DESIGNING THE CANADA WATER AGENCY: WHAT WE HEARD

HIGHLIGHTS FROM THE VIRTUAL ENGAGEMENT SERIES *HOW THE CANADA WATER AGENCY CAN DELIVER WATER SECURITY FOR CANADIANS*

INTRODUCTION

In April 2019, a the Water Security for Canadians partnership, issued a public call to action: *Solutions for Canada's Emerging Water Crisis.* The report called for modernization of Canada's water institutions, governance, policies and legislation to better address and prepare for the increasingly extreme floods, droughts, fires and water pollution that is hammering our infrastructure and economy, degrading ecosystems, and affecting the well-being of millions of Canadians each year.

In November 2019, the Prime Minister mandated the Minister of Environment and Climate Change to create a new Canada Water Agency with the support of the Minister of Agriculture and Agri-Food. The purpose of the new agency is to "work together 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".

The Global Water Futures program, in collaboration with Massey College, Forum for Leadership on Water, Centre for Indigenous Environmental Resources, POLIS Project on Ecological Governance at University of Victoria, United Nations University Institute for Water, Environment and Health, de Gaspé Beaubien Foundation, and AquaForum, has been convening national discussions since May 2020 to bring forward perspectives that can inform the federal government's development of the Canada Water Agency. Our engagement included six national webinars and a call for submissions for feedback on our draft white paper entitled *Modernizing Federal Freshwater Leadership in Canada.*

This report summarizes what we heard during these discussions. It is organized into four parts. First, we outline the webinars in our series, including topics, guests, and participants. Second, we summarize some select international and regional experiences as models for lessons learned. Third, we highlight key ideas that emerged from these webinars and from discussions related to our draft white paper. These ideas are organized using the Government of Canada's PlaceSpeak engagement questions. Finally, we provide recommendations on next steps to build a new Canada Water Agency that responds to and incorporates these ideas. All webinar recordings and supporting materials can be found on the GWF website.

WEBINAR SERIES: HOW THE CANADA WATER AGENCY CAN DELIVER WATER SECURITY FOR CANADIANS

The webinar series *How the Canada Water Agency can Deliver Water Security for Canadians* consisted of six national online events, featuring 49 water experts, leaders and knowledge holders. The events were attended by more than 2370 participants from at least 250 unique organizations. Many individuals attended multiple webinars, and sometimes multiple people watched from one computer. Participants spanned all provinces and territories and a diverse range of sectors – federal, provincial and municipal government agencies; elected and traditional Indigenous governments; national, regional and local non-profit community and Indigenous organizations; private industries and consulting; and individual professionals and members of the public. There were also international participants from the US and UK. The webinars were recorded and remain online for on-demand viewing. As of January 6 2021, there have been more than 1150 views of all webinar recordings.

National Water Policy Panel (May 13th) kicked off the engagement and coincided with GWF's originally intended Annual Open Science Meeting (cancelled due to COVID-19). The event was chaired by Dr. Thomas Axworthy of Massey College, and featured Terry Duguid, Member of Parliament and Parliamentary Secretary to the Minister of Environment and Climate Change, and six experts in water science and governance. The discussion explored Canadian water issues and how a Canada Water Agency can contribute solutions, including leadership to mobilize the knowledge needed to monitor, predict and solve water problems; strengthen transboundary water management; strengthen reconciliation with Indigenous peoples; and improve collaborative river basin planning between all governments.

Expert Guests:

- Terry Duguid, MP, Parliamentary Secretary to the Minister of Environment and Climate Change
- Thomas Axworthy, Chair of Public Policy, Massey College, University of Toronto
- John Pomeroy, Director, Global Water Futures Program, University of Saskatchewan
- Merrell-Ann Phare, Executive Director, Centre for Indigenous Environmental Resources
- Shawn Marshall, Departmental Science Advisor, Environment and Climate Change Canada
- Dimple Roy, Director Water Management, International Institute for Sustainable Development
- Jon O'Riordan, Former Deputy Minister, BC Ministry of Sustainable Resource Management
- Sandra Cooke, Director, Canadian Municipal Water Consortium, Canadian Water Network

Participation

- 870 registrations
- 654 attendees

Agricultural Considerations for the Canada Water Agency (June 25th) was a 2-part virtual workshop that brought together GWF scientists and agriculture and water management professionals to discuss how the creation of a Canada Water Agency could help support sustainable management of agricultural waters and management of water for agriculture in Canada. The event featured The Honourable Ralph Goodale, updates on GWF's latest science advances in agricultural water and a panel of experts on program, policy, and governance needs to support agriculture in an effective Canada Water Agency. Breakout sessions provided participants with an opportunity to offer perspectives, synergies and implementation ideas.

