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Water Security: Canadian Leadership for a Global Issue

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WATER SECURITY: CANADIAN LEADERSHIP FOR A GLOBAL ISSUE

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ABSTRACT

Canada is a water-rich nation with nine percent of the world's renewable freshwater resources and less than one percent of the global population. Canada's neighbour, the US, is experiencing significant regional water scarcities, some of which have been ongoing for decades such as scarcities along the Colorado River Basin. The US is also depleting its groundwater resources such as the Great Plains Ogallala aquifer. At the same time, its population is projected to increase by 200 million more people in 2051, which will place increased pressure on its already deteriorating hydro conditions. The United States Geological Society predicts that climate trends will continue to result in extremes of weather that will produce long droughts in multiple regions including the southwest. As the US dries up it could look to Canada to meet its water needs. The two nations share multiple transboundary water ways including the Great Lakes, the world's largest freshwater repository. The US, as the stronger economic and military power, could become a hydro-hegemon and take the water it needs from Canada to ensure its survival despite their longstanding tradition of hydro-solidarity.

Canada needs to act now, projecting itself into a leadership role regarding international water management, to raise awareness about the approaching problem of global water scarcities. Canada has a feminist foreign policy in place that highlights its understanding of the importance of water access and sanitation to overall wellbeing. The policy recognizes the unique relationship that women, especially in the Global South, have with water and water management. Canada's Indigenous peoples have a spiritual connection to water that recognizes how connected life is to water. Canada can leverage its foreign policy objectives and empower its Indigenous people to share their wisdom at international fora to add legitimacy to its international voice regarding water leadership.

The number one deficit in the world today is the deficit of fresh water.
 – Mikhail Gorbachev, 2002 Los Angeles, UCLA

INTRODUCTION

The use of fear-inducing and catastrophizing language regarding life-sustaining fresh water and its ever-impending scarcities points to one possible outcome: water wars are coming.

Well-established facts describe a global scenario that cannot be ignored. Academics who write on the topic of water security have promulgated several sobering statistics. A 2011 study published in the American Journal of Public Health noted that “[o]ne billion people do not have access to safe water, a problem that will likely increase as the world’s population grows from 6.8 billion to about 9.0 billion by 2050.”¹ The situation has only deteriorated according to a report from the United Nations (UN) published earlier this year. It said that “[nearly half the global world population are already living in potential water-scarce areas at least once per month per year...[and] a third of the world’s biggest groundwater systems are already in duress.”²

The UN has also buttressed the fear that water will become a source of conflict in the decades ahead with three former United Nations Secretary Generals forecasting water-related apocalyptic outcomes. Boutros Boutros-Ghali said in 1985 that, “the next war in the Middle East will be fought over water, not politics.” “Fierce competition for fresh water may well become a source of conflict and wars in the future,” said Kofi Annan in 2001. “The consequences for humanity are grave. Water scarcity threatens economic and social gains and is a potent fuel for wars and conflict,” said Ban Ki Moon in 2007.³

¹ Barry S. Levy and Victor W. Sidel, "Water Rights and Water Fights: Preventing and Resolving Conflicts before They Boil over," American Journal of Public Health, May 2011, accessed November 03, 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3076402/#bib5>).

² UN-Water, "Scarcity: UN-Water," UN, accessed January 23, 2021, <https://www.unwater.org/water-facts/scarcity/>).

³ "Former National Leaders: Water a Global Security Issue," United Nations University, accessed November 14, 2020, <https://unu.edu/media-relations/releases/water-called-a-global-security-issue.html>).

Canada must assume a leadership position regarding freshwater management amongst the international community of states, which significantly includes the US, now in order to develop awareness of its domestic circumstances, and become a pedagogical resource in preventing water from becoming a securitized resource at home and abroad. As a pillar of international leadership, Canada would seek to establish a national policy that would ensure the water requirements of both Canada and the US would be attended to equitably in the event of a trans-border water imbalance. Canadian hydro-leadership would be a key to fostering cooperation during a North American water imbalance and stave off the possible escalation of water conflicts. As global water scarcities worsen and become more common, Canada could position itself as an international leader amongst states experiencing difficult transboundary water conditions.

International leadership might prove to be a difficult role for Canada because despite the fact that startling water statistics are available, getting to the ground truth about fresh water levels in countries throughout the world is a difficult task. The science is complicated in part because water levels are ever-changing and complex technology, such as satellites, are costly and not always accurate when they are available.⁴ The effects of climate change is a further complicating matter as weather patterns, which produce droughts and weather extremes, are difficult project with accuracy.⁵ Groundwater levels can be even more easily disputed as they prove to be very complex to measure and can be explained away though science that produces “alternate facts.” Because of these difficulties, it is tough to instill a sense of global urgency that generates international cooperative efforts to confront the growing seriousness of water scarcities.

⁴ Erin Lee Hestir et al., "Measuring Freshwater Aquatic Ecosystems: The Need for a Hyperspectral Global Mapping Satellite Mission," *Remote Sensing of Environment*, June 07, 2015, accessed April 27, 2021, <https://www.sciencedirect.com/science/article/pii/S0034425715300237>.

⁵ "Mapped: How Climate Change Affects Extreme Weather around the World," *Carbon Brief*, April 26, 2021, accessed May 05, 2021, <https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world>.

Despite the difficulties in generating a collective sense of global urgency, there are a few indisputable and simple truths as to why non-action regarding water is a risky business. Human bodies are comprised of up to 60 percent water with organs such as the lungs being 83 percent water. Humans must consume approximately two-to-three litres per day just to sustain their bodies and their lives.⁶ Food production is contingent upon the continued availability of fresh water and that same substance is also essential for industry, economic growth, and sustainable development.

Whatever the truth may be about the availability of renewable global water resources in the future, it is more than conceivable that freshwater scarcities will create friction and conflict, amongst nations where water becomes a securitized issue. Not confronting water scarcities as a global issue is not an option.

Canada is nation well-endowed with fresh water, possessing nine percent of earth's renewable water. Geologically, Canada is hydrologically diverse, however, with some regions of the vast nation possessing more renewable water resources than others. Consequently, some parts of Canada more vulnerable than others to water stress but water scarcities are a regional realities with which Canada contends.⁷ Geopolitically, Canada borders the US, which is forecast to experience extreme water shortages in the coming decade(s) as their population surges and agriculture and industrial overuses meet water-decimating climate change patterns.

This mixture of differing geological and competing geopolitical conditions places Canada in a unique position. On the one hand it is well-endowed with asymmetrical freshwater resources. On the

⁶ "The Water in You: Water and the Human Body," United States Geological Society, accessed April 27, 2021, https://www.usgs.gov/special-topic/water-science-school/science/water-you-water-and-human-body?qt-science_center_objects=0#qt-science_center_objects).

⁷ Environment And Climate Change Canada, "Government of Canada," Canada.ca, April 28, 2020, accessed April 17, 2021, <https://www.canada.ca/en/environment-climate-change/services/water-overview/quantity/monitoring/survey/hydrology.html>).

other, it borders the world's only superpower, a nation which may need to look outside its borders to sate its thirst. Canada needs to be concerned with water securitization as a possible threat that awaits it in the coming years. Like water itself, water security and its securitization are complex topics not easy to understand. These terms deserve exploration after a literature review.

LITERATURE REVIEW

There is a lot of information published on global water scarcities. Official sites, such as those of the UN and its related organizations, table many sets of statistical data to support the concept that global water shortages are here and they will worsen in the coming decades. Information detailing how water scarcities could give way to violence and conflict is not as readily available although there is a growing body of literature regarding the concepts of hydro-solidarity and hydro-hegemony. This research has found Mark Zeitoun's extensive scholarship to be especially useful, particularly for purposes explaining how water wars have been avoided thus far. However, their lack of presence does not mean they will not emerge in the future.⁸ Twenty-five years ago a vice president of the World Bank predicted that wars of the future would be over water, and while much has been written about violence-based water conflicts that have broken out in various regions, there is little written about why big wars have not yet emerged over water scarcities – despite the growing body of evidence that suggests surface and groundwater levels are depleting globally.⁹

In terms of solutions that have emerged to deal with global water scarcities, there is much literature written about the need for nations to invest in updated water infrastructure and the need for citizens to curtail consumption. Israel is noted as a country which has been formidable in its water

⁸ "Hydro-hegemony – a Framework for Analysis of Trans ...," accessed January 23, 2021, [https://ueaeprints.uea.ac.uk/29466/1/ZeitounWarner_-_HydroHegemony_\(as_published\).pdf](https://ueaeprints.uea.ac.uk/29466/1/ZeitounWarner_-_HydroHegemony_(as_published).pdf).

⁹ UN-Water, "Scarcity: UN-Water," UN, accessed January 23, 2021, <https://www.unwater.org/water-facts/scarcity/>.

management and educating its people to reduce, reuse, and recycle every drop of water. The Jerusalem Post wrote that after many years of water hardship, Israel is now a water superpower, maintaining an abundance of water even through droughts. They have implemented engineering and technological solutions to avoid water catastrophes.¹⁰ They have produced so much water that they have deals in place to supply Palestine with water. According to a PBS documentary, Israel says that even when relations between the two nations are characterized by periods of explicit conflict, the water flows because Israel has more than it needs.¹¹

Technology, primarily through desalination plants, has assisted Israel in their achievement of becoming a water superpower. They brought their expertise to California to assist with the Carlsbad Desalination plant in California, which is the largest desalination plant in North America.¹² A banner across their website reads, “50 MILLION GALLONS A DAY: The Pacific is Now on Tap”. Their FAQs include details that its water is “sustainable, environmentally benign, drought-proof, drinking water”.¹³ Technology is an important part of the water scarcity discussion because it can be leveraged to solve some aspects of the growing global water problem. This dimension of research is beyond the scope of this paper but independent research on water-related technologies is complimentary to the ideas and solutions that will be explored.

This paper takes no position as to when, or if, the great water wars will arrive but it does seek to fill a gap by explaining that that the relationship between Canada and the US will evolve as an

¹⁰ "Is Israel's Scarcity of Water a Blessing in Disguise?" The Jerusalem Post | JPost.com, accessed May 05, 2021, <https://www.jpost.com/jpost-tech/is-israels-scarcity-of-water-a-blessing-in-disguise-654578>).

¹¹ “How Israel became a leader in water use in the Middle East” PBS News Hour, YouTube, April 26, 2015, accessed May 05, 2021, <https://www.youtube.com/watch?v=taMWUjda3fA>). I do note that differing points of view exist about Israel’s generosity of spirit when it comes to giving water to Palestine but I did not find anything that ever said Israel cut them off completely of potable water.

¹² Jim Robbins, "Desalination Is Booming as Cities Run out of Water," Wired, accessed November 24, 2020, <https://www.wired.com/story/desalination-is-booming-as-cities-run-out-of-water/>).

¹³ "Carlsbad Desal Plant," Carlsbad Desal Plant, accessed November 24, 2020, <https://www.carlsbaddesal.com/>).

increasing water imbalance materializes between the two states. This evolving situation will inevitably affect the currently peaceful status quo of their hydro-relations.

Regarding Canada-US relations there is a voluminous amount of material available including entire university courses devoted to the study.¹⁴ There is also a lot information available from the Government of Canada regarding transboundary water treaties, conventions, and agreements.¹⁵ In addition to this information, a binational website also exists for the International Joint Council (IJC). The IJC, established by both Canada and the US, was created out of a recognition that each country's actions affect the other where lake and river systems cross or run along the international border.¹⁶ There does not appear to be a lot of information from either government sources or academics, however, about how the changing water situation between the two states may affect Canada-US relations.

The possibility of changing dynamics will be expounded upon throughout this paper, which will also seek to explain that Canada should adopt a global leadership position as the potential for water securitization increases domestically and internationally. Canada has some unique means at its disposal to address water securitization, which will be explained in the next section.

WATER SECURITIZATION

A problem that adds to the complexity in understanding and explaining water-related issues is differentiating between the concepts of water security and water securitization. The definition of water security, which was developed by UN Water for the UN, attempts to situate the concept and align the

¹⁴ Christopher Sands. Originally Published on Policy Options January 27, 2021. "Biden Presidency Is a Chance for a Reset of Canada-U.S. Relations," Policy Options, March 23, 2021, accessed May 06, 2021, <https://policyoptions.irpp.org/magazines/january-2021/biden-presidency-is-a-chance-for-a-reset-of-canada-u-s-relations/>).

¹⁵ Environment And Climate Change Canada, "Government of Canada," Canada.ca, April 18, 2019, accessed May 06, 2021, <https://www.canada.ca/en/environment-climate-change/services/water-overview/governance-legislation/international.html>).

¹⁶ "Role of the IJC," International Joint Commission, accessed May 06, 2021, <https://www.ijc.org/en/who/role>).

thinking of members and partners to shape water-related discussion. Its definition of water security is as follows:

The capacity of a population to safeguard access to adequate quantities of acceptable water for sustaining livelihoods, human well-being, and socio-economic development, for ensuring protection against waterborne pollution and water-related disasters, and for preserving ecosystems in a climate of peace and political stability.¹⁷

The UN's definition is broad-sweeping and leaves little doubt that water security rests upon the need for collaborative efforts, continued access to clean water, and prudent water management that ensures access. By definition, a climate of peace and political stability is central to water security as it is clear the UN believes that water security would be difficult to achieve within either intrastate or interstate conflict. Said another way, human beings cannot enjoy water security, replete with sanitation and access, in the presence of conflict. As will be demonstrated later in this introduction, the historic propensity for violence related to water scarcities increases when conditions of violent conflict are in place before a water scarcity emerges. Violence begets violence. This is what makes the UN's definition of water security important. The definition is grounded in the assertion that water is a human right and that "lack of access to safe, sufficient water...[produces] a devastating effect on...the realization of human rights."¹⁸ It is difficult to conceive how safe and reliable water access and sanitation can be achieved or maintained or achieved in conditions of conflict or violence.

Making water security dialogue more complicated is the fact that water securitization is different from water security. Classic securitization theory, as espoused by the Copenhagen School, states that the process of securitization requires three actors. It requires an existential threat, a

¹⁷ "What Is Water Security? Infographic: UN-Water," UN, May 08, 1970, accessed January 08, 2021, <https://www.unwater.org/publications/water-security-infographic/>).

¹⁸ University, "Former National Leaders: Water a Global Security Issue," United Nations University, accessed November 14, 2020, <https://unu.edu/media-relations/releases/water-called-a-global-security-issue.html>).

‘securitizer’ or securitizing agent, and an audience, which can be broadly defined.¹⁹ To elevate the concept of securitization to the topical and out of the esoteric, an example different from but related to water will be used for illustrative purposes.

Greenhouse gases have been labeled as destructive to the environment for at least three decades. Environmental degradation has been cited as a threat to humanity, desertification of arable land, and the flooding of coastal cities. Greenhouse gases were painted as the culprit for these globally destructive forces and painted therefore, as a harbinger of death unless globally slashed.²⁰ Applying the securitization concept from the Copenhagen School, greenhouse gases became an existential threat, the first step required to securitize something.

As for the next step regarding greenhouse gases, there were multiple securitizing actors. Greenpeace, as one non-governmental actor amongst many, held international protests about greenhouse gases. State leaders, such as Mikhail Gorbachev, raised the alarm that the risks of not cutting emissions would lead to increased global temperatures and that consequences of rising temperatures would be catastrophes such as droughts, fires and famines.²¹ Celebrities have also raised their voices to the issue, underscoring how dire greenhouse gases are to the environment. In 2014, as but one example, Leonardo DiCaprio addressed the UN, detailing the dangers of “methane plumes.”²² There have been securitizing agents over the decades but using the examples of Green Peace, Gorbachev, and DiCaprio highlights that the second aspect of securitizing something (via a securitizing

¹⁹ Rita Floyd, "Extraordinary or Ordinary Emergency Measures: What, and Who, Defines the ‘success’ of Securitization?" *Cambridge Review of International Affairs* Vol 29, Iss. 2 (2015): pages 677-694, doi:10.1080/09557571.2015.1077651).

²⁰ Iberdrola Corporativa, "The Consequences of the Greenhouse Effect: From Desertification to Floods," Iberdrola, accessed April 29, 2021, <https://www.iberdrola.com/environment/greenhouse-effects-consequences-and-impacts>).

²¹ Natural Capitalism Solutions, "Gorbachev: Rio 20 Should Deal with Climate Change," Natural Capitalism Solutions, January 29, 2019, accessed April 27, 2021, <https://natcapsolutions.org/gorbachev-rio20-should-deal-with-climate-change/>).

²² "Leonardo Delivers Landmark Speech at the United Nations Climate Summit," The Leonardo DiCaprio Foundation, accessed April 27, 2021, <https://www.leonardodicaprio.org/leonardo-delivers-landmark-speech-at-the-united-nations-climate-summit/>).

agent) was complete. Given the surefire world-wide destruction greenhouse gases were to cause, the audience to the problem of dangerous emissions generally became global and multi-generational in scope. The process is not necessarily as linear as described but the example serves to generally explain how issues become securitized.

Canada, as part of the securitized global audience, has not been immune as the threat of greenhouse gases has brought both enduring awareness of the issue and political change as a result of that awareness. Last year, after more than 13 years of effort, Canada invoked an ambitious climate plan by levying a carbon tax, which was established in part, to reduce emissions and greenhouse gases. After the carbon tax was levied, the Supreme Court of Canada (SCC) upheld the constitutionality of the Government of Canada's plan to combat the "existential threat" of climate change and greenhouse gases through the carbon tax plan.²³ In Canada the threat of climate change became a genuine, national concern, made all the more real by the SCC's decision and its labelling of the problem as an existential threat. Environmental degradation has been a national concern for decades, even before the SCC's labeling of greenhouse gases as an existential threat. Greenhouse gases are not the only environmentally securitized threats in Canada. The oil sands in Alberta have been painted as a deathtrap for wildlife for decades while more recently, pipelines have been defined as environmental catastrophe in waiting due to the possibility of leaks.²⁴ These long-term environmental threats have placed *a strain on the state* which required government action.²⁵

Apply the securitization process similarly to the increasing water imbalance between the US and Canada whereby water is necessary for life, states and non-state actors will protect and pursue their

²³ "Canada is a test of climate ambition," Clara Ferreira Marques, Bloomberg.com, accessed April 27, 2021, <https://www.bloomberg.com/opinion/articles/2021-04-08/justin-trudeau-s-carbon-tax-makes-canada-a-test-for-climate-policy>).

