# Testing the limits of water as a human right: A comparison of First Nations in Canada and Palestinian Communities

**by**

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# Abstract

Researchers have long questioned if legally-framed efforts, such as the UN declaration of the Human Right to Water, are adequately framed to enable universal enjoyment of the right (Singh et al, 2016; Donnelly, 2006). This document investigates these questions around the realization of the human right to water by comparing First Nations Communities in Canada and Palestinian communities. I posit that both communities continue to face lower rates of water security as a result of settler colonialism, jurisdictional fragmentation and funding patterns. I discuss how these similarities can be related directly to shortcomings of the Human Right to water, specifically its nature as a derivative right, the hegemonic framework, and limited applicability on the ground.

The objective of this research is to discuss the common barriers to water access facing these two groups and identify tools that can better serve marginalized communities in realizing the human right to water.



**Keywords**: water security; settler colonialism; First Nations; Palestine; water access; water policy

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# Chapter 1.

# Introduction

Freshwater plays an irreplaceable role in sustaining human life, supporting our vital organs as well as sanitation, agriculture and energy needs. This resource was recognized as vital early on in human history and can be seen by the settlement patterns of ancient civilizations along rivers such as the Euphrates, the Tigris and the Nile (Falkenmark, 2016). In addition, water is also tied to many spiritual and cultural aspects of civilizations around the world. For example, origin stories of many of Canada's First Nations begin with a social and physical connection to the lands and waters around them (Atleo, 2004; Castleden *et al*, 2015).

In 2010, the United Nations General Assembly declared water as a human right, recognizing safe water, together with adequate sanitation, as essential for the full enjoyment of life and all human rights. Despite this international recognition, many communities continue to face barriers to the full realization of this right. In particular, marginalized communities continue to face higher rates of water insecurity (Singh et al, 2016; Jayyousi, 2007). If no significant change is made in the coming years, it is anticipated that global climate change and population growth will further exacerbate current challenges around universal and equitable access to safe and sustainable water resources.

First Nations and Palestinians both represent communities impacted by lower rates of water security as a result of complex political, economic and environmental interactions. In Palestine, water insecurity is a result of unreliable access, poor infrastructure and inequitable policies under Israeli occupation. `First Nations living on reserve in British Columbia also experience higher rates of water insecurity than settler Canadian communities. In 2009, the federal government estimated that compared to other Canadians, First Nations' homes are ninety times more likely to be without running water (Boyd, 2011). Reserves are consistently more likely to experience high risk drinking water systems and long-term boil water advisories when compared to off reserve communities (Boyd, 2011; Harden and Levallient, 2008). These stark differences

in water access shed light on the fact that water security is not only rooted in the environmental availability but is equally rooted in politics and power.

The discussion around Israel as a settler colonial state has been well debated and I support that after 1967 as a result of occupation, domination and legislation the Israeli state can be considered a colonizing state (Broich, 2013; Zeitoun, 2008; Selby, 2013; Gasteyer et al, 2012; Penslar, 2017). French scholar Maxine Rodinson (Penslar, 2017) wrote that “One can speak of colonization when there is, and by the very fact that there is occupation with domination: when there is, and be the very act that there is, emigration with legislation.” This can be seen through Zionist immigration to Palestine and legislation such as the Law of Return in 1950, which gives Jews the right to come and live in Israel and to gain Israeli citizenship. Similarly, British immigration to Canada, and legislation such as the Indian Act in 1876 which aimed to eradicate First Nations culture in favour of assimilation into Euro-Canadian society.

The UN declaration on the Human right to water aims at ensuring all individuals enjoy adequate and safe water resources. My research uses a comparison of today’s First Nations in Canada and Palestinian Communities to explore the barriers to the realization of the human right to water and discuss potential tools for improving the realization of the human right to water in these communities.

## 1.1. Methods

The methods utilized for the research presented in this report includes a literature review on key topic areas related to water security, water as a human right and water in both Canada and Palestine. The central themes of the literature review include research on water as a human right, international compliance, settler colonialism, inequality in water access and current water policy.

Through my literature review I identified individuals who were knowledgeable on relevant topics. I then gathered contact information based on online information and attempted to contact individual. There was a low response rate from contacts, and I was only able to speak with five individuals, seen in Appendix I. Each interview conducted was structured around the interviewee’s area of expertise. Some example questions include:

- Do you think the human rights perspective is useful in increasing water access to more marginalized and poor communities?
- Where does your reserve receive its water? What infrastructure is in place to monitor quality?
- What opportunities do you see to overcome barriers related to water quality and access?

I also attended the UN Symposium on Women and Water Security for Peacebuilding in the Arab Region that took place in Beirut, Lebanon on May 9 – May 10, 2018. The symposium aimed to bring together representatives of Arab member States, representatives from relevant international, regional and national organizations, as well as civil society institutions and experts engaged in gender and water security challenges affecting women and girls in Arab States (full list of participants can be found online: https://sustainabledevelopment.un.org/womenandwatersecurity). The symposium focused on developing ways in which women can be recognized as agents of change and advance the emerging water security gender nexus[1].

The symposium included two presenters from Palestine, Manal Tamimi and Dr. Karen Assaf, who described the on the ground situation around water access in the occupied territories. This opportunity allowed me to engage with these Palestinian participants to gain specific insights into the Palestinian water challenges and concerns. The outcome of the symposium included the creation of several recommendations to advance the pursuance of water security for all, from the individual to the interstate level. More information can be found online at https://sustainabledevelopment.un.org/womenandwatersecurity, which includes a full report and list of participants.

As a non-Indigenous and non-Palestinian researcher, it is important to state that many of the issues explained in this report are only summaries of events and associated impacts, the lived experiences and traumas go well beyond health and water impacts and are outside the scope of this research (Basdeo and Bharadwaj, 2013; Efron et al, 2018).

[1] Water security and gender nexus recognizes the pivotal role that women play in the provisioning, management and safeguarding of water resources in the Arab Region. For more information on: https://www.sfu.ca/pwrc/research-and-projects/gender-water-security-and-peacebuilding.html

## 1.2. Terminology

In recognizing that terminology and word choice can represent the history of relationships and events and "can represent something more than just a word. It can represent certain colonial histories and power dynamics" (First Nation Studies Program, 2009). I use the following section to briefly define the word choices used in this report.

Using the definitions provided by the UBC Indigenous Foundations I use the term "First Nation" as a term used to describe Aboriginal peoples of Canada who are ethnically neither Métis nor Inuit. This term came into common usage in the 1970s and '80s and generally replaced the term "Indian," although unlike "Indian," the term "First Nation" does not have a legal definition. While "First Nations" refers to the ethnicity of First Nations peoples, the singular "First Nation" can refer to a band, a reserve based community or a larger tribal grouping and the status Indians who live in them.

In this report the Occupied Palestinian territories refer to the Gaza Strip, West Bank, and East Jerusalem which have been recognized by the International Court of Justice and the United Nations security council as occupied territories . "Occupation" is a legal status in international law, defined by the 1899 and 1907 Hague Regulations which define it based on the military authority established (ICRC, 2012). The occupation in Palestine stems from UN Resolution 242 which came about after the Six-Day War in 1967 and called on Israel to give up the territories for peace with its neighbors[2]. The intricate history of occupation by Israel is beyond the scope of this research and has been researched extensively (Zeitoun and Allan, 2008; Selby, 2013; Feitelson *et al*, 2014; Broich, 2013;Nijim, 1990). This report will refer to Israel in the context of being a settler colonial state, which is thoroughly reported in academic literature (Broich, 2013; Zeitoun, 2008; Selby, 2013; Gasteyer *et al, 2012*). Israel is a product of the Zionist movement, which was a European inspired political movement. Though it was not a straight forward colonial movement, a colonization by a state, it was colonization by a group who were being deeply discriminated against within Europe and seeking to establish a homeland. Nonetheless, they brought with them many advantages: economic, technological, political and cultural (Selby, 2019).

[2] United Nations Security Council Documents. Resolution 242(S/242). 22 November 1967

I use the term settler colonialism to refer to both the Canadian government in relation to the Indigenous people of Canada and the Zionist movement and the State of Israel in relation to Palestinians. A settler colony is distinguished from an administrative one in that the primary focus is on the permanent appropriation of land rather than the political and economic subordination of the Indigenous populations, the monopolization of its resources, or the control of its markets. It is the expropriation of land for the express purpose of settling a permanent colonial population, that is referenced in settler colonialism (Lloyd, 2012). Wolfe (2011) has argued there are one of two possible relations to Indigenous populations; exploitation as a subordinate labor force or their rapid extermination. Albert Memmi (1990) highlights the assumption of a racial hierarchy in settler colonialism: "both the prestige and the legitimacy of the settlers depend on the conviction of their superiority to the indigenous, whether in terms of the higher development of their culture and moral values or in terms of material civilization."

As Lockman and Shafir have shown, this applies to the relationship between the Zionist movement/the State of Israel only during the period following the June War of 1967 and only in so far as 'exploitation as a subordinate labor force' is concerned. In the 1989 monograph *Land, Labor, and the Origins of the Israeli-Palestinian Conflict,* Shafir provided an effective critique of the then dominant ideational approach to the study of Zionism and the making of Israel. He demonstrated that Zionist colonization and state building cannot be understood simply as consequences of the ideas developed by Zionist leaders like Theodor Herzl. Rather, Shafir (Shafir, 1989) insisted on the importance of understanding the history of Zionism as relational history, that is, as shaped through the interaction between Zionist settlers and local Palestinian people, and especially their competition over the control of land and water. In his 2012 article Lockman argued convincingly for the need to broaden Shafir's perspective beyond economic factors. Lockman showed that coercion and violence, too, were crucial factors in the making of the Yishuv (i.e., the Zionist movement in Palestine before the creation of the State of Israel) and of Israel as a colonial state. Both Shafir's and Lockman's interventions are crucial because they show that the concepts and practices of Zionism need to be historicized, as they kept evolving from the 1890s through the Mandate period of British colonial rule and into the late twentieth century.

The underlying importance of the historic struggle of the Jewish people in Europe, seeking to establish a new homeland and return to what was seen as the "holy

land”.  Settler colonialism is not engrained in the Zionist movement, yet with the collapse of the Ottoman Empire and the support of the British Mandate many economic and technological advantages resulted in large numbers of Jewish immigration coming to think of the land as their native land, as opposed to an abstract "holy land". In this regard the Zionist movement resembled the settlement of British Colonists in early modern North America (Penslar, 2017).

In Canada, settler colonialism was defined largely by the quest to assimilate Indigenous populations into the colonist culture. Morgensen (2011) explains the impact of the 1876 Indian Act in determining the relationship of Canada to the Indigenous people. Stating that *“While this procedure may appear to preserve life, in its definition of over six hundred ‘First Nations’ whose members received ‘Indian status’ by state decree, the Act also separated myriad communities of common nationality, radically reduced land bases (if any remained), and enabled the state to determine the fact or erasure of their existence.”* Showing how the legislation put in place by the British Crown at the time focused on erasing the culture of Indigenous people and replacing it with Canadian culture. The British colonists brought with them many economic and technological advantages, which they deemed superior to Indigenous practices and culture, ultimately supporting their reasoning for dispossessing Indigenous people from their land and forcing assimilation through a period violence and oppression.

Canada and the State of Israel today exercise a form of colonial rule over First Nations Communities and the Palestinians in the Occupied Territories, it is important to point out that colonial rule in both cases looks very different. For example, First Nations do not face the overt harshness and brutality of military occupation, including checkpoints, high-security walls or the destruction of infrastructure as do Palestinians. First Nation colonial rule no longer exhibits overt violence as Canada acknowledges its painful history and supports reconciliation and working towards a New Relationship with Canada’s Indigenous peoples.

# Chapter 2.

# Water Security and the Global Agenda

## 2.1. Water Security

Today, access to safe water remains at the root of human livelihoods, health, economy and culture. Access to safe water is complex in that it relies not only on the physical water availability and quality of water but is also impacted by political, institutional, and economic realms (Mehta, 2014). Water security is the encompassing term which bridges various environmental and political elements to ensure access to safe water. UN Water (2013) defines water security as “The capacity of a population to safeguard sustainable access to adequate quantities of acceptable quality water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against water-borne pollution and water related disasters and for preserving ecosystems in a climate of peace and political stability”.

Globally 785 million people continue to lack access to basic water services (WHO, 2019). The UN highlights that people living in poverty, remote and isolated places, Indigenous peoples and refugees may be more vulnerable or disadvantaged in terms of accessing water, sanitation and hygiene services (WWAP, 2019). Poor access to water not only impacts physical and mental health but also reinforces economic stress, due to higher expenditure on health and decreased ability to remain economically productive (Sarkar et al, 2015; Boyd, 2011). Despite increased attention on the international agenda on the importance of safe water, governments are often left to choose between their commitment to rights and market-based mechanism, with the latter tending to overrule commitment to providing affordable and accessible water equitably (Mehta, 2014). For example, pursuing mining in remote location for economic reasons despite impact to surrounding watershed and water quality for local communities.

As seen in Appendix III, Mehta (2014) classifies water security in four orders, which includes; physical, economic, adaptive capacity and social political processes. The table depicts the complex nature of water security and that it can be rooted not only in the physical presence of water, but equally in the economic and socio-political

processes. Exemplifying how in order to ensure water security, each of these orders must be addressed. I have completed the table using information found in the literature review to provide examples of how each order of water security is experienced in both case studies. Not applicable, implies that the community does not experience that particular order of water security. Low applicability implies that this may be present in some but not all communities. Fully applicable implies that this order of water security is experienced by most community members.

## 2.2. International Agenda

The importance of water and the need to address scarcity and availalibity has been evolving within the international development agenda. The issue of deteriorating global safe water and sanitation has been on the international agenda since the 1976 United Nations Conference on Human Settlements, which recognized water as a human need and concluded that urgent action was needed by nearly two thirds of the populations (Biswas, 2016). This momentum was carried into the United Nations Water Conference in Mar del Plata, Argentina in 1977, where the right to access water for basic needs was explicitly recognized as a basic human need regardless of the communities' social, political or economic condition. Following, in 2000 the Millennium Development Goals, set global targets that included the reduction of one-half the proportion of people without access to safe drinking water by all 191 UN member states by the year 2015.

The convergence of this international attention occurred at the UN Committee on Economic, Social and Cultural Rights (CESR), in November 2002 when General Comment No. 15 (the HRC /RES 15/9) was adopted. Comment 15 Article I.1 states that: "the human right to safe drinking water and sanitation is derived from the right to an adequate standard of living and inextricably related to the right to the highest attainable standard of physical and mental health, as well as the right to life and human dignity."

The main concept put forth by the HRC/RES 15/9 was that the human right to water is a prerequisite for the realization of other human rights, such as rights to an adequate standard of living, health and food. The resolution reaffirmed that availability [3],

[3] The water supply for each person must be sufficient and continuous for personal and domestic uses. The quantity of water described must meet WHO guidelines.

quality[4] and accessibility[5] were all factors that apply to all circumstances for meeting this right. It also affirmed that the states have the primary responsibility to comply and develop mechanisms towards this goal. Attention to vulnerable and marginalized groups was also emphasized as integral to the success of this comment.

On July 28, 2010 the United Nations General Assembly explicitly recognized the human right to water and sanitation in Resolution 64, which includes the previous comments relating to water as a human right. The UNGA Resolutions states that: "*The human right to water is indispensable for leading a life in human dignity. It is a prerequisite for the realization of other human rights"* (A/RES/64/292, 2010).

