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Improving First Nations water security through governance

Abstract: Many First Nations communities lack access to safe drinking water. In this article, we examine an under-appreciated tool for improving First Nations water security – governance – and develop a framework for guiding the design and analysis of First Nations water governance models. In particular, we argue that three key ideas from the public administration literature – financial resources, regulation, and formalization – should be integrated with Indigenous insights and philosophies that are specific to each First Nations community. We illustrate how this might work by focusing on the insights, traditions, and philosophies of an Anishinaabek community in southern Ontario.

Sommaire : De nombreuses collectivités des Premières nations n'ont pas accès à une eau potable et propre. Dans cet article, nous étudions un outil sous-estimé pour améliorer la sécurité et la gouvernance de l'eau des Premières nations; nous élaborons aussi un cadre propice à guider la conception et l'analyse des modèles de gouvernance du secteur de l'eau des Premières nations. Nous soutenons notamment que les trois concepts clés trouvés dans la documentation de l'administration publique – ressources financières, réglementation, et formalisation – doivent être intégrés en tenant compte de la lucidité et des philosophies autochtones spécifiques à chaque collectivité des Premières nations. Nous illustrons cette démarche en nous concentrant sur la perspicacité, les traditions, et la philosophie de la collectivité Anishinaabek du sud de l'Ontario.

Introduction

The provision of safe drinking water remains an ongoing problem for First Nations communities in Canada (INAC 2018). Academics and policymakers have generally focused on two levels of analysis to identify potential causes and solutions. At the micro level, analysts have focused on the lack of adequate infrastructure, a limited supply of trained operators and the imposition of Western standards and practices on communities (Harden and Levaillant 2008: 2; Hrudey 2013; Canada, Expert Panel on Safe Drinking Water for First Nations 2006). At the macro level, various commentators have argued that the federal government has not lived up to its constitutional obligations to

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properly fund and support First Nations water systems (Neegan Burnside 2011a).

Several studies have investigated a range of approaches to safeguard First Nations source water protection: from watershed scale integrative management to local source water protection planning (Collins et al. 2017; Patrick 2011; Patrick et al. 2019). Collins et al. (2017), for instance, found that federal initiatives tended to focus on the problem of boil water advisories with limited recognition of source water protection, highlighting the lack of funding as a primary constraint for communities. For others, the *Ontario Clean Water Act* framework poses geographic limitations and political uncertainties that deter communities from engaging in provincial processes. Finally, Longboat (2013) draws upon traditional knowledge from elders to present a principle-based model for water decision-making while others point to the need for more federal and provincial policies that recognize traditional knowledge to protect transboundary waters (Arsenault et al. 2018).

While these insights and actions are important, a key missing component in these discussions is the role of “governance” at the First Nations community level, a term commonly used to describe how societies and governments collectively make decisions and exercise authority over public goods (Abele 2007: 2). Public administration scholars have long argued that the successful management of water resources depends strongly on the implementation of particular governance structures (Bakker 2010; Erie 2006; Furlong 2016). The right governance model, they suggest, is critical for ensuring that assets are properly built, managed, operated and renewed. It also affects the extent to which revenues are collected efficiently and spent effectively and whether the administration of services is accountable and transparent. While the literature on regional and municipal water governance is well-developed, the same cannot be said of the literature on First Nations water governance under the *Indian Act*.

We address this gap here by investigating the potential role of governance in helping to mitigate the water crisis facing some First Nations communities in Canada. In particular, we draw upon and combine the public administration and Indigenous knowledge literatures to identify key factors that should likely inform the development of appropriate and effective First Nation water governance structures. We focus on Anishinaabek ideas and principles specifically because this project emerged out of a request from an Anishinaabek First Nation band official for research on this topic. Overall, our goal is to sketch out a theoretical framework that connects governance to First Nations water security.

Before we proceed, two caveats are in order. First, given that First Nations communities are highly diverse, crafting a universal theoretical framework is likely impossible. We have, therefore, chosen to focus on First Nations communities subject to the *Indian Act* and on those located in southern

Ontario only. Nonetheless, we think that there are lessons here for other First Nations communities. Second, our choice to build a framework that draws upon public administration *and* Indigenous philosophy was deliberate, reflecting the historical and contemporary realities in which First Nations communities are steeped (Alcantara and Kalman 2019). While First Nations have long had their own complex and rich bodies of knowledge and practices relating to water, most communities today use some combination of wells, septic tanks, and municipal-style water systems (Neegan Burnside 2011a). Therefore, it seems appropriate to draw on both literatures to craft a governance framework (McGregor 2012; Longboat 2013).

We begin by presenting background information and sketching out the concept of First Nations water security. Next, we review the public administration literature to identify three key components of effective water governance – financial resources, regulation, and formalization – before integrating those insights with several Anishinaabek ideas relating to the relationality of nature and people, the seven generations principle, and the role of women. We conclude with some thoughts about how these insights might be put into practice.