²⁴ The Narwhal, "Environmental Issues in Canada," The Narwhal, April 29, 2021, [PAGE], accessed April 29, 2021, <https://thenarwhal.ca/topics/environmental-issues-canada/>).

²⁵ Sivan Ghasem et al., "Water (in)Security in Canada," NATO Association of Canada, December 11, 2018, accessed April 17, 2021, <https://natoassociation.ca/water-insecurity-in-canada/>).

interests, and an audience can become galvanized about an issue which possibly threatens their existence. In this light, it becomes very plausible that water scarcities will inevitably provoke the securitization of water between the two neighbouring nations.

Thierry Balzacq, a Fellow of the Centre for European Policy Studies, believes that “every securitization is an historical process that occurs between a...set of events” and their impact on an audience.²⁶ Accordingly, and for the purposes of this paper, water securitization is viewed as a communicative, social process involving a real or perceived threat, which is underscored by some level of fear-mongering by singular or multiple securitizing agents as pandered to an audience.

The risk of water securitization is real for Canada as the trifecta of threat, securitizing agent, and audience could be manufactured by the US through both state and non-state actors. Canada must adopt an international leadership role now so that when water disparities arise between it and the US, it has the agency required to promote hydro-solidarity as a process to manage the threat as opposed to letting the US assume the non-cooperative role of hydro-hegemon.

HYDRO-SOLIDARITY, HYDRO-HEGEMONY, AND REALISM

The term hydro-solidarity was coined by Swedish hydrologist, Malin Falkenmark and has been evolving since the 1970s. Hydro-solidarity is defined by Falkenmark as “the reconciliation of conflicts of interest in the context of water with a solidarity-based balancing of human livelihood interests which should be achieved against unavoidable environmental consequences.”²⁷ She believed that hydro-solidarity is grounded in the concepts of human rights, fairness, equity, and equality, which

²⁶ Thierry Balzacq, "The Three Faces of Securitization: Political Agency, Audience and Context," *European Journal of International Relations* Vol 11, Iss. 2 (June, 2005): doi:10.1177/1354066105052960).

²⁷ Andrea K. Gerlak et al., "Hydrosolidarity and Beyond: Can Ethics and Equity Find a Place in Today's Water Resource Management?" *Water International*, accessed January 08, 2021, https://www.academia.edu/13854768/Hydrosolidarity_and_beyond_can_ethics_and_equity_find_a_place_in_todays_water_resource_management).

makes her concept of hydro-solidarity congruent with the UN's definition of water security.²⁸

Relating the concept to water relations between Canada and the US, the two nations have existed in a relative state of hydro-solidarity regarding their transboundary water ways.

This is evidenced through agreements that exist regarding several US-Canada transboundary water ways including the Great Lakes Agreement and Compact of 2005. The Agreement and Compact, signed among state governors and provincial premiers, prohibits diversions of water with criteria for exceptions included therein.²⁹ The Canada-US Boundary Waters Treaty, signed in 1909, has rules that oblige both nations from polluting shared water ways and agree on projects that could change water levels in shared lakes and rivers.³⁰ The nature of these agreements, and there are others, promotes hydro-solidarity between the two states.

Hydro-solidarity should not be taken for granted. It is important to note that water may well prove to be the medium through which the grave effects of climate change finally become tangible which could push the nature of state relations and their commitment to hydro-solidarity. Stanford Earth, part of Stanford University, stated that, “[i]f global temperatures continue to rise, rainfall will increasingly become a beast of extremes: long dry spells here, dangerous floods there – and in some places, intense water shortages.”³¹ One of the great difficulties in dealing with the climate change conundrum and conceptualizing solutions comes from the fact that climate change is, intrinsically, a

²⁸ Andrea K. Gerlak et al., "Hydrosolidarity and Beyond: Can Ethics and Equity Find a Place in Today's Water Resource Management?" Water International, accessed January 08, 2021, https://www.academia.edu/13854768/Hydrosolidarity_and_beyond_can_ethics_and_equity_find_a_place_in_todays_water_resource_management).

²⁹ "Water Management," Great Lakes Agreement and Compact - Great Lakes and St. Lawrence Governors and Premiers, accessed May 05, 2021, <https://gsgp.org/projects/water-management/great-lakes-agreement-and-compact/>).

³⁰ Environment And Climate Change Canada, "Government of Canada," Canada.ca, April 27, 2020, accessed May 05, 2021, <https://www.canada.ca/en/environment-climate-change/corporate/international-affairs/partnerships-countries-regions/north-america/canada-united-states-boundary-waters-treaty.html>).

³¹ "The Effects of Climate Change on Water Shortages," Stanford Earth, accessed January 08, 2021, <https://earth.stanford.edu/news/effects-climate-change-water-shortages#gs.pju7q4>).

global problem requiring inter-state cooperation. In terms of hydro-solidarity, this means nations must work together to solve water scarcities.

It is now relevant to discuss how inclined states might be to cooperate in hydro-solidarity with one and other when freshwater, as a non-renewable, finite resource is at stake. Classical International Relations theory can help understand how hydro-solidarity can degrade into competition and conflict. Realism, a theory and analytical lens that can be used to understand international relations, is useful or forecasting state behaviour regarding transboundary water management when water scarcities are at play. Realists would be inclined to believe that hydro-solidarity will give way to hydro-hegemony when states compete with states for scarce freshwater resources. If the prevailing thought is assumed to be that states are inclined to forgo cooperation and hydro-solidarity to meet their national interests, it follows that the securitization of the life-sustaining substance is an inevitability. Realists agree that when the national interest is at stake, in this case water, bilateral relations, such as that of Canada and the US, would have a tendency to degrade towards an adversarial rather than a cooperative approach. The US would be willing to undertake international conflict to meet the demands of its national interest.³²

Realists have three widely accepted assumptions that influence their thinking about water security, which they view as an environmental issue as opposed to a human rights matter. Realists do not view water security as a human rights matter because the first realist assumption is that realists understand states to be the primary actors in the international system. State-to-state matters are top of mind for realists and matters of individuals such as human rights, much less so. Correspondingly, their second assumption is that states operate in anarchy, i.e., there is no overarching superior power to

³² Munafrizal Manan, "Foreign Policy and National Interest: Realism and Its Critiques," *Journal Global & Strategies Vol 9*, no. 2 (2017): p.178, doi:10.20473/jgs.9.2.2015.175-189).

govern, control, or mitigate state actions. Finally, the anarchy of the international system produces competition vice cooperation amongst states, in this case, the competition would be for freshwater. For realists, competition compels states to exert their power in a way that ensures their survival and longevity.³³ Accordingly, from a realist perspective, the concept of hydro-solidarity is wildly illogical because the stronger state would simply take what it requires to survive. Realists would understand that where water scarcities exist between co-riparian states the stronger state will simply take what it needs.

Given the imbalance of strength between Canada and the US in terms of military might, economic power, and population, which are all heavily weighted in favour of the US, maintaining the status quo of hydro-solidarity, would likely be the Canadian preference as it could not stop a US show of force for water if relations disintegrated to that point.³⁴

It is within this realist quagmire that the concept of negative hydro-hegemony emerges amongst co-riparian nations of trans-border waterway. Mark Zeitoun, a professor at the University of London and School of Social Science and Public Policy, who specializes in water-related issues, defined the action a hydro-hegemon will take. "A hydro hegemon [is] intent on maintaining sole control over resources and will stifle competition through a number of means resulting in ... lingering conflict."³⁵ Accordingly, the humanitarian underpinnings of water security and hydro-solidarity disappear under a realist construct when the needs of the state to fulfil a need exceed the need to cooperate. "Realism does not offer a security agenda that aims to tackle climate change [and water scarcities] effectively"³⁶ from either an humanitarian or environmental perspective according to the Centre for Geopolitics &

³³ "What Do Realists Think about Climate Change?" CGSRS, November 13, 2015, accessed January 08, 2021, <http://cgsrs.org/publications/30>).

³⁴ "2021 Military Strength Ranking," Global Firepower - World Military Strength, accessed May 05, 2021, <https://www.globalfirepower.com/countries-listing.php>).

³⁵ "Hydro-hegemony – a Framework for Analysis of Trans ...," accessed January 23, 2021, [https://ueaeprints.uea.ac.uk/29466/1/ZeitounWarner_-_HydroHegemony_\(as_published\).pdf](https://ueaeprints.uea.ac.uk/29466/1/ZeitounWarner_-_HydroHegemony_(as_published).pdf)).

³⁶ "What Do Realists Think about Climate Change?" CGSRS, November 13, 2015, accessed January 08, 2021, <http://cgsrs.org/publications/30>).

Security in Realism Studies (CGSRS), a non-profit, non-governmental organization that promotes the realist approach to understanding and explaining contemporary international affairs. The CGSRS, as classical realists, believe that rather than participating in cooperative ways congruent with hydro-solidarity, states will “seek to maximize their...security at the expense of other states and the environment.”³⁷ From a realist point of view, it is reasonable to conclude that competition for scarce water resources would quickly provoke the process of water securitization between Canada and the US.

Stated another way from a realist perspective, water scarcities demanding state-level attention would see hegemonic powers taking what they need from whence it is available, thereby becoming de facto hydro-hegemonies in the process. Violence is extremely possible in such scenarios especially when non-hegemonies resent that their “right” to water may be completely denied by the hydro-hegemon or flow may be grossly curtailed. In conditions such as this, a hydro-hegemon’s leadership is “buttressed by coercion.” While hydro-hegemony may result in periods of long-term stability it is unrealistic to believe stability will endure. Mark Zeitoun, and his colleague, Jeroen Warner, University of Wageningen, succinctly describe the problem of hydro-hegemony from the point of view of non-hegemonies. “Negative and dominative hegemonic behaviour results in an ever-growing inequity between the powerful and the weak within the hegemon’s domain.”³⁸ At some point, in their opinion, the less powerful state will react. Zeitoun presents that the degree of hydro-hegemony is determined by power, river basin position, and the potential to exploit water. A diagram of hydro-hegemony was developed by Zeitoun to depict the concept visually (see diagram 1).

³⁷ "What Do Realists Think about Climate Change?" CGSRS, November 13, 2015, accessed January 08, 2021, <http://cgsrs.org/publications/30>.

³⁸ Mark Zeitoun and Jeroen Warner, "Hydro-hegemony – a Framework for Analysis of Trans-boundary Water Conflicts," *Water Policy* 8, no. 5 (2006): pages 435-460, doi:10.2166/wp.2006.054).

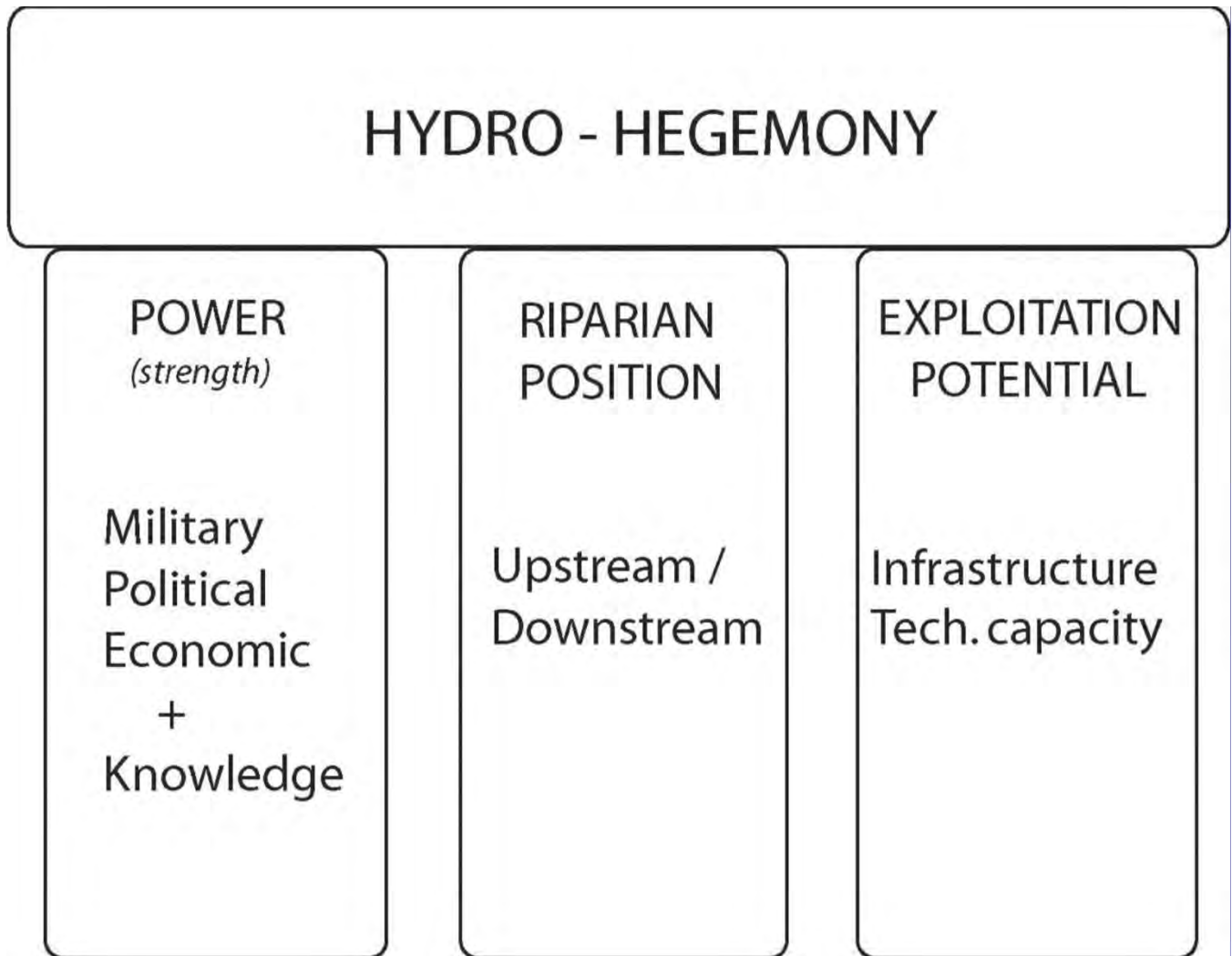


Diagram 1. Hydro-Hegemony. The longer and more equal each of the three pillars are the greater the hydro-hegemonic power of a riparian state.³⁹

Diagram 1 is useful because it will help frame conditions in the next section which further elaborates on how water can be a driver of conflict. While power and riparian position are fairly self-explanatory, Zeitoun's concept of exploitation potential relates to a state's ability to, among other things, erect dams, deter and/or re-route rivers, or otherwise disrupt a riparian state's access to water. The stronger a nation is in all three pillars of hydro-hegemony, the more likely they are to force their

³⁹ "Hegemony, is it Positive (torch-bearer, stability)?" Mark Zeitoun, prepared for Kings College London, May 2005. <https://www.soas.ac.uk/water/publications/papers/file38411.pdf>.

will upon co-riparian states. Conversely, the less strength a state has in any of the three pillars makes it more likely submit to the will of the hegemon.

WATER AS A DRIVER OF CONFLICT

Table 1 (below) demonstrates the arguments of the previous section in that water has the potential to be a source of conflict. Before enumerating those arguments it is worth recalling that the UN anticipates climate change will raise the number of areas characterized as being water stressed and worsen paucities in regions that are stressed now.⁴⁰ With that in mind, it is prudent to note the table indicates that the number of interstate water conflicts rose steadily from 1900 to 2007 and it also demonstrates that violence is a prevalent characteristic of water conflicts, especially when water scarcities occur within a pre-existing violent situation. When analyzed from a realist perspective, it is no surprise that the number of global water conflicts rose throughout the 20th Century, a trend that continued into the 21st Century. Water scarcities are increasing, states are inclined to compete for sparse resources, if not engage in conflict, and without decisive international leadership, instances of hydro-solidarity are likely to give way to conflict and violence.

Time period in which conflict began	No. Conflicts	Average No./Year	No. Violent Conflicts and conflicts in the Context of Violence
1900-1959	22	0.37	At least 19
1960-1989	38	1.27	At least 23
1990-2007	83	4.61	At least 61

Table 1. Global Water Conflicts, 1900-2007⁴¹

⁴⁰ UN-Water, "Climate Change: UN-Water," UN, accessed January 24, 2021, <https://www.unwater.org/water-facts/climate-change/>).

⁴¹ Barry S. Levy and Victor W. Sidel, "Water Rights and Water Fights: Preventing and Resolving Conflicts before They Boil over," *American Journal of Public Health*, May 2011, accessed November 03, 2020, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3076402/#bib5>).

According to UN Water there are 263 transboundary lake and river basins and 145 states have territory in them. Some states, like Canada and the US for example, share multiple water systems which is why the numbers do not overlap. To build on this complexity, UN Water estimates there are a further 300 transboundary ground water aquifers which serve water to more than two billion people.⁴² Amidst a growing world population, which depends upon water for life, it seems obvious that cooperation, although unlikely, is imperative if every person's human right to water is to be met.

However, water conflicts have a long heritage amongst humans dating back thousands of years. The damming of the Tigris River in Mesopotamia c.1720 BC is but one example of a water conflict from antiquity. Thousands of years ago, the damming of the Tigris resulted in violent conflict within a context of existing violence when the grandson of Hammurabi dammed the river to the detriment of his enemies.⁴³ This is a very simplified vignette but still, it highlights the fact that conflict within the Tigris-Euphrates river basin has been ongoing for thousands of years and that the region has known violence when water has been weaponized.

A complicated region, Mesopotamia represents a unique microcosm of where water was both a driver of conflict, as described above, but also a society within which conditions of hydro-solidarity were present. The Hittite Laws prohibited upstream riparians of water robbery against downstream neighbours. Many other laws which emerged from Mesopotamian society regarding the peaceful, fair use of water. This included four chapters in the Code of Hammurabi, which set out suitable punishments for negligent water management such as flooding a neighbour's field through

⁴² UN-Water, "Transboundary Waters: UN-Water," UN, accessed April 20, 2021, <https://www.unwater.org/water-facts/transboundary-waters/>.

