain high risk;
- Compared to 193 communities identified in 2006, 49 community drinking water systems have been identified as having high risk water systems, which is an increase of one from the 2009 report;
- Since 2006, there has been a decrease from 224 to 132 communities with high-risk drinking water systems and/or advisories;
- The protocol has been further developed to include Health Canada's (2007) Procedures for Addressing Drinking Water Advisories in First Nations Communities South of 60 ° and Environment Canada's guidance on source water protection;
- A 24-hour hotline and emergency support has been available to all First Nations since December 2006;

- The expansion of the Circuit Rider Training Program⁵ is underway, and includes plans for hiring additional trainers;
- Decentralized systems protocols for water and wastewater;
- Engagement sessions held with First Nations, regional First Nations organizations, and provincial and territorial governments, regarding proposed development of a legislative framework for water.
- A national engineering assessment of water and wastewater systems for First Nation communities (AANDC, 2010).

In 2010, the federal government introduced Bill S-11 aimed at creating the federal regulations that would cover the safety of drinking water on First Nation lands (Assembly of First Nations (AFN), 2010). That legislation sparked a lot of opposition. It died on the order paper and in February of 2012 new legislation was introduced in an attempt to address the critics (Canadian Press, 2012). We discuss these two initiatives further in a later section.

The expert panel. As part of the plan to address the serious problem of water quality, the government organized the Expert Panel for Safe Drinking Water for First Nations (Swain, Louttit, & Hruddy, 2006b). Their primary mandate was to examine options for regulatory frameworks. As mentioned above, in Canada, water quality and safety is largely in the provincial jurisdiction (or delegated to municipalities). The panel did some consultations with Aboriginal communities,⁶ organizations, and individuals, and conducted their own research on these issues. Concerning their primary focus of legislative framework, they indicated that success required:

- The existing multi-layer, multi-organizational, multi-level responsibility structure be clarified because the responsibilities of each stakeholder were unclear and the roles of the different players were not well understood, which created accountability gaps and problems on the ground;
- Proper in-depth consultations with First Nations were essential in the creation of chosen frameworks;
- The resource gap had to be closed, including the 20% that communities had to ‘find’ in order to build, operate, and maintain systems (Simeone, 2010; Swain et al., 2006b). Communities being forced to meet new high standards, without the human capital, expertise, and resources needed to do so, was only exasperating existing problems; and
- Particular attention needed to be paid to the high-risk communities.

The panel then pursued five legislative options for ensuring safe drinking water on reserve. They are:

- Applying provincial laws on reserve;
- Federal regulations in line with statutes, including federal laws empowering First Nations to pass water legislation;
- “... A new federal Act”;
- Adopting provincial water laws in federal legislation;
- “First Nations jurisdiction and customary laws” (Simeone, 2010, p. 6).

The first two options listed, despite the potential to be incorporated easily and quickly, were rejected by the panel (Simeone, 2010). “The remaining three options – creating a new federal Act, incorporating provincial water laws, and applying First Nations jurisdiction – were deemed most workable” (Simeone, 2010, p. 7). Of these three, the panel preferred a new federal statute establishing

⁵ The Circuit Rider Training Program makes available experienced water system operators, called Circuit Riders, to communities for on site support.

⁶ It should be noted that the panel made it very clear that they were not set up to do extensive consultation; rather, they were to identify legislative options, roadblocks to their implementation, and issues that impacted water quality (Swain et al., 2006a).

one water standards body. The panel felt that applying customary law could create “uncertainty, both in terms of how to get a comprehensive modern water regime and how long the process might take” (Swain et al., 2006b, p. 59).

The issue of the role of Indigenous peoples in this framework received some attention. One very important issue raised was the idea of an Aboriginal water commission that would provide Indigenous oversight. They noted that, “the commission and an associated appeals tribunal, would be responsible for inspections and holding particular parties, including federal Agencies, to account. The view of the panel is that this would help to bind the current multi-party system and shift the enforcement of rules away from the funding providers...” (Simeone, 2010, p. 8). In the end, Canada appears to have adopted the creation of new federal legislation. We will return to this issue in the discussion of our policy directions.

The Auditor General of Canada. The Auditor General of Canada (Auditor General) provides one form of periodic overview for government departments and the Auditor General has been monitoring safe water for Aboriginal peoples over the last decade. In 2005, the Auditor General’s office⁷ investigated drinking water on reserves and reported that, “...First Nations communities did not benefit from a level of drinking water protection comparable to that available to people living off reserves because provincial legislation and regulations are not applied on reserves. Consequently, First Nations communities did not have a regulatory regime to govern drinking water” (Auditor General, 2011, Section 4.24). The mechanism used by AANDC and Health Canada is ‘contribution agreements’, which are contracts for every service provided that outline the funding to be given and responsibility of the community in the program. Communities were required to make many reports on the use of the funds. This form of control on quality was deemed by the Auditor General to be inadequate for protecting quality. The 2005 report notes that, “there were no statutes or regulations to require monitoring of the quality and safety of drinking water on reserves” (Auditor General, 2011, Section 4.24). Further, the report called for the development of such regulations and legislated standards. They also found that the accepted Guidelines for Canadian Drinking Water Quality were not enforced for activities like testing (Auditor General, 2005). Even AANDC, in their own reports, noted that in 2005 there was “...a significant risk to the quality or safety of drinking water in three quarters of the drinking water systems on reserves” (cited in Auditor General, 2011, Section 4.24).

The Auditor General requested that the Federal Government take two major steps:

- INAC (now called AANDC) and Health Canada implement a regulatory regime for drinking water in First Nations communities; and
- Health Canada, in consultation with INAC, ensure that all drinking water tests be carried out, that test results be properly recorded and shared, that situations where drinking water was not safe be identified and the necessary measures for each situation be defined, and action be taken by responsible parties as required (Auditor General, 2011).

In June 2011, the Auditor General (2011) released a report where they outlined their evaluation of the progress to date by responsible government bodies. According to their report, two key issues for the Auditor General remain: (a) the creation of a legislated, regulatory framework that will force the proper funding for water systems through AANDC; and (b) the implementation of a workable, accountable water testing program by Health Canada.

The Auditor General wants the regulatory framework to be developed through a consultative process that involves Aboriginal communities. The Auditor General’s (2011) report assesses the progress made on recommendations from 2005 and notes that, “First Nations reserves may still be years away from having drinking water protection comparable to what exists off-reserve in Canada. As of March 2010, more than half

⁷ To be precise, it was the Commissioner of the Environment and Sustainable Development in the auditor’s office, but for simplicity we shall use Auditor General.

of water systems on reserves still posed a medium or high risk to the community members they served” (Auditor General, 2011, Section 4.34). Further, “there are still no legislative or regulatory regimes applicable to First Nations reserves, and putting these in place will take time and collaborative efforts” (Auditor General, 2011, Section 4.34). The report does note that due to the complexity of the issues involved that AANDC had made satisfactory progress toward this goal. However, the report also noted that the progress of Health Canada on improving water monitoring and testing was ‘unsatisfactory.’ Monitoring drinking water quality and safety in First Nations communities is unevenly required and it is mandated only through individual agreements between Health Canada and the First Nations (Auditor General, 2011; Morales, 2006).

The Senate Standing Committee on Aboriginal Peoples. The Senate Committee issued a report in 2007 that examined the situation on reserve with regards to safe drinking water. The committee found many of the same issues to which the Auditor General had pointed; but, in addition, they questioned the authenticity of the AANDC progress reports. In particular, they “expressed strong concern that Parliament is not receiving full and accurate information about the quality and safety of drinking water on reserves” (cited in Simeone, 2010, p. 10). They called for “...an independent needs assessment of both the physical assets and human resources of individual First Nations communities in relation to the delivery of safe drinking water, and the tabling of that assessment in Parliament” (cited in Simeone, 2010, p. 10). The Senate Committee also saw a regulatory regime as important, but not a means of solving the problem if the First Nations had no financial or managerial capacity to operate within the regulations (Simeone, 2010).

Aboriginal Organizations and Communities

Assembly of First Nations (AFN). In Canada, the AFN is the largest and most influential of the organizations representing First Nations. It is a national organization that has delegates⁸ from the vast majority of First Nations across Canada. At its national meetings, resolutions have directed the AFN to advocate for the protection of water rights and push for consultation and accommodation of Aboriginal viewpoints. When we review the last ten years of AFN position papers, we find a striking pattern that follows the mandate they have been given by their member nations. That mandate is to “...advocate for the protection of water rights and the right to be consulted and accommodated” (AFN, 2012, p. 1). The problems that reoccur are simply stated: the lack of adequate capital resources, need for training and development of management capacity to run the increasingly complex First Nations infrastructure, the shortfall in operating funding, and the lack of adequate on-going consultation at the local, regional, and national level.