Background considerations

Section 91 (24) of the *Constitution Act, 1867* grants to the federal government exclusive jurisdiction over “Indians, and Land reserved for Indians” (Simeone 2010). This authority bestows on the federal government a legal responsibility to protect the interests of First Nations and to provide them with resources so that they can provide for themselves, including access to potable drinking water. The federal government exercises its legal authority for First Nations through the *Indian Act, 1876*, a piece of legislation that defines the relationship between First Nations people and the broader Canadian society. The *Act* is extensive in its reach and contains elements of a lands act, a municipal act, and an education act, and it touches virtually every aspect of First Nations peoples living on reserves. Despite its broad scope, the *Indian Act* makes only three references to “water”: first, in relation to the authorization of capital expenditures for water infrastructure; second, in regard to First Nations government powers to make by-laws for the construction and maintenance of watercourses; and third, in by-law powers for the construction and regulation of on-reserve water supplies. The *Indian Act* does not explicitly define federal or First Nation responsibilities for water operations. Instead, the federal government voluntarily provides policy directives, administrative guidelines and funding arrangements for on-reserve water and wastewater management (Simeone 2010).

Canada is typically viewed as a country with plentiful and safe drinking water (McGregor 2012) yet many First Nations communities and small

non-Indigenous communities have had to deal with unsafe drinking water for many years. Government and public attention to this issue has varied over time, reaching a “slow boiling point” in the early 2000s when the number of First Nations communities subject to drinking water advisories reached 100 (Harden and Levaillant 2008: 2). This revelation coincided with the events that took place in Walkerton, Ontario, when seven people died and more than 2,000 became ill due to water contamination (Walkerton Inquiry 2002). The subsequent “Walkerton Inquiries,” although focused on the scandal at hand, also involved consultations with First Nations leaders and provided observations and recommendations about water quality on First Nations reserves (Walkerton Inquiry 2002: ch. 15). Along with the Walkerton Inquiry, the federal government’s National Assessment of Water and Wastewater Systems in First Nations Communities (in 2003 and 2011) and the Report of the Expert Panel on Safe Drinking Water for First Nations (2006) helped government actors and the public become more aware of the dire situation facing First Nations communities.

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Since then, the federal government has made efforts, with mixed results (Harden and Levaillant 2008:4; Lukawiecki, Plotkin and Boisvert 2018: 7), to address the problem through new funding arrangements and broad commitments such as those it made in various international (e.g., UNDRIP) (UNGA 2007) and domestic agreements (e.g., Plan for Action with the AFN). The *Safe Drinking Water for First Nations Act* enacted in 2013 set the foundation for developing regulations. However, it was met with opposition from First Nations leaders who asserted that the regulations did not address issues of finance and amounted to a downloading of federal responsibility (AFN, Chiefs of Ontario). As of 2019, the regulations remain forthcoming. A 2015 pledge by Prime Minister Trudeau to end all boil water advisories on First Nation reserves by 2021 involved a financial commitment of \$1.8 billion toward water and wastewater system upgrades. While the government recently reported 85 long-term advisories have been lifted, 58 pre-existing and new advisories remain (Government of Canada 2019), and it remains unclear whether these efforts will lead to long-term improvements to First Nations water conditions.

To conceptualize this issue, some scholars invoke the concept of “water security” (Castleden et al. 2017; McGregor 2014). Water security can broadly be defined as “...the sustainable access on a watershed basis to adequate quantities of water, of acceptable quality, to ensure human and ecosystem health” (Bakker et al. 2013: 87). Generally speaking, public administration scholars use this term in the context of municipal water systems, but some Indigenous scholars have applied it to their communities. According to Longboat (2013: 6), “...water security requires a balance between resource protection and sustainable use, and is an important form of social and economic development.” Indigenizing the concept involves redefining what constitutes and defines water using Indigenous knowledge and values. Water is not merely a resource to satiate individual needs and desires, but also is part of a broader set of relationships between nature and living beings (Lam et al. 2017).

Lessons from public administration

In this section, we draw upon the public administration literature to identify three key factors for facilitating good governance and improved water security. They include:

- adequate financial resources generated by a vibrant local economy and/or from stable intergovernmental transfers;
- a set of regulations or by-laws relating to water source protection, delivery and wastewater management, and;
- the formalization of structures, processes, and decision-making relating to the public administration of community assets and services.

Financing First Nations water systems: options and challenges

A functional water system, from source protection to delivery to wastewater treatment, requires sufficient financial resources to operate sustainably and successfully. Without sufficient own-source revenues or transfers, it is impossible to purchase new assets, repair or expand the capacity of existing ones, and hire engineers, administrators, maintenance staff, and operators (Hrudey 2013). Indeed, a variety of studies have shown that a key impediment to sustainable water and wastewater systems is the lack of financial capacity among First Nations communities to undertake such activities (Lipka and Deaton 2015; Willsie et al. 2009), which is partly a function of the history of colonialism in Canada and scale (McGregor 2012, White et al. 2012).