⁴³ Peter H. Gleick and Matthew Heberger, "Water Conflict Chronology," *The World's Water*, 2012, doi:10.5822/978-1-59726-228-6 11), accessed April 20, 2021 <http://worldwater.org/wp-content/uploads/2013/07/ww8-red-water-conflict-chronology-2014.pdf>.

carelessness.⁴⁴ The cradle of civilization was at once home to conflict driven by water but also a place where water was legally managed to foster cooperation amongst water users.

Similar conditions can be observed today whereby water is a driver conflict and a source of limited cooperation. Unilaterally, Turkey has built dams that have resulted in inadequate water flow to both Syria and Iraq from the Tigris-Euphrates River Basin. Diagram 1 explains simply that Turkey is able to do this as the regional hydro-hegemon. By Zeitoun's illustration, it is clear that Turkey's pillars of power, specifically its riparian position and exploitation potential are greater than those of Syria and Iraq. It is equally clear from the graphic that Syria and Iraq are not without power amongst this triumvirate of states. Violence may be absent in the region for now but this does not mean an allostatic overload could not occur to disrupt the fragile condition of peace amongst the three nations. Hydro-solidarity is at best, fragile in the region.

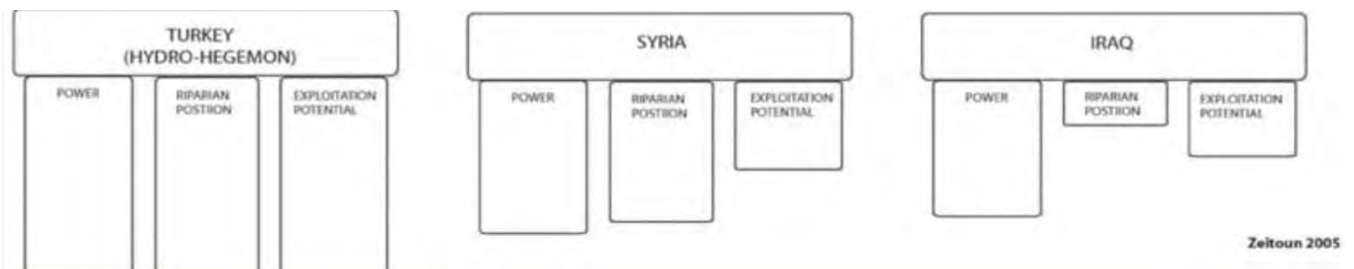


Diagram 2. Hydro-Hegemony of the Tigris-Euphrates River Basin depiction of Turkey, Syria, Iraq by Mark Zeitoun.⁴⁵

The next chapter will expand upon the difficult conditions that exist amongst Turkey, as the upstream riparian of the Tigris Euphrates River Basin, and Iraq and Syria, which both suffer the consequences of Turkey as a hydro-hegemon in the region.

⁴⁴ Itzhak E. Kornfeld, "Mesopotamia: A History of Water and Law," *The Evolution of the Law and Politics of Water*, 2009, p28, 29, doi:10.1007/978-1-4020-9867-3_2)

https://www.researchgate.net/publication/226408817_Mesopotamia_A_History_of_Water_and_Law.

⁴⁵ "Hegemony, is it Positive (torch-bearer, stability)?" Mark Zeitoun, prepared for Kings College London, May 2005.

<https://www.soas.ac.uk/water/publications/papers/file38411.pdf>.

The Nile River Basin is another potential hotspot for violent water conflict. In recent decades conflict has been avoided through extensive multilateral agreements and discussion. However, the basin is dominated by Egypt as the hydro-hegemon. Despite its poor riparian position, Egypt’s power and potential to exploit riparian states is vast. The conditions for violent conflict in the Nile River Basin are always present despite the region’s past propensity for cooperation. Ethiopia’s construction of a dam on one of the primary tributaries of the Nile could prove to be the catalyst for violence when the dam becomes operational. As demonstrated in the Diagram 3, Ethiopia has a definitive advantage over Egypt in terms of its riparian position because it is the upstream nation. Along the Nile, riparian position is an advantage that all states have over Egypt. These advantages could disrupt the regional stability if the hydro-hegemon is unreasonable in its demands on the river and in its relations with its co-riparian states. This unique confluence will be explored in greater depth in Chapter 1.

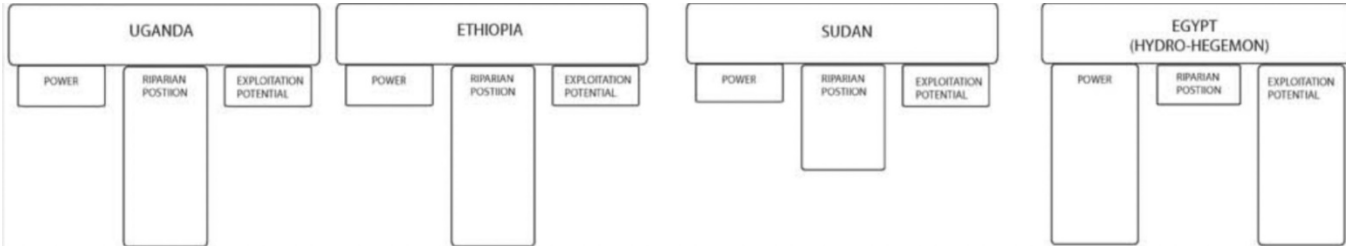


Diagram 3. Hydro-Hegemony of the Nile River Basin depiction of Egypt, Sudan, Ethiopia, and Uganda by Mark Zeitoun.⁴⁶

Given the centrality of water to life, economic and industrial activity, and food production, water scarcities are a very capable harbinger of violent conflict. As renewable freshwater resources decrease globally, a position for Canada to assume a role as an international leader of water-related issues is emerging. Canada’s maneuvering into the leadership space of the international arena, should it

⁴⁶ “Hegemony, is it Positive (torch-bearer, stability)?” Mark Zeitoun, prepared for Kings College London, May 2005. <https://www.soas.ac.uk/water/publications/papers/file38411.pdf>.

choose to do so now, comes at a pivotal time when water scarcities are emerging more regularly in North America and where Arab News describes the Middle East and North Africa as being faced with a perennial quest for water.⁴⁷ These are but two regions where water issues are bubbling up. The UN Water website explains that “countries and regions need to urgently tackle the critical problems” associated with water stress which widespread areas are facing.⁴⁸ The stakes are high and Canada is in a position to lead.

CANADA AS WORLD LEADER

Canada is uniquely positioned to champion a much needed international understanding amongst the global community regarding the current and coming world-wide pressures on freshwater resources which could lead to its securitization. Canada is a participating member of many multinational organizations such as the UN, the G20, Asia Pacific Economic Cooperation, and the Arctic Council, which lends breadth to its voice. Membership in these fora provides widespread networking opportunities whereupon Canada could influence other nations on the need to prevent water from becoming securitized, promoting hydro-solidarity.

With approximately seven-percent of the world’s renewable fresh water and less than one percent of the world’s population, Canada has the appearance of a nation with a rather generous endowment of water. From this perspective, Canada could become a trusted voice on the world stage because, with its real or perceived abundance of water, it could promote its point of view without being seen as self-motivated and agenda-driven due to an overarching need for water. Moreover, because of

⁴⁷ Jumana Khamis "Why Water Scarcity Is a Security Risk for the Middle East," Arab News, March 03, 2020, accessed April 27, 2021, <https://www.arabnews.com/node/1635031/middle-east>).

⁴⁸ UN-Water, "Scarcity: UN-Water," UN, accessed April 27, 2021, <https://www.unwater.org/water-facts/scarcity/>).

its natural endowment of water, Canada could raise the flag about global water issues and imminent scarcities from a genuine humanitarian perspective.

Canada also has unique voices it could empower to speak internationally at water fora and international organizations to which it belongs.

Canada has published a feminist international assistance foreign policy within which it acknowledges that women and girls in particular are adversely affected by environmental threats, especially water scarcities. The policy mentions water no less than 22 times while delineating water's special relations with women. It prioritizes clean water as a basic need for families. It states that, "[w]omen and girls are particularly at risk...when it comes to... the lack of clean drinking water – coupled with the gender-based imbalance in household responsibilities" and that women are "disproportionately affected at the household level" when clean water is not accessible.⁴⁹ The feminist foreign policy is congruent with Dublin Principles of 1992, which recognized that women play a critical, worldwide role in the provision, management, and safeguarding of water.

Canada's feminist foreign policy's recognition of the relationship between water and women could be a beacon of hope that Canada could leverage on the international stage should it choose to accept an international leadership role regarding water. Canadian women could form the basis of its delegations to espouse and project Canada's commitment to the issue. Women's voices would demonstrate that Canada deeply understands women need to be part of the international solution to water security and securitization. A more in depth look at Canada's feminist foreign policy will be examined in Chapter 2.

⁴⁹ Global Affairs Canada, "Canada and the G7," GAC, September 02, 2020, accessed January 01, 2021, https://www.international.gc.ca/world-monde/international_relations-relations_internationales/g7/index.aspx?lang=eng.

Through its acceptance of the recommendations found within the Truth and Reconciliation Commission of Canada, Canada recognizes the rich, spiritual connection of its Indigenous people to water and their innate insistence regarding environmental protection and the safeguarding of water. Furthermore, Canada is committed to addressing the accessibility of fresh water issues found in many First Nations as detailed by the committee. As with Canadian Women, Canada's Indigenous people could be a powerful voice abroad to explain the sacredness of water while bringing their unique perspectives on how to promote cooperation over difficult water situations. A further examination of this topic will follow in Chapter 3.

In terms of international leadership regarding water, Canada publicly recognizes the need to cooperate with the US regarding freshwater resources as the two neighbours share multiple transboundary water systems. This underscores Canada's desire to maintain, reinforce, and construct fair and congenial relations regarding shared freshwater resources. Canada has chosen to lead from the front.

To manage its own intrastate freshwater resources, Canada is in the process of establishing a national water agency and is undertaking multiple cross-country consultations to hear a broad array of perspectives that will eventually shape a national freshwater policy. An examination of this current undertaking will form part of the first chapter of this thesis. An attempt to explain what is driving Canada to develop a national water policy and a national agency will ensue. This explanation will be supported by detailing Canada's overall freshwater situation and what hydro-related challenges it faces with the US in the first chapter.

Chapter 1: CANADA AND FRESH WATER

INTRODUCTION

North America is in no way considered an arid continent. It boasts the Great Lakes, the largest freshwater lake system in the world, the Mississippi and Mackenzie Rivers, which are each more than 4,000 kilometres. Great Bear Lake in the Northwest Territories and Lake Okeechobee in Florida are large fresh water repositories and there are many, many more. While freshwater resources across the continent are plentiful, the distribution of freshwater can be problematic regarding accessibility for all citizens living on the continent. In Canada, estimates suggest that 85 percent of Canada's population lives within 300 kilometres of the Canada-United States border but 60 percent of Canada's freshwater flows northward, away from the highest populated regions of the country.⁵⁰ The US has water accessibility issues also, with dense populations living in water-scarce regions of the country such as the US Southwest. However, the primary American water issue rests within unequal water usage by states. A study done by the University of Michigan's Centre for Sustainable Systems indicated that in 2015, Texas and California accounted for 16 percent of freshwater withdrawals and that these two states, along with Florida, Arkansas, New York, Illinois, Colorado, North Carolina, Michigan, Montana, and Nebraska, account for more than 50 percent of American, freshwater withdrawals.⁵¹ That eleven states account for 50 percent of renewable freshwater usage each year in the US reflects a very uneven usage that forecasts regional water conflicts within the US.

In addition to the intrastate distribution issues that exist in Canada and the US, an examination of Table 2 proves significant interstate imbalances between Canada and the US also exist. The US has a significantly larger population, has less renewable freshwater resources per year and withdraws almost

⁵⁰ Environment And Climate Change Canada, "Government of Canada," Canada.ca, July 22, 2013, accessed March 20, 2021, <https://www.canada.ca/en/environment-climate-change/services/water-overview/publications/water-in-canada.html>).

⁵¹ "U.S. Water Supply and Distribution Factsheet," U.S. Water Supply and Distribution Factsheet | Center for Sustainable Systems, accessed March 20, 2021, <http://css.umich.edu/factsheets/us-water-supply-and-distribution-factsheet>).

13 times the amount of freshwater annually than does Canada. Each person uses almost 1.5 times more water in the US than in Canada.

	Total area, 2014 km ²	Population, 2015	Total renewable freshwater resources	Total water withdrawals	
			per year (km ³ /year)	per year (km ³ /year)	per capita (m ³ /percapita)
Canada	9,978,923	35,852,000	3,478	38	1,078
US	9,831,510	321,774,000	3,069	486	1,543

Table 2. Source: Statistics Canada 2017⁵² (redacted to include only Can-US data).

Hitherto, these freshwater discrepancies have not been problematic between the two nations. In fact, Canada and its neighbor to the south have enjoyed long-standing, peaceful relations along the world's longest undefended border. Canada.ca, the official website of the Government of Canada, references its peaceful relations with the US multiple times and claims that when "Canada and the United States work together, they enhance their security...." Noting the symbiosis of human life on the continent, Canada.ca also states that, "Canadians and Americans breath the same air, drink the same water, and share the same responsibility to ensure that future generations have a safe, clean, and healthy continent."⁵³ Figure 1 depicts Canada-US transboundary water basins in yellow. It is notable that transboundary basins extend across most of the border between the two countries. Referring back to the definition of hydro-solidarity it seems accurate to conclude that Canada and the US have co-existed in a long-term state of hydro-solidarity.

⁵² Statistics Canada Government of Canada, "Table 2.1 Renewable Freshwater Resources, Water Use and Gross Domestic Product for Selected Countries Table 2.1 Renewable Freshwater Resources, Water Use and Gross Domestic Product for Selected Countries," Table 2.1 Renewable Freshwater Resources, Water Use and Gross Domestic Product for Selected Countries, March 21, 2017, accessed November 02, 2020, <https://www150.statcan.gc.ca/n1/pub/16-201-x/2017000/sec-2/tbl/tbl-2.1-eng.htm>.

⁵³ Global Affairs Canada, "Canada-United States Relations," GAC, August 11, 2020, accessed December 05, 2020, <https://www.international.gc.ca/country-pays/us-eu/relations.aspx?lang=eng>.



Figure 1 Canada-United States Transboundary Basins⁵⁴

However, in the future, it is not implausible that freshwater could become a source of friction, if not conflict, if water were to become securitized between the two friendly nations due to disparities and scarcities. Water tables in much of the US are predicted to decrease while the overall population is projected to rise. This is evidenced most acutely along the Colorado River which is under pressure due to multi-state demand, dryer conditions, and a supply and demand imbalance.⁵⁵

Canada is not forecast to experience the same dramatic differences in either population increases or renewable water decreases in the coming decades. Moreover, Canada is viewed as a

⁵⁴ Environment And Climate Change Canada, "Government of Canada," Canada.ca, April 18, 2019, accessed March 27, 2021, <https://www.canada.ca/en/environment-climate-change/services/water-overview/governance-legislation/international.html>).

⁵⁵ Luke Runyon, "A Colorado River Showdown Is Looming. Let The Posturing Begin," KUER, March 24, 2021, accessed March 27, 2021, <https://www.kuer.org/health-science-environment/2021-03-22/a-colorado-river-showdown-is-looming-let-the-posturing-begin>).

bountiful freshwater country with nine percent of the world's renewable freshwater resources and less than one percent of the world's population.⁵⁶ These forecast disparities are at the heart of the argument that water will potentially become securitized in the future nudging the US towards the adoption of the role as the North American hydro hegemonic state.

Canada cannot wait for continental water disparities and scarcities to become problematic between itself and US before developing a national framework that oversees its freshwater renewable resources. Canada needs a national freshwater policy now to ensure that if the time comes when the US faces a scarcity while Canada has a real or perceived abundance, a co-operative agreement can be put in place quickly based upon an extant national Canadian policy. The primary intent of such an agreement would be to ensure the water requirements of both nations are attended to fairly. The secondary purpose of the policy would be to avoid conflict and the possible escalation to violence. The agreement would accordingly enable the long-standing hydro-solidarity between the two nations to continue if and/or when water scarcities arise on the south side of the Canada-US border. The establishment of a national-level, holistic water policy is in Canada's national interest should it decide to position itself as an international leader regarding water security. To lead the international community of states on issues related to water security, Canada must have its domestic water affairs in order which includes the management of its hydro-relationship with the US.

A detailed examination of Canadian and American geography will demonstrate how the two similarly-sized nations will develop differing water pressures in the future and how intertwined both countries are regarding continental water. This examination will clearly depict that renewable

⁵⁶ Natural Resources Canada, "Government of Canada," Natural Resources Canada, October 30, 2017, accessed December 05, 2020, <https://www.nrcan.gc.ca/maps-tools-publications/tools/geodetic-reference-systems/water/16888>).

freshwater sources and population disparities could lead to friction, conflict, and the securitization of water in the future.

These points will be illustrated through an examination of two American case studies involving the Colorado River Basin and the tri-state water issues of Florida, Alabama, and Georgia. These case studies will highlight the problems of water distribution in North America. These case studies will be followed by international examples from Africa and the Middle East. An analysis of the Nile River basin will demonstrate that water agreements stimulate cooperative actions amongst riparian states in the face of competing hydro requirements. The Tigris-Euphrates riparian nations have no agreement in place and social unrest abounds although violence, specifically over water, has been avoided to date. As previously discussed, the propensity for violence over water increases within an existing context of violence however, which makes water scarcities in both Iraq and Syria more dangerous as violence is present in both nations. A Turkish base in the northern Iraq town of Bashiqa experienced a missile strike, which killed a Turkish soldier, on April 14, 2021. It remains unclear who was responsible for the attack but it was possibly the 30th brigade of Hashd al-Shaabi, an Iranian-backed Iraqi militia group.⁵⁷ On February 1, 2021, the Guardian reported that at least 24 people were killed after a weekend of violence in Syria. The attacks occurred in rebel-held regions of Syria, which has been in a civil war for more than 10 years. One attack took place in the Turkish-controlled town of Afrin where a car bomb killed eight people.⁵⁸ The region is extremely volatile and Turkish-induced water scarcities could provoke heightened responses from both Syria and Iraq.