This resolution was significant in that it was the first time that there was collective approval by the General Assembly in regard to the human right to water. 122 countries voted in favor of the resolution while 42 countries abstained from voting on the resolution, including Canada, the UK, the US and Israel. Many of the countries who abstained believed the resolution did not adequately set the scope of the right and feared that it would require extensive changes to policy. The onus remains on the state itself to regulate implementation and "*to develop appropriate tools and mechanisms, which may encompass legislation, comprehensive plans and strategies for the sector, including financial ones, to achieve progressively the full realization of human rights obligations related to access to safe drinking water and sanitation, including in currently unserved and underserved areas*." (UNGA, 2010).

The right to water carries both positive and negative aspects. Negative aspects, or rights, being that one can enjoy the right without the involvement of the government through policies of non-interference. Positive rights, on the other hand, requires action on behalf of the government for full enjoyment. The negative aspect includes the obligation of "refraining from engaging in any practice or activity that denies or limits equal access to adequate water" (article 21) (Amnesty International, 2016). While the positive aspect requires ensuring each person "sufficient, safe, acceptable, physically

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[4] The water required for each personal or domestic use must be safe, therefore free from micro-organisms, chemical substances and radiological hazards that constitute a threat to a person's health.

[5] Water and water facilities and services have to be accessible to everyone without discrimination, within the jurisdiction of the State party. This includes physical accessibility, economic accessibility, non-discrimination and information accessibility. *From UN HRC/RES/15/9

accessible and affordable water for personal and domestic uses" (article 2) (Amnesty International, 2016). Every Member States of the United Nations are obligated to respect, protect and fulfill human rights coupled with the principle of non-discrimination of the Social Covenant according to which states have to guarantee the rights of the covenant without discrimination of “any kind as to race, colour, sex, language, religion, political or other opinion, national or social origin, property or status” (UNGA, 1966). Until an individual’s right to water is fulfilled there is a positive requirement by way of the government to fulfill and respect human right. With water there is a constant responsibility by the government as the provision of water requires maintenance of infrastructure and adaptable policies to environmental conditions (Bradley, 2010).

As there is high commitment needed by the government in order to realize this human right, there is subsequently a large possibility for the government to control, limit or fail to uphold the human right to water. A violation of the human right to water would involve an individual, a group of individuals, a state, or other group violating its core obligation to others through direct action, an act of commission, or through direct acts of omission or negligence (Devlaeminck, 2013). As a non-binding agreement, the resolution gains legal power when a country incorporates it into their constitution or when it has been upheld in the courts.

It is worth noting that since the UN Declaration of December 1960 on the granting of Independence to Colonial countries and peoples. The UN has contributed to the anti-colonial movement, supporting state rights to self-determination. The importance of this has been debated as the independence of a state may go largely without UN involvement. For example, the fight for independence of French colonies, which started in Indo-China had little influence from the UN (Emerson, 1971). In other examples, such as Algerian independence from France, the UN held many debates and resolutions. On one hand scholars like Emerson (1971) argue that the significance of UN involvement remains unclear as to how it impacted the final result of the war and eventual independence. Whereas others, like Matthew Connelly (2002) demonstrate that the UN provided the Algerian FLN with a crucial international stage to push for independence from France in the context of the Cold War.

### 2.2.1. Sustainable Development Goals

At the UN General Assembly in 2015, 17 Sustainable Development Goals were adopted as part of the wider 2030 agenda for sustainable development. Goal 6 of the SDG's, as seen in Appendix II, directly calls for provisioning of safe water and adequate sanitation for all people, "to ensure availability and sustainable management of water and sanitation for all" (United Nations, 2015). The SDG goals are overlapping and integrated, where the pursuance of one goal often impacts other goals or targets and should be considered through an integrated multisector approach.

Given the importance of water for domestic purposes both target 6.1, to achieve universal and equitable access to safe and affordable drinking water for all by 2030 and target 6.2, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations, can be related to the UN resolution of water as a human right. Ultimately in pursuing water as a human right, states would also be working towards the 2030 global goals. If the human rights agenda does not act as a reason for improving water access to the described communities, then the SDG's may act as an alternative pathway for incentivizing for states to comply.

### 2.2.2. International Law

Though the UN resolution is a non-binding resolution it provides a basis for potential litigation and for the international community to collectively encourage governments to ensure access to safe and adequate water. Customary international law gains authority in that it is adopted by consensus, creating accepted norms and general principles which states should follow (Baer and Gerlak, 2015). These perceived international norms gain clout through the international response that occurs when these norms are broken and the resulting moral persuasion (Brandes et al, 2014). If a violation is accepted, then a new norm evolves, if the violation is rejected, then existing norms carry on.

However, international law lacks many of the foundational components of the rule of law, which raises questions about state compliance to legal integration at the international level (Choiciej, 2012). In order for the rule of law to exist and for compliance

there must be a basic legal architecture in place, which includes independent courts, separation of power between legislatures, accountable bureaucracies and a representative democracy among others. If a nation state is not able to provide this basic architecture than many of the foundational components of the rule of law and the ability to comply with human rights laws or other international laws is questionable. Customary international laws norms can however seep into law through judicial decisions (Borrows et al, 2019).

The human right to water declaration lacks legal and political accountability without dedicated resources from the state. As an international law there is little incentive for compliance and there is a weak framework for enforcement. Without which, the human right to water goes unrealized as financial, political, technical or institutional barriers arise. Though the resolution pushes an equality-based narrative there remain inadequate incentives to truly apply this right. In particular, under-served and politically-marginalized communities often do not hold adequate social and political clout to trigger governmental actions. In the following section I will discuss shortcomings of the Human Right to water declaration, which reduce its ability to support equitable realization for underserved communities.

# Chapter 3.

# Shortcomings of Human Right to Water Declaration

> International water rights do not address threats to the availability of clean water, pollution, depletion, monopoly, corruption, conflict of interest and mismanagement – and could even exacerbate them. The dark irony of international water rights is that they could frustrate the very objectives they are intended to achieve. (Pardy, 2011)

Researchers have long questioned if legally-framed efforts, such as the UN declaration of the Human Right to Water, are adequately framed to enable universal enjoyment of the right (Singh et al, 2016; Donnelly, 2006). As stated by Singh et al (2016) "A major drawback of the legal paradigm has been its inability to perceive the linkages between the right and societal realities.". As international law is customary law, based on norms, there are limited legal routes for enforcement and ensuring accountability, which undermines effective implementation. Pardy (2016) convincingly expresses the limitations of the human right to water, liking it to a "false panacea". Pardy highlights that the problems with the human right to water includes: i) not truly addressing the duality of water, its existence as both a commodity and a common resource, ii) does not address the real cause of water problems, iii) exacerbates scarcity and iv) entrenches an ideology which does not protect water resources. Based on the literature review I elaborate on three shortcomings of the human right to water: its inability to challenge institutional norms, basis as a derivative right and low applicability on the ground. In the next chapter I present the case that these shortcomings have contributed to reduced water security in marginalized communities, such as Palestinians and First Nations.

## 3.1. Hegemonic framework

Merriam Webster defines a hegemony as the "social, cultural, ideological or economic influence exerted by a dominant group". It is often referred to when looking at power imbalances in managing water resources and has been referenced in relation to water politics on First Nation reserves (Simms, 2014; Yates et al 2017) as well as in relation to the power dynamic of water in Israel and Palestine (Wessels, 2015; Baer and Gerlak, 2015; Selby, 2015). I use the term hegemonic framework to describe both the

dominant forces that determine water management as well as the groups that are formally recognized within the United Nations system.

Rajagopal (2006) acknowledges that human rights represent the “moral discourse of our time” but states that the human rights discourse is “a core part of hegemonic international law, reinforcing pre-existing imperial tendencies in world politics.” Other legal critics such as Chandler (2013) discuss the ‘paradox of human rights’ as being that human rights can be used to challenge abuse by the powerful, as well as used as a tool to further empower the powerful, for instance when human rights are used to justify military interventions and other coercive actions in the postcolonial world. For example, the fight to end slavery and the slave trade provided an important justification for British colonial conquest and expansion in Africa, including in Egypt and the Sudan (Powell, 2003).

The Universal Declaration of Human Rights states that the “application of human rights to all without distinction of any kind such as race, color, sex and language has served to conceal inequalities” (art 2 of the Universal Declaration of Human Rights). As a result, the UN recognizes and highlights the importance of the need for attention to people in vulnerable situations or those who rely exclusively on amenities provided by the state, for example people placed in refugee camps (WWAP, 2019). However, there is a lack of truly addressing the social context and historical legacies that have resulted in the status quo.

In colonial states, this would require that the colonizing government acknowledge the presence of colonization, and actively pursue reconciling inequities from discriminatory policies related to colonialism. Altamirano-Jimenez (2011) questions the process of transforming the colonial state into one that is aware of its institutional inequities, and its ability to address the structural legacies of colonialism. I support that First Nation communities in Canada and Palestinians in the Occupied Territories, continue to face inequities in water access as a result of the inability of the Human Rights framework to dismantle settler colonial power dynamics and support the necessary institutional change. Both communities continue to face higher rates of water insecurity and are often excluded by the colonizing body from equally participating in water-related policy-making that directly affects them and their inherent rights to water (Phare, 2009; Morrison et al, 2015).

After the 1948 war the UN General Assembly acknowledges established the Commission for Palestine to help Israel and Palestine reach a final settlement and reaffirm the rights of Palestinians and refugees to return to restitution. In 1974, the General Assembly passed a resolution which reaffirmed the inalienable rights of Palestinian people to self-determination, national independence and sovereignty. Despite Palestine being subject of numerous resolutions and sessions of the General Assembly they were not given status of member state. Palestine was only granted a non-member observer status on November 29, 2012. This status upgrade from strictly an observer has allowed them to participate in some General Assembly votes and join some international bodies. However, as a non-member state Palestinians cannot speak in meetings until after the member states have spoken. Israel, on the other hand was admitted as the 59th Member State on the UN General Assembly on May 11,1949 under General Assembly Resolution 273[6].

Canada was a founding member of the United Nations in 1945. However, the Canada represented at the UN represents colonial Canada, where First Nation roles of governance are second to the dominant colonial structure. For context, Indigenous people could not vote until 1960, 15 years after the UN was created. Despite the right to vote, Indigenous people continued to face discrimination and policies pushing assimilation, notably the Residential School System[7] and The White Paper of 1969[8]. The British Crown and what became Canada, the colonizing force responsible for the removal of Indigenous people from their land, became also responsible for representing those it has oppressed.

Over the last decade there have been significant steps taken by the Canadian government and the United Nations to acknowledge the rights of Indigenous people. The United Nations Declaration of Indigenous People (UNDRIP) was passed by the UN General Assembly in 2007 but has yet to be adopted formally into Canadian federal legislation. The declaration has been adopted by 144 countries, with 11 abstentions and 4 countries voting against it, namely, Canada, US, Australia and New Zealand, all

6https://embassies.gov.il/bratislava-en/AboutIsrael/AmongtheNations/Pages/ISRAEL%20AMONG%20THE%20NATIONS-%20United%20Nations.aspx

7 https://indigenousfoundations.arts.ubc.ca/the_residential_school_system/

8 https://indigenousfoundations.arts.ubc.ca/the_white_paper_1969/

countries with similar histories of colonization. Though in 2009, Australia and 2009 changed their position while Canada and the US said they would revise their positions. UNDRIP protects the rights that "constitute the minimum standards for the survival, dignity and well-being of the indigenous peoples of the world (according to Article 43) (UNGA, 2007). The presiding argument against UNDRIP being that the autonomy recognized for Indigenous peoples in the UNDRIP is problematic and undermines the sovereignty of their own states and in some cases is inconsistent with the nation's constitution (Hanson, 2019).

Ultimately, the UN frameworks results in reinforcing power in-balances to the dominant nations, which may leave vulnerable communities unprotected or as second-class citizens. In colonial states, an immense paradigm shift is required to reset the balance between the indigenous and colonial power, which the UN Framework is not structured to approach. Despite the UN adoption of anti-colonial principles, the UN is a product of colonial practices and policies. Mark Mazower' (2009) states that "The UN's later embrace of anti-colonialism … has tended to obscure the awkward fact that like the League (of Nations) was a product of empire and indeed, at least at the outset, regarded by those with colonies to keep as a more than adequate mechanism for its defense." This suggests that the UN Framework despite attempts at an anti-colonial perspective still structurally disadvantages those under colonial rule.

## 3.2. Derivative Right

Another shortcoming of the human right to water is its basis as a derivative right based on the interpretation of the ICESCR, meaning that it only has as much power and weight as the socio-economic right from which it is derived. All decisions made by the courts are consistent in describing the human right to water as a derivative rather than a stand-alone right (Radonic, 2017). The right to water is a derivative of the right to the highest attainable standard of health (article 12 of the ICESCR) and the right to an adequate standard of living (article 11 of the ICESRC). However, these two rights from which the right to water is derived account for different quantities and qualities of water (Bluemel, 2005). Water required for survival, amounts for 4 to 6 liters per day while water for the highest standards of health could be anywhere from 25 to 100 liters per person per day (Gleick,1998). Referencing two different amounts of water depending on the

interpretation of the human right to water exhibits the ambiguity that lies at the source of the human right to water.

This inconsistency of the quantities of water contributes to an overall ambiguity around what the right to water truly entails and requires from governments. Devlaeminck (2013) explains how an individual who experiences a slight decrease in water from 25 litres of water, may not experience a violation of the right to life despite health risks associated with low levels of access. This ambiguity is dangerous as it can allow for loopholes, and for decision makers to delay action until the situation is dire. These accountability gaps in international law have undermined the effective implementation of economic, social and cultural rights (Singh et al, 2016).

Additionally, as governments maintain the power to balance their competing interests related to international policy, the human right to water becomes subject to potential conflicts of interests. Tools for compliance or incentive in the human rights framework are limited and it is easy for governments to have an outward appearance of compliance with no further action taken (Schiff, 2016). For example, putting policy in place to realize the human right to water without ensuring monitoring, funding and sustainability of programs. The human right to water declaration also includes the concept of progressive realization, by which states "need not achieve the objective immediately or at any particular timeline, but gradually and eventually" (Pardy, 2016). The realization of this right is within constraints of available resources and creates the duty to constantly and continuously move towards the full realization, with the acceptance that full realization may not be achievable in the present. While progressive realization is helpful in allowing countries to work within their resources and capacity it may also extend timelines and full adoption by acting as the scapegoat for slow adoption. The derivate nature of the human right to water and the associated ambiguities paired with high levels of jurisdictional fragmentation in government leaves gaps in accountability.

## 3.3. Low applicability

Lastly, the international human rights discourse has historically been separate from the development organizations and communities working on the ground (Russel, 2010). Since the 1990's a rights-based approach to development has been increasingly

promoted on the international agenda in an attempt to integrate human rights into the activities of various international organizations (Wolfensohn, 2005). Russell (2010), through empirical research, demonstrates that there has been limited success in integrating the rights-based agenda in on the group development cooperation. Russel (2010) surveyed UN entities concerned with water service delivery or meeting basic needs, such as the united Nations Children's Fund (UNICEF), the World Health Organization (WHO) and the United Nations Development Program (UNDP). They conclude that the right to water is generally not seen by practitioners to be relevant to on-the-ground development activities, and there remains confusion regarding content and implementation. Additionally, that the use of rights language in the sector was noted to transfer the issue of water access into legal, political or specialized field where those working in development were not comfortable. Russell (2010) concludes that there is need for an "integral reinjection of such a rights-based framework into normative standards and development cooperation if the agenda is to proceed". James Wolfensohn, a former President of the World Bank (1995-2005), succinctly summarizes these views: "The very mention of the words human rights is inflammatory. It's getting into areas of politics, and into areas about which [our shareholders] are very concerned. We decided just to go around it and we talk the language of economics and social development" (Wolfensohn, 2005).