Expert Guests:

- The Honourable Ralph Goodale, P.C.
- Dr. John Pomeroy, Director, Global Water Futures Program, University of Saskatchewan
- Dr. Merrin Macrae, PI, GWF Agricultural Water Futures Project, University of Waterloo
- Dr. Helen Baulch, PI GWF FORMBloom Project, University of Saskatchewan
- Dr. Chris Spence, PI GWF Prairie Water Project, University of Saskatchewan
- Dr. Nandita Basu, PI GWF Lake Futures Project, University of Waterloo
- Dr. Ron Stewart, PI GWF Extremes Project, University of Manitoba
- Dr. Warren Helgason, Investigator, GWF Agricultural Water Futures Project, University of Saskatchewan
- Dr. Karl Lindenschmidt, PI GWF Integrated Modelling Project for Canada, University of Saskatchewan
- Dr. Dawn Martin Hill, PI GWF Oheganos and Co-creation of Water Quality Tools Project, McMaster University
- Ms. Colleen Sklar, Winnipeg Metropolitan Region
- Dr. Tom Bruulsema, International Plant Nutrition Institute
- Dr. Pascal Badiou, Ducks Unlimited Canada
- Mr. Alex Ostrop, Alberta Irrigation Districts Association
- Ms. Gabrielle Ferguson, Rural Ontario Institute

Participation

- 466 registrations
- approximately 330 attendees, 150 participating in breakout discussions

Designing the Canada Water Agency for Successful Co-Development and Collaboration with Indigenous Peoples (September 10th) was a 2-hour webinar that featured highlights of GWF Indigenous-led water quality research and tools; a one-on-one interview with Michael Miltenberger, former Minister of Environment and Natural Resources for the Northwest Territories; and a moderated panel of experienced Indigenous water leaders and knowledge holders. Discussions focused on how to design the Canada Water Agency for more inclusive water science, information, governance, and management decisions that respect Indigenous peoples' goals, self-determination, and inherent and treaty water rights and responsibilities.

Expert Guests

- Mr. Gary Carrier, Cumberland House Fishermen's Cooperative, PI GWF We Need More than Just Water Project
- Prof. Aimée Craft, Associate Professor, Faculty of Common Law, University of Ottawa
- Dr. Dawn Martin Hill, Associate Professor, Department of Anthropology and Indigenous Studies Program, McMaster University
- Dr. Deborah McGregor. Associate Professor and Canada Research Chair in Indigenous Environmental Justice, York University, GWF Strategic Management Committee member,
- Mr. Michael Miltenberger, Former MLA and Minister of Environment and Natural Resources, Northwest Territories

Participation

- 472 registrations
- 342 attendees

This Is How Canada Can Use Innovation and Data to Protect Its Fresh Water (September 17th) featured a group of distinguished panelists who explored how data systems and technology could improve our management of freshwater systems and foster innovation in the water tech sector—all while strengthening community engagement. Discussions included examples of water data excellence, opportunities and needs in Canada and how a new Canadian Water Agency could support ongoing work while furthering innovation and success.

Expert Guests

- Carolyn DuBois, Director, Water Program, The Gordon Foundation
- Scott Higgins, Research Scientist, International Institute for Sustainable Development – Experimental Lakes Area
- Melissa Dick, AquaHacking Development Officer, AquaForum
- Jamie Smith, Director of Monitoring Strategies and Data Services, Environment and Climate Change Canada

- Thomas Axworthy, Chair of Public Policy, Massey College, University of Toronto

Participation

- 555 registrations
- 304 attendees

The Canada Water Agency and the Province of Québec (Part 1) and the Agency's Role in Raising Awareness of Water Issues Among Canadians (Part 2) (October 13th) was a two-part webinar series that featured panels of Quebéc-based water experts and organizations who discussed the proposed role and functions for the new Agency, highlighted the various awareness campaigns on water issues carried out in Québec, explored recommendations for water governance and lessons learned, and key elements in the success of public awareness campaigns.