⁵⁷ Mehmet Alaca & Bekir Aydogan •, "Iraq's Shia Militias Send a Warning to Turkey," Fair Observer, April 29, 2021, accessed April 29, 2021, https://www.fairobserver.com/region/middle_east_north_africa/bekir-aydogan-mehmet-alaca-bashiqa-base-attack-iraq-militias-iran-turkey-krq-news-12019/.

⁵⁸ "Syria: Dozens Killed in Weekend of Violence," The Guardian, February 01, 2021, accessed April 29, 2021, <https://www.theguardian.com/world/2021/feb/01/syria-dozens-killed-in-weekend-of-violence>).

In Africa, violence between Kenya and Ethiopia erupted because of water scarcities in 2006, which serves as a clear warning for the riparian states of the Tigris-Euphrates River Basin: humans will fight for water. A brief examination of this conflict later in this chapter will amplify this warning.

Before delving deeper into international case studies, an appreciation for water as a strategic resource between Canada and the US, is the first step toward understanding North American water-based complications of the future.

CANADA-US FRESHWATER WATER CONTEXT

This chapter has already begun to paint a picture of freshwater discrepancies between Canada and the US and it has also established that projections indicate Canada will maintain its renewable freshwater resources while the US will more quickly deplete its own. *National Geographic* undertook a significant study of American water in 2020 and found that “as the US water supply decreases, demand is set to increase. On average, each American uses 80 to 100 gallons of water every day, with the nation’s estimated total daily usage topping 345 billion gallons.”⁵⁹ Strains on water resources are expected to continue in multiple areas of the US according to *National Geographic*. They indicate as a forewarning that in as soon 50 years, multiple areas of the US may well see their overall freshwater resources eliminated by a third.⁶⁰ The other variable at play within in the US context is that of population growth. By 2051 the US is forecast to see it population increase by 200 million placing never before seen pressure on renewable freshwater sources. Given this precarious formula, it is very

⁵⁹ "Why Is America Running out of Water?" National Geographic, August 18, 2020, accessed December 05, 2020, <https://www.nationalgeographic.com/science/2020/03/partner-content-americas-looming-water-crisis/>.

⁶⁰ "Why Is America Running out of Water?" National Geographic, August 18, 2020, accessed December 05, 2020, <https://www.nationalgeographic.com/science/2020/03/partner-content-americas-looming-water-crisis/>.

possible that the number of gallons required will reach unsustainable levels in the coming decades, an ominous prediction.⁶¹

Conversely, “Canada may be considered a freshwater-rich country: on an average annual basis, Canadian rivers discharge close to 9% of the world’s renewable freshwater supply, while Canada has less than 1% of the world’s population.”⁶² It is an enviable position to be in when compared to the US, whose renewable water outlook, as described, is less optimistic.

Groundwater

Before delving deeper into the Canada-US water context, noting that this paper has focused primarily on surface water, an examination of groundwater is prudent. Groundwater, only understandable through complex geological studies, is as important to the health of the US as surface water and its potential depletion raises new dimensions and urgency to the concept of water security in North America. It is important to bear in mind that in 2015, groundwater accounted for 29 percent of all freshwater used in the US with Mississippi, South Dakota, Oklahoma, California, and Florida being among the highest users of groundwater, according to the American Geoscience Institute.⁶³

Groundwater, a depleting natural resource, is critical to sustain agriculture, irrigation, and domestic use.

On March 23, 2021, National Aeronautics and Space Administration’s (NASA) Earth Observatory published information that half of the US is in the midst of some level of drought and that 2000-2018 has seen the driest climate in the US Southwest since the 1500s. This weather has an

⁶¹ Johnna Crider, "America Is Running Out Of Water?" CleanTechnica, September 28, 2020, accessed November 11, 2020, <https://cleantechnica.com/2020/09/28/america-is-running-out-of-water/>).

⁶² Natural Resources Canada, "Government of Canada," Natural Resources Canada, October 30, 2017, accessed December 05, 2020, <https://www.nrcan.gc.ca/maps-tools-publications/tools/geodetic-reference-systems/water/16888>).

⁶³ "Which Areas in the United States Are Most Dependent on Groundwater?" American Geosciences Institute, August 01, 2018, accessed April 06, 2021, <https://www.americangeosciences.org/critical-issues/faq/which-areas-united-states-are-most-dependent-groundwater>).

adverse impact on groundwater, which augments and sustains surface water during dry periods.⁶⁴

National Geographic explains that groundwater collects between impermeable layers in the earth and fills in the spaces between sediment and cracks below the earth's surface. It takes thousands of years to amass and equally long periods of time to replenish once depleted. *National Geographic* also states that groundwater is the source of drinking water for more than 50 percent of the US population and it is the source of drinking water for almost 100 percent of rural residents.⁶⁵

NASA has been studying groundwater using satellites for more than two decades to try to understand the overall global situation regarding groundwater. They found in 2018 that of the earth's 37 major aquifer systems, 21 were on the verge of collapse. The Ogallala Aquifer, which supplies freshwater to the Great Plains of the US and supports the Colorado River, has suffered from a third of its water being depleted. The Central Valley aquifer of California could drop beyond a level needed for human consumption before the middle of this century. The US is not alone. "[T]he worst declines were in Asia and the Middle East where some of the planet's oldest aquifers were already running out of water."⁶⁶

Declining groundwater levels around the world have the potential to lead to unexpected water scarcities. China, India, Mexico, Iran, Saudi Arabia, and the US are top importers and exporters of crops that are irrigated using water from aquifers. Because of the associated links between food, water, and human security, these heavy groundwater-using nations are dependent upon other states for global trade and partnerships to sustain their populations' water requirements.⁶⁷ The risks associated with the

⁶⁴ "Drought Conditions Continue in Spring 2021," NASA, accessed April 04, 2021, <https://earthobservatory.nasa.gov/images/148123/drought-conditions-continue-in-spring-2021>).

⁶⁵ National Geographic Society, "Groundwater," National Geographic Society, July 29, 2019, accessed April 04, 2021, https://www.nationalgeographic.org/encyclopedia/groundwater/?utm_source=BiblioRCM_Row).

⁶⁶ Charles P. Pierce, "Where Will You Be for the Aquapocalypse?" *Esquire*, August 21, 2020, accessed April 04, 2021, <https://www.esquire.com/news-politics/politics/a22552048/aquifers-collapse-groundwater-shortage-arizona/>).

⁶⁷ Carole Dalin et al., "Groundwater Depletion Embedded in International Food Trade," *Nature* Vol 543, issue 7647 (March 30, 2017) London: doi:10.1038/nature21403).

extensive groundwater use and depletion are accordingly, broad and widespread. “These regions are hotspots of water and food security risks...as an exhaustion of threatened aquifers would impact food supply both domestically [US] and in their water-stressed trade partners.”⁶⁸

Putting this picture together, it becomes possible to envision how states might compete with neighbouring states for water during scarcities and how water may come to be securitized. Via groundwater and transboundary waterways, nations are inter-connected in their ability to feed and hydrate their citizens supporting the notion that environmental conflicts could evolve into violent conflicts.

In 2021 however, such ominous forecasts have yet to be realized. In 2008 Wendy Barnaby began to study the possibility of water wars after first publishing a sensational book on the outlook for biological warfare. Her publishers believed that the potential for future conflicts over water was as relevant a topic as her book on biological warfare because vice president of the World Bank, Ismail Serageldin, prophesied in 1995 that wars in the next century would be fought over water and not oil. Like multiple UN Secretary Generals, he too thought that violent conflict over water would be the norm but Barnaby concluded differently. “Cooperation, in fact, is the dominant response to shared water resources. Between 1948 and 1999, cooperation over water, including the signing of treaties, far outweighed conflict over water and violent conflict in particular.”⁶⁹ It is worth including Barnaby’s findings as a counterargument to what has heretofore been premised in this paper. The problem with the counterargument is that conditions are changing more rapidly than she perhaps expected in 2009 when she did her study and water scarcities are becoming more common, especially in the US. Her

⁶⁸ Carole Dalin et al., "Groundwater Depletion Embedded in International Food Trade," *Nature* Vol 543, issue 7647 (March 30, 2017) London: doi:10.1038/nature21403).

⁶⁹ Wendy Barnaby, "Do Nations Go to War over Water?" *Nature News*, March 18, 2009, accessed November 11, 2020, <https://www.nature.com/articles/458282a>).

counterargument is valid but it does not undermine the thesis statement that Canada must prepare now for the growing hydro-imbalance that is looming between Canada and the US.

Emerging Differences between Canada and the US

The emerging differences between the two countries regarding surface and ground water demands the question: would the US take Canada's water in a time of need? There is no easy answer to this question as we have no historical precedent to use as a lens for analysis. What is established according to Martin Nie, a professor of natural resources at the University of Montana, is that "scarcity has the potential of turning environmental conflict into violent environmental conflict."⁷⁰ At the intersection of scarcity, need, power, and will, the long-standing status quo between Canada and the US could erode into a state of hydro-hegemony.

REGIONAL SCARCITIES IN THE US

A myriad of complex issues are driving the existing and forecast water scarcities in the US. As previously mentioned, increased population and temperatures impact freshwater resources of the continental US but there is more to this narrative. Water scarcities in Mexico and Central America are also increasing and these southern issues present a threat to the US as emigration patterns will likely push northward in search of water. This emigration phenomena will in turn exacerbate the demand on freshwater sources in the US.⁷¹ The US is a large country with multiple and varied geographic regions and numerous water basins. However, 96 of 204 water basins are in trouble now and 145 basins will likely become drier. The regions affected include the Southwest, the southern Great Plains, Florida, the

⁷⁰ Martin Nie. "Drivers of Natural Resource-Based Political Conflict." *Policy Sciences* 36, no. 3/4 (2003): 341 Drivers of natural resource-based conflict.

⁷¹ "US States Face Water Crisis as Global Heating Increases Strain on Supplies," *The Guardian*, August 06, 2019, accessed March 27, 2021, <https://www.theguardian.com/global-development/2019/aug/06/us-states-water-stress-new-mexico-california-arizona-colorado>.

Midwest, the central Rocky Mountains, the South, and parts of California.⁷² It is not unreasonable that the US could conceive of emigration as an existential threat that compound its water problems.

They may be correct to conclude this as the emigration problem is unlikely to resolve itself over time. Betsy Otto, the Global Water Director at the World Resources Institute, said that mid-latitudes around the globe are not likely to receive adequate rainfall as temperatures rise. This, Otto explains, leads to more water being used for crops and increases demand on water-dependent electricity as demand on air conditioners increases.⁷³ The problem is a like a downward spiral with each problem building in the next. A more detailed look at three regions facing water scarcities will demonstrate how dramatic an issue water security in the US is becoming.

Colorado River Basin

Poetically, *National Geographic* wrote in 2020 that the Colorado River carved its way 1,450 miles... for millions of years but no longer reaches the sea.⁷⁴ The fabled river flows through five American states and into northern Mexico from whence it once drained into the Gulf of California. A river so vast has an enormous and varied number of stakeholders with competing perspectives. This has resulted in over-allocation of the river's water. Arizona Public Media and PBS overtook an aerial study of the river in 2019 and found green fields amongst large brown swaths of desert, the green only made possible by man-made irrigation methods. Concrete canals deliver water from the Colorado into Los Angeles, San Diego, and other cities. The final dam of the river which is found at the US-Mexico border allows for very little, if any, water to flow into Mexico and accordingly, since the 1960s, water

⁷² "Why Is America Running out of Water?" National Geographic, August 18, 2020, accessed March 27, 2021, <https://www.nationalgeographic.com/science/2020/03/partner-content-americas-looming-water-crisis/>).

⁷³ "US States Face Water Crisis as Global Heating Increases Strain on Supplies," The Guardian, August 06, 2019, accessed March 27, 2021, <https://www.theguardian.com/global-development/2019/aug/06/us-states-water-stress-new-mexico-california-arizona-colorado>.

⁷⁴ "Why Is America Running out of Water?" National Geographic, August 18, 2020, accessed December 05, 2020, <https://www.nationalgeographic.com/science/2020/03/partner-content-americas-looming-water-crisis/>).

of the river has rarely reached the Sea of Cortez, the Colorado's mouth, to flow into the Pacific Ocean.⁷⁵

The health of the river is important to citizens, businesses, farmers, recreational users, and environmentalists, not to mention wildlife, which has no voice. The Colorado River and the region have faced significantly dry conditions and 2021 is shaping up to be yet another dry year for the river. A 2020 study by Yale determined that “this era...is especially serious because so much, some 40 million people and an economy that includes the world's fifth largest, California, is riding on the flow of the Colorado River.”⁷⁶

⁷⁵ AZPM Staff, "Five Years Later, Effects of Colorado River Pulse Flow Still Linger," AZPM, April 09, 2019, accessed April 29, 2021, <https://news.azpm.org/p/news-topical-sci/2019/4/9/149304-five-years-later-effects-of-colorado-river-pulse-flow-linger/>).

⁷⁶ Jim Robbins / Photography by Ted Wood • January 22 et al., "On the Water-Starved Colorado River, Drought Is the New Normal," Yale E360, accessed December 05, 2020, <https://e360.yale.edu/features/on-the-water-starved-colorado-river-drought-is-the-new-normal>).



Figure 2 Colorado River Basin map⁷⁷

Figure 2 shows that six US states and Mexico depend on the Colorado River and its basin region. A study of small town newspapers and radio stations sees the Colorado River as a major news maker in the states which rely upon it. Kuer 90.1, a radio station which brands itself *as the trusted voice of Utah* notes that the competing basin states are trying “to kill” a Utah-based initiative to pipeline water from the river to a populous area of the state.⁷⁸ KNAU, Arizona Public Radio, weighs in on water usage from the river also, saying that radical new strategies are required to safeguard the water supply

⁷⁷ Colorado River Basin Map, accessed March 27, 2021, <https://www.usgs.gov/media/images/colorado-river-basin-map>).

⁷⁸ Luke Runyon, "A Colorado River Showdown Is Looming. Let The Posturing Begin," KUER, March 24, 2021, accessed March 27, 2021, <https://www.kuer.org/health-science-environment/2021-03-22/a-colorado-river-showdown-is-looming-let-the-posturing-begin>).

and that Upper Basin states require a new reality about how much water they can use from the system.⁷⁹

The language about new pipelines and the present day drought is even stronger in Colorado. The Durango Herald clearly states that water shortages are present now, in 2021, and that *all* basin states need to be realistic in what they withdraw despite what they may be entitled to via historical and legal precedent. The Durango Herald cites that Nevada has already built a pipeline. The pipeline ensures water flows into homes and casinos in Las Vegas from Lake Mead, a reservoir along the Colorado River, even though this means shortages for Arizona, California, and Mexico. Lawmakers in the region are acutely aware of the water security issues stemming from on-going, state-centric mismanagement of the Colorado River.⁸⁰

Weather forecasts for the West throughout the spring and summer of 2021 depict a mega-drought that will worsen. The National Oceanic and Atmospheric Administration (NOAA) predicts a “prolonged and widespread drought” noting that 66 percent of the US is in an abnormally dry condition with 18 percent of the country west of the Mississippi River in extreme and exceptional drought.⁸¹

The continued and prolonged scarcity of water in this populous region of more than 40,000,000 people, which includes major urban areas such as Los Angeles, Denver, Las Vegas, and Phoenix, raise the possibility that Canadian water could be viewed as a solution to long-term, multiple-state water shortages. With 40 million people in the US Southwest facing water scarcities, the hydro-solidarity that has characterized Canada-US water relations could be tested – the great unknown is when this might happen.

⁷⁹ Melissa Sevigny, "Report Calls For "Radical Changes" To Colorado River Management," KNAU Arizona Public Radio, accessed March 29, 2021, <https://www.knau.org/post/report-calls-radical-changes-colorado-river-management>).

⁸⁰ Sophia Eppolito and Felicia Fonseca, "Western States Chart Diverging Paths as Water Shortages in Colorado River Loom," Durango Herald, March 20, 2021, accessed March 29, 2021, <https://durangoherald.com/articles/369027>).

⁸¹ Seth Borenstein, "Forecast Shows Nasty Drought Worsens for Much of U.S.," PBS, March 18, 2021, accessed March 29, 2021, <https://www.pbs.org/newshour/science/forecast-shows-nasty-drought-worsens-for-much-of-u-s>).

Florida, Georgia, Alabama

A tri-state “water war” has been in progress for more than 20 years amongst Florida, Georgia, and Alabama regarding the Apalachicola-Chattahoochee-Flint River Basin (Figure 3). “On one side sits Georgia and six million thirsty Atlantans. Sitting on the other side are Florida and Alabama, which depend on downstream flows [from the lakes].”⁸²

The harmful effects of this so-called water war have been felt in Florida through the devastation of its [lucrative] Apalachicola oyster industry. Florida has contended since 2013 that Georgia has drawn too much water from Apalachicola-Chattahoochee-Flint River Basin and that more water should be directed to the Sunshine state.⁸³ In a bitter legal battle that ended at the US Supreme Court in April of 2021 both states pointed fingers at each other. Georgia blamed Florida for the collapse of the industry, blaming poor harvesting practices as the reason for oyster demise while Florida continued to allege water abuse by Georgia. The Supreme Court sided with Georgia, primarily because it did not feel Florida proved its case well enough as it bore the burden of proof as the accusatory state.⁸⁴ These conditions, emotional for all stakeholders hardly make for congenial interstate relations and prove that regardless of the cause of the oyster industry collapse, water is a cause for lawfare in the region and could push water to become a regionally securitized issue as time advances and water scarcities persist.