As development organizations and non-profits are critical to projects around water this limited uptake on the ground can severely reduce the success of resolutions such as the UN human right to water. The findings of Baer and Gerlak (2015) suggest that global agencies, such as WHO and UN subsidiaries, working to guide states on the implementation of the human right to water must consider not only state actions and the building of state capacity, but also how these impact "the local level, where issues of corruption and state usurping of local water systems can be counter-productive to fulfilling rights". Without considering local impacts new approaches to water governance could end up reinforcing or reproducing top-down solutions to water service problems.

This theme came to light at the Symposium on Women and Water Security for Peacebuilding that I attended in Lebanon in 2018. During this symposium women from different Arab countries gave presentations on the current situations around water security in their communities. Most of these women had lived experience of the complex nature of water access issues and the solutions mentioned were bottom up approaches,

largely centered around on the ground efforts through direct capacity building, program development and funding. Conversations towards top down solutions, such as higher-level policy recommendations and the SDG's, appeared second order to the more pressing issues at the community level. It was noted that water is a by-product of the status of conflict and peacebuilding, and these need to be addressed directly first and foremost. It is important to note that there is an existing tension between investing in higher level policy and on the ground efforts, if investments and capacity are limited to either one or the other.

# Chapter 4.

# Localized Context of the Human Right to Water

In this section I begin by providing some brief context on the human right to water applied to Canada and Palestine. I then highlight similar barriers between the two as a means to discuss where the Human Right to Water declaration falls short in supporting marginalized communities and challenging settler-colonialism and conflict.

## 4.1. Canada and Human Right to Water

First Nation human rights to water in Canada have largely been impacted by colonialism since the first settlers landed on its shores. Providing a full historical context is beyond the scope of this research and has been documented by a wide range of scholars and historians. This section summarizes Canada's response to the human right to water discourse and provides an overview of Canada's responses to First Nation water access.

Since water was an integral part of mining, agriculture and industrial development, water rights became a central part of the colonial process. During the 1850's in Western Canada, settlers claimed water under the prior appropriation doctrine, "First in Time, First in Right", which states that the first person to take a quantity of water from a water source for beneficial use (agricultural, industrial or household) has the right to continue to use that quantity of water for said purpose. Despite Indigenous use of the land and water resources from time immemorial in the vast geographical area that became Canada during the nineteenth century, First Nations were denied recognition of their inherent rights for management and allocation of water. First Nations at that time were unable to claim water rights through permits as their uses were not recognized by the government (Matsui, 2009). Colonial power and control continue to be reinforced by inadequate policies like the Indian Act, which limited the sovereignty of First Nations. The Indian Act is a Canadian federal law that governs in matters pertaining to Indian status, bands and reserves. The Indian Act has undergone numerous amendments, to reverse oppressive sections, such as banning of cultural practices, but largely retains its original form (Hanson, 2009).

Canada's position on water as a human right has varied greatly over the past decade. Up until 2012 Canada was an opponent of endorsing the human right to water (Boyd, 2011). It is unclear exactly why Canada was opposed to this right in light of their relative water richness, holding 20% of the world's freshwater (Collins, 2010). Some have speculated the opposition arose from private corporations seeking to profit on water privatization or the fear of exporting water to other states (Collins, 2010). It has also been speculated that the federal government opposed the right due to its inability to meet its fulfillment of the right in relation to Indigenous peoples in Canada (Boyd, 2011). Schiff (2016) describes how Canada's acceptance of the Human Right to Water bill in 2012 was largely due to the successful pressures from not for profit organization and international pressures of norm adoption. However, Schiff (2016) furthers her argument to say that despite the outward appearance of acceptance, Canada has a governance structure that is incompatible to enforce the norm on a domestic level. There are few accountability measures and external pressures for compliance, which has enabled Canada to extend its human right violations to indigenous communities.

Appendix V depicts Canada's compliance for each of the Core Obligations under the UN Human Rights Council, showing how Canada has had limited success in implementing water as a human right to its' First Nation Communities. The promise to provide safe water to Aboriginal communities within Canada extends back to 1977, when Canadian federal government promised to provide Indigenous reserves with water and sanitation services comparable to similar non-Indigenous communities (Boyd, 2011).

In 2005 the Canadian Commissioner of the Environment and Sustainable Development concluded that First Nations living on reserve did not benefit from the same level of protection as those living off reserve (Collins, 2010). Indigenous Communities living on reserve in Canada continue to face higher rates of water insecurity than off reserve communities, which violates the principle of non-discrimination of the Social Covenant (UNGA, 1966). Boyd (2011) has compared similar size and location of non-reserve communities with First Nation reserves for drinking water access and states that "it is the combination of Aboriginality with on-reserve residence that is the basis of distinction."

Canada has slowly begun to address this inequity by publishing guidelines for Canadian drinking water on reserves, assembling expert panels, passing legislation and

increasing funding. In 2011 a report titled “The National Assessment of First Nations Water and Wastewater system” assessed 807 water systems serving 560 First Nation Communities and found that 39% of these systems were categorized as high risk[9] and 34% as medium risk (Neegan Burnside Ltd., 2011). The report also conducted that 3.9% of population living on reserve at the time were affected by Drinking Water Advisories (Neegan Burnside Ltd., 2011). Of the bottom 100 Canadian communities on the Community Well-Being Index, 96 are First Nations and only one First Nation community is in the top 100 (Auditor General of Canada, 2011). These statistics support the notion that Canada continues to inadequately protect and ensure access safe water to Indigenous communities.

The Canadian federal government has renewed commitments to reconciliation with Canada’s Indigenous peoples through nation-to-nation relationship based on recognition of rights, respect, and partnership (DOJ, 2018). The Federal Department of Justice articulated 10 principles respecting the government of Canada’s Relationship with Indigenous peoples, highlighting the importance of UNDRIP and the need to implement change (DOJ, 2018). Prime Minister Justin Trudeau has also made some commendable steps in his commitment to examine laws and policies to ensure constitutional obligations are being met and his commitment to include the United Nations Declaration of the Rights of Indigenous Peoples. In 2018, Trudeau announced the Indigenous Rights Framework which is aimed at ensuring the respect of Indigenous rights, recognized in section 35 of the constitution and align with UNDRIP articles (Borrows et al, 2019). Bill C-262[10], an Act to ensure that the laws of Canada are in harmony with the United Nations Declaration on the Rights of Indigenous Peoples, made it to the final stages in Canada’s legislative process but was unable to be put into law as a result of significant opposition (Hanson, 2019). The province of British Columbia remains the only province to enshrine UNDRIP into legislation, which mandates government to bring provincial laws in harmony with the UN Declaration (B.C. Government, 2020).

[9] A high -risk system was defined as one that had major deficiencies and could pose a high risk to the quality of drinking water.

[10] Bill C-262 details available at: www.parl.ca/DocumentViewer/en/42-1/bill/C-262/third-reading

Below, the example of Grassy Narrow First Nation is used to show water security challenges faced on reserves that have not been fulsomely addressed. Despite recognition of the contamination in Grassy Narrows, Canada's delayed reaction to an urgent health crisis displays a lack of commitment to equitable water access and health services for Indigenous communities.


**Spotlight: Grassy Narrows (Asubpeeschoseewagunk) First Nation**

Grassy Narrows First Nation is an Ojibway First Nation with approximately 950 people living on its reserve located on the Wabigoon-English River in Western Ontario.

Between 1962 and 1970 Dryden Chemicals Inc. mill, dumped 20,000 pounds of mercury into the Wabigoon River, with the Province's permission (Hutchison, 1977).

A single public water treatment plant and two community wells supply the community's drinking water, two of which are under "do not consume" orders and the other under "Boil water advisory" (Indigenous Services Canada, 2019). The wells have tested positive for high uranium content, and the community water system has tested positive for a cancer-causing chemical that is a by-product of disinfection.

Grassy Narrows mercury victims are up to 6 times more likely to have debilitation health problems, and consumption of fish from the river has had significant health impacts on youth (Prokupchuk, 2019). A Japanese mercury specialist assessed the health impacts of the Grassy Narrows community in 1970 and 2004. All of Dr. Harada's Grassy Narrows patients who indicated mercury levels higher than the safety guideline of 50 ppm in 1975 were deceased by 2004 (Harada, 2004). In 2002 and 2004 Harada tested patients who fell below Health Canada mercury levels and found that 85% of people had mercury poisoning. Ninety per cent of the population in Grassy Narrows experiences symptoms of mercury poisoning, which include neurological problems ranging from numbness in fingers and toes to seizures and cognitive delays (Prokupchuk, 2019).

In 2017, the Liberals committed 85 million dollars towards cleanup efforts in a trust fund, to secure the funding regardless of a change in government or shift in priorities. Indigenous services minister Jane Philpott also promised community leaders that Ottawa would fund the treatment facility on reserve (Standing Committee on Indigenous and Northern Affairs, 2019).Grassy Narrows Chief Rudy Turtle said there has been little action on the project (Prokupchuk, 2019). This slow action has largely stemmed from disagreement over jurisdictions and responsibility to Grassy Narrow First Nation between the province and the federal government.

The Royal Commission on Aboriginal Peoples stated in 1996 that the combination of federal responsibility for public health on reserve and provincial responsibility for environmental protection and the regulation of industry off-reserve (where the problem originated) left the communities with no defined authority to appeal to or work with (Royal Commission Report, 1996). This analysis continues to be relevant for First Nation communities such as Grassy Narrows, who face jurisdictional hurdles to receive the support needed to realize their human right to water.

**Figure 1. Grassy Narrows First Nation**

## 4.2. Palestine and Human Right to Water

Palestine is located in a semi-arid region of the Middle East and consists of the West Bank, East Jerusalem and the Gaza Strip, it neighbors include: Israel, Egypt, Jordan and Syria, The West Bank has a population of 2 Million and an area of 5,860 $km^2$ and the Gaza Strip has a population of 1.76 million on an area of 360 $km^2$ (Judeh *et al,* 2017).

Palestine has a history of occupation, starting in 1917 when Britain seized Palestine from the Ottomans. The 1917 Balfour Declaration, that stated British support for a Jewish homeland in Palestine, and the League of Nations Mandate (1920-1948) for British colonial rule were significant turning points for the rights of Palestinians. The 1947 UN plan to partition Mandatory Palestine into Jewish and Arab States began the division of water resources between the two states (UNGA R. 181 1947). Political boundaries, and the natural resources that lie within them have continued to be sources of conflict in the region. Israel's 1948 Declaration of Independence did not set out national boundaries, but the following 1949 Armistice Agreements with Egypt, Jordan, Lebanon, and Syria set armistice lines that were de facto boundaries until 1967. In 1967, following the Six-Day War, also known as the June War, Israeli military forces occupied the West Bank, the Golan Heights, the Sinai and the Gaza Strip which had been designated parts of Palestine as a result of the British Mandate (Brooks and Trottier, 2010). After the Six-Day War, UN Resolution 242 called on Israel to give up these territories for peace with its neighbors[11]. The Palestinian political leadership proclaimed the establishment of the State of Palestine on 15 November 1988 and continues to pursue independence from Israeli occupation. Importantly, military conflict was punctuated by multiple failed attempts at peace negotiations with boundaries and access to resources as the central bones of contention.

In 1993 and 1995 Israel and the Palestine Liberation Organization (PLO) signed the Oslo Accords, a set of agreements which outlined the distribution of natural resources between the two states. In Article 40, the Accords outline the water and sewage coordination between the two parties. This remains the ruling agreement despite initially being proposed as a five-year interim agreement. The Accords provide that

[11] United Nations Security Council Documents. Resolution 242(S/242). 22 November 1967

Palestine would explicitly recognize Israel's right to exist, that Israel would recognize Palestinian water rights in the West Bank, that both parties should prevent any attempt to cause damage to infrastructure or water quality and that Israel would recognize the necessity to develop additional water sources (Israel and Palestinian Liberation Organization (PLO), 1995). The agreement stipulates that 80% of water in the West Bank is for Israeli use and 20% would be for Palestinian use. However, the Accords have not been strictly followed (B'tselem, 2017). Israel has also significantly inhibited the human right to water through destruction of water infrastructure, limitations on building and repairing infrastructure, as well as the high costs of tankered water (Koppelman and Alshalalfeh, 2012; Klawitter, 2007; Trottier, 2007). Under international customary law, as the occupying state Israel must not prevent the realization of human rights in Palestine nor should it exploit the natural resources of the country. For example, the International Covenant on Economic, Social and Cultural Rights states that the occupying power is required to take appropriate steps to ensure the realization of rights to an adequate standard of living and that the full array of human rights law is available to people living under occupation (Russell, 2010).

Palestine has access to three major water sources: the Jordan river, the coastal aquifer and the mountain aquifer. The Jordan river is shared upstream by Lebanon, Syria and Israel with Gaza being the downstream neighbor receiving the river before it enters the Dead Sea. The Jordan River is largely diverted by Israel for its coastal and arid south, as highlighted in the Interim agreements (Boast, 2016). Through destruction of water infrastructure, increased abstraction by settlers, and restricted ability to build new infrastructure the state of occupation in Palestine largely impacts the ability for Palestinian citizens to access water. According to the Water, Sanitation and Hygiene (WaSH) Monitoring Programme, Israelis use 85% of the water available from the mountain aquifer in the West Bank, and 82% of the water from the coastal aquifer under Gaza (Ghadeer, 2012). Palestinians face a variety of issues in accessing water including: i) damaged infrastructure, ii) high cost of tankered water iii) lack of reliable supply from pipes and iv) contaminated water sources.

The Gaza Strip illustrates the severity of these issues, as it is separated from the rest of the Palestinian territories and must rely on the over-abstracted Coastal Aquifer. The Coastal Aquifer is 97% unfit for human consumption due to pollution and seawater intrusion, according to WHO water standards (Efron et al, 2018). The primary driver of

contamination of the aquifer is the longstanding over-extraction of almost three times more water than is naturally replenished by rainfall, which cause the intrusion of seawater. Inhabitants in Gaza are in dire need of safe water resources, as there is an imminent threat of disease outbreak and a sewage crisis (OCHA, 2018). Agrichemicals and untreated sewage runoff, as a result of the energy crises, also flush back to the shores of Gaza and enter the aquifer (Efron *et al, 2018).*

> With the collapse of the natural sources of drinking water in Gaza and the inability of Palestinians to access most of their water sources in the West Bank, water has become a potent symbol of the systematic violations of human rights occurring in the Occupied Palestinian Territory. While Israelis, including those living in illegal settlements, enjoy unlimited running water year-round, several million Palestinians endure water shortages caused either by contamination or by lack of access (European Parliament Research Service, 2016).

**Table 1. Gaza Strip Challenges to Water Security**

| Challenge to Water Security | Description |
|---|---|
| Gaza Density | Extremely high with 2 million residents/ 365 sq. kilometer area which is equal to more than 4500 inhabitants per square kilometer [12]. High risk of public health outbreak, and risk of contracting disease due to the consumption of contaminated water. |
| High chloride concentration in municipal wells | Majority of 260 Municipal wells have a chloride concentration of 500-1500 mg/L. Along the coastline the chloride concentration exceeds 2,000 mg/L which is unfit for human consumption according to WHO standards (World Bank Group, 2018). |
| Ineffective Sanitation | More than 108,000 cubic meters of untreated sewage (equivalent to 42 Olympic swimming pools) flows daily from Gaza into the Mediterranean resulting in significant public health risks for not only Palestinians but Israelis and Egyptians as well (Efron et al, 2018). |
| Energy shortage | Electricity shortage impacts the operation of approximately 130 critical water and sanitation facilities (OCHA, 2017). |

[12] Data retrieved from: https://palestine.unfpa.org/en/population-matters-0

| Challenge to Water Security | Description |
|---|---|
| Siege on Gaza | Significant damage to water infrastructure and limited ability to bring in construction supplies. Palestinian official report assessed damage to Wash Infrastructure from conflict at 34 million dollars. Israel has restricted imports on items that be used for "dual-use", meaning civilian and military purpose. This includes 70% of the technical equipment that is needed to maintain and repair water equipment (Efron et al, 2018). |

Water resource sharing between Israel and Palestine is based upon the Oslo II Accords in 1995 which set up the Joint Water Committee (JWC). The JWC is the deciding body on development of water resources and is assigned with Palestinian and Israeli representatives with the objective of providing coordinated management of water resources and consensus-based agreements (Selby, 2013). In Palestinian legislation, the Human right to water is recognized by both the Palestinian Water Authority (PWA) and the Water Service Regulatory council (WSRC). Article 5 of the 2014 Palestinian Water Law states that "Every person has the right to obtain his needs of suitable quality drinking water for utilization at specific prices set in accordance with the Tariff Regulation issued by the Cabinet of Ministers" (WSRC,2014). Appendix IV serves as a summative guide on how Palestine and Israel are in compliance with the nine core obligations put in place by the Human Rights Resolution.