The problem is not simply fresh, clean drinking water, which involves issues of turbidity and contamination, as well as accessibility. It also involves wastewater and sewage. In a 2005 report, the AFN pointed out that, “...wastewater management, particularly sewage, is especially problematic for First Nations. This problem is not just about how others dispose of their sewage and how this affects our lands and waters, but how inadequate our own wastewater systems are on our reserves. ... 75% of the 740 water treatment systems on reserves and 70% of the 462 wastewater treatment systems on reserves posed a medium-to-high risk to drinking water and wastewater quality” (AFN, 2005, pp. 4-5).

In response to issues concerning regulation, the AFN has endorsed a different path. Essentially, their position is that water should be under the control and jurisdiction of the First Nations themselves. In their view, this comes from constitutional rights and signed treaties. Therefore, they have opposed the wholesale move for provincial regulatory regimes to be implemented on First Nations lands. Alternatively, they have suggested that, through consultation, a federal safe water regime be developed and this be implemented as an interim measure. They see this as temporary until First Nations are given governance of their water systems (AFN, 2007).

⁸ Under the Indian Act, First Nations must elect their leaders, including a chief and band council, every two years. The delegate to Assembly of First Nations congresses is the chief, or his or her stand-in.

They have also responded negatively to the first version of legislation Bill S-11, put in front of Parliament in 2011. Their opposition centered on three main issues (AFN, 2011):

- The bill was introduced as a health and safety issue, which ignores the various commissions and inquiries that have recommended the federal government close the resource gap;
- The bill impacts Aboriginal rights; and
- There was inadequate consultation carried out before introducing the legislation.

The rights issue is very complex. The first draft bill indicated that the federal cabinet has authority to determine the extent to which the Crown may abrogate and derogate treaty rights in pursuing the safety of water. Essentially, if it was a safe water issue, and the First Nations did not agree to government intervention proposals, Canada could set aside First Nations rights and do as they felt necessary. It also says that the government can force First Nations into agreements with third party providers (at whatever cost Canada sets), and enables the federal government to apply any or all provincial regulations to First Nation communities as needed to protect water. The AFN (2011) sees these powers in direct contradiction to Section 35 of the Constitution of Canada, which guarantees Aboriginal rights.⁹

As we noted above, on February 29th, 2012, the Government of Canada introduced new water legislation in response to criticisms of Bill S-11. Government spokespersons argued that the new legislation would differ from S-11 in the following ways:

- Addition of language in the preamble on the government's commitment to work with First Nations on the development of future federal regulations stemming from the legislation;
- Clarification that any regulation on source water on First Nation lands would be to protect it from contamination;
- Clarification that regulations would not include the power to allocate water supplies or license users of water for any purpose other than the purpose of drinking water;
- Clarification that only the powers necessary to effectively regulate drinking water and wastewater systems would be conferred on any person or body;
- Removal of language that could be interpreted as powers to compel First Nations into an agreement with third parties to manage water and wastewater on First Nation lands;
- Clarification that third parties that own systems on First Nations lands, not First Nations, will be held liable in case of problems;
- Clarification that the legislation could apply to First Nations that are signatories to self-government agreements at their request; and
- Inclusion of a non-derogation clause addressing the relationship between the legislation and Aboriginal and treaty rights under Section 35 of the Constitution Act, 1982 (AANDC, 2012).

This proposed framework addresses the three main criticisms from Aboriginal Peoples including direct rights infringement, transfer of responsibility from third party providers to First Nations communities when they are not in charge, and the right to impose third party providers. However, the issue of consultation remains vague, as does the particular role of each provincial government.

Other Aboriginal organizations and communities. It is hard to determine what the general sentiment is in First Nation communities concerning water systems.¹⁰ However, there are some indications. Submissions to the expert panel were relatively consistent. Commentaries indicated that individuals felt their systems should be improved to produce water of similar quality to non-Aboriginal communities. Few non-anecdotal studies

⁹ For a discussion of constitutional and treaty rights for Aboriginals, as well as regulations in force in Canada, see White, Maxim, & Beavon (2004).

¹⁰ See Spence (2012) in this special edition for further information on this issue.

exist, but the press has been full of commentaries that indicate First Nations people feel they have been denied the right to safe water. Helen Fallding (2010) did a long series in the Winnipeg Free Press where she attempted to chronicle some of the realities and attitudes of First Nations regarding water issues. She reported that people have little control in their communities, safe water is really a treaty right that has not yet been delivered (although that remains to be tested in court), and people do not trust the water they receive. Survey studies tend to substantiate the views expressed in media reports. In late July 2009, EKOS Research Associates (2009) were commissioned by AANDC to do a survey to gain "...insight into the views of First Nation on reserve populations with regards to the safety of their drinking water" (p. iii). Their findings were clear:

- First Nations peoples have much lower confidence in their drinking water quality than non-First Nations.
- "Fewer than half of the First Nations residents rated the quality of their water as 'good' and ...one quarter consider their drinking water quality to be poor" (EKOS Research Associates, 2009, p. iii).
- In terms of safety, 3 of 10 thought their water was safe, 4 out of 10 thought it somewhat safe, and 3 out of 10 feel their water is unsafe.
- People's lack of security led to less use of tap water for cooking and, particularly, for drinking;
- Only 55% of the homes surveyed had water delivered to their home; 19% used a cistern and 17% used wells. Others had no sources listed.

The overarching message from the survey and anecdotal reporting is that individual First Nations, and their citizens, have concerns about their water and have a different experience with drinking water compared to other Canadians, including those in rural settings. EKOS Research Associates (2009) reported 98% of Canadians believe they get enough water delivered to their homes and over 60% are very pleased with the quality.¹¹

As part of our study, we conducted several focus groups that included residents of northern First Nation communities. These groups helped to give our team a clearer understanding of how First Nations individuals view water issues around them. We identified several key sentiments.

First Nations individuals do not feel they play any role in the decisions about investments in water infrastructure. "T's views were typical of what we heard:

"Well we don't have any say in it. Indian Affairs dictates to us. No matter if we said don't spend the money on that, we want a treatment plant. We ain't got no say."

'G' echoed the same sentiment:

"This is not going to change as long as we are under the Indian Act. Look what they are doing in Attawapiskat; the people don't want what they are doing, but they are doing it. The people up there know where the community should be, but Indian Affairs doesn't care."

When investigations are done, citizens are not privy to the reports. 'C's comments reflect this:

"When they did the survey, I don't know what they did with it. In regards to the water wells and other sources of drinking water, I don't know what they did with the survey. What they found out. ... [All I was told] it was not going to be enough to continue; we will eventually have to take water from the river."

There are disconnects between chief and band council, on one hand, and community members, on the other. Sometimes, this is simply a problem related to information flows and, other times, it relates to the faith citizens have in their leaders.

"One of my concerns is that we only have one water source in place, the water plant. If something were to happen to that supply, we would have no backup supply. One thing I would like to do, when

¹¹ The over 30% of those not pleased cited taste issues not safety.

these reports are done, is to present them to band council and get them to start concentrating on our water, it is very important. Because if we do not have the resources to back it up, enough with expanding on buildings. I think water is the number one concern.” (Focus group 2, participant 1)

“But the Chief should know, if ____ takes pride in [this] community, ____ should know what the water system is about. I mean our chief and council need to know what is going on, and that they are on top of things like that. Sure you have your directors and managers, but you need to have chief and council to be accountable to the people and to work with the community to ensure there is water quality in the community, and get a secondary system in place. You see what I am saying though?” (Focus group 1, participant 1)

People have some awareness of the crises and high-risk communities, particularly those in close proximity. There were some graphic commentaries such as from ‘R’:

“It is so polluted that the children that play in the water come out with sores on their legs. But you have to remember where they are located, in the middle of chemical valley. We have Rama and Georgina Island are suffering from nutrient loading in the lake. And now they have to come up with the Simcoe River Action Plan...” (Focus group 1, participant 2)

The work on water systems that is done is not always top quality. Focus group participants pointed out examples of decisions and work that simply was substandard:

“I am surprised that water continues to run in the winter. We complained about how the pipes were installed. Boulders the size of these tables were put against the pipes, with fill. That should be all redone.” (Focus group 1, participant 2)

Very Brief Comment on the United States

Current situation. While most tribes have some forms of self-governance, the federal government is in charge of creating and enforcing water legislation in tribal communities (Swain et al., 2006b).¹² Overall, water regulation in Indigenous communities in the United States shows some similarity with Canada,¹³ in that there are multiple governing bodies responsible for water quality: the federal government, the U.S. Environmental Protection Agency (EPA), and the Public Water System Supervision (PWSS). Specifically, “drinking water quality is regulated by the federal Safe Drinking Water Act (SDWA), which was first enacted in 1974 and amended most recently in 1996” (Swain et al., 2006b, p. 44). The U.S. EPA is responsible for establishing and implementing drinking water regulations and standards. The U.S. EPA may grant tribes ‘primacy’¹⁴ through the PWSS program (Swain et al., 2006b).