Expert Guests

- Francis Scarpaleggia, Member of Parliament for Lac-Saint-Louis and member of the Parliamentary Standing Committee on Environment
- Jean Cinq-Mars, Co-Chair of the Great Lakes-St. Lawrence Collaborative (Québec Commissioner for Sustainable Development, 2009-2016)
- Dominique Monchamp, Senior advisor of the De Gaspé Beaubien Foundation and Aqua Forum
- Pierre-Yves Caux, Ph. D. Director of Science and Engineering for the Canadian Section, International Joint Commission (IJC).
- Christiane Pelchat, President and Chief Executive Officer of Réseau Environnement.
- Sonja Behmel, CEO and Cofounder of Watershed Monitoring; President and Cofounder of WaterShed Monitoring Europe; Scientific Coordinator at Agiro; Adjunct Professor at Laval University
- Jean-Éric Turcotte, Executive Director of Stratégies Saint-Laurent et executive director of Fonds d'action Saint-Laurent.
- Denise Cloutier, Executive Director of the Centre d'interprétation de l'eau (C.I.EAU).
- Mathieu Laneuville, Deputy Director General at Réseau Environnement
- Nathalie Piedboeuf, Executive Director of the Education and Water Monitoring Action Group (EWAG)
- Celine Schaldembrand, Communications Coordinator of the Regroupement des organismes de bassins versants du Québec (ROBVQ)
- Benoit Mercille, Executive Director of the Monique-Fitz-Back Foundation
- Frédéric Poitras, committed citizen
- François de Gaspé Beaubien, President and Chief Executive Officer of Zoom Media and Marketing

Participation

- 316 Part 1 registrations
- 250 Part 1 attendees
- 340 Part 2 registrations
- 200 Part 2 attendees

Designing the Canada Water Agency: What We Have Heard (December 10th) presented highlights of the national virtual engagement series *How the Canada Water Agency Can Deliver Water Security for Canadians.* The event featured Parliamentary Secretary Terry Duguid, M.P., with an update on the Government of Canada's steps to develop the agency, and a moderated panel discussion on what we still need in order to realize a modern and leading Agency necessary to ensure water security for all.

Expert Guests

- Terry Duguid, MP, Parliamentary Secretary to the Minister of Environment and Climate Change
- Thomas Axworthy, Chair of Public Policy, Massey College, University of Toronto
- John Pomeroy, Director, Global Water Futures Program, University of Saskatchewan
- Chief Mark Hill, Six Nations of the Grand River
- Colleen Sklar, Executive Director, Winnipeg Metropolitan Region
- Bob Sandford, Global Water Futures Chair in Water and Climate Security at the United Nations University Institute for Water, Environment and Health
- Nan Bowles de Gaspé Beaubien, Co-chair of the de Gaspé Beaubien Family Foundation
- Oliver Brandes, Co-Director of the POLIS Project on Ecological Governance, University of Victoria's Centre for Global Studies

Participation

- 450 registrations
- 321 attendees

WHAT WE HEARD HIGHLIGHTS

It was clear from the number and diversity of participants and the level of engagement through questions and direct feedback that there is very high interest in addressing intensifying water challenges in Canada and exploring how a Canada Water Agency can play a significant role in ensuring water security. There is support for a new Agency and optimism that it can be a progressive organizational response that focuses on water policy, promotes good science, enhances water data collection, embodies adaptative and cooperative federalism, and helps take major steps toward reconciliation with Indigenous peoples. There is a sense of excitement that the Agency will provide a leadership model for setting cooperative management frameworks to help tackle water and climate issues here at home and around the world.

After hearing Parliamentary Secretary to the Minister of Environment and Climate Change, Terry Duguid, MP, speak publicly for the first time about the development of the Canada Water Agency during the National Policy Panel, there were many questions and comments about "what" the future agency will do and "how" it will operate. The engagement series was not intended to answer these questions but to generate the discussions that lead to recommendations on how the Government of Canada may address them. This report is a summary of what we have heard, organized by the Government of Canada's PlaceSpeak engagement questions, and includes highlights by experts and participants during the four national webinars, and submissions to our call for feedback on our draft white paper *Modernizing Federal Freshwater Leadership in Canada.*

1. *What are the most pressing freshwater challenges nationally, and the different regions of Canada?*

The major current and emerging water issues brought forward during the webinars painted a crisis in the making. The issues of climate change, flooding, water quality and the resulting threat to our water security are interconnected and novel, and experts advised that our future management approaches and institutions need to be modernized to deal with them. At the highest order, our most pressing water challenges include:[1]

- Climate change is more heavily impacting Canada than other regions of the world;

> "We can view climate change as going through some pretty terrifying rapids, and we are in the rapids now, and it is going to take expert canoeing to get through this."
> John Pomeroy, during the National Water Policy Panel, May 13th.

[1] See a more comprehensive picture of current and emerging water and climate issues in Canada at: *Water Security for Canadians: the Emerging Water and Climate Crisis*

Canada is warming twice as fast as the rest of the world, and three times as fast in the North.