Historically, the federal government has generally not provided long-term, separate funding envelopes for building, renewing and maintaining First Nations water systems (McCullough and Farahbakhsh 2012). Most of the time, band councils are expected to pay for their water systems out of general revenues and any federal transfers they receive (which frequently carry limitations and stipulations that make it difficult to reallocate freely for other purposes), accessing special grants when available. As a result, water system needs frequently compete with other priorities facing band councils (Walters et al. 2012).

Water security and sustainability are more likely to be achieved if government entities directly responsible for municipal or regional water systems can generate sufficient own-source revenues (Johnson et al. 2001; Rogers, de Silva and Bhatia 2002). User fees can help bridge the gap between the engineered systems required to effectively utilize natural freshwater assets and how we use and manage them (Canada's Ecofiscal Commission 2017). They are also one way First Nations attempt to generate the 30% of the costs for water systems operations and maintenance required by the federal government's current funding model. The simple underlying objective behind adopting user rates is to have those who benefit from the local infrastructure and service pay for it (Kitchen and Tassonyi 2012). Proponents of the user fee model contend that it is the most flexible, stable and reliable revenue tool available for managing water systems and that it can adapt easily in response to evolving private and social costs attached to delivering water (Fenn and Kitchen 2016). With this flexibility, user fees seem like an attractive option for band councils because they can encourage conservation among residents while providing band governments with additional revenues to promote and protect First Nations spiritual considerations linked to water (Canada's Ecofiscal Commission 2017: V).

Across Ontario, municipalities have taken steps in recent years to implement financing structures for water and wastewater systems that rely increasingly on user fees and less on other financing sources like general property tax revenue. However, the pricing structure of user fees varies across municipalities. Pricing structures include constant unit rates in most Ontario cities, followed by increasing or decreasing block rates, fixed or no fixed charges, and both fixed and volumetric charges (Fenn and Kitchen 2016: 56), or more simply volume tier-based or fixed-rate pricing. Volume-based block-rate pricing puts water usage into consumption tiers and offers pricing to incentivize preservation (increasing block rates) or provides discount for volume usage (decreasing block rates). Conversely, constant or fixed volumetric charges involve a set price that does not change based on consumption (Fenn and Kitchen 2016: 57). Despite contrasting views on which model is best across jurisdictions, there is agreement that a user fee model is the preferred approach for promoting water sustainability.

For many First Nations communities, user fees by themselves may not be the magic bullet for promoting water security. The infrastructure needed to monitor and record water usage, such as a fully functioning water-meter system, is not installed in many First Nations homes, so many families end up paying a monthly flat fee or no fee at all. In one community in Ontario, only 15% of homes have working water meters. Even if band councils were to install water meters in all homes, their revenue potential would be limited by the local economy. If unemployment is high, then user fees are unlikely to be effective because residents may lack the necessary income to pay their water bills. In 2011, the National Household Survey reported an employed rate of 62.5% among Aboriginal people aged 25 to 64, compared to 75.8% for the same demographic group of non-Aboriginal people (Statistics Canada 2015). If these numbers are accurate, user fees alone would be an ineffective mechanism for financing water structures. Furthermore, Phare (2009: 19) argues that the federal government has a fiduciary responsibility to First Nations peoples, which means it should subsidize water services for First Nations. A sole reliance on user fees is clearly not in the best interest of First Nations peoples nor would it allow for the adequate protection of First Nations waters.

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In these situations, First Nations governments have two options. The first is to lobby and hope that the federal government will meet its legal duty and provide long-term, stable and separate funding for the maintenance and renewal of water systems. Indeed, several actors (e.g., Assembly of First Nations, Chiefs of Ontario) have called for this kind of action. The second option is for the First Nations government to encourage or generate a vibrant local economy, either by attracting investment or exploring investment opportunities through band-owned economic development corporations (Cornell and Kalt 1994). Creating new jobs may increase the income of members, which allows First Nations governments to charge appropriate user rates to cover the costs of repairing and maintaining their water infrastructure. Alternatively, band-led investments and developments that generate revenues directly feeding into First Nations government coffers can also subsidize household water use, leaving families and individuals with either low flat-fee rates to pay or no user fees at all.

However, First Nations economic development comes with water risks. Grassy Narrows and Attawapiskat First Nations, for instance, face persistent contamination of drinking water sources from past pulp and paper milling and current diamond mining activities (Ilyniak 2014; McIntyre Media 2015). As a result, some First Nations oppose development in the mineral rich “Ring of Fire” in northern Ontario, despite estimates of 5,500 new full-time jobs (Council of Canadians 2012; Hjartarson et al. 2014). While economic development and job creation are ways to address financial challenges, careful assessment of community water security risk is also needed.