Similar to Canada, regional or state laws regulating drinking water typically do not apply to Indigenous lands (EPA, n.d.b; Swain et al., 2006b). Also, American Indians and Alaska Natives face real challenges in terms of safe water. The U.S. EPA (n.d.a) notes:

The lack of access to safe drinking water and basic sanitation in Indian Country continues to threaten the public health of American Indian and Alaska Native (AI/AN) communities. Approximately 12% of AI/AN homes do not have safe water and/or basic sanitation facilities. This is high compared with the 0.6% of non-native homes in the United States that lack such infrastructure. A multi-agency Infrastructure Task Force (ITF) has been formed to improve access to safe drinking water and basic sanitation in Indian country. (para. 3)

¹² However, in special cases, the federal government may also transfer that authority over water quality “to tribes that qualify as states” (Swain et al., 2006b, p. 44).

¹³ Primarily because there is more than one governing body that oversees water quality.

¹⁴ Primacy means self-governance, as well as total control over water quality and resources.

The ITF has issued a major goals paper where they indicate there are several barriers to improving the accessibility and quality of water. At the top of the list is a lack of investment funding. They also point to maintenance and management of facilities both new and aging because there are:

... Two primary factors that interfere with infrastructure maintenance: 1) the infrastructure design does not meet the Tribal needs and/or is not appropriate, and 2) the management entity responsible for the water and waste disposal infrastructure assets is itself not sustainable and lacks appropriate authority, structure, and/or technical, managerial, or financial capacity. (Inter-Agency Infrastructure Task Force, 2011, p. 1)

Our Analysis: Assessing the Source of Current Problems and Seeking Solutions

It is not surprising that those involved in trying to improve the current situation for Indigenous communities, which includes people from all stakeholder groups, are frustrated with the current process. To really determine why Canada faces the problems it does in terms of safe water, we assess that there are two things to recognize: (a) this problem has its roots in the early history of the region as a settler colony; and (b) there are many inter-related variables at work that act to create a difficult and complex problem.

Colonial History: Creating Foundations for Current Problems

As noted above, non-Aboriginal Canadians have a lot of faith in their water supplies, and aside from some with 'taste' issues, they rate the quality and availability as near perfect. What is it about the locations of First Nation communities that impacts water quality? Further, why would there be a difference from similar sized non-Aboriginal communities, including those that are remote?

First Nations did not actively choose where their communities are located. As well, if they were part of the decision process, it was based on totally different assumptions (Miller, 2010a; White, Anderson, Morin, & Beavon, 2010). Elders of the Haudenosaunee peoples in many regions speak of the 'Gus-Wen-Tah' or two-row wampum belt when talking about agreements and treaties. The two rows symbolized two sovereign nations side by side going down the river each controlling their own canoe but progressing together, as brothers rather than father and son. However, this was not how Canada was to be developed. Looking back to 1763 when the Royal Proclamation declared that Indians and Indian Lands would be 'protected' and be the responsibility of the British Crown through to today, we have seen a sometimes slow and sometimes fast shift of Indigenous sovereignty over to European control. There has been a progressively more damaging dependency created that has, through many mechanisms, made self-sufficiency and sustainability more and more difficult (White, Maxim, & Spence, 2004; White, Maxim, & Beavon, 2003).

Further, environmental discrimination in Indigenous communities in Canada is well documented (Mascarenhas, 2007; Page, 2007; Westra, 2007). This phenomenon has also occurred in other countries such as New Zealand and Australia (Bailie, Carson, & McDonald, 2004; Barcham, 2009; Pritchard, 2000) and the United States (Smith, 2005). It has been argued that it was when Indigenous people were first displaced and moved onto reserved lands, issues with the quality of water first emerged (Murdocca, 2010). First Nations reserved lands, or 'reserves' as they commonly known in Canada, were created over an extended period of Canadian history. Some were created through treaty processes, which defined set numbers of acres for certain family sizes (White, Peters, Beavon, & Dinsdale, 2010). Some were set up by local peoples or institutions (like churches) seeking to isolate Aboriginal peoples, while governments set others up. Sometimes, they were set up near waterways and included fertile lands, but often this was not the case. Aboriginal peoples found themselves in poor land areas that were widely unsustainable (Royal Commission on Aboriginal Peoples, 1996). The Aboriginal signatories of these treaties understood that the lands would be shared and their practices respected, not that they would be confined within a small allotment indefinitely (Hanson, 2010; Royal Commission of Aboriginal Peoples, 1996). In part, these selected locales make the attainment of safe drinking water difficult to this day. The creation of blocks of land where peoples are tied down remains a key

issue in the paradox around safe water in Canada. That defines one basis for the problem, the spatial dimension, but that is not the only colonial impact.

But why are the communities more vulnerable than non-Aboriginal communities? Overall, the water resources that are most readily available on reserve are groundwater sources (52% of communities) or surface water (29% of communities) (Neegan Burnside Ltd., 2011). As well, both groundwater and surface water can be quite vulnerable to pollutants (Swain et al., 2006a). Without protection of these surface water sources, politically and economically vulnerable communities nearby are often subjected to pollutants that accumulate from nearby agricultural, industrial, or waste industries (McGurty, 1997). The question is why are communities so vulnerable? Why are things so bad at this point in history? Helen Fallding (2010), an editor at the Winnipeg Free Press, did a series for that paper on First Nation water issues. In an interview with researcher, Jerry White, she reported:

...Indigenous people used to learn about water when they were out hunting. They kept track of water flow patterns, made sure drinking water wasn't contaminated by sewage and learned to be careful at certain times of year when runoff water was likely to make them sick. We broke the educational chain when we brought in the residential schools, he said. The inherited lifelong role of water-keeper has been replaced by barely trained water plant workers who could lose their jobs with a change of band council Jerry White points out. Many reserves have also ended up on land with a poor water supply after settlers grabbed better spots that were once [I]ndigenous people's camps.... White said it's hard to solve drinking water problems when they're leaning up against other issues such as education and poverty... There's a lot of people in the First Nations communities who are bright, interested and want to work. We have to create mechanisms for them to be able to take control of some of these issues. (Fallding, 2010, paras. 22-26)

The creation of this dependency relationship from 1763 forward establishes much of the practices and non-practices we see today (Miller, 2009). This has combined with the attempted forced assimilation of First Nations through the residential school system¹⁵ to produce the situation today where many communities have reduced levels of human capital and expertise to deal with the complex technological and environmental issues around safe water. There is also lack of depth in capacity to handle, finance, and manage the issues that are involved in making the systems work (Maxim & White, 2003; White et al., 2003). On top of this, there are many other community level problems that are legacies of this history of created dependency and attempted forced assimilation (Miller, 2009).

White and Maxim (2003) argue that the lack of physical capital, given the often marginal land locations and lack of control over resources on Indigenous territories, is making any sustainable development difficult to impossible for many First Nation communities. This is compounded by low levels of human¹⁶ and social

¹⁵ The Canadian government has made a public apology for the residential schools system where Indigenous children were forced into schools, separate from their parents, and taught to be 'European.' The schools forced children to abandon their own cultures and languages. Widespread physical, emotional, and sexual abuse in this system has been documented (Miller, 2010b). Considerable research is being done currently to determine the mechanisms by which the trauma of this system has created inter-generational problems for individuals and their communities (see the Aboriginal Healing Foundation's website at www.ahf.ca).