- This accelerated warming is causing permafrost thaw, glacier retreat, changing precipitation patterns, altering the timing of streamflow, ice jams and drought cycles, and wildfires – all lending to increasingly intense extreme weather events.
- Water quality concerns such as toxic algae blooms are exacerbated by these climate-induced impacts but also stem from land management practices including pesticide use, land conversion, and nutrient runoff.
- Indigenous communities face historical and current inequities as a result of colonial land management decisions that have situated them as downstream receivers of cumulative impacts, including degraded water quality and flooding.
- Changing water availability and degraded water quality threaten water security for social and economic uses including agriculture; fisheries; transport; drinking; and recreation, and biodiversity and ecosystem integrity.
- Aging and climate-vulnerable infrastructure is threating water and sanitation service provision and represents major maintenance and modernization costs.
- Shared jurisdictions complicate governance and management of water resources.

2. *What are the essential science, data, policy, and program gaps that need to be filled in relation to these freshwater challenges?*

Data was a significant topic of discussion during all webinar events. There is agreement that more science and data is always useful for identifying issues, accessing threats, producing trends over time, and making better decisions. There was also a significant discussion about the fact that we already have much water data that is dispersed, inaccessible, or not being fully utilized. There is historic data, data being collected within different government agencies, data collected with different standards and protocols, data locked in inaccessible databases, and data owned privately. There is tremendous potential in bringing these together, mining data, and coordinated sharing of data for more effective application of evidence in policy and program development and decision making. There are still many

> "We need national coordination on... standards, what is measured, how it is measured, how it is reported, open accessible data, and platforms to share the data and make publicly available. We need foresight and good data and even better models to anticipate what is coming."
> Shawn Marshall, during the National Policy Panel, May 13th.

gaps in baseline data, monitoring programs, and infrastructure. As priorities, we need:

- New technological developments and new uses of old technology such as apps, sensors, and artificial intelligence that give new information and mine data sets to inform practical guidance for water management that include unusual subject in other sectors such as tech and finance.
- Credible data collection that meets international standards but also brings together supplementary data platforms that assist in regional and local integrated assessments on basins that identify cumulative effects and climate change impacts.
- A state-of-the-art flood forecast system to predict flood and droughts and extreme water cycle challenges in partnership with provinces and territories that will position Canada as a leader among G8 countries.
- Pan-Canadian floodplain, groundwater aquifer, wetland, and soil mapping.
- Consistent, available lidar and aerial imagery across jurisdictions.
- A data warehouse that lays out how and where to get access to water-related data and information.
- Consistent standards, codes and guidance for creation of green/natural infrastructure across jurisdictions.
- Improved tracking of uptake, successes and failures, and return on investment of place-based adaptation and mitigation efforts for improved adaptive management processes.
- Reuse of old data which would need investment in consolidating, standardizing and digitizing.
- New information and communication products that help users understand the consequences of actions (and inactions) and that alert the public to emergency preparedness needs and health and safety threats (floods, toxic algal blooms, etc.).
- A braiding of Western and Indigenous science methods, data, information.
- Support for testing innovative approaches and mechanisms for water management rewards (e.g. water quality cap and trade, water markets, pay to retain ecosystem services, etc.).
- A boost to scientific programs by continuing to support the scientific research and an active user of the science provided by current and recent academic networks such as Global Water Futures, Lake Pulse, ResNet, Canadian Water Network, etc.
- A modernized water resources research subvention program to provide targeted academic researcher funding through NSERC that can support discovery,

development, legacy, knowledge transfer, training and capacity generation at universities.

- Modernized water legislation, particularly the *Canada Water Act,* to acknowledge the new climate reality, Indigenous rights and responsibilities, and to enable co-governance of our shared waters.

3. *What role would you see a Canada Water Agency playing in filling these gaps?*

We heard a generally optimistic view that, through the Canada Water Agency, the federal government has a tremendous opportunity to provide leadership on the management of the natural resource of upmost value to Canadians. Experts and participants see the new agency as being an enabling, convening, facilitating institution, one that is forward thinking, guided by science and led by a modern governance structure that is inclusive of Indigenous Nations and worldviews. The agency can provide a strong national vison for water–a vision that connects abundant and clean water as necessary for economic growth, community health, and public safety, and ensures future water security given current and emerging threats especially posed by climate change. Specifically, the federal agency can:

> "The Canada Water Agency should convene regularly water experts and decision makers from provinces, territories, municipalities, Indigenous governments, academia and NGOs to work together to combine expertise to improve water policies."
> Thomas Axworthy, during the Data and Innovation webinar, Sept 17th.