Regulation: preventing the tragedy of the commons

Municipal water systems all rely on some sort of water source – a lake, river, or groundwater reservoir. Without some sort of collective action equilibrium, these water sources and the systems that draw upon them are likely to deteriorate due to the tragedy of the commons. The tragedy of the commons refers to a set of situations in which “someone takes more than his pro rata part of a resource, to the detriment of the common good he shares with other individuals” (Corral-Verdugo et al. 2002: 527; see also Lee et al. 2008; Trawick 2003). Where hunting is not regulated by Indigenous customs or game regulations, for instance, the tragedy of the commons occurs when individuals seek to maximize their personal gain by hunting as many deer as possible, thereby unintentionally exhausting the entire deer population in the area. It can also occur when individuals or companies dump their wastewater into lakes and rivers or when there are too many cars on the highways, thus damaging water supplies and emitting significant amounts of air pollution into the atmosphere. In the context of First Nations communities and municipalities, the concept may help describe situations where some residents take more than their fair share of safe water by illegally tapping into water lines to build and supply new additions, homes and buildings, which in turn may deplete and damage the resource significantly.

In Canada, federal and provincial regulations are critical for meeting minimum standards for drinking water. Each province enforces and maintains its own regulatory standards for: 1) monitoring and testing, 2) construction approvals, 3) laboratory certifications, and 4) public notifications (Canada’s Ecofiscal Commission 2017). Several reports on source water protection observe that Canada lacks sufficient regulations to protect water in First Nations communities (Lukawiecki, Plotkin and Boisvert 2018: 2). Federally, the “Guidelines for Canadian Drinking Water Quality” is meant to structure sampling, testing, and reporting on water quality and is prepared and maintained by a joint federal-provincial-territorial committee. However, these guidelines do not include specific consideration of First Nations concerns

and are only enforceable through federal contracts for hardware and services (Health Canada 2007). Meanwhile in Ontario, while the *Clean Water Act* (Government of Ontario 2006) aims to ensure source water protection for all residents, it does not address the specific issues that plague First Nations communities.

An additional complication is that intergovernmental coordination is difficult because the provinces may not have the same legal obligations as the federal government to First Nations communities. Provincial involvement in First Nations water governance varies by province (Canada, Expert Panel on Safe Drinking Water for First Nations 2006). First Nations in Ontario, for instance, are not bound by, although some do voluntarily adopt, provincial standards. As well, "... the position as stated by the federal government makes no provision for a role, even a voluntary one, for the province for ensuring the safety of drinking water on First Nations reserves" (Walkerton Inquiry 2002: ch. 15: 4). It is also unclear whether the courts would support provincial involvement in ensuring safe drinking water for First Nations. It has been suggested that provincial laws can apply to First Nations when the laws do not relate to "Indianness"; however the courts have found that local government functions, including water and wastewater provision, are a fundamental aspect of the federal government's jurisdiction over Indigenous peoples and lands (Canada, Expert Panel on Safe Drinking Water for First Nations 2006: 47-48). Also, s. 88 of the *Indian Act* declares that provincial laws of general application can apply to First Nations peoples as long as such laws do not conflict with the *Indian Act* or the *First Nations Fiscal Management Act*, leading provincial governments to frequently argue that "s.91(24) [of the Constitution] frees them from any responsibilities, especially those involving costs or risks, for on-reserve matters" (Canada, Expert Panel Report on Safe Drinking Water for First Nations 2006: 48).

There is some optimism that the Canadian government may act on improving the regulatory environment for First Nations communities. Most notably, the federal government passed the *Safe Drinking Water for First Nations Act* (Government of Canada 2013) in partnership with First Nations communities to "...develop enforceable federal regulations to ensure access to safe, clean and reliable drinking water; the effective treatment of wastewater; and the protection of sources of water on First Nation lands" (Assembly of First Nations 2017). Despite some optimism about the *Act*, some First Nations leaders are worried about its impact on Treaty rights and that it may simply download services, rather than transfer real authority and jurisdiction (Assembly of First Nations 2013). Indeed, while the *Act* promotes partnership between First Nations and non-First Nations leaders, it maintains the right of the federal government to assert its authority over water systems "to the extent necessary to ensure safe drinking water on First Nations lands" (Government of Canada 2013: s. 3). Additionally, leaders are concerned about

the federal government's willingness to provide enough financial support to meet the challenges of inadequate infrastructure and regulations (Assembly of First Nations 2017). In the end, provincial governments have a limited role in ensuring safe drinking water for First Nations (although some provinces, such as Ontario and British Columbia, have sometimes gone beyond their legislative responsibilities and voluntarily provided cash and services) and the federal government is unable to effectively implement regulations without clear support from First Nations communities.