It is worth noting as well that there are many Palestinians who live in Israel and have received Israeli citizenship. Though it is outside the scope of this research, further research on the realization of the human right to Arab Israeli's would draw an interesting comparison to First Nations in Canada and would also contribute to the understanding of the limitations of the UN human right to water declaration. An article by Leena Dallasheh (2015) titled "Troubled Waters: Citizenship and Colonial Zionism in Nazareth" serves as an introduction to the conflict over water access between the Israeli authorities and the Palestinians of the Nazareth region in northern.

Despite the UN Resolution and increased attention to water security on the global agenda, poor and marginalized communities continue to have higher risks of water insecurity (Singh et al, 2016; Jayyousi, 2007). As described above, First Nations in Canada and Palestinians in the Occupied Territories both continue to face high degrees of water insecurity despite international resolutions. Without adequate tools to incentivize

compliance and push for progressive governance mechanisms, millions of people remain deprived of safe and adequate water, putting their lives and health at risk. If the Resolution does not protect those who are most vulnerable to water insecurity and inequitable policies, then who is it in place to protect?

# Chapter 5.

# Comparing barriers

Simpson et al. (2009) state that water can be contaminated through a history of occupation, supporting the requisite to explore the role of power, politics and occupation in water security. In an attempt to better understand the complex barriers to realizing water as a human right for marginalized communities I have drawn similarities between the two case studies presented. My research led me to find strong similarities in the settler colonial history, the jurisdictional fragmentation and funding patterns. In this section, I will expand on these similar barriers and how they play a role in preventing the equitable realization of water as a human right.

## 5.1. Settler Colonialism

### 5.1.1. Settlement expansion

Though there were a variety of drivers for the desire to colonize both Palestine and Canada, including trade, resources, religion, and economics. One common theme between both is the desire for agriculture expansion as a means to advance settler colonialism. As water is necessary for agriculture, it was also at the forefront of settler expansion. The common claim made by the colonizers in both cases is that the population previously residing on the lands were “unmodern” and incapable of utilizing the land to its fullest agriculture potential (Matsui, 2009; Gasteyer et al, 2012). This narrative provided justification for the expansion and control over the land and water. Broich (2013), when speaking of the Zionist movement mentions that “The issue of water provided cover for British colonial officials in London and Jerusalem, especially, to play their role in the colonization and ‘development’ of Palestine with a clear conscience – assured, in fact, that their actions were modernizing, even noble, acts.” While the Yishuv, the Zionist movement in Mandate Palestine, did not control the British colonial state in Palestine, they were often successful in soliciting their support and likely would not have survived the Palestinian insurgency of 1936-1939 without the help of the British.

Terminologies such as “barbaric” “backward” “unmodern” and “savage” can be found in the literature relating to both Palestinian and Canadian Indigenous people’s management of the land and water resources. (Said, 2002; Gasteyer et al, 2012; Nijim, 1990; Adams, 1989, Wolfe, 2006). This distorted narrative provided reasoning and incentive for intervention of what was perceived as “primitive indigenous farming practice” in order to enable colonial forces to “improve” the land and increase economy for settler livelihoods (Nijim, 1990).

Upon the arrival of colonial settlers in Western Canada in the seventeenth century, claims to the land were founded in *The Doctrine of Discovery,* and the idea of *Terra Nullius*, land that is deemed to be unoccupied or uninhabited. In Western Canada agrarian ideals were also largely influenced by Locke’s ideals of utilitarian farming and property rights. These ideals built upon “Terra Nullius” land claims by which native lands were perceived as blank spaces in which colonizers could transplant their agrarian lifestyle and assimilate native peoples into mainstream society (Matsui, 2009). These arguments supported that Indigenous peoples were incapable of managing the land properly, therefore the land and its resources were empty and underutilized (Borrows, 1997; Simms, 2014).

The colonial system of legislation and property rights over resources quickly stripped First Nations of right to access. From the 1870’s to the 1920’s Indigenous peoples faced increasing bureaucratic barriers to receiving water rights, as the provinces and federal government formed parallel and often contrasting streams of jurisdiction. In his book “Native Peoples and Water Rights: Irrigation, Dams, and the Law in Western Canada”, Matsui (2009) provides detailed accounts of the barriers First Nations peoples faced in attempting to secure water rights on reserves. He explains how the province of British Columbia refused to recognize the rights and existing agricultural practices of Native peoples, instead giving priority rights to newcomers. And further, how Indian Commissioners representing the Dominion (British Crown) would allocate an amount of water needed for domestic and irrigation purposes on reserve, yet these rights would not be recognized at the provincial or local level.

As First Nations across Canada have diverse cultural ways, communities varied in their desire in shifting to an agricultural society. Sarah Carter’s study on prairie reserve agriculture, “Lost Harvest: Prairie Indian Reserve Farmers and Government

Policy" (1990) explains how some Indigenous communities already had successful agriculture in the plains before the arrival of colonists. She demonstrated that in some communities' difficulties arose not primarily because agriculture was new to them but because changes in resource allocations and technological, financial support was severely inadequate from the Department of Indian Affairs. Variations between provincial jurisdictions also had an impact on water rights for Indigenous people. For example, Alberta lacked the legal authority to intervene in Native water rights questions because the federal government held title to Crown lands, unlike in British Columbia where the province had jurisdiction to allocate rights.

Simms (2014) refers to the Kanaka Bar First Nation, in British Columbia, by which land surveyors during the 1800's ignored the presence of Indigenous peoples on the land, restricting the Indigenous population from water access and reserve allocation. Simms quotes a community member saying:

> When the federal surveyor arrived here at Kanaka in 1878, he found a lot of Indians and was pretty upset that miners, missionaries, and settlers had already scooped all the land and water. We eventually got 700 acres of reserve lands and very limited water licenses (not enough to provide the community with adequate drinking and irrigation though). Even worse was that some of our original water licenses were issued not just on intermittent streams but on ephemeral streams which ran for such limited times. At some point, the local Indian Agents actually started cancelling our meager water licenses.

Showing how even after their presence on the land was recognized by the colonial government, the amount was subject to change and inadequate for the needs of the communities.

The colonial establishment of water rights by which settlers were given priority over First Nations on reserves continues to be enshrined in Canada's water policy today. One example, explained in detail by Simms (2014) is the continued use of the Prior appropriation doctrine, or First in Time, First in Right Water allocation system, which remains in place both in British Columbia's Water Act and the Water Sustainability Act. Despite First Nations presence and use of the land and water before colonial presence, the First in Time First in Right model did not register and define water by First Nations use and gave priority usage rights to settlers. Simms (2014) emphasizes how these policies "isolated First Nations communities from the water sources that had sustained

them for centuries; marginalized them in the licensing allotment processes; and failed to recognize the status of these communities".

Similarly, early British officials arriving in Palestine reported that the *Fellahin* (Arab peasants) possessed "medieval" habits in economy and agriculture. Ultimately, Arab Palestinians were characterized as "incapable of changing", and lacking to make progress , which largely impacted the way in which Palestinian land was colonized and the method by which resource rights were allocated (Broich, 2013).

The narrative of Palestinians being incapable of managing resources on their land, again contributed to Zionist success in soliciting support from outside colonial states. Bunton (2007) demonstrates that British colonial land policy in Palestine cannot be reduced to the British facilitating the transfer of land from the local Palestinians to the Jewish Agency. Khater (2004) highlights the Zionist Organizations' Memorandum to the Paris Peace Conference in 1919 stating that:

> the land itself needs redemption. Much of it is left desolate. Its present condition is a standing reproach. Two things are necessary for that redemption – a stable and enlightened Government, and an addition to the present population which shall be energetic, intelligent, devoted to the country, and backed by the large financial resources that are indispensable for development. Such a population the Jews alone can supply.

This colonial discourse of backwardness reinforced the strategy of development based on economic separatism and the exclusion of Arab labor. *"Transformation of land was carried out through a collective re-imagining by colonists of landscape that had potential for modernization*" (Gasteyer et al, 2012). Lockman (2012) describes the Zionist "bifurcated model of economic development" along with a "Separate, high-wage, exclusively Jewish economy" as a key player in the eventual creation of a viable Jewish state.

Emphasizing the separated use and exclusive use of limited resources as a means of dominating the economy and land. As seen in Nabi Salih, below, the continued expansion of Israeli settlers in Palestinian territory continues to contribute to water insecurity for Palestinian communities.

The desire to for land in Palestine after the Likud Party's election victory in 1977 was equally driven by the desire to create affordable housing for white color workers in

Tel-Aviv, just across the border in Israel. The desire for modernizing agriculture, to establish an independent Israeli labor force, and provide low cost housing all relied on exclusive access to resources and land.

**Spotlight: Nabi Salih, West Bank Palestine**


Nabi Salih has been facing the direct repercussions of settlement expansion imposing on their already limited water source. Ms. Manal Tamimi, a Field Researcher at the Women's Centre for Legal Aid and Counselling and a resident of Nabi Saleh described the incidents occurring in her hometown of around 600 inhabitants (Tamimi, 2018). In Nabi Salih all five nearby water sources are controlled by Israel as they have been deemed "Holy Water". She indicated that the effects of the Israeli occupation of Palestine have heightened water insecurity in the West Bank. Villagers in Nabi Salih receive water once a week for twelve hours at night, which has significant impacts on women who are responsible for household chores. Whereas neighboring Israeli settlements have unlimited water supply from artesian well supply. Tamimi also described direct attacks carried out by Israeli settlers on the small wells that Nabi Salih had started building, in which chemicals where used to taint the stored water. Additionally, new tannery sights uphill from the villages have increased water waste runoff down to the villages which has created an increase in observed skin diseases.

Nabi Salih is provided with water by the West Bank Water Department through the public water network established in 1978. In 2010 the average rate of water supply per capita in Nabi Salih was 163 liters per day (Applied Research Institute, 2012). However, no Nabi Salih citizen consumes this amount of water due to water losses, which are recorded at around 20%. These losses happen at the main source, major transport lines, in the distribution network, and at the household level (Jerusalem Water Authority, 2011). The rate of water consumption per capita in Nabi Salih is no more than 131 liters per day, which is above the minimum quantity of 100 liters

**Figure 2. Nabi Salih**
Image source: Oakland Institute,2017. Retrieved from https://www.oaklandinstitute.org/you-cannot-be-free-without-my-freedom

### 5.1.2. Geographical constraints


**Figure 3. Map of area partitioning in West Bank**

In addition to removing the authority and power of communities to manage their own water, colonization also impacted water management by confining populations to certain geographies. While imposing boundaries on populations has consequences far greater than only water resource management, such as physical, social and cultural repercussions, a discussion of those broader impacts is beyond the purpose and scope of this section.

As water flows between jurisdictions and boundaries, it provides a challenge for governance systems defined by a fixed political boundary (Norman, 2015). The case of Palestinians and First Nations are further complicated by the fact that boundaries have been imposed upon them through colonialism. As a result, they have limited input on water management outside these boundaries as well as limited power over the water within these designated boundaries. In the words of Norman (2015)

> The act of drawing a line bounds territory and ultimately sets a trajectory for a relationship between people and its environment. As water transgresses in and out and through jurisdictions, it becomes integrated into wider social-political contexts that are wrought with power dynamics, historical legacies, and asymmetries. This line, in turn, can be revealed as scale, power, and justice.

As watersheds span vast amounts of land, the impacts from neighboring uses upstream are often the cause of contaminants upstream from beyond the political border. Figure 3 above depicts the jurisdictions in the West Bank, showing the fragmentation of the area and the management structures. As seen in the map Area C, which is under exclusive Israeli control, meanders through both Areas A and B, creating isolated regions and fragmenting jurisdictional boundaries. As a result of these fragmented jurisdictional areas pipes often run through multiple areas to reach communities. If a pipe that serves a community in Area B is damaged at a point that lies in Area C, which is under Israeli control, it may be a very difficult and lengthy process to repair the pipe. Area C is ultimately restricted from developing water infrastructure, which often includes repairs. Consequently, water infrastructure projects are then limited to the already dense areas that lie within Area A and B, rather than the preferred locations in Area C. As a result, Palestinians have limited control of their water resources, as they have extreme limitations on what they can control. Even the water that flows within Areas A or B, may be dependent on infrastructure that lies within Area C, or Israeli control.

Similarly, though there is a relatively new wave of treaties and policies that asserts autonomy of First Nations and rights to their land, the Indian Act remains the fundamental piece of legislation by which the Canadian federal government governs Indigenous lands. The Human Rights Watch report in (2014) states that*,* “In many cases, the lakes, rivers, and streams that contribute to the source water for these communities have deteriorated because of pollutants from industries, and growing municipalities”

(Human Rights Watch, 2014). This is problematic, as industrial activities and environmental protection, fall under provincial jurisdiction. Since the source water falls under provincial law, it may be difficult for First Nations to engage with or manage these contaminants, as the reserve is under federal law. When constraints are placed upon management through boundaries or when water becomes degraded, there may be losses beyond physical health, including immeasurable losses to cultural identity, and tradition (Statt, 2003; Turner *et al.,* 2008).

The reserve and territory boundaries further limit the holistic ability to manage water to account for its entire life cycle. Thus, imposing management within the reserve boundaries promotes an end of pipe treatment and does not allow for diverse ways of viewing water. For example, in Lytton First Nation the effects of splitting up reserve land into fragmented segments has largely impacted the resources required to adequately manage water. When Lytton's aging Nickeyeah Creek water facility could no longer provide safe drinking water, the community submitted an upgrade proposal, to Indigenous Services Canada, the federal department responsible for services in Indigenous communities. Their proposal was rejected for not being "cost effective." This was largely due to the fact that Lytton's reserves include a patchwork of 57 parcels, some more than 100 km apart, and many of which have fewer than five houses, with a total of around 1,600 members on reserve (Lukawiecki, 2018). For Lytton the solution was found using a small-scale water treatment technology with the help of UBC scientists and technologists. However, the way the reserves have been allocated and parceled, highlight the difficulties of providing water over large geographic areas and funding packages from the federal government.

The power to control water quantity and quality that is accessible to certain communities is equivalent to selecting which communities thrive and which do not. The legacy of settler colonialism is heavily present in the geographic boundaries placed on water management and the resulting governance. Ennis-McMillan (2001) suggested that, rather than distress over water scarcity itself, suffering from water is an expression of distress over social inequalities in the distribution of water. Water security is inextricably linked to the social-political climate, without proper recognition of the geographic impacts of and of settler colonialism there cannot be true realization of the human right to water.