- Develop a pan-Canadian water strategy and action plan to ensure consistency in federal policies and steer the strategic planning of relevant departments.
- Provide a federal focus and structure for breaking down internal government water silos and ensuring the connection between different interrelated water mandates (i.e. ECCC has mandate for protecting aquatic health and Health Canada has a mandate for protecting drinking water, however the cumulative effects of each on the other and the connection between aquatic health and human health often falls through the cracks).
- Enhance regular national hydrometric, hydrometeorological, water quality, cryospheric and groundwater monitoring, assessments, trends, and forecasts to fill the gaps in our current knowledge base.
- Establish national, international and interjurisdictional data standards, protocols, and information that makes sense across boundaries; establish metrics that set

the goalposts for collaborative efforts; and provide guidance to other jurisdictions.

- Coordinate and enhance federal and provincial water modelling capacities into a coherent, integrated national streamflow, water quality and flood/drought forecasting system.
- Develop hydrological and water resources modelling for future climates that takes advantage of advances in geospatial intelligence and more robust climate modelling capabilities.
- Identify, map, and prioritize aquatic sites that are threatened, degraded, and endangered and implement/support rehabilitation programs.
- Provide national coordination on drinking water standards, which are currently voluntary, and on how water quality is measured, recorded, reported, and made publicly available.
- Support the currently accessible and successful community-based water quality data platforms by establishing credible data, metadata, and process protocols that enable these initiatives to scale up in capabilities, data types, and regional coverage while also expanding collaborators, contributors, training and capacity for data storage, sharing and application of data to water management decisions.
- Support the acquisition of knowledge with new programs that promote complementarity among existing water-related organizations and networks who have built capacity, developed partnerships, and that are familiar with place-based needs.
- Invest in the professional development of existing water management professionals for better decision making, quicker decisions in times of crisis, and enhanced skillsets in collaborative water management negotiations.
- Invest in the potential of youth as the next generation of highly qualified water management professionals, water scientists and engaged water-conscious citizens.
- Facilitate open data and open government by corralling the many sources of water data across federal/provincial/territorial/Indigenous agencies, NGOs, and private sector, and provisioning to the water research community, decision makers and citizens.
- Provide value added data analyses, mobilization and transfer to different audiences to ensure integration of evidence into decision making
- Create a hub of experienced organizations and publicly accessible and creatively communicated water information geared at increasing the public awareness of, and adoption of behaviours that quell water related issues.

- Promote participatory governance that sustains involvement of ministries while placing particular importance on involving the various stakeholders associated with the water sector, making it possible to account for regional realities while ensuring that government approaches and programs are oriented towards concrete needs.
- Convene regular (e.g. annual) gatherings of experts from different national and international agencies and organizations to meet, collaborate and bring their different expertise to bear on water-related public policy issues.
- Undertake co-drafting procedures with Indigenous Nations for modernizing legislation that includes enabling watershed agreements with provinces and Indigenous nations to achieve a collective water vision and negotiate water conflicts (similar to how Indigenous governments lead regional impact assessments in the *Environmental Assessment Act*). A collaborative bill can be presented to the House of Commons.

4. *Recognizing the important role of provinces and territories in water management in Canada, how should a Canada Water Agency work to enhance federal-provincial-territorial coordination and cooperation?*

There was a strong sentiment throughout the webinars that the federal government has a leadership role to play when it comes to managing waters in Canada given the nature of water to flow across multiple, large, and complex jurisdictions. This must be done while also respecting and leveraging the mandates that provinces and territories have in critical aspects of water management. Throughout the webinars we heard examples of successes and lessons to be learned from interjurisdictional collaborations across river basins, such as the Okanagan Basin Board and the Mackenzie River Basin Agreement. We heard loud and clear that municipalities are a not-to-be-forgotten level of government and are where water is often either managed or mismanaged through the planning, permitting, building and maintenance of infrastructure. And that Indigenous communities occupy critical space within river basins, often downstream and receiving water impacts, and their governments expect a nation-

> "There is a lot of talent and expertise but no coherent national game plan and quarterback. That is what is missing—a place and focus to draw all of these threads together in a coherent, efficient and intelligent manner… to make sure we have the capacity, based on sound science and engineering, to answer important questions and get things done."
> Hon. Ralph Goodale, during the Agriculture Considerations workshop, June 25th.

to-nation approach to water governance. The federal agency can enhance transboundary collaboration by:

- Providing the big-picture set of conditions, needs and threats (i.e. climate ++) that are often common across parties and which can push parties to think and act beyond their own interests.
- Providing the science base, monitoring capacity, and review and monitoring process needed for adaptive management to be truly successful.
- Develop and provide standards in data, reporting, and accountability across the country
- Better connecting water policy at the federal and provincial levels with the challenges and implementation capabilities at the municipal and local levels.
- Enabling long term regional planning which can save money which in turn can help promote flow of investment into new ways of doing business and new technologies.
- Bringing jurisdictions together under a facilitated framework with negotiation guidance to share best practices, amend adaptive management approaches, and enable more effectively reactions to new situations and crises.
- Adopting a watershed/river basin framework for water management under which collaboration among all implicated jurisdictions can come together.
- Allocating and directing funding to guide solutions; build on existing models of programs that have funded successful basin-specific initiatives (i.e., the St. Lawrence Action Plan).
- Promoting and supporting a systems approach to leadership whereby solutions and innovations can come from any direction and are rooted in local knowledge and experience of what does and can work.
- Rethinking the financial support delivery to municipalities which could take the form of an intake body that is nimble, scientific and technical with the inhouse capacity to evaluate local climate and water issues, support and integrate solutions, review projects and align with neighbours for leverage, design effective award systems and allocate funding for impact, provide technical assistance and follow and evaluate performance and communicate and share successes.

5. *What role should a Canada Water Agency have in working with Indigenous peoples on freshwater management issues?*

We heard throughout all webinar events that current water governance and management structures exclude Indigenous governments, communities and people from

decision making and do not adequately recognize inherent Indigenous water rights, and the development of the Canada Water Agency is no exception. Experts in collaborative governance indicated that the Agency design and development could be transformational for meeting the commitments Canada has made with Indigenous people (i.e. UNDRIP and the TRC) and that the Agency, as a new institution, must be built in a new way, for new results. Integrating Indigenous worldviews in the foundation of the Agency design and programming is expected and therefore must:

> The two row wampum belt dictates that "we will work together and coexist together down the river of life. We have our ways, religions and governance and European settlers have theirs, and we will work together but try not to steer each other's boats."
> Dawn Martin-Hill, during the Indigenous Collaboration webinar Sept 10th.

- Adopt a government-to-government relationship to enhance the credibility of engagement with Indigenous Nations.
- Bring Indigenous Nations and organizations to all of the official collaboration and negotiation tables, respecting the desire for "nothing about us, without us".
- Conduct in-depth engagement with Indigenous communities that is tailored to and respectful of the needs of each community, including engagement with passionate, invested, and experienced individuals, particularly Indigenous women.
- Acknowledge that Indigenous territory extends to the whole of Canada, not just on reserves and traditional grounds.
- Consider alternative structures to acknowledge different worldviews and processes. Considerations could be given to a parallel Indigenous Water Agency to shape the way the Agency evolves, or substructures that are equally authoritative but assess through different sets of perspectives and decision-making frameworks. Parallel or sub structures can operate side by side and enable relationships and a cohesion of values (i.e. women's councils and grandmother's circles).
- Build on the ground forged and lessons brought forward by previous collaborative governance approaches, including territorial governments and Indigenous communities in the north to co-design water management frameworks (i.e. the Water for Life Strategy, Mackenzie River Basin agreements with BC and AB, the Collaborative Leadership program among southern Manitoba Chiefs, Mayors, and Reeves, Great Lakes Restoration Initiative, Chesapeake Bay Program, and New Zealand's Wanganui River personhood designation as an example where Indigenous structures are acknowledged through colonial legislation).

- Respect Indigenous Nations' rights, responsibilities, abilities, and successes in managing their own land and waters and acknowledge Indigenous jurisdiction in water management frameworks.
- Leverage the immense capabilities and credibility in Indigenous-led knowledge generation (science, traditional, local or experiential knowledge), monitoring systems and sharing.
- Transcend thinking about operationalizing water management to the higher level and orders of governance that reflect Indigenous values and that have processes for decision making that are Indigenous.
- Be prepared to expand the notions of water management from something to be in control over and have access to, toward perspectives of water with inherent agency, authority and governance that humans interact with and which management responds to.
- Understand and respect new and evolving affirmations to inherent legal orders and legislated efforts to create water laws that will need to be incorporated in new forays into federal water policy developments.
- Increase support to Indigenous-led organizations that work to empower First Nations to engage in western and traditional data collection, sharing, and decision-making on water issues affecting their communities. Focus on youth and elders are particularly important for intergenerational knowledge exchange and community capacity building.