At the First Nations community level, water by-laws and regulations vary from some communities with no by-laws to some with more extensive ones (McGregor 2012). Very few First Nations communities have passed a set of comprehensive by-laws akin to what many Canadian municipalities have, likely because of implementation and enforcement challenges and the difficulty of getting community support for what might be perceived as Western governance structures. In addition to *Indian Act* by-law making powers, First Nations do have options to craft local governance frameworks while remaining under the *Indian Act*. These include operating under the *First Nations Land Management Act* to draft a land code and pass water-related by-laws; developing a constitution and enabling framework for community laws based on the inherent right to self-governance; or proactively developing the structures and processes that may be required by forthcoming regulations under the *Safe Drinking Water for First Nations Act*. While these options may not directly address enforcement challenges, laws and by-laws developed by the community are a way for First Nations to take greater control of their water systems.

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There are cases where longstanding regulations exist. The Mohawk Council of Akwesasne, located about 150 kilometers southeast of Ottawa, Ontario along the St. Lawrence River, has long had a comprehensive set of water protection by-laws (Mohawk Council of Akwesasne 1964). In 1964, the community passed a set of 22 by-laws to manage its system, which expands across several water and wastewater facilities serving local Mohawk First Nation communities (Mohawk Council of Akwesasne 1964). These measures continue to govern the water and wastewater system today: they provide basic guidelines for the construction and maintenance of the waterworks system; the payment of different kinds of water rates; the use of water supplies; the technical requirements for user water connections,

maintenance and repairs; and the role of the water commissioner (Mohawk Council of Akwesasne 1964). In terms of user fees, the document still contains pricing indexes reflective of the era in which it was created. The annual flat usage rate for residential users and members of the band is thirty dollars and for commercial users forty-five dollars (Mohawk Council of Akwesasne 1964: 3). Despite these low rates, the community's water outcomes have been fairly positive (with community risk reports assessing its water system as being low to medium risk) especially when compared to other communities (Neegan Burnside 2011b: 23). While other factors have undoubtedly contributed to these outcomes, the band council's long-standing regulations around water have likely played a central role.

Based on these experiences, First Nations communities interested in regulating water may need to think of their water systems more expansively in terms of by-laws and regulations. Besides looking at what other First Nations communities have done, another possibility is to also look at Canadian municipalities. A typical suite of municipal by-laws includes a water and wastewater policy, but also regulations related to source water protection, the procurement of infrastructure, financial administration and zoning, roads maintenance and vehicle use, property management, business operation, grievances and conflicts of interests, drainage, emergency response planning, document control and communications (City of London 2008).

Government-imposed regulations are not the only way to address these kinds of issues. Some researchers have found that the deterioration of common resources, like water, can be avoided without the use of government regulation or intervention. Water users often generate formal or informal cooperative arrangements organically and voluntarily amongst themselves (Ostrom et al. 2002). In the absence of these types of equilibria, however, it is likely that, especially in the absence of user fees, some sort of comprehensive government regulation is needed to accurately reflect the current and future cost of water services.

Formalization of decision-making

The literature generally suggests that public administration is more likely to be effective when the day-to-day management of public programs and services is kept separate from electoral politics and direct political interference on specific matters (Fenn and Kitchen 2016: 107; Svava 2008). In policing, for instance, it is generally accepted that elected officials can and should establish broad policy frameworks but "cannot attempt to instruct any police officer about what to do about anything [specific]" (Sancton 2015: 54). To do so would be to undermine the effectiveness of the police and their responsibilities to the general public.

Similarly, the authors of the Harvard Project on American Indian Economic Development have long argued that First Nations economic development corporations and the projects they pursue are more likely to succeed when elected officials are limited to providing broad, overall policy direction and business leaders are empowered to make day-to-day business and operational decisions within that framework (Cornell and Kalt 1994).

In the long run, inserting politics into day-to-day business decisions invariably undermines efficiency and productivity, saps the resources of the organizations, and runs tribal enterprises into the ground. The primary economic task of a nation's government is not to make day-to-day business decisions, but to create and sustain an appropriate economic environment for that nation, to lay in place the rules of the game that economic players then follow, and to make *strategic decisions* about the overall direction development should take (Cornell and Kalt 1994: 25-26; emphasis in the original).

This logic also applies to the administration of First Nations water systems and services (Canada Ecofiscal Commission 2017: 4). Good governance in this context likely requires First Nations elected officials to focus on developing general and broad parameters for effective water policy and management. In practical terms, this means developing and approving by-laws, regulations, policy directions, and strategic plans, and authorizing the purchase, repair and upgrading of assets and staffing complements. The primary task of the public works staff, on the other hand, is to advise and implement these documents and broad directions in a fair and impartial manner and on a case-by-case basis. The key is to find a way to establish and maintain these segmented tasks and relationships.