⁸² "LEGAL BRIEFS Round and Round Florida (and Georgia) Go: An ...," accessed December 5, 2020, <https://www.bradley.com/-/media/files/insights/events/2020/11/sup-materialsarticle-round-and-round-florida-and-georgia-go-an-update-on-the-floridageorgia-water-wars-nov-2020.pdf?la=en>Bradley.com.

⁸³ Haisten Willis, "For 30 Years, Georgia and Florida Have Been Fighting over Water," Scalawag, October 27, 2020, accessed December 05, 2020, <https://scalawagmagazine.org/2019/09/powerlines-1-acf-river-basin/>.

⁸⁴ Jim Saunders, "Florida Loses Water War as Supreme Court Rules It Didn't Prove Georgia Ruined Apalachicola Oysters," OrlandoSentinel.com, April 01, 2021, accessed April 11, 2021, <https://www.orlandosentinel.com/politics/os-ne-florida-georgia-water-war-20210401-j2acs2eqvnettjgcmtpdbefmi-story.html>).

Florida, projects population growth from 2020 to 2030 to be approximately 2.6 million which will increase the demand on water supply.⁸⁵ No binding agreement has been reached to govern the tristate water situation, which could easily escalate into intrastate tension, if not conflict, as demand exceeds supply in the coming years.

This year, overall conditions regarding water in the region are worsening. The Atlanta Journal-Constitution, which commits to report the truth and protect the public's right to know, writes that Lake Lanier is over-populated by algae blooms, a direct result of warmer weather, water depletion, and contamination. The water of the lake may remain potable but it will require more expensive water treatment and even in doing so, the water will likely remain malodorous with a distaste to it.⁸⁶ Public confidence in the water supply can only be imperiled by this occurrence.

⁸⁵ Florida Demographics by Florida Demographic Estimating Conference, February 2015 and the University of Florida, Bureau of Economic and Business Research, Florida Population Studies, Bulletin 172, June 2015
http://edr.state.fl.us/Content/population-demographics/data/Pop_Census_Day.pdf.

⁸⁶ Tyler Wilkins, "Lake Lanier Pollution Could Cause Odd Odor and Taste in Drinking Water," Ajc, March 16, 2021, accessed March 29, 2021, <https://www.ajc.com/news/atlanta-news/lake-lanier-pollution-could-cause-odd-odor-and-taste-in-drinking-water/5F2HYEUI5BO7IFIEQTCRXV7NY/>.



Figure 3 The Apalachicola-Chattahoochee-Flint River Basin⁸⁷

The so called tristate water wars are further exacerbated by over-use of the Floridan aquifer. The aquifer spreads across Georgia, Alabama, Mississippi, South Carolina, and Florida. It is a primary source of potable water for Florida but like its surface counterparts, it too is under pressure from over-extraction. It is an 82,000 square mile reservoir with billions of gallons of freshwater. This sounds plentiful but in 2018 *National Geographic* published a study that proved that Florida's groundsprings, fed by the aquifer, experienced a 32 percent reduction in flow between 1950 and 2010. "The aquifer is

⁸⁷ Tamar Hallerman, "Your Guide to the Florida-Georgia Supreme Court Water Case," *Ajc*, February 18, 2021, accessed March 29, 2021, <https://www.ajc.com/news/business/your-guide-to-the-florida-georgia-supreme-court-water-case/7GJK5JCAOZF65JR7G35BJRHXD1/>.

in trouble and projections are that Florida's freshwater basins may get even drier."⁸⁸ The consequences for the populous region will be devastating if levels of freshwater continue to decline in the Floridian aquifer. The NOAA's Drought Monitor predict that this year's dry conditions will expand into Florida exacerbating its already difficult situation.⁸⁹

As with the case of the Colorado River Basin, it is possible that the US could look to Canada to sate the increasing water needs in the nation's southeast as drought and water scarcities persist and spread further across the country.

A brief examination of the Nile River and Tigris-Euphrates river basins now will demonstrate how inter-state tensions can rise amongst nations with transboundary water-ways.

NILE RIVER BASIN

Africa is a continent with multiple regions afflicted by both water scarcities and violent conflicts. Solomon Yirenkyi-Boateng from the University of South Africa wrote that, "intra-state...conflicts have been responsible for the deaths of thousands in Africa, causing serious refugee problems [and] the disruption of economic activities."⁹⁰ The preponderance of these conflicts has not been about water, however, and therefore an analysis the Nile River Basin substantiates that water is not typically a cause of deadly conflict, as Barnaby said. The region is useful because competing interests among multiple states and chronic water shortages along the Nile River system would suggest that Nile riparian nations could become involved in water-based violence. However, despite conflicting

⁸⁸ Jon Heggie, "The Floridan Aquifer: Why One of Our Rainiest States Is Worried about Water," *Science*, February 10, 2021, accessed March 29, 2021, <https://www.nationalgeographic.com/science/article/partner-content-worried-about-water-floridan-aquifer>).

⁸⁹ Seth Borenstein, "Forecast Shows Nasty Drought Worsens for Much of U.S.," PBS, March 18, 2021, accessed March 29, 2021, <https://www.pbs.org/newshour/science/forecast-shows-nasty-drought-worsens-for-much-of-u-s>).

⁹⁰ Solomon Yirenkyi-Boateng, "Towards a Critical Realist Perspective on African Conflicts: Semantic Scholar," Undefined, January 01, 1970, accessed December 05, 2020, <https://www.semanticscholar.org/paper/Towards-a-critical-realist-perspective-on-African-Yirenkyi-Boateng>.

hydro-interests, the 11 riparian countries of the fabled river have avoided violence through the enactment of careful and thoughtful multilateral policies and agreements led by the Nile Basin Initiative. The Nile Basin Initiative (NBI) is inter-governmental and seeks to “ensure cooperation and joint action between riparian countries, seeking win-win gains.” This is no small feat given the number of riparian states along the Nile. Burundi, Congo, Egypt, Ethiopia, Kenya, Rwanda, South Sudan, Tanzania, and Uganda are members of NBI while Eritrea participates as an observer.⁹¹

The Nile River Basin is important because it proves that cooperation can materialize in the face of great difficulties. On September 9, 2020, the NBI tweeted that, “In the #Nile’s case, resolving #Water Tension is never going to be easy.”⁹² Indeed, “Egypt is currently using more water than its renewable resources...[which] risks putting increasing pressure on Egypt’s diplomatic relations with other states along the Nile.”⁹³ It is important to note that Egypt is a downstream riparian of the Nile so it is entirely possible for the upstream riparian states to divert the river’s water, which could lead to violence. Ethiopia, as a Nile riparian nation, “perhaps most damagingly of all...has seemingly misunderstood how bound up Egypt is with the Nile – and by extension how difficult it will be for it to cut its consumption.”⁹⁴ The Grand Ethiopian Renaissance Dam, which spans the Nile’s largest tributary, the Blue Nile, is scheduled for completion in 2023. Ethiopia hopes Africa’s greatest dam will

⁹¹ Super User, "Who We Are," Nile Basin Initiative (NBI), accessed November 09, 2020, <https://nilebasin.org/nbi/who-we-are>).

⁹² Nile Basin Initiative, Twitter post, 9 September 2020, 5:36 pm accessed 9 November 2020, @nbiweb.

⁹³ "10 Violent Water Conflicts - World," ReliefWeb, accessed November 03, 2020, <https://reliefweb.int/report/world/editor-s-pick-10-violent-water-conflicts>).

⁹⁴ "Search Results for "Why the Nile Constitutes a New Kind of Water Dispute – and Why That's Dangerous"," The Center for Climate & Security, accessed November 11, 2020, <https://climateandsecurity.org/?s=Why the Nile Constitutes a New Kind of Water Dispute – and Why That’s Dangerous&submit>).

generate electricity for its citizens upon completion whereas Egypt fears upcoming and extreme water scarcities as the flow of the Nile will be adversely impacted with the dam's completion.⁹⁵

However, on October 6, 2020, the NBI published a news release that indicates a cooperative study "aimed at addressing growing water demand in the Nile Basin" had entered its final stage since beginning in 2015.⁹⁶ The release highlighted areas of concern but also discussed cooperative ways forward for all stakeholders. While demand on the Nile River is extant and competing perspectives amongst riparian nations thrive, interstate communications remain in place and accordingly, violence remains avoided.

A study of the Nile is useful because it demonstrates that "...water conflicts generally involve numerous actors with differing, often vital interests."⁹⁷ Internationally, conflicts involving renewable resources such as water have not often occurred. This is in part because renewable resources, as freshwater is heretofore been viewed, are not easily or quickly be converted into power by any one state over another.⁹⁸ This has little to do with water scarcity, it is about the international political economy where water is not *yet* a highly prized commodity in the same way that oil, for example, is.

A study of the Nile River Basin is useful for understanding water relations amongst co-riparian states due to the complexities of the competing perspectives and given the fact that violence has not erupted to date amongst those nations dependent upon the river for freshwater. The collaborative efforts

⁹⁵ Sudarsan Raghavan Max Bearak, "Africa's Largest Dam Powers Dreams of Prosperity in Ethiopia - and Fears of Hunger in Egypt," The Washington Post, October 15, 2020, accessed April 06, 2021, <https://www.washingtonpost.com/world/interactive/2020/grand-ethiopian-renaissance-dam-egypt-nile/>.

⁹⁶ Super User, "Who We Are," Nile Basin Initiative (NBI), accessed November 09, 2020, <https://nilebasin.org/nbi/who-we-are>.

⁹⁷ "Water: Reason for Conflict or Catalyst for Peace? The Case ...," accessed December 5, 2020, <http://www.christianefroehlich.de/wp-content/uploads/2013/08/Seiten-aus-EEF-365-complimentary.pdf>.

⁹⁸ "Water: Reason for Conflict or Catalyst for Peace? The Case ...," accessed December 5, 2020, <http://www.christianefroehlich.de/wp-content/uploads/2013/08/Seiten-aus-EEF-365-complimentary.pdf>.

of the Nile River Basin reflect that cooperation is central to avoiding conflict when one state amongst co-riparian states is more powerful.

TIGRIS-EUPHRATES RIVER BASIN

There are many other areas in the world where water sources are shared across international borders. The Tigris-Euphrates River Basin, which sustains and is of interest to Turkey, Syria, and Iraq is another useful example to analyze. Unlike the Nile River Basin, there is not a cooperative body in place amongst co-riparian states and/or a multilateral agreement amongst the three main countries to manage water usage although multiple attempts have taken place to develop such a framework. Turkey as upper riparian, claims the right to a large part of the river's waters for its own interests whereas the two lower riparian states, Syria and Iraq, accuse Turkey of not informing them of plans that include "complete cut-offs" which cause them "considerable hardship."⁹⁹ The states in this relationship watch and record each other's actions where water is concerned.

Amongst upstream and downstream states, freshwater river flow is inevitably a sensitive political matter.¹⁰⁰ However, an international water war with Turkey, the hydro-hegemon of the triumvirate, is extremely unlikely to be started by either Syria or Iraq but this is more due to their own civil circumstances and pressures than a sentiment of cooperation. Social unrest however, has already been occurring over the river's usage and there is potential for escalation.¹⁰¹

Turkey's Ilisu Dam, which is on the Tigris, became operational in 2020 but created significant water shortages in Iraq beginning in 2019 as Turkey sought to fill the dam's reservoir. A report from the

⁹⁹ "Water: Reason for Conflict or Catalyst for Peace? The Case ...," accessed December 5, 2020, <http://www.christianefroehlich.de/wp-content/uploads/2013/08/Seiten-aus-EEF-365-complimentary.pdf>.

¹⁰⁰ Roland Dannreuther, *International Security: The Contemporary Agenda* (Cambridge, United Kingdom: Polity, 2013), p. 251.

¹⁰¹ "Water: Reason for Conflict or Catalyst for Peace? The Case ...," accessed December 5, 2020, <http://www.christianefroehlich.de/wp-content/uploads/2a013/08/Seiten-aus-EEF-365-complimentary.pdf>.

UN's International Organization for Migration determined that decreasing water levels of the Tigris-Euphrates River Basin could result in the displacement of multiple Iraqi communities. Changes to water availability in Iraq prompted violent intrastate outbreaks in 2018 when people were already falling sick due to changes in water flow including increased salinity, decreased levels, and more pollution.¹⁰²

The social unrest of the Tigris-Euphrates River Basin, while not yet a 'water war', could spill over into violent, interstate conflict as riparian water flow into Iraq is unlikely to improve. As described earlier, violence already exists in the tumultuous region, and that pre-existing state of violence adds to the likelihood that further violent conflict could erupt if water scarcities continue. A cooperative framework could alleviate cumulative pressure in the area as demonstrated by the NBI but such a framework is not place amongst Turkey, Syria, and Iraq at this time and there is little evidence, one is being developed. This adds to the propensity for interstate violence to develop in the region.

KENYA AND ETHIOPIA

Violent flare ups between Kenya and Ethiopia have occurred multiple times since the turn of the century.¹⁰³ In this region interstate water confrontations are not uncommon. A conflict in 2006 erupted in violence when it was suspected that Ethiopians attacked a Kenyan village. This violent outbreak, which was caused by a scarce resource, resulted in the deaths of 10 people and the injury of five more.¹⁰⁴ Pasture space was an issue but water was the scarce resource and its scarcity had been made worse because of an on-going drought. During the same period, in the same region, intrastate conflict

¹⁰² "Iraq Complains Turkey Causing Water Shortages:," Arab Weekly, July 7, 2020, accessed April 13, 2021, <https://thearabweekly.com/iraq-complains-turkey-causing-water-shortages>).

¹⁰³ Water Conflict Chronology Timeline List, accessed November 24, 2020, <http://www.worldwater.org/conflict/list/>).

¹⁰⁴ "Kenya: Clashes over Water, Pasture Kill 40 in East Africa - Kenya," ReliefWeb, accessed November 24, 2020, <https://reliefweb.int/report/kenya/kenya-clashes-over-water-pasture-kill-40-east-africa>).

also resulted in casualties on the Ethiopian side of the border. “Clashes between two rival clans over... water... killed 30 people and injured 15 others.”¹⁰⁵

In 2011 violence erupted between the two nations over water scarcities once again. In this instance, however, Ethiopia settled approximately 900 armed militia and 2,500 civilians on Kenyan territory near Lake Turkana. The southeastern border region, defined by Omo River Delta, had shifted because of decreasing water levels in the region. This shift blurred hunting and fishing areas, which created competition and conflict for resources. These water-related issues fueled transboundary conflict.¹⁰⁶

There are no existing water agreements in place between Kenya and Ethiopia and the 2011 outbreak of violence demonstrates that humans will fight for survival when water scarcities are present. The latter example of Kenyan-Ethiopian violence serves as a message to nations which share transboundary water ways. Hydro-solidarity can give way to conflict and measures need to be put in place in advance of droughts and other harbingers of water scarcities because the point at which people are starving and dehydrating is too late.

CONCLUSION

As climates warm, populations grow, and water scarcities become increasingly more common, violent outbreaks may become more frequent owing to the centrality of water for life and the propensity for a strong state to take what it needs from where it can get it.

¹⁰⁵ "Kenya: Clashes over Water, Pasture Kill 40 in East Africa - Kenya," ReliefWeb, accessed November 24, 2020, <https://reliefweb.int/report/kenya/kenya-clashes-over-water-pasture-kill-40-east-africa>).

¹⁰⁶ "Water Conflict: Violence Erupts Along Ethiopia-Kenya Water-stressed Border," Codi Kozacek, Circle of Blue, June 21, 2011, accessed May 04, 2021, <https://www.circleofblue.org/2011/world/water-conflict-violence-erupts-along-ethiopias-and-kenyas-water-stressed-border/>).

The ever-increasing imbalances of population sizes and water levels between Canada and the US forecast a changing nature of the relationship between the two countries. In the face of climate change projections, which foretell of longer droughts and extremes of weather, water scarcities, which are present now, will become exacerbated as extreme weather trends continue. A confluence of these factors in the US will eventually place enough strain on the state that it will be forced to undertake solutions heretofore not seen.

As has been demonstrated, the co-riparian states of the Tigris-Euphrates River basin do not have cooperative, collaborative agreements in place to ease the unrest that exists between Turkey, Iraq and Syria. As Turkey decreases water availability to the lower riparian states against a violent backdrop, violence could erupt.

Although North American conditions are not the same as in Turkey, Iraq and Syria water scarcities could just as easily provoke state-led or otherwise American violence. As the strongest nation in the world, little could be done to stop the US if it chooses to use force to take Canadian water. The Nile River basin offers hope to such a dramatic possibility. Conditions amongst the co-riparian states of the Nile River basin are managed more effectively because they have agreements and the NBI in place. Canada can learn from the Nile River Basin and get ahead of the power curve by working with the US now on bilateral hydro-relations that take into account dire weather, water, and population forecasts.

First it must contend with its own domestic situation while seeking an international leadership role regarding freshwater management. For this role, Canada has the benefit of having feminist international assistance policy, in place, which be examined in the next chapter. Canada's feminist foreign policy is a tool it can use to empower its women to speak on the country's behalf and to promote its understanding of the relationship between women and water, especially in the Global South. Such leadership could help promote hydro-solidarity at home and abroad.

Chapter 2: CANADA AND WOMEN

INTRODUCTION

Water-related challenges exist globally and the UN published startling facts in 2017 that included grim realities and worrisome predictions. It stated that two billion people live in nations that experience high water stress, and that 785 million people live without basic drinking water services, and that by 2030, 700 million could be displaced by intense scarcities of water.¹⁰⁷ Zeroing in on these realities becomes more sobering when looking specifically at women. Water.org, a global non-profit organization, believes that for women, the water crisis is a women's crisis:

For women around the world, the struggle to gather water is... a personal, everyday battle. They are responsible for finding a resource their families need to survive... in their efforts... they often face an impossible choice – certain death without water or possible death due to illness from dirty water.¹⁰⁸

From a Canadian perspective, this is an incomprehensible dilemma, especially given the longevity within which the connection between water and women has been established. The Dublin Statement on Water and Sustainable Development from 1992, which Canada embraces, included four principles related to water. The statement clearly defines water as a finite resource and that water management should be participatory, involving users and policy-makers. Very significantly, the connection between women and water, defined in Principle 3, states that “women play a central part in the provision, management, and safeguarding of water.”¹⁰⁹ Based on the Dublin Statement and its acceptance of it, Canada and the other nations which embrace the Statement are aware of the women and water connection.