¹⁶ Currently, the high-school graduation rate for Indigenous peoples in Canada is approximately 50%. Scholars have argued this is the outcome of several contributors, including the failed residential schools program that operated for over 100 years and the lack of opportunity to utilize skills gained in school because reserves have so little economic development. Interviews we conducted with youth who dropped out of school before grade 12 indicated they saw no reason to get more education because there were no opportunities to use the education. In a sense, the reserves' poverty of development discourages students from staying in school (Peters & White, 2009; White, Peters, & Beavon, 2009). This is the cycle that maintains low levels of human capital.

capital¹⁷ (White & Maxim, 2003), which is also a product of the colonial historical legacy noted above and the subsequent dependency relationships. These outcomes are reflected in lower community capacity as measured by the Community Capacity Index¹⁸ (Maxim & White, 2003) and later by the widely accepted Community Well-being Index¹⁹ (White et al., 2008). Studies are clear that the educational attainment of First Nations peoples is substantially lower than the average in Canada (White, Peters, Beavon, & Spence, 2009). The lack of economic development²⁰ in many First Nation territories means that these communities have little potential to accumulate physical capital for development, operations, and maintenance of community run projects. This sets in motion yet another cycle of increasing dependency because communities must seek physical capital, funding in particularly, from external sources in order to maintain or improve conditions.

Given reserve locations and the lack of human and physical capital, problems of all kinds can reinforce each other and become self-perpetuating. Communities face difficulties raising the funds to support the operation and maintenance of their water systems. They are also much more likely to find little depth of expertise in terms of managing water safety systems. This is the first of a complex array of issues that impact safe drinking water.

Another aspect of this complex set of factors is the fact that most First Nations' communities have little or no economic or political power in our modern capitalist economy. This exasperates a reliance on federal funding, and makes it difficult for communities to generate the resources, confidence, and perceived ability to self-govern. This, combined with the regulatory gap discussed above, creates greater vulnerability for communities encroached upon by environmentally harmful development activities.

To recap, the dependency relationship, spatial locations, and lack of physical capital, human capital, and political power combine to make it difficult for First Nations to control and develop safe water systems. We would further argue that the problems faced today are grounded in two more inter-related factors: (a) the social determinants of water quality, and (b) governance of water systems. Both are the products of the historical processes we have discussed above. We will take each of these in turn and look at them in-depth, concluding with proposals for policy development.

Social Determinants of Water Quality

Water is deeply sacred and honored by First Nations communities (AFN, 2011; von der Porten & de Loë, 2010). It is an entity requiring respect and protection and is held in common, not owned. It should be shared not marketed (AFN, 2011; Phare, 2009). As such, unclean water is not only a health hazard, but is also

¹⁷ White and Maxim (2003) argued that community cohesion in many Canadian Indigenous communities was being undermined by a lack of human, physical, and social capital. The social capital networks that enhance the living conditions in non-Aboriginal communities through the creation bonding, linking and bridging social capital (Putnam, 2000; Portes & Landolt, 1995) has been damaged which is witnessed by the health and community issues that plague many communities (suicide, substance abuse, and child welfare issues for example). The interaction between social capital and educational attainment (human capital) was explored by White, Spence, and Maxim (2009) where they argue, in a three country comparison, that social capital can be critical in the educational attainment process in Aboriginal communities.

¹⁸ This tool was developed to give an indication of the capacity of a community to run the programs that were being downloaded to them.

¹⁹ Based on the Community Capacity Index concept, which was built using the United Nations Development Programme Human Development Index framework. This tool is widely applied in Canada to measure relative community well-being.

²⁰ Actually, it is more complex than simple non-development. Canada has an array of regulations, laws, and practices that govern how resource development takes place on and near Indigenous territories. These factors influence what capital accumulation is possible for First Nations and Inuit, as well as what income and labour force participation can come out of development. This is the subject of a special feature in the *International Indigenous Policy Journal* (see volume 3, issue 2). Strictly speaking, it is not just lack of development, but also lack of rewards for developments, that are taking place.

threatening to traditional Indigenous philosophies and way of life (McGregor, 2008).

Water is also a plural resource that not only directly sustains life and is necessary for survival, but is also an economic resource for non-Indigenous communities (Knight, Hartl, & World Health Organization, 2003). To make water accessible and maintain safe drinking water in environments often rampant with contaminants, infrastructure, which is costly, has been put in place.

Over the past two hundred years or so, around and within Indigenous communities traditional ways of life have been slowly eroded. Traditionally, food could and would be procured from the surrounding lands. However, due to declining access to sufficient traditional food sources, communities have become more reliant on imported foodstuffs. Thus, life has typically become more reflective of a capitalist, market driven, existence. This trend has been particularly extreme in the Arctic (Richmond, 2009; Wenzel, 1991). Comparatively, when non-Aboriginal communities find their traditional livelihoods have deteriorated, such as some of the fishing villages of the East Coast, they are pressured to slowly shut down, and members are expected to migrate to other opportunities. This is simply impossible for Indigenous peoples given the barriers to inter-community migration possibilities, lack of opportunities in either Aboriginal or non-Aboriginal centres (Dinsdale, White, & Hanselmann, 2011), and the cultures and traditions of the peoples. As White and Maxim (2003) argued, the communities are often small and/or remote. Typically, a lack of the physical, social, and human capital undermines community cohesion and leads to sustainability problems. All of which adds up to the discussed conundrum of created dependency and trauma, which leads to destruction of community capacity. Yet, the way forward really demands First Nations to increasingly take control of their own affairs. First Nations need to develop sustainability compatible with the evolving culture and traditions of global market relationships. When this is accomplished, there will be greater stability in Canada as well as a flourishing of Indigenous life across this vast country.

The paradox facing Canada, in the way forward, is to increase the capacity of First Nation communities and their peoples, which can only happen as the dependency relationships dissolve and self-sufficiency evolves. The key will be the Indigenous communities developing their own adaptive sustainability. Adaptive²¹ sustainability is a state where the peoples themselves control their affairs, have sustainable development based on their evolved cultures, and reap the rewards of Canada's advanced development through economic development that serves them. In the United States, projects at Harvard and the University of Arizona have argued that greater self-government is key to improvements in U.S. 'Indian Country' (Begay, Cornell, Jorgensen, & Kalt, 2007; Cornell & Kalt, 1998; Harvard Project on American Indian Economic Development, 2008). The conundrum has always been how to shift to 'self-government' with few resources to do so? Or, put another way, how to develop adaptive sustainability in a system that breeds dependency and denies the accumulation of the forms of capital necessary to make progress?

If we were to model the process in order to make it simpler to see, it would look like this:

²¹ We use the term 'adaptive' to make it clear that the content of development and forms of capital are not determined out of a uniquely Western model. Human capital is multifaceted and inclusive of all forms of knowledge. Protecting, enhancing, and utilizing traditional knowledge will be central in building human capital and, subsequently, community development and adaptive sustainability, which are core components of sustainable development. Social capital is made up of relationships and networks, further complicated by mutual and reciprocal obligations (Portes, 1998). Social capital will be determined by the individuals themselves and how they are influenced by cultures and norms. That said, development in the global economy requires adapting to other cultural ways to one's self. Indigenous peoples in Canada and around the world are well aware of this process of adaptation and inclusion; however, they can decide how this is done.

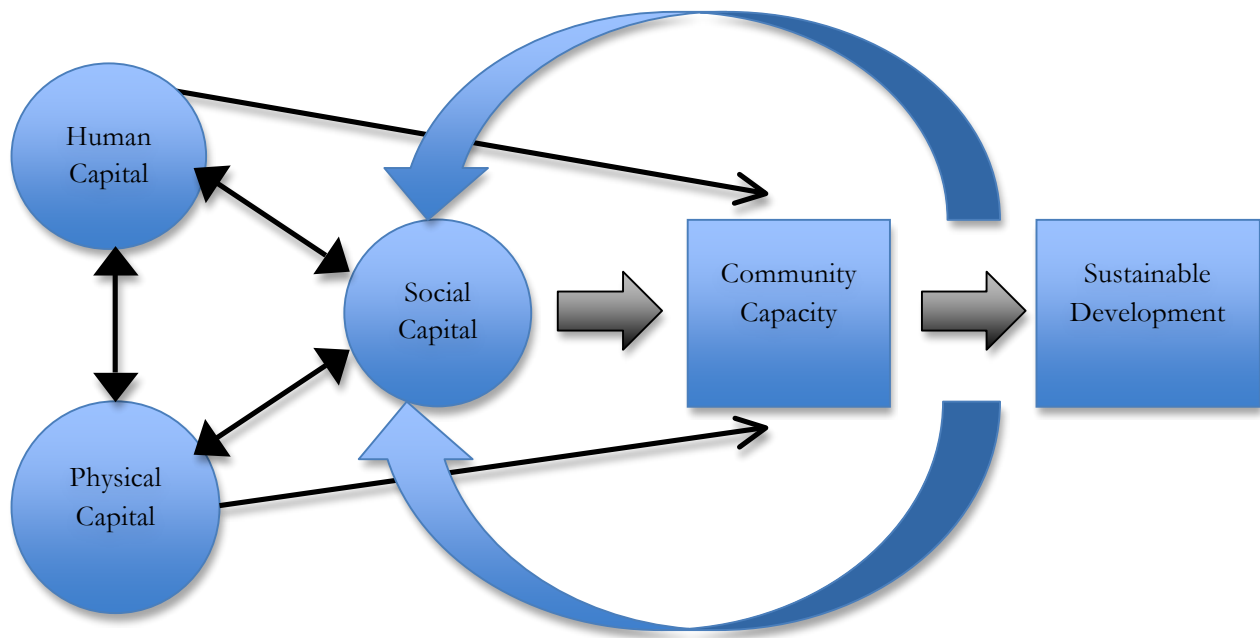


Figure 1. Model for Creating Sustainable Development

In this conceptual model, the three forms of capital (human, social, and physical) interact with each other, influence the development of the intervening variable, community capacity development, which in turn leads to changes in the dependent variable, sustainable development.