## 5.2. Jurisdictional Fragmentation

Fragmented geographic boundaries go hand in hand with jurisdictional fragmentation, largely because if the resource is fragmented it is likely that the governance will be fragmented along similar lines. Jurisdictional fragmentation is the existence of a division of responsibilities relating to water governance, or the allocation of multiple separate responsibilities that remain in separate silos (Ennis-McMillan, 2001). Often fragmentation can result in the duplication, overlap or gaps in authorities. Water management issues are by nature fragmented as they are complex and responsibilities for management often span a wide variety of agencies, or government bodies. However, too much fragmentation leads to regulatory gaps and conflicting norms, resulting in a barrier to the realization of water as a human right (Cook, 2014). In the section below, I analyze the degree of fragmentation in Palestinian and Canadian First Nation water using the framework developed by Biermann et al (2009) which establishes four components of jurisdictional fragmentation.

**Table 2. Summary of Jurisdictional Fragmentation Analysis.**

| **Jurisdiction Fragmentation components** | **Palestine/Israel** | **Canada First Nations** |
|---|---|---|
| **a) Institutional Integration – degree to which core institutions are integrated** | *Conflictive*<br>Disputed boundaries and resource allocation. Joint Water Commission does not equally integrate Palestinian and Israeli representatives. Israel holds more decision-making power in the Joint Water Commission, lack of regulatory body. Lack of coordination for water networks and management. | *Conflictive*<br>Indigenous Services Canada (Federal government) working with various institutions First Nations Governments, Assembly of First Nations, First Nation Health Authority Provincial Regimes and Health Canada.<br>Provincial jurisdiction, Federal jurisdiction and First Nation jurisdiction to freshwater on reserve are conflictive. |
| **b) Norm Conflicts – degree to which norms of institutions are integrated** | *Conflictive*<br>Unclear agreement on roles, responsibilities and resolution. Broad scope of issue plays a part in water management that includes settlements and border agreements.<br>No update to interim Oslo Agreements. | *Conflictive*<br>Definition of water as a human right is narrow and does not include alternative uses of water, collective rights, water as a lifeblood.<br>Lack of ability for self-determination through Bill S-8 and the Indian Act. |

| Jurisdiction Fragmentation components | Palestine/Israel | Canada First Nations |
|---|---|---|
| **c) Actor constellation – degree to which the actors support the same institutions** | *Conflictive*<br>All relevant actors do not support the same institutions. Division in agreement on water allocation and management. | *Varies*<br>All relevant actors do not support the same institutions - support of ISC to varying degrees depending on Nation and resources. Bill S-8 lacks some First Nation support as it conflicts with Aboriginal rights and title. |
| **d) Goal Achievement- Degree to which objectives have been achieved Objective: Increase Water Security** | Limited<br>Objective can be minimally achieved through restrictions on building, siege on Gaza for infrastructure and ultimate veto given to Israeli members of Planning committee. Low access to clean water remains. Palestinian Water Law acknowledges the human right to water (WSRC,2014) | Limited<br>Increased budget from Federal Government over past decade. New legislation to address issues.<br>Boil water advisories decreasing.<br>Higher water insecurity for First Nations living on reserve remains. |

Modified from Biermann et al (2009)

## 5.2.1. Canada

### *Institutional Integration*

Under Section 91(24) of the Constitution Act, 1867 and the Indian Act, the Federal Government has authority to govern water services on reserves, with jurisdiction over "Indians and Lands reserved for Indians", which includes water resources on reserve. James Anaya (2014) in a UN report on the Human Rights for Indigenous people calls out the Indian Act as *"A rigidly paternalistic law at its inception, it continues to structure important aspects of Canada's relationship with First Nations today, although efforts at reform have slowly taken place."*

Water on and below reserve land is under federal responsibility while drinking water, including quality standards, in Canada are under provincial and territorial responsibility (Water Act, 1985). While all Canadians living off reserve are subject to the provinces' drinking water regulations, those living on reserve are only subject to voluntary drinking water guidelines produced by Health Canada. This division of water regulations means that First Nations on reserve are the only population who do not have

their drinking water quality protected by law, which has been described as a form of "regulatory abandonment" (Macintosh, 2007; Boyd, 2011). This is further supported by the fact that there were no laws on a regulatory framework for the provision of safe drinking water on reserves before 2013.

Additionally, as the Province is responsible for environmental protection and industry off-reserve, provincial decisions regarding industry and development may impact neighboring reserve land, which fall are under federal jurisdiction. This results in overlaps of jurisdiction and responsibility and can lead to slow responses to environmental damages. The case of Grassy Narrows First Nation mentioned above serves an example of how jurisdictional fragmentation leads to a lack of accountability and slow action by the government. Unclear jurisdiction to address the problem has caused overlap in jurisdictional responsibility which has ultimately exacerbated impacts on the health and well-being of community members on reserve.

### *Norm Conflicts*

Colonial governance systems reflected in the Indian Act reinforce the legacy of assimilation of First Nation people by colonists. Though there is immense diversity within and between First Nations communities and their respective relationship to water governance, the cultural, spiritual and socioeconomic importance of water has been widely researched and supported (Yates et al, 2017; McGregor, 2009). The Assembly of First Nations National First Nations Water Strategy, the First Nations National Water Declaration 2012, the First Nations Fisheries Council's Water Strategic Framework 2013 and the First Nations Summit BC First Nations Water Rights Strategy 2013 have all described the importance of water governance planning in First Nation communities (Simms, 2014). "Reclaiming access to land and water, and affirmation of the right to govern land and water, have been identified as critical components of First Nations' struggles for self-determination and to rebuild prospering communities" (Borrows, 1997; FNLC 2011; Kotaska, 2013; UBCIC 2010, 2011; Walkem, 2004).

The conflicting norms arise in the framework within which First Nations can realize their right to self-determination and authority in water management. First Nations norms for water governance may not fit within the dominating Canadian federal institution which limits the ability for First Nations to affirm their rights as managers and/or co-managers, which may include spiritual and holistic water management as well

as collective rights. Yates et al. (2017) emphasize that issues around water management are too frequently reduced to the domain of technical experts, who interpret water solely as a resource and "*dismiss various ontologies which may give water cultural value*." Water as a resource is the dominating narrative through which water is understood in the Canadian context and excludes outside perspectives and uses.

Anishinaabe scholar Deborah McGregor (2012; Yates, Harris, & Wilson, 2017) stresses this point in stating,

> *Water is not a single, discrete aspect of the environment; it is part of a greater, interconnected whole. When one considers water, therefore, one must consider all that to which water is connected and related [i.e., a relational ontology of water as a living being]. When one considers water, one must consider all that water supports and all that supports water. Therefore, a focus on just drinking water is misguided. It is not in keeping with traditional principles of the interdependence of all living things. One must also consider, for example, the plants that water nourishes, the fish that live in water, the medicines that grow in or around water, and the animals that drink water*.

### *Actor Constellations*

In 2005 the report of the Office of the Auditor General (OAG) stressed the lack of enforceable regulations and standards as major obstacles for the improvement of drinking water. Though the federal government maintains jurisdiction over drinking water on reserve, confusion and lack of coordination persists between provincial governments, municipal governments and the rights of First Nation representatives. A second audit conducted by the OAG in 2011 reiterated this finding and expressed ongoing confusion about the roles and responsibilities of the agencies involved (OAG, 2011).

Recognizing the gap in regulations at the Federal level, the Minister of Indian Affairs and Northern Development, in consultation with the Assembly of First Nations (AFN), appointed an expert panel to hold hearings and provide options to regulate water on First Nations reserves in 2006 (INAC, 2007). The Panel was assembled to identify the advantages and disadvantages of five different options for water on First nation reserves, which included; i) application of provincial law as laws of general application, ii) Federal regulation passed pursuant to an existing federal statute including federal laws that authorise First Nations to pass laws on water, iii) a new federal act, iv) incorporating

provincial water laws in new federal legislation, and v) applying asserted First Nations jurisdiction and customary laws. (INAC, 2007).

There was no specific endorsement of a certain option listed by the Expert Panel, which included significant First Nation representatives, but federal legislation referencing to provincial statutes was noted as appearing "to be a weaker option owing to gaps and variations in those regimes, the complexity of involving another level of government, and lower acceptability to many First Nations" (AFN, 2007). The panel highlighted that three conditions should be met for the success of any of the regulatory options: i) that adequate capacity was met (capital, operational, maintenance funding), ii) there was a duty to meaningfully consult and iii) that attention should focus on the high-risk communities (Bowden, 2011). It is worth mentioning that the Assembly of First Nations was more supportive of the customary law option as they mentioned it to be the most consistent with Nation-building.

The result was Bill S-8, which came into force in November 2013, and enables the federal government to work with First Nations communities on reserves, as well as other stakeholders, to develop enforceable federal regulations to ensure access to safe and reliable drinking water on reserves (Morrison *et al*., 2015). The Act references meeting the needs of regions by incorporating existing provincial drinking water and wastewater standards, which is in contrast to the expert panel's concerns that this option may lead to a patchwork of standards across reserves. Bill S-8 continues to be unilaterally rejected by First Nation representative groups largely due to its treatment of aboriginal rights and title (AFN, 2012; BCAFN 2013; UBCIC, 2011).

Lack of integrated institutional support also exists in the definition of aboriginal rights and title. Water is noticeably absent in the Supreme Court's definition of Aboriginal title, and Aboriginal rights to water have never been explicitly established or disproven through a court ruling in Canada (Laidlaw & Passelac-Ross 2010; Phare, 2009; Simms, 2014).

### *Goal Achievement*

The federal government has directly acknowledged the issue of drinking water advisories on First Nation reserves and has set the goal of removing all long-term drinking water advisories by 2021. The government has a list of solutions to long-term

advisories that includes: feasibility studies, new system design work, interim repairs on existing systems, construction repairs and improved training (ISC, 2020). These efforts have made progress in removing some of the long-term advisories in communities, going from 105 long term advisories in 2016 to 61 in 2020 (ISC, 2020). However, the government's efforts are limited in scope as they deal only with long-term drinking water advisories, while many communities continue to face impacts from short- and medium-term drinking water advisories. Others have expressed concerns with the methods at which solutions are put into place. For example, government assistance in building a water treatment plant in without providing enough funding to maintain the service and operations or taking into account homes without water infrastructure.

Ultimately, there has been a reduction of long-term boil water advisories since Canada has increased its federal budget. Many remain doubtful as to whether Canada will be able to reach its goal of ending boil water advisories by 2021 (Lukiawiecki, 2018). Ending long term drinking water advisories is only one step toward achieving the human right to water which requires that affordable, reliable, and accessible water is available to these communities into the future.

### 5.2.2. Palestine

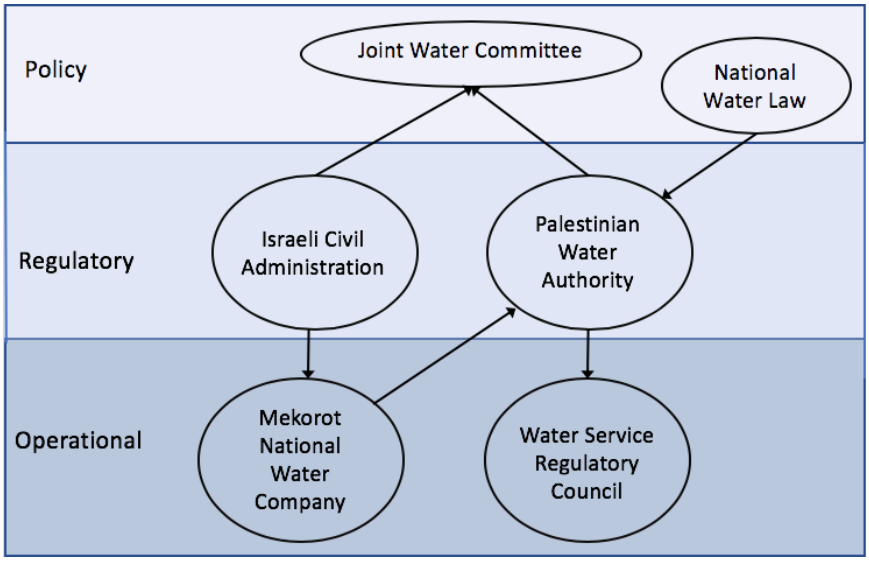


**Figure 4. Water Governance Structure in Palestine**

### *Institutional Integration*

In Palestine, institutions are minimally integrated as a result of unresolved disputes over land and water management. The PWA is guided by a combination of the Joint Water Committee and the National Water Law. As described below, these two policies are not integrated and are guided by independent and differing principles. The Joint Water Committee is supposed to be an integrated body of equal authority of Palestinian and Israeli representatives, but in practice, it displays an inequitable form of power sharing, resulting in limited integration between governing bodies. The PWA is reliant on the Israeli Civil Administration and the Joint Water Committee for approval of any developments. Additionally, Mekorot, that supplies Palestine with large amounts of water infrastructure, does not meet the full demand. In 2015, Mekorot supplied the West Bank alone with 63.8 million cubic meters, showing the dependence on the Israeli water carrier for water (B'tselem, 2017).

Palestinian water governance also faces very low integration at every level, from the operational to the policy, making change fragmented and slow. B'Tselem (2014) refers to the water crises in Palestine by stating that "*The Palestinian water network is managed by dozens of local water authorities without a coordinating mechanism. The inability to develop a nationally controlled water network, with reservoirs that could supply the needs of all residents is inextricably tied to the fact that every action in Area C requires Israeli approval*."

While the Oslo Accords outwardly appear to promote equitable coordination between the two states, there remains a significant power imbalance in the agreement, which is evident in the fine print of the JWC (Gasteyer et al, 2012; Selby, 2013; Zeitoun, 2008). The JWC power remains in the hands of the Israeli Civil administration, as they hold veto and license power to 60% of the West Bank (Zeitoun, 2008). Israel maintains veto powers over Palestinian water resource and infrastructural development within the West Bank, yet the Palestinian Authority does not benefit from any veto powers in relation to Israeli developments (Selby,2013). The JWC perpetuates the power imbalance between the two states and reinforces what has been coined "hydro-hegemony" (Al-Shalalfeh, 2018; Zeitoun, 2008) and in more extreme cases a form of "hydrological apartheid" (Choiciej, 2012; Solomon, 2012; Gasteyer et al, 2012).

Overall, the Palestinian Water Authority is responsible for upholding the Water Law and the human right to water to Palestinians. However, the JWC has the ability to veto developments and largely controls where the water flows. The institutions above largely function on their own accord, with minimal consultation and negotiation.

### *Conflicting norms*

There is little agreement on norms between Israel and Palestine. For example, Table 2 depicts the differences of agreed upon and actual abstraction from shared aquifers, showing that both parties Israel abstract more than outlined in the agreement. The degree of over abstraction is much higher for Israel at 110 million cubic meters (MCM) more than allocated for the East Aquifer basin alone.

**Table 3. Water allocation according to Oslo Agreements (2015).**

| | **Oslo Agreements (MCM)** | | | **Actual Utilization (MCM)** | | |
|---|---|---|---|---|---|---|
| | Western Aquifer Basin | North East Aquifer Basin | East Aquifer Basin | Western Aquifer Basin | North East Aquifer Basin | East Aquifer Basin |
| Palestinian Authority | 22 | 42 | 54 | 37.6 | 21.6 | 64.8 |
| Israel | 340 | 103 | 40 | ~411 | ~103 | ~150 |

Note: using data from the Palestinian Water Authority Supply report (World Bank Group,2018).

Palestinians have limited ability to stop illegal settlements or network attachments by Israel, as the JWC power remains in the hands of the Israeli Civil administration that hold a veto and license power to 60% of the West Bank (Zeitoun, 2008). Israel displays water hegemony (Selby, 2013) and does not face repercussions for acting against norms established in norms established in the Oslo Accords and international principles. The imbalance of service provision, conflicting definitions of legality and imbalance of the Joint Water Commission has led to a low degree of norm integration. The Institutional Water Sector Review (IWSR) analyzed both governance and management functions and concluded that the PWA showed signs of confusion regarding its role with several examples of conflict of interest within its mandate, while water was not given the necessary strategic importance (GWP, 2015).