¹⁰⁷ "Water," United Nations, accessed December 29, 2020, <https://www.un.org/en/sections/issues-depth/water/index.html>).

¹⁰⁸ "Water Charity For Safe Water & Sanitation," Water.org, <https://water.org/>).

¹⁰⁹ "Do We Have Reason to Celebrate 25th Anniversary of Dublin Principles?" WfWP, accessed March 13, 2021, <https://www.womenforwater.org/do-we-have-reason-to-celebrate-25th-anniversary-of-dublin-principles.html>).

Additionally, UN Water posts information regarding the connection between women and water that is in line with the Dublin Statement. It states that, “[a]cross low-income countries, women and girls have primary responsibility for management of household water supply, sanitation, and health.”¹¹⁰ These are hefty tasks, which are difficult and time-consuming. The UN notes water-related tasks prevent girls from attending school and make it difficult for women to be permanent members of the paid labour force.¹¹¹ Based on the foregoing, women’s lives in many developing nations are shaped and influenced by water. In this sense, women are responsible for the water security of their families and, as the Dublin Statement says, women ought to be involved in the management of water.

Correspondingly, the UN indicates that gender-based approaches to developing secure water-access means will create improvements to the lives of women. “Gender-sensitive approaches are helping to improve the... reach of water and sanitation services...embedding gender equity into policy at all levels will be crucial to achieving water and sanitation for all.”¹¹² Ideally and theoretically, global improvements to water access would enable more time for school and paid labour and more secure lives for women. In the Global South water security is women’s business.

The UN has published a series of sustainable development goals, many of which promote significant changes regarding the relationship between water and women within the next 10 years. By 2030 the UN wants to “achieve universal and equitable access to safe and affordable drinking water...and adequate...sanitation and hygiene for all.”¹¹³

These goals will be difficult to achieve but Canada is uniquely positioned to undertake a leadership role in driving the international changes required to help balance gender disparities related to

¹¹⁰ UN-Water, "Gender: UN-Water," UN, accessed December 29, 2020, <https://www.unwater.org/water-facts/gender/>).

¹¹¹ UN-Water, "Gender: UN-Water," UN, accessed December 29, 2020, <https://www.unwater.org/water-facts/gender/>).

¹¹² UN-Water, "Gender: UN-Water," UN, accessed December 29, 2020, <https://www.unwater.org/water-facts/gender/>).

¹¹³ "Sustainable Development Goal 6: Clean Water and Sanitation," UN Women, accessed December 29, 2020, <https://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-6-clean-water-sanitation>).

water security. Its extant foreign policy, Feminist International Assistance Policy (FIAP), provides the framework to support an international leadership role regarding water security. FIAP mandates the country to renew its Federal Plan for Gender Equality and affirms its continued commitment to work on gender equality abroad.¹¹⁴ In a very real sense, not only does Canada's policy provide the necessary framework for international action regarding women and water security, it obligates Canada to assume a leadership role amongst the international community of states regarding gender-based water security issues

Like the UN's approach to women and water, FIAP recognizes that "women and girls are often the primary...providers of water, including sustainable access to...adequate sanitation...and integrated water resource management."¹¹⁵ Canada's foreign policy places great emphasis on the connection between gender and water, recognizing that women and girls are necessary to effecting lasting, international change regarding water security. Through its Women's Voice and Leadership Program (WVL), initiated as the flagship of FIAP, Canada opted to partner with multiple international organizations with the aim of supporting women's work and women's organizations in Global South.¹¹⁶

Canada, a member of the G7 founded the Gender Equality Advisory Council (GEAC), during its G7 presidency in 2018. At that time, Canada initiated the exchange of ideas with G7 member nations about the importance of gender equality and the empowerment of women and girls.¹¹⁷ By the end of its

¹¹⁴ "Minister for Women and Gender Equality and Rural Economic Development Mandate Letter," Prime Minister of Canada, December 13, 2019, accessed December 29, 2020, <https://pm.gc.ca/en/mandate-letters/2019/12/13/minister-women-and-gender-equality-and-rural-economic-development>).

¹¹⁵ Global Affairs Canada, "Canada's Feminist International Assistance Policy," GAC, January 14, 2020, accessed December 29, 2020, https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/priorities-priorites/policy-politique.aspx?lang=eng#7).

¹¹⁶ Global Affairs Canada, "Women's Voice and Leadership Program," GAC, November 04, 2020, accessed December 29, 2020, https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/gender_equality-egalite_des_genres/wvl_projects-projets_vlf.aspx?lang=eng).

¹¹⁷ "Prime Minister Justin Trudeau Meets with G7 Gender Equality Advisory Council Representatives," Prime Minister of Canada, accessed December 29, 2020, <https://pm.gc.ca/en/news/readouts/2019/08/25/prime-minister-justin-trudeau-meets-g7-gender-equality-advisory-council>).

presidency, a statement from Prime Minister Trudeau included optimistic information about the initial success of the Council. It said that nearly \$3.8 billion had been committed to women and girls in crisis and conflict.¹¹⁸

An analysis of Canada's foreign policy, WVL Program, and GEAC will demonstrate that Canada has positioned itself to be obliged to adopt a leadership role in the international community regarding the gendered aspect of water security. Given Canada's feminist international assistance policy, not to do so would be hypocritical and unfair to those women who would benefit from Canada's leadership.

CANADA'S FEMINIST INTERNATIONAL ASSISTANCE POLICY

Marie-Claude Bibeau, Canada's minister of international development has explained the intent of FIAP at multiple international fora. "Canada has adopted a feminist approach because we believe that women and girls have the ability to achieve real change in terms of sustainable development and peace."¹¹⁹

The word "water" receives 22 mentions throughout the policy and water is, therein, connected to a multitude of modifying words including drinking, management, shortages, and access. These modifiers prove Canada's deep understanding of international water issues. Moreover, the abundance of 'water' mentions throughout the policy that are tied to "women and girls" proves that the policy was drafted and implemented to promote awareness of Canada's understanding of the nexus between water and women,

¹¹⁸ "Canada Concludes Successful G7 Presidency," Prime Minister of Canada, accessed May 01, 2021, <https://pm.gc.ca/en/news/news-releases/2018/12/31/canada-concludes-successful-g7-presidency>).

¹¹⁹ "10 Reasons Why We Need Feminist Foreign Policy," Open Canada, September 22, 2020, accessed January 01, 2021, <https://opencanada.org/10-reasons-why-we-need-feminist-foreign-policy/>).

and by extension, the nexus between women and water security. FIAP states “[w]omen and girls are often the primary...providers of water...for their households.”¹²⁰

Additionally, FIAP includes a vision statement regarding international assistance which reads that “Canada firmly believes...promoting gender equality and empowering women and girls is the most effective approach...[to achieving]...a more inclusive and more prosperous world.”¹²¹ When the vision statement is compounded with the policy’s water rhetoric the conclusion is clear: Canada’s understands the gendered aspects of water security in the Global South.

Academic research proves the objectives of FIAP are on target to improve the lives of women. University of Waterloo professor and medical geographer, Susan Elliott, has extensively studied the impacts of improved water access for women in low and middle-income nations. Citing reports from UNICEF and the World Health Organization, she predicted that adequate, safe access to water *would* lead to “[e]conomic development [that] would just skyrocket.”¹²² To confirm the projected outcomes, however, required long-term analysis. Elliot studied communities, which had attained clean water availability for three to four years, to determine the outcomes. As predicted, she found that with sustainable access to clean water, girls were able to be in school, women were able to contribute to economic development, and the money women had previously spent on water could instead be spent on food, thus improving the conditions of families.¹²³ She also concluded that having women involved in the problem-solving process for their own issues was central to success. Her logic and her findings are

¹²⁰ Global Affairs Canada, "Canada's Feminist International Assistance Policy," GAC, January 14, 2020, accessed December 29, 2020, https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/priorities-priorites/policy-politique.aspx?lang=eng#7).

¹²¹ Global Affairs Canada, "Canada's Feminist International Assistance Policy," GAC, January 14, 2020, accessed December 29, 2020, https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/priorities-priorites/policy-politique.aspx?lang=eng#7).

¹²² "Women, Water and Wellness," Environment, March 14, 2017, accessed January 03, 2021, <https://uwaterloo.ca/environment/research-stories/sdgs/women-water-and-wellness>).

¹²³ "Women, Water and Wellness," Environment, March 14, 2017, accessed January 03, 2021, <https://uwaterloo.ca/environment/research-stories/sdgs/women-water-and-wellness>).

congruent with the spirit and goals of Canada's feminist foreign policy and therefore support the contention that Canada ought to adopt a leadership role regarding water security.

FIAP, which is intended to support the empowerment of women and to improve water security for families, furnishes Canada with the policy required to underpin its adoption of an international leadership role regarding woman and water security. The policy also supports women's participation in decision making about environmental issues.¹²⁴ By design or otherwise, Canada has thusly cast itself into a leadership role regarding water security through its publication of FIAP in 2017, a trend that would continue the next year during its G7 presidency and the establishment of the Gender Equality Advisory Council. Before examining GEAC more fulsomely, FIAP's WVL program shall be discussed.

WOMEN'S VOICE AND LEADERSHIP PROGRAM

Announced in June 2017, the Women's Voice and Leadership (WVL) Program is the flagship initiative of FIAP. Through it, Canada works with partner organizations around the world on projects that "respond to the needs and priorities identified by women's rights organizations and place women at the centre of project implementation."¹²⁵

On its official website, the WVL Program lists regions and organizations, with which it partners, and includes the dollar value attached to each project. The list is impressive with Canadian support spanning multiple regions across South America, Africa, and Southwest Asia. While water security is not central to funding requests for projects, Global Affairs Canada will only approve projects that have a

¹²⁴ Zafar Adeel - et al., "Women Can Lead to a Water Secure World," Water Canada, March 21, 2018, accessed January 01, 2021, <https://www.watercanada.net/feature/women-can-lead-to-a-water-secure-world/>).

¹²⁵ Global Affairs Canada, "Women's Voice and Leadership Program," GAC, November 04, 2020, accessed January 03, 2021, https://www.international.gc.ca/world-monde/issues_development-enjeux_developpement/gender_equality-egalite_des_genres/wvl_projects-projets_vlf.aspx?lang=eng).

strong women's rights focus and accordingly, approved projects are often linked to water through emphasis on health, sanitation, and family care.¹²⁶

The program gave women's organizations in Kenya a boost in 2019. In partnership with CARE International, a non-governmental organization dedicated to eradicating poverty, the WVL Program announced a \$7.8 million initiative in Kenya. There, Care International used the funding to develop a program that supports water access and sanitation among other ideals such as maternal health.¹²⁷

In its 2017-2018 Report Parliament on the Government of Canada's International Assistance 2018-2019, the Government of Canada said it had committed \$150 million over five years in support of grassroots organizations which support women's rights.¹²⁸

Congruent with FIAP itself, Canada's funding of women's organizations through the WVL Program supports Canada's casting of itself into an international leadership role regarding women and water security. This is because by voluntarily and actively pursuing and speaking about women's issues, which are then shored up by a policy framework and funding commitments, Canada has asserted itself as a world leader in this area. Canada's innovative creation of the Gender Equality Advisory Council is another initiative that lends itself to Canada having cast itself as an international leader on women and water security.

¹²⁶ Global Affairs Canada, "Canada's Feminist International Assistance Policy," Canada.ca, June 09, 2017, accessed May 04, 2021, https://www.canada.ca/en/global-affairs/news/2017/06/canada_s_feministinternationalpolicy.html).

¹²⁷ "Women's Voice and Leadership," CARE Canada, April 26, 2021, accessed May 01, 2021, <https://care.ca/projects/womens-voice-and-leadership/>).

¹²⁸ Global Affairs Canada, "Report to Parliament on the Government of Canada's International Assistance 2018-2019," GAC, March 11, 2021, accessed May 01, 2021, <https://www.international.gc.ca/gac-amc/publications/odaaa-lrmado/report-rapport-18-19.aspx?lang=eng>).

GENDER EQUALITY ADVISORY COUNCIL

The Gender Equality Advisory Council (GEAC) is a component of the G7, “a forum designed for frank and open discussion between” members...consisting of Canada, France, Germany, Italy, Japan, UK, US, and the European Union.”¹²⁹ The GEAC was born out of Canadian ideals as it was developed and initiated by Prime Minister Justin Trudeau when Canada held the presidency of the G7 in 2018.¹³⁰ Canada’s initiative to establish the GEAC during its leadership of the G7 was congruent with and reflective of its feminist approach to foreign policy. The Council was designed to recommend actions for G7 members to “advance gender equality and women’s empowerment.”¹³¹ The language of the council’s mandate is an echo of the language of FIAP and thereby catapults the ideals of Canada’s feminist domestic policy into the international environment of the G7.

It published three elaborate recommendations after its inception. The recommendations saw the word water woven extensively throughout especially in the first of them, which was titled, *Girls and Women*. That recommendation calls upon the G7 to invest financially and politically into water infrastructure noting the connections between women, water, responsibilities for the household, food production, and for the health of family members.¹³² The concept of water security is implicit throughout the recommendation. Accordingly, the GEAC reflect and projects the same ideals as FIAP.

¹²⁹ Global Affairs Canada, "Canada and the G7," GAC, September 02, 2020, accessed January 01, 2021, https://www.international.gc.ca/world-monde/international_relations_relations_internationales/g7/index.aspx?lang=eng.

¹³⁰ "Publication of the Report of the G7 Gender Equality Advisory Council," UN Women, accessed January 01, 2021, <https://www.unwomen.org/en/news/stories/2019/8/news-publication-of-the-report-of-the-g7-gender-equality-advisory-council>).

¹³¹ Global Affairs Canada, "Canada and the G7," GAC, September 02, 2020, accessed January 01, 2021, https://www.international.gc.ca/world-monde/international_relations_relations_internationales/g7/index.aspx?lang=eng).

¹³² Global Affairs Canada, "Recommendations from the Gender Equality Advisory Council for Canada's G7 Presidency," GAC, January 09, 2019, accessed January 01, 2021, https://www.international.gc.ca/world-monde/international_relations_relations_internationales/g7/documents/2018-06-04-gender_equality-recommendations-egalite_genres.aspx?lang=eng).

The GEAC, which could have withered after Canada's presidency, was renewed and embraced by France under the presidency of Emmanuel Macron in 2019. France re-committed the G7 to the key goal regarding the need to battle gender inequality.¹³³ An Internet search does not produce evidence any tangible output by the GEAC but it has achieved international media attention. Leveraging the voices of high-profile women such as Emma Watson and Mindy Kaling by inviting them to address the committee in 2019 led to mainstream media coverage about the council. This is ideal as this sort of attention helps to keep women's issues in the realm of mainstream media reporting. It also helps to raise the profile of the organization, which may (eventually) put pressure on the G7 to deliver on its commitments to gender equality and water security. As its parent nation, Canada has a long-term interest in ensuring tangible outputs from the GEAC arise as it could rightly face weighty criticism if only lofty ideals materialize as opposed to positive actions.

OFFICIAL DEVELOPMENT ASSISTANCE BACKGROUND

Canada's funding commitment to official development assistance (ODA) is also a positive sign it is an ideal nation to assume a leadership role regarding women and water security. Table 1, from the Organization for Economic Cooperation and Development, which uses data from the Government of Canada, depicts that Canada finished first amongst G7 nations in terms of ODA commitments, which focused on gender equality in bilateral allocable aid during 2016-2017.¹³⁴ From this data it is not possible to discern how much ODA related directly to women and water security but it does confirm that even before the publication of FIAP, Canada was a G7 leader regarding gender-sensitive ODA allocations. This background context possibly foreshadowed the content and spirit that was to be central

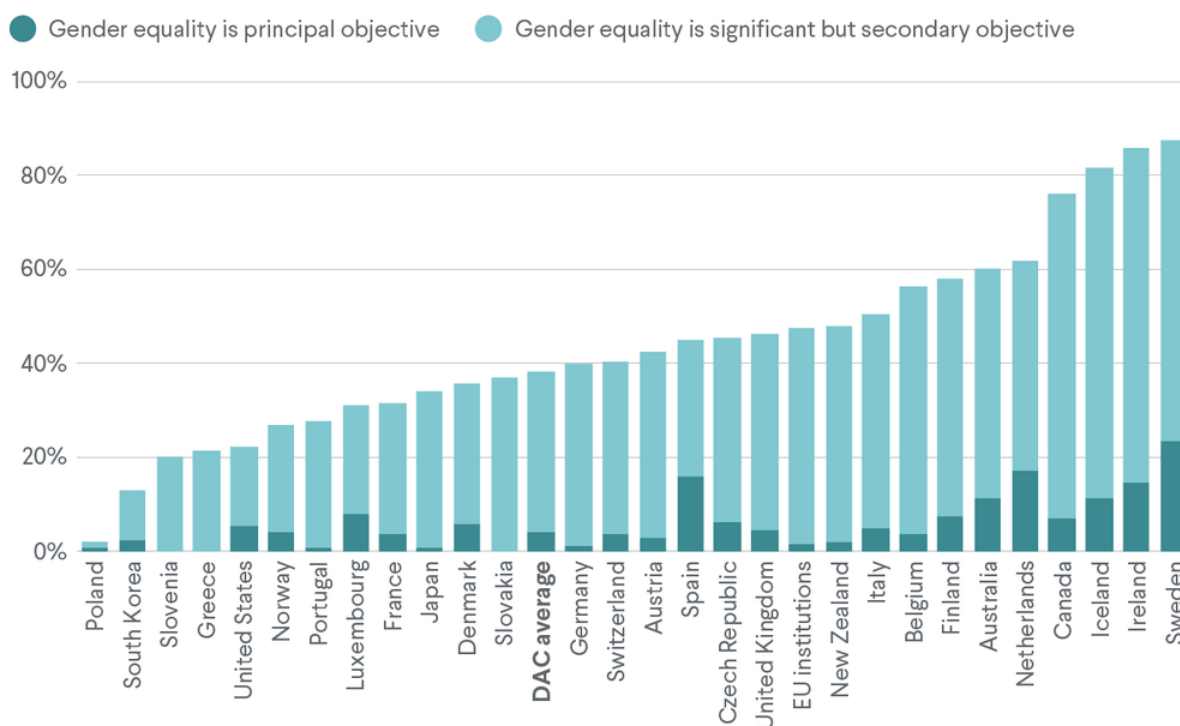
¹³³ "French G7 Presidency," France ONU, accessed January 03, 2021, <https://onu.delegfrance.org/French-G7-Presidency>).