The interaction of the three forms of capital, social,²² physical, and human capital, has been thoroughly researched in other investigations (Coleman, 1988; Teachman, Paasch, & Carver, 1996; White & Maxim, 2003). By example, increasing levels of social capital can enhance educational attainment through production of human capital (Coleman, 1988). As well, high levels of human capital in a community can enhance existent networks and the ability to reciprocate when community or family members in need make requests (Coleman, 1988; Enright, 2000; Narayan, 1999). Additionally, increased physical capital in communities can facilitate the development of schools and other infrastructure that may enhance human capital production and lead to capital investments (Narayan, 1997). We have argued in this paper that First Nation communities have varying deficits in the three forms of capital, which has been well documented in the literature (Maxim & White, 2003; White & Maxim, 2003; White et al. 2008; White, Anderson et al. 2010; White, Peters et al. 2010).

As the three forms of capital increase, they spur the intervening variable, community capacity. There are a variety of ways to observe these phenomena, such as an increase in trained people available to take on management that produces an increase in employee income, which in turn increases the amount of funds available to improve infrastructure. In the case of increasing community capacity to maintain and manage water systems, we would see more trained people, increased comprehensive planning, and capital fund accumulation, which would lead to increased employment. One would also expect language preservation or maintenance, and the vitality of social organizations in the community.

²² We have not discussed social capital to this point. Social capital is a resource that is created in the relationships among persons and groups that engender trust and mutual obligations that can be drawn upon (Callahan, 1996). It is inherent in the structure of relations between and among actors, and is made up of obligations, expectations, information channels, norms of reciprocity, and effective sanctions that constrain or encourage certain types of behaviour (Callahan, 1996; Wall, Ferrazzi, & Schryer, 1998). Social capital can be easily understood as a resource that is created as community members interact in networks such as families, organizations, ceremonies, or workplaces (Portes & Landolt, 1995; Putnam, 2000). This resource can be undermined by a lack of cohesion in a community, child welfare issues, infighting over scarce resources, drug and alcohol abuse, and so on.

The changes in capacity lead to the development of sustainable development. We would see enhanced integration of traditional and Western approaches, economic stability through development, and decreases in negative social outcomes (such as suicide, substance abuse, et cetera). At this stage, First Nation communities may very well run their own water systems and report to regional water authorities that are also controlled by Aboriginal organizations. Looking to the future, the continued development of sustainable development may lead to the development of an Indigenous water authority. In many ways, water is just one of many similar issues that all require the same changes. Of course, as we see in the model, the increases in capacity and sustainable development feedback and perpetuate the expansion of the forms of capital.

In the simplest terms, the model above posits communities that draw on civic involvement and positive norms, such as education and training-based skills along with the requisite financial and physical resources, will be better functioning communities. Further, these communities will build their capacity and achieve sustainable development. However, only communities reaching a level of capacity development that triggers movement toward sustainable development may operate and maintain water systems.

Building Sustainable Development: The Paradox of Safe Water

As we look at the policy issues before us, we propose directions consistent with developing community capacity while reducing potential harm to First Nation residents. We will break our analysis into three sections: (a) legislative and regulatory frameworks; (b) capital and operating funding, and (c) Aboriginal governance and self-sustainability.

Legislative and regulatory frameworks. As we noted above, the various proposals from stakeholders cover a wide spectrum. They range from non-legislated, practical arrangements, such as contracts, through to a new national set of guidelines legislated at the federal level. Early in these discussions, there was a lot of interest in utilizing provincial guidelines. However, the proposal to implement provincial standards and controls seemed unfeasible given the structure of the Indian Act, past court rulings, differences across provinces, and opposition from First Nations (Swain et al., 2006a). Another option was to incorporate the provincial standards into a new federal legislation, which resolved some court ruling issues, but left other problems in place. Ultimately, the expert panel looked briefly at giving First Nations control. They then produced a regulatory standards framework, which was later rejected. The expert panel cautiously produced three options: the creation of a new federal act with its own standards, new federal legislation that is based upon provincial water standards, or using customary law (Swain et al., 2006a). The outcome of these three recommendations would be the creation of a new federal law (Swain et al., 2006a).

There has always been a focus on legislated regulation as the means of resolving water issues on reserve. However, legislative solutions are limited in their ability to address low levels of compliance. In addition, even when policy changes are put in place, chronic funding and community capacity issues limit their effectiveness. The government has been fixated on legislation with regulation as the best ‘fix’. This happened because the Auditor General’s (2005) review noted, “Indian and Northern Affairs Canada and Health Canada, in consultation with First Nations, should develop and implement a regulatory regime for drinking water in First Nations communities” (p. 12). The Auditor General’s office reiterated that position in their 2011 update: “In 2005, we audited drinking water on reserves and found that First Nations communities did not benefit from a level of drinking water protection comparable to that available to people living off reserves *because provincial legislation and regulations are not applied on reserves* [emphasis added]” (Auditor General, 2011, Section 4.24).

The problem is that standards are only as good as their implementation. Clearly, problems remain after practices are set in place, namely the shortcomings in capacity building. The Auditor General mentions this in the report by saying that it may be some time before standards can be attained given community resources (Auditor General, 2011). However, our position is that the approach taken to this issue has to be *based on*

capacity development. Serious consultations with First Nations about what should be in the regulatory framework should be undertaken. Currently, there are important questions about the capacity of First Nations to comply with the proposed regulations. As the AFN notes, among First Nations communities,

- “Some may already be in compliance.
- Some are under-designed and over-capacity right now.
- Some have good information about their systems; others do not” (AFN, 2008, p. 13).

Imposing federal legislation, as the former Bill S-11 was seen to do, does not build capacity nor make the First Nations the partners they need to be in this water crisis. The most recent proposed legislation, Bill S-8, introduced in February of this year, made several improvements over Bill S-11, particularly around Indigenous rights and third party involvement responsibilities (Simeone & Troniak, 2012). However, it is unclear whether this legislation included First Nation involvement in formulating the standards and regulations. The Auditor General felt legislation at the federal level was the most viable, given the treaty²³ and constitutional issues. However, this framework should be temporary, developed with consultation, and aim to move toward First Nations control of water systems, as capacity permits, with the creation of an Aboriginal water commission.

Legislation, if developed properly, offers the opportunity to ensure two things: (a) communities buy in, and can provide feedback on, how to actually achieve the implementation of regulated high standards; and (b) Canada can understand what resources are going to be necessary to make it work. These would be the immediate goals, but we argue that the key is movement toward an Indigenous controlled Water Commission where First Nations and experts, who may or may not be Aboriginal, work together to monitor compliance in communities. This would build capacity through fostering responsibility and allow the bridging of traditional and Western knowledge. We realize this type of system will require a certain level of trust because large, external investments will be required to develop and maintain the systems for some time until capacity grows in the communities themselves.

Capital and operating funding. In 2011, it was estimated that the national construction cost required to upgrade waste and water systems to acceptable standards would approach \$1.0 billion and that the long-term and sustainable costs were \$80 million (Neegan Burnside Ltd., 2011). As well, it was estimated that, nationally, future-servicing costs, including upgrades, could add billions more (Neegan Burnside Ltd., 2011). AANDC has reported that they have already invested more than \$2.5 billion between 1995 and 2011 (cited in Neegan Burnside Ltd., 2011). Still, as we noted above, a large proportion of community water systems are at serious or moderate risk and hundreds of boil water advisories are issued annually. While upgrades to and maintenance of water systems on reserve is possible, finding the money required to do so is difficult. The problem from a policy perspective is two-fold: (a) how should the capital, operating, and maintenance budgets be delivered; (b) what is really necessary and feasible for the amount of funding; and (c) how should the capital, operating, and maintenance budgets be delivered?