Most First Nations ensure separation between elected officials and water operations, assigning water and wastewater services to some sort of department of public works, technical services, or community and capital planning. This department is usually managed by a director and overseen politically by a councillor, or in larger communities, a council committee (made up of one or more councillors and sometimes one or more band members), who maintain the portfolio to oversee water operations. This is the case, for instance, at Membertou First Nation, Chippewas of the Thames First Nation, Samson Cree Nation, and the Mohawk Council of Akwesasne. At Whitecap Dakota First Nation, the community has a public utility called the Whitecap Utility, which is administratively controlled by the Department of Housing and Public Works. According to the community's website, the utility is responsible for managing the water treatment plant, its operators and filtration systems (Whitecap Dakota 2018). While public documents do not provide any information on how Chief and Council, the department, and the utility operate and relate to each other, it seems plausible that the creation of a public utility to manage wastewater provides at least some additional protection from any potential day-to-day political interference compared to a political system without such a utility.

Lessons from Anishinaabek perspectives

While these public administration insights are a useful starting point for constructing a water governance framework for First Nations communities, they must be integrated with Indigenous knowledge and values to be effective and legitimate. First Nations communities, as Indigenous nations, have well-established constitutional orders and legal traditions that differ and predate Canadian ones by many centuries and remain in operation today (Borrows 2010). First Nations communities are also embedded in unique political and legal relationships quite different from what municipalities enjoy. That said, most First Nations operate under the *Indian Act* with a federally imposed band council system emulating many of the political structures and responsibilities familiar to municipal residents. It seems logical, therefore, to construct a governance framework that draws upon the insights from public administration and Indigenous traditional knowledge.

While these public administration insights are a useful starting point for constructing a water governance framework for First Nations communities, they must be integrated with Indigenous knowledge and values to be effective and legitimate.

There are different views and terminology around Indigenous traditional knowledge or the knowledge of the original people (e.g., traditional knowledge, traditional ecological, traditional wisdom) (Von der Porten et al. 2016). Indigenous traditional knowledge is viewed here as the ways in which communities make local decisions that impact water where First Nations beliefs, values and priorities are paramount. This perspective does not negate Western technology or knowledge in providing safe drinking water, but rather elevates Indigenous decision-making processes as a valid way for communities to consider impacts, make trade-offs and implement action around water. In practice, this involves recognizing the cultural significance and First Nations responsibility for and jurisdiction over water within communities; ensuring a leading voice for women as protectors of water; and inclusion in broader policy decisions (Arsenault et al. 2018).

Here we focus on the Anishinaabek tradition, given the reasons outlined earlier and because it is important to not privilege Western approaches over Indigenous ones (Castleden et al. 2017). Instead, an Indigenous water governance framework must integrate Indigenous traditional knowledge to maximize the likelihood of producing processes and outcomes that benefit and are seen as legitimate by Indigenous communities (McGregor 2012). In

this section, we focus on three important Anishinaabek principles: 1) the *intrinsic relationality between nature and people*; 2) the *seven generations principle* that emphasizes, among other things, the importance of intergenerational planning when it comes to water; and 3) the *key role of women* in managing relationships and teaching about water in Indigenous communities.

Relationality

Non-Indigenous peoples in Canada tend to treat water as a resource or property to be used and managed for the benefit of citizens and residents. Canadian laws tend to focus on establishing rights or jurisdiction over water through property rights to land adjacent or below water bodies (Phare 2009: 8). Aboriginal (a term inclusive of First Nations, Métis and Inuit) rights, which are protected under section 35(1) of the Constitution, form the basis for First Nations' rights to water. Aboriginal rights are distinct from other basic rights, including Charter rights and property rights, in that they belong solely to Aboriginal peoples and they include activities that are "an element of a practice, custom or tradition integral to the distinctive culture of the Aboriginal group claiming the right" (Kulchyski 2011: 37). First Nations may have Aboriginal rights to water if they did not cede their rights through treaties or land claim agreements with the Crown, according to the *Van der Peet* decision (Phare 2009: 9). Phare (2009) also argues that "no treaties specifically extinguish Aboriginal rights to water in their text" (p. 11).

Not only are Canadian notions of water rights significantly different from Aboriginal conceptions of water rights, but an Indigenous approach also conceives of water as being something quite different from a manageable resource. As Szach explains (2013: 16), "...firm followers of the Anishinaabe way of life take a different view.... Features of the land (and water) are to be considered our *relatives with their own agency, incapable of being possessed*" [emphasis added]. One's relationship to water is not conceived of in terms of property rights or authority, but instead is a *responsibility* that Indigenous peoples are obligated to undertake (Longboat 2013: 7). Water is to be respected and shared in relation with multiple actors and phenomena, rather than just human beings. Indigenous peoples have and maintain a distinctive spiritual relationship to water that is rooted in a feeling of responsibility for ensuring its future vibrancy and sustainability for all who benefit from its existence. Considerations of Indigenous relationality to water are rooted in a framework that incorporates First Nations "traditional knowledge" (TK). Using the TK lens to approach water governance promotes a balanced perspective that can incorporate "rights-based" and "responsibility-based" considerations by focusing on nation-to-nation relationships (McGregor 2012: 494).