Additionally, 88% of Palestinian villages in Area C, a majority of which have high water needs in the Jordan Valley, are not recognized by the Israeli planning authorities, making it unmanageable to obtain approval for any water projects (Bimkom, 2008). In

regard to illegal settlements in Palestine officials have cited that the PWA, through the JWC, is coerced to approving Israeli water projects for the sake of its own approvals for development. Meaning that in a tit-for-tat manner the JWC will reject a Palestinian project if officials reject a development for Israeli settlements (Selby, 2009). Even if a project is not approved by the JWC, Palestinian authorities have little power to prevent or remove installed illegal networks and settlements (World Bank, 2009). Selby (2011) states that the JWC has been an instrument of containment that has "enabled Israel to compel the PA to assent to its own colonization."

### *Actor Constellation*

Actors in Palestine, such as the Water Service Regulatory Council and the Palestinian Water Authority, support largely different institutions than the Joint Water Commission and the Israeli Civil Authority. The WSRC and PWA publish documents in the support of pursing SDG's and the Human Right to Water. However, attempts to support these declarations can be suppressed by the overarching institution which has differing interpretations of legality and provision of water resources. The fractured geography of Palestine also entails that different geographic locations may support different institutions as they are under varying degrees of occupation and access to water. Largely, the Israeli Government has control and can impose these rules over Palestinians.

In 2014, the PWA passed the Water Law which outlines management for water resources in Palestine with objectives of increasing capacity, improving quality, preventing depletion and improving services through sustainable integrated water resource management principles. Water resources being defined as "all water resources located within the territorial and maritime boundary of the State of Palestine, whether conventional (surface or ground waters) or non- conventional" (WSRC, 2014). The Water Law defines the PWA as the authority, whereby the WSRC is responsible for service provision and the National Water company is responsible for production and supply of bulk water at a national level. However, implementation has been slow due to an "incomplete legal structure, lack of financing, and lack of clarity of rules and responsibilities at the local level." (World Bank Group, 2018).

The role of power is a central barrier to the realization of equitable water sharing and water as a human right (Selby, 2011; Trottier, 2007). This inequitable sharing of

resources has diminished the Palestinian economy, which relies heavily on water to support its agriculture sector. The environment has also severely suffered from mismanagement of sewage and untreated water (Efron et al, 2018). The Human Rights Rapporteur reports that *"For the almost five million Palestinians living under occupation, the degradation and alienation of their water supply, the exploitation of their natural resources and the defacing of their environment is symptomatic of the lack of any meaningful control they have over their daily lives as Israel, the occupying power, exercises its military administrative powers in a sovereign-like fashion, with vastly discriminatory consequences"* (Human Rights Council Report, 2019).

### *Goal Achievement*

The goal to realize water as a human right by Palestinian officials remains largely unachieved. Though there have been periods where the peace process and negotiations between Israel and Palestine seemed promising, there has been a failure to reach a permanent agreement that ensures water security. Largely this goal has not been achieved and many Palestinians face high levels of increasing water security. The two parties have a complex history of conflict and violence, and water is only one part of the equation. The full history of peace process negotiations has been well documented and there has yet to be a final status agreement (Usher, 1999; Pearlman, 2011).

## 5.3. Funding

> Water problems are not water problems alone but are in large measure products of the relative ability or inability of different states and societies to address their economic and social problems, water problems included. (Selby, 2005)

The impact of colonization and conflict for First Nations people and Palestinians largely suppressed economic growth and destroyed community capital necessary for effective water management. By comparing the financial capital and resources between the occupying or colonizing state on one side and the colonized or occupied state on the other the severe imbalance is made apparent. Both Canada and Israel are considered "developed" countries with GDPs of 1.9 trillion U.S. dollars and 370.6 billion U.S.

dollars,[13] respectively. Palestinian GDP, on the other hand trails behind at 14.62 billion USD[14]. First Nations in Canada do not have an isolated GDP, but there is extensive research on the disparities in financial resources between Indigenous and non-Indigenous Canadians. One example being personal income, with Statistics Canada highlighting that Indigenous Canadians, with the exception of Inuit women, are more likely to have significantly lower personal incomes than non-Indigenous Canadians (Garner et al, 2010). In Palestine, this disparity of resources and capital is evident when looking at Israel's status as world leader in water technology, known for significant advancements in desalination, drip irrigation and water-reuse technologies.

The international community has largely concerned itself with the welfare of Palestinians living in the West Bank and the Gaza strip. In particular donors such as the World Bank, GIZ, EU, and the Netherlands have largely played a part in funding the Water Service Regulatory Council (WSRC, 2017). Even when plans are formulated and funds promised, there remain barriers to implementation, which often result in large funding gaps that have been cited as a hindrance to improving water access in Palestine. For example, the 2014 war between Israel and Gaza, which saw over 3,000 lives lost, resulted in severe damages to infrastructure in Gaza estimated at 34 million dollars to WaSH infrastructure alone (Efron et al, 2018). Despite pledges from international donors to aid in reconstruction after the war, more than half of the pledged amount was never materialized. In late March 2018, a funding gap of $244 million was cited as hindering reconstruction from the war, which included funding for damage to homes, hospitals, and water and energy infrastructure (Efron *et al*, 2018). This lack of followthrough is detrimental to the improvement of water resources, largely because water infrastructure is extremely costly. For example, the cost of the Gaza Central Desalination Plant is estimated at $560 million and donors have pledged their support for such projects, but much remains unseen. As of March 2018 there remained a need for $230 million to begin construction (Efron et al, 2018). The complex political and social realities required to implement, and upkeep solutions result in a plethora of unimplementable technical plans and ultimately ill-spent funding (Selby, 2019).

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[13] World Bank, 2020. World Development Indicators. http://datatopics.worldbank.org/world-development-indicators/

[14] ibid

Moreover, the 2017 $547 million Humanitarian Response Plan for the Palestinian Territories, most of it geared toward Gaza, was less than 50 percent funded, with the WaSH cluster particularly underfunded.

> Donor's reluctance to continue funding major projects in Gaza is grounded in four key concerns that cannot be addressed in the short term—the intra-Palestinian rivalry, continued limitations of access and movement imposed by Israel and Egypt, fear that investments in infrastructure would be eliminated in the next round of fighting between Hamas and Israel, and lack of proper governance in the energy and water sectors. (Efron et al, 2018).

In addition to donor concerns about the State of Palestine, there are also barriers imposed upon international donors to enter the Occupied Territories and complete their work. The Office of Humanitarian Affairs in the Palestinian territory submitted a report in 2017 that sheds light on these barriers, which include charges in Israeli courts for individuals providing assistance and denial of visa entry. There has been reporting on excessive demolition or seizing of donor funded structures by Israeli authorities. In 2016, more than 100 donor-funded aid structures also received demolition, stop-work, and eviction orders, or verbal warnings, placing them at risk (UNOCHA, 2017). Additionally, as Hamas is the current governing body for the Gaza strip, this has some negative impacts on the capability for organizations to work within these territories, as Hamas is listed as a terrorist organization by many countries, such as Canada and the US.

Government changes in donor countries largely impact the amount of support given to Gaza and the West Bank as well. For example, the United States recently cut 300 million in funding intended for the UN Relief and Works Agency[15] (UNRWA) for Palestine Refugees, which supports the Water, Sanitation and Hygiene sector and provides public health services in Gaza. In addition to slashing UNRWA funding, the U.S. government also cut $200 million in bilateral foreign aid that was designated for humanitarian programs in the West Bank and Gaza (Efron et al, 2018). Ultimately, Palestinians rely almost exclusively on outside funding for the implementation of water projects relating to WaSH and water as a human rights. The barriers to this funding and

[15] UNRWA operates 21 primary health clinics, employing more than 1,000 medical staff, serving more than 4 million annual patient visits, and running schools where some WASH educational programs are taught

the uncertainty around funding play a large part in diminishing the progress made and elongating project completion.

Similarly, some First Nation communities may rely heavily on outside funding, from the federal government or other funders to support water programs. It is widely supported that the colonial legacy has devastated community capacity to handle, finance, and manage the issues that are involved in managing resources (Maxim & White, 2003).

Lukiawecki (2017) in a report for the David Suzuki Foundation argues that the federal government had insufficient infrastructure funding and an ineffective allocation process. Lukawiecki highlights that First Nations may need to commit significant time to investigate and access various funding sources, as the federal government funds only 80% of the First Nations operations and management costs. The remaining 20% can be difficult to fund and it has been reported that the budget estimate by INAC of 20% does not include financing for training, recruitment and retention of qualified water operators. First Nations which have healthier economies and social well-being may find it easier to retain water providers, and thus need less financing for training. However, for the Nations that do need assistance, the ISC must begin to take into higher account the recruitment and retention of technicians in the overall success of water security. Lukawiecki (2017) also suggests that the pay gap between water system operators on reserve and those in neighboring municipalities may play a part in lower retention rates.

Recognizing the inequity in water access between First Nations on reserve and non-reserve communities the government of Canada has set a goal to lift all long-term drinking water advisories on public systems by 2021. The number of long-term drinking water advisories affecting public systems on reserves has declined from 105 in November 2015, to 59 as of March 31, 2019 (Indigenous Services Canada, 2019). Budget increases, as seen in Appendix VI, have also played a part in the reduction of drinking water advisories on reserve. There has been a dedicated increase in allocation by the federal government. The financial commitment is an important step toward removing drinking water advisories, but it is the sustainability of such projects and the effectiveness that remain in question. The long-term viability of a drinking water supply is reliant on specified funding needs for various barriers to safe water, such as training and

certification of operators, infrastructure construction, sampling and monitoring (Bowden, 2011).

Macintosh (2007) explains how funding cannot be equated with success and should not continue to serve as an index of support and commitment. As the infrastructure is expensive, and it requires a large investment to maintain and repair water infrastructure, it is critical that proper capacity within communities is established as well. Phare (2009) estimates that an average plant that services 600 people costs over 600 million dollars and can require 150,000 dollars per year to maintain and operate. In 2004 the AFN estimated that, only 67 per cent of spending allocated to aboriginal people is actually transferred. Often the money is lost in federal administration or sub-contracting groups (Phare, 2009). This can be of concern, as a one-time investment in water infrastructure will not improve the situation in the long run and is not resilient in the face of maintenance repair and upkeep. “In communities where reliable access to safe drinking water has been restored, a risk remains. Without sufficient resources to operate and maintain water and wastewater systems, it is possible that new drinking water advisories may be issues in the future” (Indigenous Services Canada, 2019).

As an example, the 2013 Safe Water Drinking for First Nations Act does not prescribe specific funding roles from various departments nor does it adequately address the resource gap, both of which were highlighted by the expert panel as being crucial in the provision of a sustainable water supply on reserve. The Act does not prescribe specific funding roles from various departments, which is crucial in the provision of a sustainable water supply on reserve. Instead the Act refers to funding in the form of fees imposed on Nations, without addressing the responsibility of the federal government to provide aid in the form of financial resources and capacity building. The Act falls short on its duty to adequately consult with First Nation groups, which is critical, as they are the population that will be impacted most by this legislation.

Adequate funding is a barrier to the realization of the human right to water in both communities. Water infrastructure is expensive and requires maintenance and operators to provide a safe and reliable source of water. Without adequate and long term funding, projects to improve water security take on a short sighted vision of success. The UN Human Right to Water declaration does not highlight a sustainable funding scheme is required for safe water to be provided into the future.

# Chapter 6.

# Discussion

In summary, the UN Human Right to Water declaration is a step in the right direction, speaking to worldwide equity and access for all. However, the framework presented does not provide adequate infrastructure for incentivizing compliance in the face of colonialism and conflict. As a result, communities like Palestinians living in the Occupied Territories and First Nations in Canada continue to face higher rates of water insecurity with few tools to access change. Highlighting and comparing the similarities in Canada and Palestine serves to act as a tool, to inform where international declarations need to instill stronger frameworks for compliance, to ensure that benefits are received by marginalized communities alike.

Through my research I came across areas of areas of actions that can contribute to realizing the human right to water in the face of the barriers highlighted above. I acknowledge that every First Nation and Palestinian community is different in its needs and capacity and that there is no prescriptive solution that will fix issues of water security. Rather, these ideas could contribute to a toolbox of actions that can be selected from to best fit unique community needs.

The first idea centers around increasing external pressure through international channels. The second suggests ecosystem-based approaches to water management, using South Africa as an example. Third, I suggest the idea of physical infrastructure changes to connect to neighboring communities. Lastly, I believe restructuring governance models, to include opportunities for co-governance may relieve issues around jurisdictional fragmentation and support equitable rights to water. Ideally, these suggestions can be used to contribute to discussion around how to better serve marginalized communities in realizing the human rights to which they are entitled, specifically their right to adequate, reliable, affordable and clean water.

## 6.1. External Pressure

Given that the human right to water is a non-binding resolution passed by the UN's General Assembly, there is limited ability to enforce action by the international community. The resolution makes the state responsible for both achieving and accounting for progress towards the right to water. Without proper accountability measures the human right to water may not realistically be achieved (Angel and Loftus, 2019). Schiff (2016) argues that international efforts may be enough to ensure states adopt norms outwardly, yet there needs to be capacity to enforce the norm domestically as well. Without this capacity such acceptance "can masquerade as compliance and instead serve as an evasive maneuver on the domestic level, thus allowing the state to continue to marginalize human right to water within its own internal policies" (Schiff, 2016).

Models such as the boomerang mode (Schiff, 2016) and the spiral model (Risse et al, 1999) emphasize the importance of external pressure, or socialization on altering violating states to conform to human rights norms. The boomerang model is described as NGOs and other grassroots organizations opposing government, forming international alliances, for instance with intergovernmental organizations, to pressure offending state governments. Schiff mentions how Canadian NGOs, such as the Council of Canadians, utilized the "boomerang model" to raise international awareness for the human right to water and "name and shame" the Canadian federal government into action.

Similarly, the spiral model (Risse et al 1999) shows the process of how a norm violating state may be socialized into adopting international human rights norms. The steps entailed in this model include: transnational advocacy networks bringing international attention to violations, external pressure prompting the norm violating state to make a 'tactical concession', and lastly, the socialization is achieved when the target has altered its behavior as a result of continuing social pressure. Both models, emphasize the ability of organization and external pressure, such as from non-profit and civil society organizations to engage with international human rights resolutions in order to see that governments change their behavior. However, it must be noted that this is highly dependent on NGOs that have a significant amount of financial and human capital to exercise such pressure. Partial compliance, as can be seen in the Canadian context,

is referred to as a ‘relatively stable end point’ on the compliance spectrum. Tools such as shaming and taming are described by Friman (2015) as a mechanism for exposing the compliance gap between “words and deeds and then (subsequently) tame them by imposing, or credibly threatening to impose, concrete material/political costs”.

Rousseau (2018) analyzes four reviews on human rights norms compliance and summarizes that coercion, persuasion, capacity building and the use of incentives may be used as mechanisms for inducing compliance. Devlaeminck (2013) argues that in extreme cases of violations to the human right to water there is just cause to intervene on the grounds of the Responsibility to Protect (R2P). R2P is to be applied in specific instances such as cases of mass atrocity, specifically genocide, war crimes, ethnic cleansing and crimes against humanity and can be enacted under the responsibility to prevent, react and rebuild (Devlaeminck, 2013). If there is a failure by the state to uphold the Human Right to Water to the point in which there is actual or imminent large-scale loss of life, then an intrusion on state sovereignty is justified as per R2P. These interventions may take place in the context that an institutional structure, such as the UN Security council or the International Court Criminal engage punishment, and the use of military force and legal enforcement.