According to the Assembly of First Nations, only 50% of the allocated operations and maintenance dollars ever reach the communities themselves (Phare, 2009). Water treatment systems are difficult to maintain, especially when federal dollars received by Indigenous communities (per capita) are less than half of what non-Aboriginal communities receive (Phare, 2009)²⁴. Additionally, funding from AANDC is not always granted or available to all Indigenous communities (Phare, 2009). The high priority communities, which are identified in earlier audits, get funding first, but this system can leave new problems unattended.

²³ The treaty implications are complex. Treaties are often seen as the only protection against even further disenfranchisement while many recognize that they are very flawed and prevent capacity building at the same time.

²⁴ The data indicates that First Nations communities do get less per capita than is spent in non-Aboriginal communities, but the exact ratios are difficult to determine.

It is easy to see that for most communities even 20% of operating costs may be out of reach. The issue is that the communities have to take money out of other programs, education or child welfare for example, in order to make up the 20% (Morales 2006). User fees may be attempted, but may not be affordable for community members—depending on local unemployment levels and income levels. A rule of thumb in economics is that ‘pay as you use systems’ are effective only where people have discretionary capacity and are above the poverty line. This approach to paying for personal water use in poor income areas does not work well because people cannot reduce use to save money so they have to spend money they need for other necessities.

Overall, shortfalls in funding have been a primary concern for those running reserve water systems. Not only does the funding system make it difficult to operate water systems, but anxiety rises while communities wait on a long list for capital funding (Swain et al., 2006a). In addition, these communities have little diversity in economic development, which means that shortfalls in operating funds for all programs are intensified by the need to invest in maintenance and operation water systems (Swain et al., 2006a). In addition, the way money is transferred further complicates the water issue. We look at the problem of annual contribution agreements next.

There are many concerns that stakeholders and regulators have with annual contribution agreements. First Nations and AANDC enter into agreements that stipulate what finances are going to the community, and the community is responsible for reporting on spending. However, the Auditor General (2011) has critiqued this process for failing to ensure quality. In addition, due to the annual nature of these agreements, communities are prevented from engaging in long-term planning. Communities must reapply for funding each year without guarantee as to the amount that will actually be secured. Concluding these agreements can take time; meaning that funding is often not in place by the beginning of the new fiscal year. Consequently, other programs are often cannibalized to find water system dollars. The expert panel noted the need to “develop a more objective and efficient process for allocating funds” (Swain et al., 2006a, p. 30). Longer funding periods, such as three or five-year plans, would be an improvement. The U.S. government has demonstrated that stable funding permits sustainable management structures to be built by Indian communities, which, in turn, creates stability in the system (Inter-Agency Infrastructure Task Force, 2011).

The very act of developing plans and implementing them is a capacity building exercise. The processes currently in place do not encourage capacity building through planning and may damage human, social, and physical capital development.

How much money is enough? This is a crucial, but impossible question. As noted above, estimates vary on the extent of the problem out there. The current approach is to allocate funds to systems deemed to be in the greatest risk. This makes a great deal of sense at first glance, but is it the most effective and rational approach? Risk assessments are not perfect, but they do have a solid scientific foundation. Here again we are faced with the problem of how to plan investments over longer periods of time. Taxpayers in Canada do want a return on investments, which implies that we need to have a way of determining where scarce resources will be invested.

The two issues that could be approached in a more systematic way are:

- (a) The development of a wider source water protection plan, which integrates the community in the planning process and ensures that the First Nation is not simply dealing with water issues in their own small territory. Water comes from other places and leaves the community to go to other locales so planning has to be on a wider territorial basis; and
- (b) The 80/20 split on costs for maintenance and operating may be a false economy if the First Nation is unable to consistently raise the 20% to ensure operations and maintenance. Careful partnerships, based consultations, are necessary to ensure that systems that cost a great deal to establish or renovate do not simply fall into disrepair or become under-managed. The more cooperative and consultative this process is, the more community level capacity will develop and the more buy-in from the First Nation will develop. Communities taking charge of their own situations, because they

are part of the planning and, therefore, engaged as leaders in the on-going operations, is crucial in the process of reducing expenditures in the long run.

Aboriginal governance and self-sustainability. Choosing policy based on whether it will enhance First Nation capacity in managing community affairs is important. However, governance is complicated and is not as simple as demanding ‘high standards’ while downloading responsibility for maintaining those standards onto communities or groups that have limited capacity to do so. Research on community capacity was triggered by what appeared to be a shift in governmental thinking from ‘the Crown takes care of First Nations programming’ to a more devolutionary approach. It appeared to researchers that responsibilities were being downloaded “...as fast as communities could fail” at managing the new responsibilities (White & Maxim, 2003, p. 248-249; see also Whitehead & Hayes, 1999).

Ensuring the best quality water systems now, while moving toward independent, Aboriginal control, integrated into wider territorial protection, should be the aim. One controversial option that may serve some communities is the introduction of third party (private) providers. We see this as workable under certain circumstances. The argument that you can never have any private involvement is inconsistent with the evidence. Within this position exists the simplified public-private binary (Fisher, 2008), which forecloses opportunities to holistically understand the many facets and possibilities within water provision. While the literature typically follows a divisive rhetoric, some researchers advise not to dismiss privatization outright because it may be an alternative to the risks faced by certain communities (Carter & Danert, 2003). “It is less important to fixate on private versus public provision as both are capable of providing poor services that are inequitable and unsustainable in the absence of adequate regulation and institutions” (Fisher, 2008, p. 35). We would add that any private provision of water (or pay-as-you-go supplied from a neighboring public municipality) must be accompanied by the third party retaining responsibility for standards, as well as the training of local First Nations in the management of the system. In this way, the First Nation can eventually, where possible, assume full control.

Further, ‘collective privatization’ of water sources by First Nations groups may offer opportunities for economic development. By example, the Tk'emlups te Secwepemc (Kamloops Indian Band) developed and provided source water to the nearby Sun Rivers golf course. This arrangement provided commercial opportunities for the community, as well as quality drinking water (Swain et al., 2006a). This approach is controversial and we are neither advocating nor opposing. First Nations can decide how they feel about such development opportunities. Importantly, the anti-privatization position does point out that water is a life sustaining resource, which is held by many Indigenous peoples to be sacred and not for possession. It should, therefore, not be treated as a commodity to be sold. However, our position is that water itself can be seen quite separately from the ‘private delivery to those who need it’. One can have private delivery systems without having private ownership of the resource. Direct ownership of the resource in several areas of the world has created real hardships for local peoples, particularly where there are dramatic economic and social inequalities (Jaglin, 2002).

Other governance approaches include various forms of co-management, information sharing, and best practices development. These can involve non-governmental organizations (NGOs) or other parties working with First Nations. This may even lead to two-tiered systems of regional and local individuals working together (Morales, 2006).

As we have noted above, consultation leading to incorporation of best ideas and, eventually self-sufficiency, is the end goal. Past practices have been critiqued as lacking or completely excluding Indigenous consultation. This lack of collaboration between federal bodies and local Indigenous communities has been an issue in many domains, not just safe drinking water (AFN, 2011; Christensen, Goucher, & Phare, 2010; Indigenous Bar Association in Canada, 2011; Neegan Burnside Ltd., 2011; Swain et al., 2006a). Often, even where a community was asked for input, it seemed like the counsel provided was largely ignored (Safe Drinking Water

Foundation, 2009). It is interesting to note that the new legislation, introduced February 29, 2012, indicates in the preamble that there is a commitment to consult (Canadian Press, 2012; Simeone & Troniak, 2012).

Conclusion

The issue of safe water for Indigenous peoples in Canada will not be solved quickly. As we have discussed above, the problem is rooted in the historically developed dependency relationship that developed as part of Canada's colonial history and became entrenched over time. The legacy of colonial relations, attempted forced assimilation, and ongoing paternalistic relations, codified through the Indian Act, have created a situation where simple investments in water infrastructure and/or better regulations will not solve the problem. That said, we have to move forward rather than simply lament the past.

Our argument is that there needs to be a combination of actions that are primarily aimed at building community capacity. This means developing three forms of capital (physical, social, and human), which will increase community capacity and lead to sustainable development. Economic development brings along jobs and training that strengthen the fabric of communities. Not only does economic development provide sustainability for communities, it offers future generations powerful motivators for staying in school. The chain of interaction between these forms of capital will pull communities forward. The process is critical which means there must be real partnerships built through real consultations that are aimed at increasing the First Nations' capacity to run their own affairs. We say this not because it is 'politically correct' but because this is how you actually build self-sufficiency and capacity.