Seven generations

An Anishinaabek approach to water governance must adhere to the “Seven Grandfathers” and “Seven Generations” principles, which include respect, wisdom, love, bravery, honesty, humility, and truth (Longboat 2013: 6). These values must inform how community members approach and address water usage – similar to and reflecting the relationality argument described above. Respect, wisdom, love, bravery and the rest are relational values held between equally important beings and entities, very different from the kinds of values one might use to describe the relationship between property and human beings (Flanagan, Alcantara, and Le Dressay 2010). In practical terms, communities and individual members implement these values with respect to water by moving away from Western-imposed systems and towards a TK-based approach. Examples include time to simply sit, talk and tell stories about water, share teachings, and pass on knowledge to users, politicians and administrators. Decisions about water should be driven by consensus and, therefore, creating regulations through popular vote may not be appropriate (McGregor 2012).

Indigenous Creation and Re-Creation stories could be used to bridge Indigenous understandings of water management and non-Indigenous understandings, as both are concerned with future sustainability.

The Seven Generations principle also requires communities to ensure that present decisions about water will not negatively impact subsequent generations and their relationships with water (McGregor 2012: 11). Planning for water governance must take the long view and deeply respect the history of the land. As described by Longboat (2013: 6), “For First Nations, water is a sacred gift, the lifeblood of Mother Earth, and all water, not just water for human use needs protection. Through Indigenous ceremonies, laws, and protocols, First Nations have exercised inherent responsibilities to fulfill obligations to the Creator to ensure clean water for all living things since time immemorial” (see also Chiefs of Ontario 2008). In the teachings arising from Creation, there is the idea of holism and the importance of inter-relationships through nature. In the stories about Re-Creation, there are stark warnings that if people do not perform their holistic duties towards water, balance and harmony will not be maintained. Both cases contain a strong sense of duty and the presence of traditional knowledge about water, which represents a cyclical relationship related to life on Earth, all of which must inform policy decisions. Indigenous Creation and Re-Creation stories could be used to bridge Indigenous understandings of water management and non-Indigenous understandings, as both are concerned with future sustainability (Borrows 2018).

The role of women

Finally, Anishinaabe conceptions of water emphasize that Anishinaabek women are the “keepers of water” (Longboat 2013: 6), something which has been recognized historically in various ways but also in the present such as during a Chiefs of Ontario (2008) regional forum on water that led to the drafting of the “Water Declaration of the Anishinabek, Mushkegowuk, and Onkewhonwe.” This declaration recognizes the special role of women as the keepers of traditional knowledge and the messengers who “...talk for the water” (McGregor 2012: 12). Indigenous peoples see women and water as having a special relationship because they both create life (McGregor 2012: 12). Contemporary Indigenous water governance, therefore, must recognize the central role of women to all decisions affecting how water is used, managed and protected (McGregor 2014: 498). It is not sufficient to simply extract traditional knowledge about water from women in the community, but rather they must lead and be integrated throughout the decision-making process.

It is not sufficient to simply extract traditional knowledge about water from women in the community, but rather they must lead and be integrated throughout the decision-making process.

The special relationship that women have with water is common in many Indigenous societies (Whyte 2014). Unfortunately, women are commonly excluded from the governance process, especially in contemporary times, which is problematic due to the practical and spiritual connections women have to water. As in some non-Indigenous societies, women are also connected to water through the gendered division of labour. As family and household caretakers, First Nations women are often the first to notice if something is wrong with the water and have in-depth knowledge of the practical uses of water in everyday life (McGregor and Whitaker 2001). In practical terms, these considerations mean that women must play a central role in creating and implementing First Nations water governance systems, which would be consistent with recommendations for increased Indigenous representation and participation on various federal, provincial, and regional water bodies.

Conclusion: implementing effective governance

Overall, we have made a theoretical argument for why and how governance at the local level could be used effectively to promote First Nations water security in Canada. Good governance requires: sufficient financial resources

to maintain, operate and renew water systems; a set of regulations and by-laws to avoid the tragedy of the commons, and; the formalization of public administration to recognize and entrench the proper division of labour between elected officials and band staff. At the same time, Anishinaabek governance requires that water not be treated as a commodity to be exploited for the sole benefit of users, but instead treated with respect, wisdom, love, bravery, honesty, humility, and truth; these are values that describe human beings in mutually beneficial relationships. Anishinaabek traditions also point to the importance of intergenerational stewardship and the role of women as keepers of the water, whose knowledge must inform all aspects of decision-making involving water.