¹³⁴ "Advancing Gender Equality in Foreign Policy," Council on Foreign Relations, accessed January 01, 2021, <https://www.cfr.org/report/advancing-gender-equality-foreign-policy>).

to FIAP and the creation of the GEAC. Canada's 2016-2017 ODA commitments support the concept that Canada has the capacity and inclination to assume an international leadership role on women and water security. Furthermore, Canada's ODA commitments from five years ago provide it with a measure of credibility because the funding demonstrates that Canada invests in its ideals.

Gender Equality in DAC Countries' Aid (2016–2017)

Percentage of official development assistance focused on gender equality in bilateral allocable aid



Note: Hungary is excluded due to lack of data.

Source: Organization for Economic Cooperation and Development.

COUNCIL
FOREIGN
RELATIONS

Table 1. Gender Equality in Development Assistance Committee Aid (OECD)¹³⁵

¹³⁵ "Advancing Gender Equality in Foreign Policy," Council on Foreign Relations, accessed January 01, 2021, <https://www.cfr.org/report/advancing-gender-equality-foreign-policy>).

Although Table 1 is flush with positive messages about Canada's commitment to funding gender-based foreign policy initiatives and this speaks to Canada dedication to idealistic international intentions, criticism regarding FIAP abounds as will be demonstrated in the next section.

CRITIQUE OF CANADA'S FEMINIST INTERNATIONAL ASSISTANCE POLICY

It would seem that Canada could be on a path to international leadership regarding water security. However, miserly feminism, selective feminism, organic feminism, and top-down feminism are some of the adjectives used to describe its feminist foreign policy. Much is written by academics, economists, and journalists that FIAP is mere rhetoric and that the feminist card is played when it is politically useful to do so.¹³⁶ In a Western liberal democracy, criticisms of government policies will abound, warranted or not, so critiques of Canada's feminist foreign policy are not altogether unexpected. However, despite the obvious propensity for FIAP to be a target for criticism, it does prove difficult to find positive evidence that the directly related to the policy almost four years after its publication.

¹³⁶ Jessica Cadesky, "Built on Shaky Ground: Reflections on Canada's Feminist International Assistance Policy," *International Journal: Canadas Journal of Global Policy Analysis* 75, no. 3 (2020): doi:10.1177/0020702020953424).

The Canadian Global Affairs Institute published an essay by Rebecca Tiessen, a University of Ottawa professor from the School of International Development and Global Studies, ostensibly attempted to explain what FIAP is trying to accomplish and how it can be practically applied to Government of Canada foreign policy initiatives. Problematically, FIAP does not define feminism, which is a starting point of Tiessen's critique. Instrumental feminism focusses on "ensuring women's greater participation in political and economic processes" whereas transformative feminism seeks to explain "power relations and inequalities that perpetuate gender inequality individually and institutionally."¹³⁷

Greater political participation by women is only useful if the increase results in positive, tangible changes. If more women are involved in politics and can produce legislative changes to curtail domestic abuse, for example, this is highly positive and promotes gender security. But if they actually produce protective legislation and it fails to change the destructive behaviour at the street level then female participation in politics might be considered less useful. Thus, increased political participation is not considered a desirable end state in and of itself. The basis of the criticism for an instrumental feminist approach is that it produces positive change conditionally and fails to address the root causes of inequality. A transformative feminist approach is more comprehensive and has the propensity to produce more meaningful, lasting change by analyzing and addressing the root causes of inequalities. FIAP fails to identify its approach and this limits its utility in making clearly defined foreign policy objectives. Moreover, feminist objectives are difficult to develop and define and this problem is exacerbated by a lack of feminist definition.

¹³⁷ "What's New about Canada's Feminist International Assistance Policy: The Problem and Possibilities of 'More of the Same'," Rebecca Tiessen, Canadian Global Affairs Institute, December, 2019, accessed March 04, 2021, https://www.cgai.ca/whats_new_about_canadas_feminist_international_assistance_policy_the_problem_and_possibilities_of_more_of_the_same.

To overcome these problems, Tiessen provides recommendations to guide the implementation of the policy. These include: drawing on experts who understand gender marginalization; developing outcomes that can demonstrate the success of the policy; and significantly, operationalizing a transformative feminist approach to the policy.¹³⁸

As written, it is clear Canada's *intent* with FIAP is to promote and support feminist approaches to development. Global Affairs Canada will not fund projects that lack a women's rights nexus, a point that is worth reiterating. However, intentions do not translate into quantifiable outcomes, which is really at the heart of the overall criticism with FIAP. A transformative feminist approach, replete with measures of performance and effectiveness, is required to facilitate lasting and meaningful change abroad via Canada's feminist foreign policy and to demonstrate that the policy meets its aim.

Another concern with the current construct of FIAP is that the policy fails to point out that nations, which choose to cooperate with Canada regarding its foreign policy objectives, are required to *agree* with Canada's objectives. While any country in the Global South might benefit from Canadian foreign aid, Canada cannot simply impose itself and its foreign policy objectives on another nation. To implement its intentions, Canada must have partner nations with which it can work towards a common goal. FIAP appears to assume that the interests and objectives of developing countries will be *simpatico* with Canada's feminist ideals.¹³⁹ Furthermore, it appears that Canada does not realize implementing its ideals abroad may be easier said than done as nations have their own development goals and priorities. Working with partner organizations such as the WVL program is a good start to establishing

¹³⁸ "What's New about Canada's Feminist International Assistance Policy: The Problem and Possibilities of 'More of the Same'," Canadian Global Affairs Institute, December, 2019, accessed March 04, 2021, https://www.cgai.ca/whats_new_about_canadas_feminist_international_assistance_policy_the_problem_and_possibilities_of_more_of_the_same).

¹³⁹ "Canada's New Feminist Development Policy: The Good, the Bad and the next Steps," Open Canada, September 22, 2020, accessed March 04, 2021, <https://opencanada.org/canadas-new-feminist-development-policy-good-bad-and-next-steps/>).

collaborative efforts but international relations are conducted at the level of the state. In keeping with realism, coordination at the state-to-state level is essential as was explained in the introduction to this thesis when discussing realism.

CONCLUSION

Canada's FIAP and its commitment to work on gender equality and gender specific objectives abroad underpins the arctic nation's ability to assume a leadership role amongst the international community of states regarding gender-based issues.¹⁴⁰ The goals are idealistic and highlight a Canadian awareness that gender inequalities exist abroad and that as a wealthy, G7 nation, Canada has a responsibility to address global, gender-related issues which include water security. The publication of a feminist foreign policy represented and *still represents* an opportunity for Canada to adopt a leadership role internationally regarding water security. FIAP furnishes the Government of Canada with the policy framework necessary to tackle global, gender-related issues abroad as a leader amongst states. Tangentially and as previously indicated the spirit of FIAP may have obliged Canada to adopt an international leadership role or risk having a feminist foreign policy that is vapid. Inaction would undermine Canada's credibility on the world stage.

Despite the shortcomings of FIAP, which were highlighted to include a lack of definition for feminism, the policy remains both relevant and important. This is because the spirit of the policy, which among other things, recognizes the relationship between women and water, is strong enough to support a Canadian feminist approach to international water issue such as management and sanitation. Despite it

¹⁴⁰ "Minister for Women and Gender Equality and Rural Economic Development Mandate Letter," Prime Minister of Canada, December 13, 2019, accessed December 29, 2020, <https://pm.gc.ca/en/mandate-letters/2019/12/13/minister-women-and-gender-equality-and-rural-economic-development>).

shortcomings, FIAP can be the policy foundation upon which Canada can stake its claim to international hydro-leadership.

With water scarcities predicted to occur more frequently in the coming decade, Canada's commitment to water-based gender issues is important. As discussed earlier in this thesis, water issues are women's issues. Canada can make a difference and, as suggested, many global citizens could come to depend upon this leadership as water scarcities increase in location, intensity, and duration. Canada could go so far as to have women-led delegations voice its feminist approach to hydro-leadership abroad at the various international fora on which it sits. Canada's women, elected officials, academics, engineers, laborers, and mothers could promote the objectives of its feminist foreign policy abroad.

As water scarcities increase, the propensity for the securitization of water rises correspondingly. Canada needs to begin its leadership role now in order to have influence over these issues as they materialize in the days, months, and years to come. Canada's feminist foreign policy, the Women's Voice in Leadership program, the Gender Equality Advisory Committee of the G7, and its track-record of feminist ODA commitments lend credibility to Canada's to assumption of a leadership role.

Canada also has a large Indigenous population which could add to Canada's voice abroad. Canada's Indigenous peoples, like so many of their international Indigenous counterparts, have long-standing relationships with water and have innovative ways to manage the non-renewable resource. The next chapter will examine these matters, adding to the argument that Canada must adopt a leadership role abroad

Chapter 3: Indigenous People and Water

INTRODUCTION

The Māori of New Zealand have a proverb which reads, “ko au te awa ko te awa ko au.” I am the river, the river is me. The Whanganui River, to which this proverb relates, is the longest river on the island nation and was afforded status as a legal person in 2017. The unique legislation recognized the spiritual connection of the Māori to water and accordingly declared the river to be an “indivisible and living whole.” The legislation, the Te Awa Tupua Act, also placed responsibility for the health and well-being of the river on the Māori.¹⁴¹

The pre-colonial justice system of the Māori focused on values rather than rules. The Te Awa Tupua Act recognized this unique difference in heritage and thus its intent (in part) was to help reconcile long-standing differences between European settlers and the Māori. In doing so, it formally recognized the river as a Māori ancestor and gave them a voice in decision-making concerning its use.¹⁴² The ultimate hope with the legislation is that the river and all its life-giving and life-sustaining abilities will be better protected into the future.

In Australia, much of its Indigenous population’s spirituality has long been misunderstood but a growing awareness is proving instructional. An information brochure published the state government New South Wales wrote that, “aboriginal communities have a spiritual and customary living relationship with water in all its forms...and knowledge about sharing and conserving water.”¹⁴³ An Indigenous story

¹⁴¹ Dan Cheater, "I Am the River, and the River Is Me: Legal Personhood and Emerging Rights of Nature," West Coast Environmental Law, March 22, 2018, accessed February 20, 2021, <https://www.wcel.org/blog/i-am-river-and-river-me-legal-personhood-and-emerging-rights-nature>).

¹⁴² Jacinta Ruru "Listening to Papatūānuku: A Call to Reform Water Law ...," accessed February 20, 2021, https://www.researchgate.net/publication/323802652_Listening_to_Papatuanuku_a_call_to_reform_water_law).

¹⁴³ "Our Water Our Country," , State Government of New South Wales publication, accessed February 20, 2021, http://www.water.nsw.gov.au/_data/assets/pdf_file/0004/547303/plans_aboriginal_communities_water_sharing_our_water_our_country.pdf.

about the importance of safeguarding water is widely told through a fable about a little frog named Tiddalik, who drank “all the water”. Tiddalik’s greed resulted in an oversized corpus while his animal friends died of thirst. The animals tried to make the engorged frog laugh in attempts to force him to expel all he had consumed; they succeeded, the frog laughed and water resources were replenished. The widely-used fable foretells the problems with greed and misuse. Tiddalik realized it was better to take only what was needed when needed it and the animals solved the problem through cooperation rather than violence.¹⁴⁴

Our Water, Our Country, the New South Wales extant document about water reform, uses multiple Aboriginal fables to explain to its audiences what the nation’s Indigenous population have known for centuries: water scarcities affect everyone and inclusive, peaceful approaches offer solutions. The intent of the document and its fables is to highlight the benefits for all Australians that are obtained through the fair distribution of resources and through a congenial, protective, and participatory approach to water.

On the other side of the world it is interesting to consider the Indigenous people of Canada have beliefs, which are similar to those of their Australian and Māori counterparts. The similarities of the legends are all the more striking because of the diversity of Canada’s Indigenous communities. There are more than 630 First Nations communities in Canada and more than 50 Indigenous languages.¹⁴⁵ Like the Māori, First Nations have a spiritual relationship with water goes back to time immemorial. Like Australia’s Indigenous peoples many legends in the form of *creation stories* involve water. A common

¹⁴⁴ "Our Water Our Country," p. 3-5, State Government of New South Wales publication, accessed February 20, 2021, http://www.water.nsw.gov.au/data/assets/pdf_file/0004/547303/plans_aboriginal_communities_water_sharing_our_water_our_country.pdf.

¹⁴⁵ Government of Canada; Indigenous and Northern Affairs Canada; Communications Branch, "Indigenous Peoples and Communities," Government of Canada; Indigenous and Northern Affairs Canada; Communications Branch, December 04, 2017, accessed May 04, 2021, <https://www.rcaanc-cimac.gc.ca/eng/1100100013785/1529102490303>).

North American creation story describes the world as being covered in water in the beginning. A pregnant Skywoman [sic] fell to earth and many animals tried to swim to the bottom of the ocean to gather dirt for her. A muskrat, a most reviled animal, succeeded and the dirt he found was placed on the back of a turtle. As a result, large land masses grew in the water, enabling life on earth to flourish. The message is clear that cooperation and inclusion are central to balance amongst all creatures especially concerning earth and water. The Assembly of First Nations believes:

Water is the blood of Mother Earth and, as such, cleanses not only herself but all living things. Water shapes the land and gives us the great gifts of the rivers, lakes, ice, and oceans. Water is the home of many living things that contribute to the health of and well-being of everything not in the water.¹⁴⁶

Raising awareness about legends and enduring Indigenous beliefs serves to underscore the long-standing relationship First Nations, Metis, and Inuit have with water and the environment. Their spiritual connection is a golden thread, which has the power to bind an equitable approach to water management and the power to teach non-Indigenous people that water has presence and importance and must be protected.

Canada should provide every opportunity possible for its Indigenous communities to explain the sacredness of water, which is enshrined in oral history. They have much to offer because of their connection to land and water gives them a deep seated interest in sustainability. There is positive space for Indigenous voices to be heard, projecting their values and knowledge in a way that aligns with interests of the state. The Assembly of First Nations writes on their website that First Nations are “seeking the recognitions of their authorities over water...and to restore the traditional ways of protecting the health of water.”¹⁴⁷ Indigenous insight and knowledge about water could be heard around

¹⁴⁶ Angie Turner, "Honouring Water," Assembly of First Nations, accessed February 20, 2021, <http://www.afn.ca/honoring-water/>).

¹⁴⁷ Angie Turner, "Honouring Water," Assembly of First Nations, accessed February 20, 2021, <http://www.afn.ca/honoring-water/>).

the world by empowering Indigenous peoples to be Canada's spokespersons on the international stage. Canada should trust its First Nations, Metis, and Inuit to explain abroad how water must be respected and used responsibly to avoid scarcities and the inevitable conflict that comes its wake especially where transboundary issues exist.

Canada should begin to leverage the insight and knowledge of Indigenous peoples in a leadership role in the new Canada Water Agency to bolster that leadership into an international voice. Giving Canadian Indigenous peoples leadership roles at home and abroad regarding water is incongruent with past practices. It is possible to change that dynamic and would represent a redefining of the relationship between Government of Canada and Indigenous peoples that might benefit water scarce regions if their collective voice were to be heard. As the propensity for water to become securitized grows as supply decrease, and states compete with states for ever-more-scarce resources, Canada must act now to assume a leadership role regarding water.

DRINKING ADVISORIES IN CANADA: A LIMITING FACTOR FOR CANADIAN LEADERSHIP

The Council of Canadians refers to drinking water as a crisis in First Nations and promotes Indigenous autonomy over water as a step towards reconciliation.¹⁴⁸ It is easy to figure out why they elevate the drinking water situation to the level of a crisis given the vast scope of advisories across Canada. As of January 26, 2021, the Government of Canada cited that 57 long-term drinking water advisories are in effect in 39 communities.¹⁴⁹

The Council for Canadians, a non-governmental organization that undertakes collective action and grassroots organizing to challenge power and advocate for people, blasted the Government of Canada

¹⁴⁸ "Safe Water for First Nations," The Council of Canadians, accessed February 21, 2021, <https://canadians.org/fn-water>).

¹⁴⁹ Government of Canada; Indigenous and Northern Affairs Canada, "Ending Long-term Drinking Water Advisories," February 04, 2021, accessed February 21, 2021, <https://www.sac-isc.gc.ca/eng/1506514143353/1533317130660>).

for not committing much needed funds to end this crisis by 2021 as promised.¹⁵⁰ The Government of Canada acknowledged it will miss its 2021 goal. In self-defence, it also stated that 99 long-term drinking advisories have been lifted since 2015, when the Liberal party formed the government.¹⁵¹

Amongst all this information, it is difficult to discern the true snapshot of drinking water issues amongst Indigenous peoples in Canada but it is clear there is a problem. Many Indigenous communities lack reliable access to water that is safe for consumption, bathing, and well-being. UN Water defines this condition as a scarcity and defines reliable access to potable water as a central condition which must be fulfilled to achieve water security.¹⁵² Accordingly, Canada's Indigenous peoples do not enjoy water security.

Understanding the framework that supports the enduring nature of problems on First Nations is more complicated still. However, most analyses begin with colonialism, power imbalances, and the *Indian Act 1876*. First Nations communities have often been excluded from decision-making regarding drinking water and waste water management.¹⁵³

This chapter began by painting a portrait of the spiritual connection Indigenous peoples have with water so the question is obvious: why have First Nations been excluded from decision making? Unfortunately, the answer is also obvious and points to persistent racism. The colonial governance structure remains intact and despite funding, technological advances, and engineering savoir-faire, the *relational deficiencies* cannot be overcome.¹⁵⁴ Said another way, the water problem is a consequence of

¹⁵⁰ "Safe Water for First Nations," The Council of Canadians, accessed February 21, 2021, <https://canadians.org/fn-water>).