This will be a long process, which means there will have to be ongoing investments, not only in hardware, but also in the building of the communities themselves. Let us set rules and regulations, but not from the top down. We need to use the process of regulation development to increase the capacity to self-govern and solve problems within the communities. Let us use problems to engage and build a new generation of Indigenous leaders who can work within and between nations to achieve what is now only a dream.

References

- Aboriginal Affairs and Northern Development Canada (AANDC). (2003). *First Nations water management strategy*. Retrieved from <http://www.aadnc-aandc.gc.ca/eng/1100100010369>
- Aboriginal Affairs and Northern Development Canada (AANDC). (2006). *News release March 21, 2006*. <http://www.aadnc-aandc.gc.ca/aiarch/mr/nr/j-a2006/2-02757-eng.asp>
- Aboriginal Affairs and Northern Development Canada (AANDC). (2008a). *Backgrounder - First Nations water and wastewater action plan*. Retrieved from <http://www.aadnc-aandc.gc.ca/aiarch/mr/nr/j-a2008/2-3019-bk-eng.asp>
- Aboriginal Affairs and Northern Development Canada. (AANDC). (2008b). *Plan of action for drinking water in First Nations communities - Progress report January 17, 2008*. Retrieved from <http://www.aadnc-aandc.gc.ca/eng/1100100034958>
- Aboriginal Affairs and Northern Development Canada (AANDC). (2010). *First Nations water and wastewater action plan progress report April 2009 - March 2010*. Retrieved from <http://www.aadnc-aandc.gc.ca/eng/1100100034932>
- Aboriginal Affairs and Northern Development Canada (AANDC). (2012). *Frequently asked questions: Safe Drinking Water for First Nations Act*. Retrieved from <http://www.aadnc-aandc.gc.ca/eng/1330528850798>
- Assembly of First Nations (AFN). (2005). *Background paper: Overview of environmental issues facing First Nations: Context for participation nuclear fuel waste management issues*. Ottawa, ON: Author.
- Assembly of First Nations (AFN). (2007). *Expert panel report on safe drinking water for First Nations*. Retrieved from <http://64.26.129.156/cmslib/general/water-panel-report.pdf>
- Assembly of First Nations (AFN). (2008). *Canada-wide strategy for the management of municipal wastewater effluent and Environment Canada's proposed regulatory framework for wastewater - Impacts for First Nation communities*. Retrieved from www.afn.ca/uploads/files/regional-impact-analysis.pdf
- Assembly of First Nations (AFN). (2010). *Briefing note: Bill S-11, Safe Drinking Water for First Nations Act*. Retrieved from <http://www.afn.ca/uploads/files/bill-s-11.pdf>
- Assembly of First Nations (AFN). (2011). *Water and wastewater*. Retrieved from <http://www.afn.ca/index.php/en/policy-areas/water>
- Assembly of First Nations (AFN). (2012). *Water and wastewater: Policy areas*. Retrieved from <http://www.afn.ca/index.php/en/policy-areas/water>
- Auditor General. (2005). *The 2005 report of the Commissioner of the Environment and Sustainable Development to the House of Commons - Chapter 5: Drinking water in First Nations communities*. Ottawa, ON: Office of the Auditor General of Canada.
- Auditor General. (2011). *The 2011 status report of the Auditor General of Canada to the House of Commons - Chapter 4: Programs for First Nations on reserves*. Ottawa, ON: Office of the Auditor General of Canada.

- Bailie, R., Carson, B., & McDonald, E. (2004). Water supply and sanitation in remote Indigenous communities: Priorities for health development. *Australian and New Zealand Journal of Public Health*, 28(5), 409-414.
- Barcham, M. (2009). *Indigenous water governance: An integrated approach to resource management*. Retrieved from <http://www.maramatanga.ac.nz/project/indigenous-water-governance-integrated-approach-resource-management>
- Begay, M., Cornell, S., Jorgensen, M., & Kalt, J. (2007). Development, governance, culture: What are they and what do they have to do with rebuilding Native nations? In M. Jorgensen (Ed.), *Rebuilding Native nations: Strategies for governance and development* (pp.34-54). Tucson, AZ: The University of Arizona Press.
- Biro, A. (2007). Water politics and the construction of scale. *Studies in Political Economy*, 80, 9-30.
- Callahan, S. (1996). The capital that counts. *Commonwealth*, 123(20), 7-8.
- Canadian Press. (2012, February 29). *Duncan announces new First Nations water bill*. *CBC News*. Retrieved from <http://www.cbc.ca/news/politics/story/2012/02/29/pol-cp-first-nations-drinking-water.html>
- Carter, R. C., & Danert, K. (2003). The private sector and water and sanitation services: Policy and poverty issues. *Journal of International Development*, 15, 1067-1072.
- Christensen, R., Goucher, N., & Phare, M. A. (2010). *Seeking water justice: Strengthening legal protection for Canada's drinking water*. Retrieved from http://www.flowcanada.org/sites/default/files/documents/WaterJustice_report%20FINAL.pdf
- Coleman, J. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S94-S120.
- Cornell, S., & Kalt, J. P. (1998). Sovereignty and nation-building: The development challenge in Indian country today. *American Indian Culture and Research Journal*, 22(3), 187-214.
- Department of Justice. (1982). *Constitution Acts, 1867 to 1982*. Retrieved from http://laws.justice.gc.ca/eng/Const/Const_index.html
- Dinsdale, P., White, J., & Hanselmann, C. (Eds.) (2011). *Urban Aboriginal communities in Canada: Complexities, challenges, opportunities*. Toronto, ON: Thompson Educational Publishing.
- EKOS Research Associates. (2009). *Water quality on-reserve: Quantitative research*. Retrieved from <http://epe.lac-bac.gc.ca/100/200/301/pwgsc-tpsgc/por-ef/health/2009/095-08/report.pdf>
- Enright, D. (2000, May 3). *Social capital: Its contribution to social cohesion*. Presentation to the First Nations Cohesion Project, London: University of Western Ontario.
- Environmental Protection Agency (EPA). (n.d.a). *Infrastructure task force to improve access to safe drinking water in Indian country*. Retrieved from <http://www.epa.gov/tp/trprograms/infra-water.htm>
- Environmental Protection Agency (EPA). (n.d.b). *Safe Drinking Water Act (SDWA)*. Retrieved from <http://water.epa.gov/lawsregs/rulesregs/sdwa/>
- Fallding, H. (2010, November 13). Stuck with the flow: First Nations lack control over water entering their communities. *The Winnipeg Free Press*. Retrieved from <http://www.winnipegfreepress.com/no->

[running-water/without/stuck-with-the-flow--first-nations-lack-control-over-water-entering-their-communities-107674728.html](http://www.indigenouspolicyjournal.ca/running-water/without/stuck-with-the-flow--first-nations-lack-control-over-water-entering-their-communities-107674728.html)]

- Fisher, K. T. (2008). Politics and urban water supply. *Society for International Development*, 51, 30-36.
- Hanson, E. (2010). *Reserves*. Retrieved from <http://indigenousfoundations.arts.ubc.ca/home/government-policy/reserves.html>
- Harvard Project on American Indian Economic Development. (2008). *The state of the Native nations: Conditions under U.S. policies of self-determination*. New York: Oxford University Press.
- Health Canada. (2007). *Procedure for addressing drinking water advisories in First Nations communities south of 60 °*. Retrieved from http://www.hc-sc.gc.ca/fniah-spnia/alt_formats/fnihb-dgspni/pdf/pubs/water-eau/2007_water-qualit-eau-eng.pdf
- Health Canada. (2012). *First Nations and Inuit health: Drinking water and wastewater*. Retrieved from http://www.hc-sc.gc.ca/fniah-spnia/promotion/public-publique/water-eau-eng.php#how_many
- Indigenous Bar Association in Canada. (2011). *Position paper on Bill S-11 - Safe Drinking Water for First Nations Act*. Ottawa, ON: Author.
- Inter-Agency Infrastructure Task Force. (2011). *Sustainable management entity & appropriate infrastructure*. Retrieved from http://www.epa.gov/tp/pdf/infra-goal-and-concept-sustainable-resource-11-30-11_final.pdf
- Jaglin, S. (2002). The right to water versus cost recovery: Participation, urban water supply and the poor in sub-Saharan Africa. *Environment & Urbanization*, 14(1), 231-245.
- Knight, L., Hartl, G., & World Health Organization. (2003). *The right to water*. Geneva: World Health Organization. Retrieved from http://www.who.int.proxy1.lib.uwo.ca:2048/docstore/water_sanitation_health/Documents/rightto water/righttowater.htm
- Mascarenhas, M. (2007). Where the waters divide: First Nations, tainted water and environmental justice in Canada. *Local Environment*, 12(6), 565-577.
- Maxim, P. & White, J. (2003). Toward an index of community capacity: Predicting community potential for successful program transfer. In J.P. White, P. Maxim, & D. Beavon (Eds.), *Aboriginal conditions: Research as a foundation for public policy* (pp. 248-263). Vancouver, BC: UBC Press.
- McGregor, D. (2008). Anishnabe-Kwe, traditional knowledge and water protection. *Canadian Woman Studies*, 26(3/4), 26-30.
- McGurty, E. M. (1997). From NIMBY to civil rights: The origins of the environmental justice movement. *Environmental History*, 2(3), 301-323.
- Miller, J. R. (2009). *Compact, contract, covenant: Aboriginal treaty-making in Canada*. Toronto, ON: University of Toronto Press.
- Miller, J. R. (2010a). Aboriginal-Crown treaty-making in Canada: A many splendoured thing. In J. P. White, E. Anderson, J. P. Morin, & D. Beavon (Eds.), *Aboriginal policy research* (Vol. 7: A history of treaties and policies, pp. 3-14). Toronto, ON: Thompson Educational Publishing.