Scale is an overarching consideration that could be addressed by creating regional bodies to pool the resources and capacity of multiple First Nations communities.

How might this framework help policymakers design and implement a new water governance structure at the First Nations level? In this section, we provide a tentative and preliminary answer based on our theoretical assumptions. We realize that some readers will be unhappy with this strategy and instead prefer empirical data. While collecting and analyzing data are always good strategies, we also think it is useful to construct a fully developed theoretical framework prior to data collection so that researchers and practitioners have something to draw upon as they experiment with governance designs and the analysis of existing models. We see this article as accomplishing this important goal and encouraging others to take seriously the importance of governance for improving First Nations water security.

We recognize that it might not be feasible for small First Nations communities to independently implement every aspect of the governance model presented in this article. Small First Nations communities lack economies of scale to comply with regulatory requirements because many regulations are standardized for larger systems (McFarlane and Harris 2018). Small systems also lack adequate human capacity (McFarlane and Harris 2018), which can make establishing an administrative water body especially difficult. Working with other communities is one way to overcome these challenges. For example, some special purpose bodies, such as Conservation Authorities, are functionally specialized and serve multiple municipalities which takes the pressure off small communities to manage complex and resource-intensive tasks like flood mapping on their own. Tribal Councils could also overcome challenges associated with scale. For example, the Wabun Tribal Council (<https://www.wabuntribalcouncil.ca>), headquartered in Mattagami First

Nation south of Timmins, Ontario, serves five First Nations. It provides several services to member First Nations that they would likely struggle to provide on their own. Scale is an overarching consideration that could be addressed by creating regional bodies to pool the resources and capacity of multiple First Nations communities.

With these caveats in mind, the first step in implementing our framework should likely involve drafting a broad policy statement or amendment to the community constitution (where one exists) that sets out the broad parameters and community's vision for its water security. A community constitution defines the fundamental guidelines that set out the powers, authorities and laws to govern the First Nation band (as defined by the *Indian Act*). Von der Porten et al. (2016) concur that for First Nations to be legitimately and satisfactorily involved in water policy reform, it requires respecting First Nations positions on water and allowing them to articulate these positions with their own mechanisms. Several *Indian Act* First Nations in southern Ontario have developed community constitutions as a framework toward developing their own laws (e.g., Kettle and Stoney Point First Nation Community Constitution, "Wiiwkwedong Miinwaa Aazhoodenong"; Chippewas of the Thames First Nation Constitution "Deshkan Ziibiing Anishinaabeg").

After recognizing water as a part of the constitutional regime, a broad policy statement focusing on water should be created by First Nations women, community members, staff, politicians, and other experts and stakeholders. Its contents should be centred around First Nations principles (see Anishinaabek principles). Such a policy would speak to the notion that water is not a commodity to be used solely to satiate individual self-interest, but must be treated with respect and reciprocity in the way that one would treat another human being. The community could then draft a comprehensive suite of by-laws and regulations that implement these broad goals and visions at the community and individual levels. This might involve creating regulations that encourage conservation through residential water use restrictions; enforcing wastewater treatment protocols and commercial run-off limits from farms; restricting or managing recreational activities on source water bodies; limiting certain commercial ventures; purchasing water efficient hardware; installing water meter; and requiring residential and commercial buildings to tap into the wastewater system, among other things. It might also involve creating educational programs and services to help members appreciate the importance of traditional understandings of water and its use in the community.

To administer the by-laws and regulations, the community should create or lever an existing administrative water body in the government structure (that would ideally sit between the department of public works and the band council) or a special purpose body to oversee and manage the department or utility responsible for the day-to-day operations of the water

system. Committee members should consist mainly of Anishinaabe water keepers, but also the councillor in charge of the department of public works, the director of the department, and perhaps members from the community. Depending on the traditions and desires of the community, it may be that only the water keepers would have the power to make decisions, with elected officials, members and band staff serving as advisors or ex officio members.

Finally, the community must sort out which economic model they will use to financially support the water system and its governance structure. Of course, most communities will likely want to generate as much own source revenue as possible and maximize the intergovernmental transfers available from other levels of government. They also must decide on the appropriateness of a user fee model and the specific permutation that will best implement the vision outlined in the vision statement. Some might argue that charging any fee for water is antithetical to an Indigenous viewpoint that sees water not as a commodity but as something more relational, reciprocal, and capable of agency. However, a user fee covers the costs of *servicing and providing* water to those users and buildings that require it. Thinking of user fees in this way conceptualizes and reframes user fees as a means of honouring and respecting the water and promoting a reciprocal relationship. Through fees, users contribute financially to the protection and reification of the water by supporting the infrastructure, governance structures, and regulations that honour, love, respect and protect it, all in the name of inter-generational stewardship.

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