WHAT WE HAVE LEARNED FROM OTHER COUNTRIES AND FROM THE PRAIRIE FARM REHABILITATION ADMINISTRATION

To compliment the webinar engagement series, we commissioned reviews of international approaches and of the Prairie Farm Rehabilitation Administration that can be used as lessons and ideas for Canada as we embark on a necessary process of modernizing our water management institutions and legislative reform for the 21st century. Effective 21st century national water policy is defined as that which proactively addresses the kinds of new and intensifying water challenges that we know will demand new approaches to freshwater management for the rest of this century in Canada. These challenges include climate change, an increase in water-related climate disasters, biodiversity loss, fragmented water governance and unresolved and uncharacterized Indigenous water rights.

International Experiences

Australia created a National Water Commission (NWC) in 2004. Under the independent NWC fragmented and territorial political jurisdictions began to work together. Even as drought worsened, Australia was well on its way to creating an effective 21st century national policy. Then suddenly Australia decided to go backwards rather than forward. A rapidly warming climate, in tandem with a divisive, retrograde national water policy, compounded by the effects of the pandemic, have created circumstances in a which the recreation of a coherent 21st century national Australian water policy remains a great challenge.

Like Australia, the *United States* was well on its way in the 1990s to creating a coherent and effective national water policy. By the early 2000s, it was recognized, as it was in Australia, that the problems with respect to water in the U.S. were too complicated for any one jurisdiction to address and that greater federal leadership was required. A U.S. equivalent of a national water agency was proposed. At present, it is as much social and political divisiveness as it is climate change itself that is causing effective 21st century US national water policy to recede, perhaps permanently, beyond the reach of the United States. These cautionary tales show Canada what not to do.

The *European Union*'s Water Framework Directive, under which each country is required to produce the same knowledge on its water resources, has perhaps become the best example to which the world can turn in terms of the development of effective 21st century national and transnational water policy. The European Water Framework Directive came into existence as a consequence of common desire of the 18 countries that share it to clean up the entire transboundary course of the Danube River so as restore the health of the Black Sea. If the Saskatchewan River is our Danube, then Lake Winnipeg is our Black Sea. To respond to these kinds of problems, Canada must do everything possible to avoid both the social and political divisiveness and runaway climate impacts that arose in Australia and the United States, that will make coherent national water policy difficult if not ultimately impossible to achieve.

A Successful Regional Experience

The September 2020 Speech from the Throne pointed to the Prairie Farm Rehabilitation Administration (PFRA, 1935 to 2012) as an important historic institution to manage shared waters. Indeed, it was, and still is, considered one of the best federally mandated water institutions, and has many lessons for consideration in the development of the Canada Water Agency, in both terms of reinstating lost functions and enhancing functions for the 21st century:

- The agency was an evidence-based policy response to a socio-environmental disaster. Governments, academia, farmers, and the public understood the environmental problem

facing the Prairie region was indisputable, with severe environmental and soil degradation, social upheaval and farm abandonment and impairment of regional and national economies, exacerbated by a global economic depression. PFRA was created to rehabilitate the region and develop soil and water conservation practices that would attain greater economic security.

- The agency and its staff understood that stakeholder knowledge was critical and stakeholder engagement was essential in addressing the social and agricultural challenges the region faced
- PFRA embraced the role of providing Federal leadership but at the same time remained a voice for the region. Political will and support were necessary for long-term policies on soil and water management. Environmental challenges require a long-term commitment and vision.
- PFRA was a pragmatic agency with technical and scientific skill; it embraced projects, took risks, and was known to be proactive in testing out and delivering projects, in pursuit of discovering local or regional solutions. PFRA brought a technical, practical knowledgeable voice to the regional table; it was tasked to bridge science with practice. Its full capacities and strengths took years to fully develop.
- Working as an effective boundary organization to bridge science and adaptation, PFRA built trust with its stakeholders, influenced water management in the region, grew its influence, and utilized its regional authority granted by the Federal government to help those it served.

KEY CONSIDERATIONS AND RECOMMENDATIONS

Reflecting on what we heard through this engagement series and the expertise within the partner organizations of the Water Security for Canadians initiative, we submit that:

1. There is a palpable sense of urgency regarding the need to meaningfully change the way water is managed to address pressing water and climate challenges across the country.

2. There is widespread interest and support for a new Canada Water Agency across the water science and policy communities and water professionals, academics and students are eager to contribute and learn more about the Agency's next steps.

3. There is significant talent, expertise, data, information, models, understanding and success dispersed throughout Canada's federal government, provincial/territorial governments, Indigenous communities, universities and civil society's water community that can be leveraged to achieve a robust, impactful engaged Canada Water Agency.

4. Canada hosts the largest university-led freshwater research program in the world and has developed a massive scientific, modelling, technological and data management capacity through water research networks and other organizations that can be leveraged and deployed to help get the Canada Water Agency off the ground and to continue to help it function.