- Miller, J. R. (2010b). Reconciliation with residential school survivors: A progress report. In J. P. White, E. Anderson, J. P. Morin, & D. Beavon (Eds.), *Aboriginal policy research* (Vol. 7: A history of treaties and policies, pp.133-146). Toronto, ON: Thompson Educational Publishing.
- Morales, S. N. (2006). A glass half empty: Drinking water in First Nations communities. In J. P. White, S. Wingert, D. Beavon, & P. Maxim (Eds.), *Aboriginal policy research* (Vol. 3: Moving forward, making a difference, pp. 161-185). Toronto, ON: Thompson Educational Publishing.
- Murdocca, C. (2010). There is something in that water: Race, nationalism, and legal violence. *Law & Social Inquiry* 35,(2), 369-402.
- Narayan, D. (1997). Voices of the poor: Poverty and social capital in Tanzania. In *Environmentally and socially sustainable development network, Studies and monographs series* (No. 20). Washington, DC: World Bank.
- Narayan, D. (1999). *A dimensional approach to measuring social capital*. Washington, DC: World Bank.
- Natural Resources Canada. (2007). *The atlas of Canada: Population density, 1996*. Retrieved from <http://atlas.nrcan.gc.ca/auth/english/maps/peopleandsociety/population/population1996/density>
- Neegan Burnside Ltd. (2011). *National assessment of First Nations water and wastewater systems: National roll-up report, final* (for the Department of Indian Affairs and Northern Development). Orangeville, ON: Author.
- Page, J. (2007). Salmon farming in First Nations' territories: A case of environmental injustice on Canada's West Coast. *Local Environment*, 12(6), 613-626.
- Peters, J. & White, J. P. (2009). Contrasting current policy proposals. In J. P. White, J. Peters, D. Beavon, & N. Spence (Eds.), *Aboriginal education: Current crisis and future alternatives* (pp. 109-118). Toronto: Thompson Educational Publishing.
- Phare, M. A. (2009). *Denying the source: The crisis of First Nations water rights*. Vancouver, BC: Rocky Mountain Books.
- Portes, A. (1998). Social capital: Its origins and applications in modern sociology. *Annual Review of Sociology*, 24, 1-24.
- Portes, A. & Landolt, P. (1995). The downside of social capital. *The American Prospect*, (May/June), 18-21.
- Pritchard, S. (2000). Between justice and law in Aotearora, New Zealand: Two case studies. *Law and Critique*, 11, 267-286.
- Putnam, R. D. (2000). *Bowling alone: The collapse and revival of American community*. New York: Simon & Schuster.
- Richmond, C. (2009). The social determinants of Inuit health: A focus on social support in the Canadian Arctic. *International Journal of Circumpolar Health*, 68(5), 471-487.
- Royal Commission on Aboriginal Peoples. (1996). Looking forward, looking back. In *Author highlights from the report of the Royal Commission on Aboriginal Peoples: People to people, nation to nation*. Retrieved from <http://www.aadnc-aandc.gc.ca/eng/1100100014597#chp3>
- Safe Drinking Water Foundation (SDWF). (2009). *A review of the engagement sessions for the Federal Action Plan on Safe Drinking Water for First Nations: Position statement*. Saskatoon, SK: Author.

- Simeone, T. (2010). *Safe drinking water in First Nations communities*. Ottawa, ON: Library of Parliament.
- Simeone, T. & Troniak, S. (2012). *Bill S-8: The Safe Drinking Water for First Nations Act*. Ottawa, ON: Library of Parliament.
- Smith, A. (2005). *Conquest: Sexual violence and American Indian genocide*. New York: South End Press.
- Spence, N. (2012). Is it safe? Risk perception and drinking water in a vulnerable population. *International Indigenous Policy Journal*, 3(3).
- Swain, H., Louttit, S., & Hrudey, S. (2006a). *Report of the expert panel on safe drinking water for First Nations* (Vol. 1). Ottawa, ON: Department of Aboriginal Affairs and Northern Development.
- Swain, H., Louttit, S., & Hrudey, S. (2006b). *Report of the expert panel on safe drinking water for First Nations* (Vol. 2). Ottawa, ON: Department of Aboriginal Affairs and Northern Development.
- Teachman, J., Paasch, K., & Carver, K. (1996). Social capital and dropping out of school early. *Journal of Marriage and the Family*, 58, 773-783.
- United Nations. (2000). *United Nations millennium declaration*. Retrieved from <http://www.un.org/millennium/declaration/ares552e.htm>
- United Nations. (2010). *The millennium development goals report*. New York, NY: Author.
- von der Porten, S., & de Loë, R. C. (2010). *Water challenges and solutions in First Nations communities*. Waterloo, ON: Water Policy and Governance Group.
- Wall, E., Ferrazzi, G., & Schryer, F. (1998). Getting the goods on social capital. *Rural Sociology*, 63(2), 300-322.
- Wenzel, G. (1991). *Animal rights, human rights: Ecology, economy and ideology in the Canadian Arctic*. Toronto, ON: University of Toronto Press.
- Westra, L. (2007). *Environmental justice and the rights of Indigenous peoples*. London: Earthscience Publications.
- White J. P., Anderson, E., Morin, J. P., & Beavon, D. (Eds.). (2010). *Aboriginal policy research: A history of treaties and policies* (Vol. 7). Toronto: Thompson Educational Publishing.
- White, J.P., Beavon, D., & Spence, N. (Eds.) (2008). *Aboriginal well-being: Canada's continuing challenge*. Toronto: Thompson Educational Publishing.
- White, J.P., & Maxim, P. (2003). Social capital, social cohesion, and population outcomes in Canada's First Nations communities. In J. P. White, P. Maxim, & D. Beavon (Eds.), *Aboriginal conditions: Research as a foundation for public policy* (pp. 7-34). Vancouver, BC: UBC Press.
- White, J. P., Maxim, P., & Beavon, D. (Eds.). (2003). *Aboriginal conditions: Research as a foundation for public policy*. Vancouver, BC: UBC Press.
- White, J. P., Peters, J., & Beavon, D. (2009). Enhancing educational attainment for First Nations children. In J. P. White, J. Peters, D. Beavon, & N. Spence (Eds.), *Aboriginal education: Current crisis and future alternatives* (pp. 117-174). Toronto: Thompson Educational Publishing.

- White J.P., Peters, J., Beavon, D., & Spence, N. (Eds.). (2009). *Aboriginal education: Current crisis and future alternatives* Toronto: Thompson Educational Publishing.
- White, J. P., Peters, J., Beavon, D., & Dinsdale, P. (Eds.). (2010). *Aboriginal policy research* (Vol. 10: Voting, governance, and research methodology). Toronto: Thompson Educational Publishing.
- White, J. P., Maxim, P., & Spence, N. (Eds.). (2004). *Permission to develop: Aboriginal treaties, case law, and regulations*. Toronto, ON: Thompson Educational Publishing.
- White, J.P., Spence, N., & Maxim, P. (2009). A new approach to understanding Aboriginal educational outcomes: The role of social capital. In J. P. White, J. Peters, D. Beavon, & N. Spence (Eds.), *Aboriginal education: Current crisis and future alternatives* (pp. 249-266). Toronto: Thompson Educational Publishing.
- Whitehead, P. C., & Hayes, M. J. (1999). *The insanity of alcohol: Social problems in Canada's First Nations communities*. Toronto, ON: Canadian Scholars' Press.