¹⁵¹ Government of Canada; Indigenous and Northern Affairs Canada, "Ending Long-term Drinking Water Advisories," February 04, 2021, accessed February 21, 2021, <https://www.sac-isc.gc.ca/eng/1506514143353/1533317130660>).

¹⁵² UN-Water, "Scarcity: UN-Water," UN, accessed March 01, 2021, <https://www.unwater.org/water-facts/scarcity/>).

¹⁵³ Warrick Baijius and Robert J. Patrick, "'We Don't Drink the Water Here': The Reproduction of Undrinkable Water for First Nations in Canada," *Water* 11, no. 5 (2019): p.2, doi:10.3390/w11051079).

¹⁵⁴ Warrick Baijius and Robert J. Patrick, "'We Don't Drink the Water Here': The Reproduction of Undrinkable Water for First Nations in Canada," *Water* 11, no. 5 (2019): p.12, doi:10.3390/w11051079).

Canada's colonial past; to fix the water issues amongst Indigenous peoples, Canada's racist roots must be cleared.

The longstanding issue with drinking water and Indigenous communities must be overcome for Canada to leverage their voice internationally in a leadership role. A new, national water agency is under development; it could represent an opportunity to change the dynamic between the Crown and Indigenous peoples.

CANADA WATER AGENCY

The Government of Canada committed itself to creating a Canada Water Agency (CWA) in 2019. The stated aim of the CWA would be to “work with the provinces, territories, Indigenous communities, local authorities, scientists, and others to find the best ways to keep our water safe, clean, and well managed.”¹⁵⁵ The discussion paper, *Toward the Creation of a Canada Water Agency*, and the intended aim of the CWA make plain that the Government of Canada has broken down the groups it sees as its target audiences and key stakeholders. It is clear that Indigenous communities are distilled as a unique target set, separate from general Canadians. Ostensibly this is because the Government of Canada recognizes water security and water protection as a key part of reconciliation with Indigenous communities. It also seems clear that the Government of Canada recognizes the spiritual importance and longstanding connection between Indigenous communities and water by targeting them as a key audience. An entire section of *Toward the Creation of a Canada Water Agency* is dedicated to the special relationship between “the Crown and Indigenous peoples.” It notes over and over that Indigenous people should have input into how the CWA will manage water.

At first review it seems evident that the Government of Canada is embracing Indigenous input, diversity, and inclusion. But a closer look at the language belies a less cooperative approach:

¹⁵⁵ "Toward the Creation of a Canada Water Agency," p.3, accessed February 21, 2021, https://www.placespeak.com/uploads/6321/Canada_Water_Agency_Discussion_Paper.pdf.

The commitment to create a new CWA provides an opportunity for constructive dialogue between the federal government and Indigenous peoples on freshwater issues. Recognizing the significance of fresh water to Indigenous peoples and the Government of Canada's commitment to reconciliation, the Government is engaging First Nations, Metis, and Inuit directly on the development of the CWA.¹⁵⁶

Nowhere in the excerpt above does the Government of Canada explicitly state that some level of control of the CWA will be afforded to or shared with Indigenous peoples. Nowhere does it guarantee that their input will be accepted and actioned and it does not declare that they will be consigned leadership positions within the governance structure of the CWA. Tellingly, the next section of the discussion paper states that possible opportunities for the CWA include receiving *guidance* from Indigenous peoples after dialogue.

The discussion paper fails to acknowledge and/or take advantage of the fact that Indigenous peoples are not necessarily bound to the borders found on maps or tied to problems of jurisdiction in the same way that municipal and provincial water agencies are. The *Dish with One Spoon* treaty (c. 1701), which extends *vastly* from Montreal to Fort Erie, Ontario, originally bound First Nations, Anishinaabe, Mississaugas, and Haudenosaunee, to share resources and protect the land. The treaty has three rules: take only as needed; leave something behind for everyone else; and keep it clean.¹⁵⁷ The treaty is older than the *Constitution Act, 1867*, which created the Dominion of Canada. Traditionally, the treaty has been the basis for a welcoming of other Indigenous communities, Europeans, and newcomers to join in its spirit of peace, friendship, and respect where the environment is a teacher.¹⁵⁸

¹⁵⁶ "Toward the Creation of a Canada Water Agency," p.20, accessed February 21, 2021, https://www.placespeak.com/uploads/6321/Canada_Water_Agency_Discussion_Paper.pdf.

¹⁵⁷ "Dish With One Spoon," Nandogikendan, October 08, 2020, accessed February 28, 2021, <https://nandogikendan.com/dish-with-one-spoon/>.

¹⁵⁸ "Land Acknowledgement," This Is a Canadian Issue: Reflecting on TRC Calls to Action, June 03, 2016, accessed February 28, 2021, <https://trc.journalism.ryerson.ca/land-acknowledgement/>.

In marginalizing Indigenous peoples from the leadership structure of the CWA, the power to leverage Indigenous wisdom such as that found within the *Dish with One Spoon* treaty ignores their historic ability to negotiate and maneuver irrespective of lines drawn on maps. Jurisdictions tend to be strictly adhered to where water is concerned. Canada's Indigenous communities have a remarkable ability to see beyond this given their spiritual connection to water and their longstanding appreciation that water is "often degraded by activities" which occur far from their homes. In addition to their spirituality, their enduring "relationship" with water advisories proves there can be little doubt that they understand in the first degree the problems with borders and jurisdictions. On World Water Day in 2018, Autumn Pelletier, an Anishinaabe girl from Wikwemikong First Nation, addressed the UN General Assembly. She articulated the forgoing sentiment in her address and, "we need to share a story of how we need to respect Mother Earth and honour our sacred water. One day, I will be an ancestor and I want my great grandchildren to know I tried to fight hard so they can have clean drinking water."¹⁵⁹

The discussion paper regarding the CWA is available now but despite recognizing that Indigenous peoples have actively called for greater autonomy in freshwater management, the opportunities section does not indicate such an active approach to Indigenous autonomy. Instead, it highlights dialogue about the ways and means in which the CWA could work *with* Indigenous peoples, how the Government of Canada *could include* Indigenous input into the CWA decision-making process, and how *enhanced collaboration* between the Crown and Indigenous peoples could occur.

A lot of polite language is used and respect towards Indigenous people's beliefs is certainly afforded but it is clear that the Government of Canada has taken great lengths to use discourse that does not incorporate Indigenous people themselves into the structure of the CWA. The input of Indigenous people will be considered but they remain separate from the forthcoming bureaucratic agency. The

¹⁵⁹ CBC News, YouTube, March 22, 2018, "Autumn Pelletier, 13-year-old Water Advocate Addresses UN," accessed May 04, 2021, <https://www.youtube.com/watch?v=zg60sr38oic>).

golden thread that is Indigenous people's connection to water is unlikely to be woven into the structure of the CWA. The prospects for success when it comes to the CWA will be hampered by its adoption of a traditional colonial structure, a structure that does not centralize Indigenous peoples within its leadership structure.

UNITED NATIONS DECLARATION OF RIGHTS OF INDIGENOUS PEOPLES

The UN worked almost 20 years on the development of a declaration that would apply to the world's Indigenous peoples. Given the competing interests that needed to be reconciled this is little surprise. Indigenous peoples are not monolithic and neither are the nations from which they hail.

A vote for the UN Declaration of the Rights of Indigenous Peoples (UNDRIP) was held in 2007 with favourable castings from a large majority of nations (144), followed by 11 abstentions, and four votes against. New Zealand, Australia, and Canada failed to vote for the Declaration and they were joined by the US in terms of negative votes.¹⁶⁰ However, in the years following, all four nations reversed their decisions indicating tacit agreement and support that the Declaration "is the most comprehensive international instrument on the rights of Indigenous peoples."¹⁶¹

Accordingly, when Canada endorsed UNDRIP in 2010, the language it used in its news release was very positive, confirming its belief in the Declaration to promote Indigenous rights globally. However, this positivity was somewhat hampered by polite but foretelling language. Indian and Northern Affairs Canada published on their website that "after careful and thoughtful consideration, Canada has concluded that it is better to endorse UNDRIP while explaining its concerns, rather than

¹⁶⁰ "Canada Endorses Indigenous Rights Declaration," CBCnews, November 13, 2010, accessed February 24, 2021, <https://www.cbc.ca/news/canada/canada-endorses-indigenous-rights-declaration-1.964779>). This article was used as source rather than the original news release because after archiving and domain switching (gc.ca to Canada.ca) I could not find it.

¹⁶¹ "United Nations Declaration on the Rights of Indigenous Peoples For Indigenous Peoples," United Nations, accessed February 24, 2021, <https://www.un.org/development/desa/indigenouspeoples/declaration-on-the-rights-of-indigenous-peoples.html>).

simply rejecting the document.”¹⁶² While any number of inferences may be drawn from this statement, it is important to note that support for UNDRIP does not make the Declaration legally enforceable in Canada as this requires an Act of Parliament.

What has followed in the 10-plus years since Canada’s announced its endorsement of UNDRIP, through a Government of Canada news release, has been as ambiguous as Canada’s relationship with its Indigenous peoples, which is linked to the Truth and Reconciliation Commission.

The Truth and Reconciliation Commission, among other things, sought to heal relations between Indigenous and non-Indigenous Canadians. As one of its “calls for action” it called upon the federal government to “fully adopt and implement the United Nations Declaration on the Rights of Indigenous peoples as the framework for reconciliation” and to develop “strategies...to achieve the goals” of UNDRIP.¹⁶³

On December 3, 2020, the government of Canada introduced Bill C-15, which upon passing “would affirm UNDRIP’s application to Canadian law, to ensure that the laws of Canada are consistent with UNDRIP, and provide a framework for Canada’s implementation of UNDRIP.”¹⁶⁴ While the Bill has not yet law, it passed its second reading last month meaning that UNDRIP Canada is moving closer to becoming accepted as an Act of Parliament.¹⁶⁵

¹⁶² "Canada Endorses Indigenous Rights Declaration," CBCnews, November 13, 2010, accessed February 24, 2021, <https://www.cbc.ca/news/canada/canada-endorses-indigenous-rights-declaration-1.964779>). Note: This article was used as source rather than the original news release because after archiving and domain switching (gc.ca to Canada.ca) I could not find it.

¹⁶³ "Honouring the Truth, Reconciling for the Future," Honouring the Truth, Reconciling for the Future, Summary of the Final Report of the Truth and Reconciliation Commission of Canada, p.325, accessed February 26, 2021, <https://web-trc.ca/>).

¹⁶⁴ "Bill C-15: United Nations Declaration on the Rights of Indigenous Peoples Act: JFK Law: Canada," JFK Law, December 17, 2020, accessed February 26, 2021, <https://jfklaw.ca/bill-c-15-united-nations-declaration-on-the-rights-of-indigenous-peoples-act/>).

¹⁶⁵ LEGISinfo - House Government Bill C-15 (43-2), accessed May 04, 2021, <https://www.parl.ca/LegisInfo/BillDetails.aspx?Language=E&billId=11007812>).

At a time when the world is on the cusp of widespread water scarcities, when Canada should assume a leadership role amongst the international community of states regarding the importance safeguarding of non-renewable water resources, an opportunity to embrace UNDRIP and empower its Indigenous peoples to share their rich traditional knowledge also exists. This is an opportunity for Canada and the world.

CONCLUSION

The spiritual connection of Canada's Indigenous peoples is a golden thread, which has the power to bind and the power to teach non-Indigenous people that water has presence and importance. Indigenous communities have a unique heritage that could be voiced loudly to resolve border and jurisdictional issues. The *Dish with One Spoon* treaty endures after more than 300 years after all.

Through their spirituality and ability to possibly work around borders and jurisdictions, it is realistic to envision Canada's Indigenous peoples have much to offer Canada as it stands up the Canada Water Agency. They should be offered positions within the CWA that make them at least equal partners in the management of water, after all, more than the rest of Canada, they understand the consequences of water mismanagement from contending with the wide-spread water advisories for decades. They are accustomed to living with water insecurity.

UNDRIP poses an opportunity to reconcile past grievances between Canada and its Indigenous peoples but there is skepticism on both sides regarding the spirit within which the Government of Canada is implementing the Declaration into Canadian law.

However, the fact that Canada has introduced Bill C-15 is some proof of its commitment to heal the wounds of the past despite the misgivings. This uniquely positions Canada to leverage Indigenous insight and knowledge about water abroad. Canada should empower Indigenous peoples to be its spokespersons on the international stage during participation at international fora such the Arctic

Council, the United Nations Environment Program, UN Water, the G7, La Francophonie, and OPEC. Canada should trust its First Nations, Metis, and Inuit to explain abroad – on behalf of Canada – how water must be respected and used responsibly to avoid scarcities and the inevitable conflict that comes its wake especially where transboundary issues exist.

The obvious caveat to propelling Indigenous voices abroad is that Canada must resolve its domestic water security issues and dissolve it's the roots of colonialism that filtrate the present-day environment..

Canada is not a superpower like the US but it believes itself to be well-respected amongst the international community of states. The nation-states with whom Canada wishes to see itself as a moral authority have signed the United Nations Declaration of the Rights of Indigenous Peoples. Canada has the ability to keep the Declaration topical at various international fora and can buttress its ability to do by giving its Indigenous peoples the international platform to do so.

As the world faces increased water scarcities which have the potential to securitize water, Canada, a water-endowed nation, has a responsibility to leverage its influence abroad to assist those who do not enjoy water security.

CONCLUSION

Bhubaneswar, a town in southern India, is “gripped’ by an acute water scarcity, forcing residents to retrieve water from a local river during the COVID-19 pandemic.¹⁶⁶ The Government of Chile declared a new water shortage declaration last month. The southern region of the country is experiencing “a substantial decrease in their water availability” for the first time in this part of the country.¹⁶⁷ Taiwan is experiencing a drought and the government has said that water stress is a risk that may force water rationing. The country’s typhoon season did not materialize in 2020 and irregularity was followed by a persistent lack of rainfall.¹⁶⁸ The UN Development Project, working with the Pakistan Council of Research in Water, has said Pakistan could run out of water by 2025.¹⁶⁹

The introduction and Chapter 1 of this directed research paper began by painting a picture of a world that is on the precipice of experiencing global water scarcities and included statements from multiple world leaders, who predict that water wars are coming. The water scarcity examples above and those related to the case studies of this thesis support the possibility that water wars may materialize. These vignettes also demonstrate that the stakes are high for all humanity given the centrality of water to life.

Within this context, there is a global problem space, which requires international water leadership regarding water. This represents an opportunity for Canada, a water-rich country. Canada must assume a global leadership position regarding freshwater management in this space now and

¹⁶⁶ PragativadiNews 3, "Acute Water Scarcity Grips Bhubaneswar's Old Town," Pragativadi, May 06, 2021, [PAGE], accessed May 06, 2021, <https://pragativadi.com/acute-water-scarcity-grips-bhubaneswars-old-town/>).

¹⁶⁷ "BNamericas - Spotlight: Chile's Water Shortage Problems R...", BNamericas.com, accessed May 06, 2021, <https://www.bnamericas.com/en/features/spotlight-chiles-water-shortage-problems-reach-its-rainy-south/>).

¹⁶⁸ “Taiwan Drought Highlights Water Stress as Growing Environmental Risk,” Fitch Ratings For Financial Markets, accessed May 06, 2021, <https://www.fitchratings.com/research/corporate-finance/taiwan-drought-highlights-water-stress-as-growing-environmental-risk-04-05-2021>).

¹⁶⁹ Pakistan Will Run out of Water in 4 Years," Global Village Space, May 04, 2021, accessed May 06, 2021, <https://www.globalvillagespace.com/pakistan-will-run-out-of-water-in-4-years/>).

become a pedagogical resource in preventing water securitization at home and abroad while expressing the importance of hydro-solidarity amongst co-riparian states.

Canada has some internal domestic issues to clear before it can shore up its international leadership potential. Canada must fully embrace its feminist approach to foreign policy, maintaining its commitment to fulfil the objectives outlined in FIAP. Canada needs to establish the Canada Water Agency and develop a national-level policy regarding management of its domestic water resources. Indigenous leadership and input must be sought and accepted in the development of a national water policy and the CWA. Canada also *must* confront and resolve its issues related to drinking water advisories on Indigenous lands. The completion of all these things will establish Canada's credibility in its assumption of an international hydro-leadership role.

After establishing its credibility to assume an international hydro-leadership role, Canada should then empower its most effective people to promote its leadership abroad. Recognizing the unique relationship between women and water, Canada's delegations to the multiple international to which it has membership, should be women-led. Canada also has an Indigenous population whose rich, spiritual connection to water extends back to time immemorial. Though not monolithic, but rather, culturally varied with differing heritages, Canada's Indigenous people have long histories of managing transboundary water issues. Their collective respect for water is so deeply rooted that they could achieve success in teaching respect for it and how to peacefully manage it as a sacred resource. Canada's commitment to feminism and truth and reconciliation would be validated domestically and abroad through these actions. This would be positive Canadian leadership in action.

As a pillar of international leadership, Canada's next steps must include immediate action on its domestic front. Canadian hydro-leadership will be key to fostering cooperation regarding North American water imbalances. If Canada can effectively maintain hydro-solidarity with the world's

largest superpower, preventing the US from feeling a need to assume a position as the North American hydro-hegemon, then its hydro-leadership credentials would be solidly established.

Canada has everything it needs to fulfil an international hydro-leadership role. Water scarcities are here to stay and will likely become more prevalent and of longer duration if the expertise of organizations such as NATO and American Geosciences Institute may be relied upon. Hydro-solidarity can give way to violence and conflict as states compete with states for scarce water resources. Hydro-hegemons will emerge if water-related pedagogy and leadership are not available to shape and guide guide tempestuous relations between co-riparians. Canada, as a hydro-leader, can help states navigate these conditions, manage their water resources and stop states from heading toward the much-prophesied water wars. The best chance Canada has for success in this role is to empower its women and Indigenous peoples to lead these efforts.

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