Though it is unlikely that issues around water access will trigger R2P, some scholars argue that it should be done as violations of the human right to water meet the criteria designated by R2P. For example, Devlaeminck (2013) argues that violations of the human right to water are crimes against humanity but can also act as tools of ethnic cleansing or genocide. They argue that issues around water access could invoke the responsibility to prevent, or in more severe cases, the responsibility to react. The responsibility to prevent is a stance in which the international community attempts to address the root cause of the conflict in order to prevent crimes against humanity. This is a preventative duty in which the international community concludes that without assistance from the international community, the situation would escalate to the responsibility to react. Actions within the responsibility to prevent can vary from political actions, such as advancing good governance or promoting dialogue, to economic or military actions, in the form of development assistance. Actions are classified under “Root cause solutions”, that aim to fix the source of the issue, or “preventative solutions”, those that prevent but do not resolve the issue at its source. Direct prevention includes political and economic sanctions. Both of which would be very useful in increasing

incentive for governments to comply with the human right to water. Additionally, direct prevention includes services such as negotiation or the threat of tribunal before the International Criminal Court.

In the two case studies provided, the UN has not deemed that there is a massive loss of life at risk. However, triggering events from environmental threats, conflict or disease outbreaks could have resounding impacts on community health and life. Other trigger points from increasing population and climate change impacts and may further push communities to a tipping point. Further research into the concept of triggering R2P for violations of the human right to water may provide the much-needed incentive, loss of sovereignty, for states to improve water access to vulnerable communities.

## 6.2. Ecosystem services-based approach

In addition to increasing external pressure to enhance compliance, I support adopting an ecosystem perspective as a remedy to the narrow scope of the human rights resolution and the water security framework. An ecosystem perspective can be thought of as a framework for action, rooted in the integrated management of land, water and living resources. The term ecosystem approach has developed over the last decade, as our understanding of ecosystem services and their impact of human life and wellbeing has advanced. One of the first definitions of ecosystems services came from Daily (1997), who defined ecosystem services as “the conditions and processes through which natural ecosystems, and the species that make them up, sustain and fulfil human life.” She also highlights how the failure to foster delivery of ecosystem services undermines economic prosperity, forecloses options, and diminishes other aspects of human wellbeing (Martin-Ortega et al*,* 2015). The concept has continued to be developed since 1993 yet remains quite broad in scope. Martin-Ortega et al. (2015*)* define an ecosystem service-based approach as a “way of understanding the complex relationships between nature and humans to support decision-making, with the aim of reversing the declining status of ecosystems and ensuring the sustainable use/ management/conservation of resources.” They highlight that there must be a focus on the effects of the ecosystem on human wellbeing as well as a trans-disciplinary approach to understand both the scientific aspects of service delivery as well as the economic and social impacts.

Adopting an ecosystem perspective in the human rights narrative may reconcile the exclusion of cultures and worldviews while simultaneously increasing economic, social and environmental success. Solely protecting water for drinking and sanitation not only creates a reactive approach to drinking water but ignores the lifecycle of water and the overall improvement of watersheds. By managing for the ecosystem, water would not only be seen as a resource, but also managed for its provisioning, regulating, cultural and supporting services. Takacs (2016) highlights the importance of managing for the ecosystem by saying:

> When a government does not protect the ecological infrastructure of water, it decreases its own resources. It shrinks its own ecological, and thus economic, budget. When a government squanders its ecological resources, it fails to respect the right to water, and it takes away from users' what water they could have, thus squandering the public trust.

Takacs (2016) uses South Africa's policy regarding water as a human right as an example on how an ecosystem approach can alleviate issues around water security. South Africa's history of apartheid left huge social, economic and environmental gaps within the population. In 1996, South Africa instituted a progressive constitutional reform, the National Water Act, which included the human right to water and food and integrated equity into water access and environmental needs. Through a few iterations and some initial setbacks South Africa has significantly improved water access where there is now reporting that 94.8% of the population access safe water (self-reported 2013).

Takacs (2016) highlights the importance in this realization is largely through an environmental lens saying that "water provisioning at the heart is an environmental issue... how we conceive of environmental problems shapes how we solve these problems in law." The Public Trust Doctrine in South Africa delineates a government's responsibility to manage and steward essential resources sustainably and adds the constitutional human right to an entitlement of water required for a dignified life.

Environmental needs and human needs are inextricably linked, and sound management through riparian buffer zones, clearing invasive and similar strategies can largely improve water quality and quantity downstream. The cost saved through conserving environmental services is a substantial amount, as it is estimated that nature provides humans with $125 trillion USD worth of services annually (Costanza *et al*, 2014). U.S. studies suggest that every dollar spent protecting ecological infrastructure

saves between $7.50 and $200 in water treatment costs—and that does not include the costs of repairing or dredging dams or importing water from elsewhere (Bennett and Carroll,2014).

As technological and engineering perspectives have dominated water governance resulting in end-of-pipe solutions, taking an ecosystem perspective will enable shifting to a more holistic understanding of water and focus on source water protection (Bakker, 2012; Linton,2010). Shifting to a source-to-tap framework might reflect more integrated approaches that include broader social and ecosystem processes and be aligned with alternative worldviews. This would entail focusing on the source of water contamination, be that a physical source or a political one.

In Canada, Source Water Protection (SWP) did not come into the forefront until the 2000's after the Walkerton crises, in which 2,300 inhabitants fell ill due to E.coli contamination in source water in 2000. Marshall *et al* (2018) analyzed published peer reviewed literature on the implementation and outcomes of source water protection programs involving Indigenous populations in Canada and the United States. They found that overall the quality of Indigenous involvement in the programs is fairly poor, that there is a lack of ecological metrics to identify effectiveness of SWP plans, and that the description of depth of Indigenous involvement in SWP programs is lacking. The David Suzuki Foundation has also released reports highlighting the need to invest in source water protection and the lack of regulatory frameworks that are First Nations-led (Lukawiecki, 2017).

An example from the Muskowekwan First Nation, Treaty 4, Saskatchewan shows how a community-based participatory approach to source water planning can better advance First Nations' interests and serve as a pathway to local water security (Grant, 2016). Patricks et al (2019) describe the process with the Muskowekwan First Nation as guided by trust, respect, and reciprocity and as one where community members had the lead on identifying threats to the drinking water source and desired restorative land management actions to reduce those threats. They describe the result of the source water planning as a process in self-determination and having unintended results including human-land connectivity, reconnection with the water spirit, as well as the reclaiming of Indigenous planning.

This ecosystem perspective also has the capacity to largely address some of the transboundary water management issues between Israel and Palestine. Palestine struggles to adequately treat wastewater due to lack of energy, infrastructure and technology. The lack of sufficient reliable electricity to supply to the wastewater sector, has resulted in a majority of water left untreated to enter the waterways in Palestine and Israel impacting health of communities. Only 30 percent of water (21 MCM of the 69 MCM) of the West Bank wastewater is collected and of that about only one third (9.5MCM) is treated (World Bank Group, 2018). The result is that 25 MCM of untreated sewage is discharged into the environment in the west bank, much of which flows into Israel which charges the Palestinian Authority (PA) for treatment, which in 2017 cost the PA US31$ million (World Bank Group, 2018). In Gaza, out of the 80 MCM of wastewater, around 1 MCM/year treated wastewater is reused, 13 MCM is treated and discharged into the aquifer for recovery, and 46 MCM untreated and partially treated wastewater is discharged and infiltrated in the ground and directly into the sea. This is a contentious point as the Israel Water Authority has claimed that the Palestinians are defaulting on their obligations according to the Water Agreement by failing to treat wastewater and are not advancing projects for wastewater treatment despite funding from donor countries. Palestine on the other hand defers to its inability to its energy crises and its inability to properly maintain these facilities (Efron et al, 2018).

An environmental lens would reframe the issue to focus on the health of the environment and the quality of water which may enable Israel and Palestine to work cooperatively on the issue of treating wastewater. Working to improve water treatment as a means of protecting the environment, the quality of water and the health of communities and ecosystems. The World Bank (2018) further supports that a transfer of technology from Israel to Palestinian territories should be encouraged, as Israel is a world leader in water reuse technologies. Israel’s tangible interest in improved environmental management in Palestinian territories would reduce the amount of sewage in transboundary streams and reduce the treatment on the part of Israel.

Ultimately, if Canada and Palestine where to redefine their water management through the lens of “indivisibility of water”, or perceiving water access as an environmental issued there may be possibility for increased water security along with economic and social benefits.

## 6.3. Technological Solutions

A number of available technological solutions may also serve as a means to provide safe water in a short time frame and with reasonable financial cost. However, it is important to note that this approach does not bring about fundamental changes on nation states to change the power structure related to natural resources. In fact, it may reinforce the dependency of communities on the nation state and reduce possibilities of self-determination. The expansion of current water service networks to communities who currently face water insecurity would be dependent not only on a community's willingness but also on geographical and technical feasibility.

For both Palestine and Canadian First Nations, there are issues of discriminatory access by which settler communities have sufficient access to clean water while the neighboring community does not. Expanding servicing thus would provide safe and adequate water for current communities facing water insecurity. Research by Lipka and Deaton ( 2015) explores the impact of "Municipal Type Agreements" (MTA), where First Nations communities develop contracts with water service from neighboring communities and the resulting likelihood of boil water advisories. Their primary finding was that participation in an MTA significantly reduced the likelihoods that a First Nation be under a boil water advisory. However, they also found that the geographic remoteness, or the distance from each reserve to its closest proximal population centre will largely impact the potential for an MTA. However, they do note that there are many First Nations in close proximity to neighbouring communities, meaning MTAs could be a viable option for these communities.

One example of an MTA type agreement is with Semiahmoo First Nation, who after 15 years of a permanent boil water advisory will be connected to the surrounding Metro Vancouver Water system. In 2015, Semiahmoo appealed to the City of Surrey for connection that provided water and sewage connection. In 2018 a deal was settled, and infrastructure upgrades are now underway (Baker, 2019). Though in this case the agreement comes as an accomplishment, not all First Nations may want to depend on the municipality for water services and should be consulted appropriately. However, in situations where it is both economically and socially feasible MTA's a means to improve water security and drinking water quality on reserve.

In the case of Israel and Palestine this approach is highly controversial, as it would imply an increased sharing of resources and potential for legitimizing illegal settlements in Palestine. However, currently Israel is a leader in water access and has excess water on a per capita basis when compared to Palestine. Economically it would be feasible to extend current piped water infrastructure from the settlement communities and improve access to clean water for Palestinian communities. However, such a solution invokes other political considerations as it could be views as legitimizing Israeli settler communities. In one of my research interviews it was suggested that Gaza connecting to the Israeli water network would be a progressive act with many benefits but would face immense opposition to the idea. Selby (2018) mentioned that this direction may contribute to meaningful peace in the absence of a broader solution to the conflict. A potentially less controversial solution would be to connect Gaza to Egyptian municipalities that neighbor them to the south.

In both the cases, reliance on extended networks from neighboring communities brings up the un-addressed issue of self-determination and governance. Extending pipe networks from settler communities may reduce the potential for self-governance as water servicing will be from the settler or colonial population. Ferris (1986) argues that the perceived benefits of using an external service provider must be substantial and greater than the cost of losing autonomy over vital resources. The appeal of cost savings through servicing agreements will only be as important as the perception of the level of control that will be maintained over the service (Le Roux and Carr, 2007). Research into how to mutually govern this service may improve the initial distaste of solutions at which self-determination is at risk. From a purely economic standpoint, distance and size of the community to be extended to would largely play a part in the feasibility. Further research is needed to better understand the uncertainties pertaining to the political and economic implication of such solutions.

## 6.4. Reframing Governance

As discussed above, the colonial governance approach has systematically excluded marginalized groups in decision making as a means to further the agenda of acquiring land and expanding. With new calls for reconciliation in BC, decision makers are looking at methods to reconcile funding issues, governance fragmentation and the erosion of trust. Co-governance is one method, that can potentially address some of

these core tensions related to authority and power sharing by shifting towards the empowerment of traditionally marginalized stakeholders and reducing conflict (Nowlan and Bakker, 2010). Co-governance shifts away from Indigenous groups playing a consultation role and moves towards a system in which two parties may govern through a form of shared jurisdiction, shifting away from a centralized authority.

It is particularly relevant in the Canadian context, as the Federal government has committed to reconciliation and New Relationships with Indigenous peoples (DOJ, 2018)[16]. Co-governance could offer an opportunity for the Province, Federal government and First nations to define and agree on a process for sharing authority and decision-making in BC. This sharing of power would ideally provide the opportunity to reconcile colonial power imbalances and include traditional values, laws and customs into governance frameworks.

One example is the Nicola watershed, which is promoting the co-leadership of water resources by the Province and the Nicola First Nations with an overarching goal of sustainable management and improved health of the Nicola watershed. “I see this partnership as having a huge impact on our relationship with the Province, but more importantly, for ourselves as Indigenous peoples as we become one with our land again,” said Chief Harvey McLeod of the Upper Nicola Indian Band (Polis Water Project, 2018). Other co-governance models such as the Cowichan Watershed Board have also begun working towards new area-based forms of governance, with objectives of addressing the root causes of over-extraction and unsustainable exploitation that plagues BC natural resources (Brandes et al*,* 2014).

However, as noted by Simms *et al (2016)* the geographical and cultural diversity of First Nations indicates there cannot be a single prescriptive approach to reconciling competing claims to land and water within one set governance structure. However, co-governance presents a flexible mechanism to shared decision making and better including voices from marginalized communities. In communities where co-governance is preferable it may open up the possibility for trust building which may provide room for First Nations to contribute Indigenous laws and knowledge into management and better protect water resources. In order for these models of co-governance to work,

[16] Canada, Department of Justice, “Principles respecting the Government of Canada’s relationship with Indigenous peoples”, online: <www.justice.gc.ca/eng/csj-sjc/principles-principes.html>

government must also develop a framework to ensure that Indigenous water rights and title are accounted for in the water regime. Policies, like the Water Sustainability act in BC demonstrate an opportunity to explicitly share authority by working with Indigenous peoples. Though these programs are new and evolving they demonstrate the potential to restructure governance to benefit disenfranchised communities.

In the case of Palestine, revisiting governance frameworks, such as in the JWC, may address some deeply rooted power imbalances and give Palestinians a greater voice in the decision-making process. As mentioned throughout this report, the Israel Civil Authority largely holds authority over all water developments in Palestine; this authority can be observed through their veto power, abstraction rates and the inequitable water access between Palestinian communities and Israeli Settlements. The option of co-governance is more difficult to apply to this case as a result of the multiple failed attempts at negotiations and subsequent uprising that have occurred in the Palestinian territories. The unwillingness of the Israeli government to acknowledge the history, and the current human rights violations do not parallel that in the Canadian context.

As a result of this outright conflict, many have proposed solutions more along the lines of two state solutions, having two autonomous governing bodies. Though there is an argument to be had for this solution, I see it as having a lesser impact on the water resources as Palestinians would likely be left with overly abstracted and polluted water sources and a depressed economy which would give them little room to improve the situation. Another option is taking a bi-national approach which has merits in improving the lives of Palestinians within the current Israeli state and in the Occupied Territories and holds the possibility for improving collective equality and rights to both people (Ghanem, 2009). Palestinian writer Bilal Hasan argues that "The subject of the Bi National State is not one that one would wish nor is it a demand of those who raise it as an option. It is a fact that became reality and carries political ramifications even though the side (Israel) does not agree with the Bi National solution." (Ghanem, 2009). The current situation with a clear “separation system”, through geographic barriers, political separation and economic disparity, lends itself to crises for the Palestinian people and the inability to realize human rights, including the right to water. Palestine will be left to seek alternative options to achieve an independent or autonomous state. Though the solution to the conflict remains unclear, a bi-national solution is one that is worth

exploring as it may be able to reconcile the legacy of settler colonialism and lend itself to a new era of collective rights.

# Chapter 7.

# Concluding Remarks

In summary, water resources are not only essential for growth and wellbeing of communities but are necessary for them to simply exist. Without water there can be no people and no life. For this reason, water has been historically used as a tool, to dominate, colonize and gain power. Water insecurity for First Nations and Palestinians remains a legacy of settler colonialism and the desire to actively disposes these populations from their land and resources. Though the Human Right to Water resolution is milestone in the international communities' commitment to improving water access on a non-discriminatory basis it has not had the desired impact on the ground due to inadequate frameworks for accountability. Lack of incentives and ambiguity within the declaration have been further exacerbated by socio-political contexts and conflicting governance structures. Canadians off reserve and neighboring Israelis enjoy safe water freely exhibiting the disparity in technology, capacity and funding. Ultimately, the declaration is ill-equipped to provide the fundamental institutional transformation needed to overcome colonial influences and hegemonies over water resource management in Palestine and for First Nations in Canada.

From this research I have found that external pressure from the international community and civil society may contribute to improving the equitable implementation of human rights policies. That being said, this solution may be implemented over a long time period as it takes time to bring about effective policy change and to adequately pressure states to comply with new policies. Perceiving water access as an environmental issue may involve adopting an ecosystem perspective, which has the potential to improve water quality on a larger scale and improve equitable access, through source to tap management and improved wastewater treatment. Lastly, a more immediate and technological solution is the possibility of connecting communities to their better-served neighbors, when feasible. Though this may not be the most socially favorable idea as it reinforces dependencies it may be a desirable short-term solution for communities in crisis, such as the Gaza Strip or reserves on long-term boil water advisories that are in close proximity to municipalities.

This research is limited in that it only compares two case studies, there would be significant benefit to furthering research in this domain to include other disenfranchised and colonized communities that do not fully enjoy the Human Right to Water. Further research on common barriers to the full enjoyment of the human right to water could contribute to better informing future policy tools to be applied in communities which face water disparities.

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# Appendix I.

# Water Specialist Interviews

| Name | Organization | Date |
|---|---|---|
| Jan Selby | Director of the Sussex Centre for Conflict and Security Research | November 16, 2018 |
| Mohammad Said | Water Service Regulatory Council, Palestine | November 20, 2018 |
| Anonymous | First Nation Water regulator | April 3, 2019 |
| Symposium Presentation: Manal Tamimi | Women's Centre for Legal Aid and Counselling (Palestine) | May 9 – May 10, 2018 |
| Symposium Presentation: Ms. Karen Assaf | Arab scientific Institute for Research and transfer of technology | May 9 – May 10, 2018 |

# Appendix II.

# Sustainable Development Goal 6 Targets

- 6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all
- 6.2 By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
- 6.3 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
- 6.4 By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
- 6.5 By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- 6.6 By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- 6.A By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
- 6.B Support and strengthen the participation of local communities in improving water and sanitation management

Retrieved from: United Nations (2015) Transforming our world: the 2030 agenda for sustainable development.
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# Appendix III.

# Orders of Water security

| | Physical/ First Order | Economic/Second Order | Adaptive Capacity/ Third Order | Scarcity caused by Socio-Political processes |
|---|---|---|---|---|
| **Definition (Mehta, 2005)** | Volumetric quantities: Population Growth, projection of future demand | Inadequate development of water infrastructure. Poor management and institutional arrangements. | Social, political and economic context of water management | Scarcity as a product of discursive and socio-political processes; entitlement failures. |
| **First Nations in Canada** | • Partially Met<br>• Canada has the third largest renewable freshwater supply in the world, with an average annual flow of 3,478 $km^3$ between 1971-2013 (McKitrick et al,2018)<br>• Despite high amounts of water resources projected increase in population and water demand along climate change impacts may result in decreases in water availability (Statistics Canada, 2015) | • Fully Met<br>• First Nations living on reserve do not benefit from the same level of protection as those living off reserve (Collins,2010)<br>• 3.9 percent of population living on reserve at the time were affected by Drinking Water Advisories in 2011 (Boyd,2011)<br>• Water infrastructure expensive, with Canadian government funding about 80% of water infrastructure programs, 20% of funding must be from the Nation itself or other grants. | • Fully Met<br>• Fragmented between federal government - Limited adaptive capacity as First Nations have limited power.<br>• Limited ability for First Nations to self govern and manage resources due to Indian Act.<br>• Poor economic status may impact ability to pursue improving water infrastructure.<br>• | • Fully Met<br>• Legacy of settler colonialism on natural resource access for First Nations under the Indian Act. "First in Time First In right" water licensing disregarded First Nation use of water resources.<br>• No drinking water policy for First Nation reserves.<br>• Jurisdictional Fragmentation over water resources limits governments ability to comply with Water as a Human Right. |
| **Palestine** | • Fully met<br>• The Palestinian population is growing at about 2.4% per year (World Population Review, 2019). Palestine is expected to experience rapid population growth as result of large population of youth, 69% below the age of 29 (UNFPA, 2019)<br>• Gaza Region experiences high population density and low quality and access to water (UNFPA, 2019). | • Fully Met<br>• High cost of tankered water<br>• Limited ability to improve water infrastructure due to Gaza siege and Israel control of Area C<br>• Average net consumption at the household level is 50 liters (13.2 gallons) per person per day. 50 % of the World Health Organization's minimum recommended daily allowance of 100 liters.(World Bank , 2009) (food and water watch)<br>• Destruction of water resources and infrastructure in Palestine, increases difficulty in access (OCHA, 2019) | • Fully Met:<br>• Palestinians have limited power in Joint Water Commission (Selby,2018)<br>• Palestinian Water Authority has limited impact due to imposed Israeli occupation.<br>• Inequitable access between Israeli settlers and Palestinian Communities (Tamimi, 2018)<br>• Palestine in funding crises-inadequate funding for electricity and WaSH infrastructure projects (OCHA, 2017) | • Fully Met:<br>• Fragmentation between Palestinian Water Authority goals and implementation due to Israeli occupation.<br>• Siege in place to prevent Palestinians from improving or accessing water infrastructure.<br>• Jurisdictional barriers result in barriers for PWA to realize Water as a Human right |

# Appendix IV.

# Palestine and 9 core obligations of Human Right to water

| Core Obligations | Palestine |
|---|---|
| 1) Minimum essential amount of water, that is sufficient and safe for personal and domestic uses to prevent disease | Low<br>95% of Gaza aquifer is contaminated<br>Gaza; 95% of the population do not have access to safe water, (HRC,2019).<br>West Bank average household water consumption below World Health Organization Standards<br>Public health problems are increasing due to discontinues water supply, lack of facilities for appropriate hygiene, and low level of wastewater treatment caused by deteriorating economic conditions. (Klawitter, 2006) |
| 2) The right of access to water and water facilities and services on a non-discriminatory basis | Low<br>The Israeli army has damaged the water infrastructure in 202 communities and the water network in 255 communities. (UNDP, the World Bank,)<br>UNESCO, and USAID estimate that the Israeli army has destroyed at least US$7 million worth of water infrastructure.(Thirsting for Justice)<br>88% – of Palestinian villages in Area C are not recognized by the Israeli planning authorities, making it unmanageable to obtain approval for any water projects. (Bimkom, 2008: 160-64) |
| 3) Physical access to water facilities or services that provide sufficient, safe and regular water. | Low-<br>15% of the Palestinian population is not connected to a water network, those who are connected are subjected to costs of the Israeli water carrier, Mekorot.<br>(our right to water)Almost one quarter of the communities connected to the water network receive less than 50 liters per person per day. The World Bank also reports that, “In the southern towns, supply to 16% of people living in connected households is less than 20 liters [5.3 gallons] per capita per day.” These extremely low consumption figures are for communities connected to a water network. Ten per cent of the population is still not connected to a water network.4<br>22% of population are not served with piped water. Klawitter, 2007)<br>Limited access to trucked water due to restriction in mobility by irregular closing of checkpoints or denying of access to water sources by Israeli military.(Klawitter,2007) |
| 4) Personal security is not threatened when having to physically access water | Low<br>Damage to Palestinian water infrastructure by Israeli settlers and Israeli army |
| 5) Equitable distribution of all available water facilities and services | Low<br>According to a report released by Amnesty International, “The 450,000 Israeli settlers, who live in the West Bank in violation of international law, use as much or more water than the Palestinian population of some 2.3 million. (Amnesty International, 2010)<br>There are 6 artesian wells in Gaza, only 2 of which meet international standards for drinking water.(Koppelman & Al-Shalalfeh, 2012)<br>Only about 25% of the Palestinian population is attached to a sewage network and raw sewage from settlements and Palestinian areas is dumped directly into the Mediterranean (Koppelman & Al-Shalalfeh, 2012). |

| Core Obligations | Palestine |
|---|---|
| 6) National water strategy and plan of action addressing the whole population | Varies<br>Palestine has a national water reform which includes the PWA and JWC.<br>Restricted implementation under Israel hegemony<br>Since 1967 Israel has not approved a single new Palestinian well in the Western Aquifer.<br>106 water projects and 12 large scale wastewater projects are awaiting JWC approval, some of them since 1999 (Koppelman & Al-Shalalfeh, 2012). |
| 7) To monitor the extent of the realization, or the non-realization, of the right to water | Varies<br>Significant research into Palestinian Water management from both Palestinian academics and international community.<br>Lack of acknowledgment of breach of rights or monitoring by Israel |
| 8) low-cost targeted water programs to protect vulnerable and marginalized groups | increase in poverty and unemployment, as well as a rise in the price of both piped and tanker water.<br>Since the start of the second intifada, poverty among Palestinians has trebled to 60%, unemployment has risen to half the population, and the price of tanker water, on which so many rely, has risen by an average of 82%.<br>Even in communities with piped water, high rates of inability to pay water bills (up to 100%)<br>Households that do not have a tap must rely on transporting water. Tankered water costs up to 12 times as much as water from the tap and carries higher rates of water borne disease [17]<br>Water prices vary depending on water source, e.g. 6NIS /CM (approximately US$1) in Bethlehem area, but up to 40 NIS for tanked water, e.g. in Hebron area. (Klawitter, 2007)<br>Low ability to pay for water, due to economic crises percentage of income to be spent for water is very high and often exceeds the benchmark of 5% of family income. (Klawitter, 2007)<br>Knowledge about water is in the female domain, and it is women who must pass on this knowledge to children. However, awareness programmes for educating women about water issues, water-related diseases and water conservation are lacking. |
| 9) Prevent, treat and control diseases linked to water | Low<br>On average, the public receives water that has chlorides of around 290 mg/l and nitrates of around 85 mg/l, higher than WHO's acceptable levels (Mair et al, 2003).<br>In surveys conducted by Oxfam, 4 out of 10 households reported an increase in cases of diarrhea. The prevalence of water-related diseases in Palestinian communities is as high as 64% (in Rantis, Ramallah District)(Mair et al, 2003) |

[17] "up to twelve times as much as water from the tap" calculated using figures from the WASH rapid assessment water scarcity data from July 2011 (UNICEF).

# Appendix V.

# Canada and 9 core obligations of Human Right to water

| Core Obligations under UN Resolution of Water as a Human Right | Canada/First Nation |
|---|---|
| 1) Minimum essential amount of water, that is sufficient and safe for personal and domestic uses to prevent disease | High<br>Canada holds around 20% of the worlds freshwater and is a water secure country.<br>Projected increase in First Nation population on reserve will require $1.2 billion to meet the department's current protocols, and for $4.7 billion for new servicing with growth<br>83,300 cubic metres per inhabitant per year, compared with a global average of 6,000 cubic metres (UN FAO 2014). |
| 2) To ensure the right of access to water and water facilities and services on a non-discriminatory basis, especially for disadvantaged or marginalized groups | Varies<br>Up to 72,000 people in First Nations could have been affected by a drinking water advisory (DWA) at the end of 2016 (Council of Canadians, 2017). This represents approximately one quarter of people living on a First Nations reserve.<br>25% of the First Nations population across Canada were found to be living in communities served by high risk water systems (Department of Indian Affairs and Northern Development, 201) |
| 3) To ensure physical access to water facilities or services that provide sufficient, safe and regular water… | Using the Department's Risk Level Evaluation Guidelines, the contractor assigned a risk rating to each of the 807 water systems that it inspected: 39 per cent of those systems were classified as high overall risk with 34 per cent labeled medium overall risk and 27 per cent categorized as low overall risk<br><br>72 per cent of all homes being piped, 13.5 per cent on truck delivery, 13 per cent serviced by individual wells and 1.5 per cent having no water service (Department of Indian Affairs and Northern Development, 2011) |
| 4) To ensure personal security is not threatened when having to physically access water | Not enough information |
| 5) To ensure equitable distribution of all available water facilities and services | Varies<br><br>It was asserted that federal investment over the last decade has vastly improved the situation, and that, while many of the conditions on Indian reserves are “third-world,” water supply is generally not one of them.<br><br>The majority of high-risk systems serve a small population. Water systems in remote communities are 2.5 times more likely to be high risk than low risk.<br><br>the National Assessment identified 314 water systems as high risk, 161 water systems in 116 First Nation communities were under Health Canada Drinking-Water Advisories (DWA) as of February 2011. These DWAs may be impacting up to 18,900 people, which is approximately 3.9 percent of the total on-reserve population (Department of Indian Affairs and Northern Development, 2011). |

| Core Obligations under UN Resolution of Water as a Human Right | Canada/First Nation |
|---|---|
| 6) To implement a national water strategy and plan of action addressing the whole population… | Low<br><br>Provincial water quality regulations do not apply to reserves, and the federal government has not put any in place, possibly because it does not want the responsibility of ensuring their implementation.<br>Plan of action by government to increase budget towards drinking water on reserve. |
| 7) To monitor the extent of the realization, or the non-realization, of the right to water | Varied by community |
| 8) To adopt relatively low-cost targeted water programs to protect vulnerable and marginalized groups | Infrastructure can be expensive especially in remote locations.<br>ISC funds about 80% of water infrastructure programs. 20% of funding comes from the nation itself or other grants. Training and retention of water service providers is not included in this budget.<br><br>The total estimated cost is $1.2 billion which includes, amongst other factors, the development of better management practices, improved operator training, increasing system capacity, and the construction of new infrastructure when required. |
| 9) To take measures to prevent, treat and control diseases linked to water, in particular ensuring access to adequate sanitation | Community-based Water Monitor Program, we:<br>provide funds to Chiefs and Councils for bacteriological drinking water monitoring<br>train community-based drinking water quality monitors to sample and test the drinking water for potential bacteriological contamination as a final check of the drinking water at tap<br>ISC role to provide residents, upon request and free of charge, bacteriological testing services of their well water<br>reviewing plans and providing advice from a public health perspective for new and upgraded water treatment systems |

# Appendix VI.

## Canada's Budget for First Nation Drinking Water

- **Budget 2016** provided $1.8 billion over five years toward water and wastewater infrastructure.
- **Budget 2017** committed an additional $49.1 million over three years towards improving access to safe drinking water.
- **Budget 2018** provided an additional $172.6 million over three years to help accelerate progress on lifting drinking water advisories and to ensure more infrastructure projects can be completed prior to 2021. Budget 2018 also provides support for repairs to high risk water systems, recruitment, training and retention initiatives, and the establishment of innovative First Nations-led service delivery models.
- **Budget 2019** proposes to invest an additional $739 million over five years, beginning in 2019-2020, with $184.9 million per year ongoing. The investment will support ongoing efforts to eliminate and prevent long-term drinking water advisories – funding urgent repairs to vulnerable water systems, and providing water operator training and support programs, so that First Nations communities can effectively operate and maintain their public drinking water systems.

**Retrieved from Indigenous Services Canada, 2020.** https://www.canada.ca/en/indigenous-services-canada/news/2019/08/monthly-progress-update-through-july-2019-on-long-term-drinking-water-advisories-on-public-systems-on-reserves.html