5. There are very high expectations, amongst Indigenous and non-Indigenous people alike, regarding the level of partnership and engagement with Indigenous peoples that should take place during the development of the Agency. It is clear that status quo Crown-Indigenous government engagement will not be sufficient.

6. There is uncertainty regarding the potential impact of the Agency on provincial and territorial jurisdiction. But there is also general interest amongst provincial and territorial governments to further discuss how the Agency can support and enhance their mandates to manage water whilst respecting their jurisdictions and authorities.

7. The role of municipalities and local governments needs more consideration and these governments need to be engaged in the process of developing the Agency's mandate to ensure alignment between federal policy and programming and the reality of place-based water management, particularly infrastructure.

8. There is a balance that needs to be struck between moving quickly – both to take advantage of the current momentum and respond swiftly to the emerging water and climate crisis – and taking the time to create the Agency properly in partnership with Indigenous Nations, provincial/territorial governments, and others.

9. There is concern development of the Agency could get hamstrung by a slow policymaking cycle and/or a potential near future election.

10. It is clear that, whilst an Agency is widely seen as crucially important, is it not the end game. Much more needs to be done to create a more holistic and integrated approach to the way water is governed across the country, particularly a pan-Canadian water strategy and action plan and legislative reform of the *Canada Water Act.*

We believe that the diverse range of perspectives expressed during the webinar series largely supports the clear recommendations we put forward in our August 2020 policy brief. Building on those, the following recommendations ensure that the opportunity to establish Canada Water Agency is capitalized on whilst still providing the time and space to develop the mandate of the Agency carefully and collaboratively:

1. Establish the Agency in the short-term and scale up its mandate and function over time.

   There is a relatively short and uncertain window to establish the Canada Water Agency. There is currently a high level of interest in and support for the Agency across the national water community that should be capitalized on. Yet, there are also complex challenges around development of the Agency, particularly around Indigenous and provincial/territorial jurisdictions.

   To strike the appropriate balance, the government could establish the foundation of the Agency in the short-term around existing strengths, such as the National Hydrological Service and the Water Science and Technology Branch, and then task this Agency with developing its more in-depth mandate and functions over time to incorporate the full range of desired capacities. This should happen expeditiously as more than one year has now passed since the Minister of Environment and Climate Change received his mandate letter and would show quick action towards the Agency's prioritization in the September 2020 Speech from the Throne.

2. Initiate Co-Development with Indigenous Nations.

   UNDRIP states that Indigenous nations and their governments must have the opportunity to self-organize to participate as collaborators in institutions that impact them (Article 18). This would mean determining their meaningful representation in the development process and in the Agency's governing structure. It will be critical to initiate the appropriate discussions and partnerships with Indigenous Nations to begin a co-development process rooted in reconciliation and nation-to-nation relationships.

   The success of the Agency will depend on reaching agreement on objectives and goals, and how these support Indigenous Peoples' goals and rights to self-determination, and implementation of inherent, Aboriginal and treaty water rights and roles in governance and management. This means more than just consultation or engagement. A co-development process will build the foundations for collaborative decision-making and for undertaking co-drafting of legislative reforms, particularly a co-drafted bill that modernizes the *Canada Water Act.*

3. Commit Resources in Budget 2021.

   Robust resources to support the Agency's development and its first year of operation should be allocated in Budget 2021. In addition to supporting co-development with Indigenous Nations, resources should be allocated to support in-depth collaboration with provincial and territorial governments, local authorities, water organizations, academic institutions, and the public.

4. Begin a More Fulsome Build-out of the Agency's Desired Capacities.

   Once the Agency is established, with an initial operating budget and the processes in place to co-develop with Indigenous Nations, it can begin the process of more fully developing its mandate and functions, including pulling together freshwater capacity from across the federal bureaucracy and establishing intergovernmental mechanisms for working with provincial, territorial, and Indigenous governments. The full range of desirable capacities should at least include:

   - Much strengthened water policy, legislative affairs and national (including interdepartmental) coordination capabilities;
   - A water investigations capacity to identify and head off future issues of national significance;
   - Strengthened capacity vis-a-vis Canada-U.S. waters;
   - Enhanced support to river basin and other shared governance bodies;
   - Capacity to support nation-to-nation relationships with Indigenous peoples;
   - Water, hydrological and river basin research;
   - Surface water, cryosphere and groundwater monitoring;
   - Geospatial intelligence and decision support services;
   - National flood, drought, and hydrological forecasting system
   - Hydrological, water quality and water-based climate impact prediction;
   - Flood damage reduction, including floodplain mapping and liaison with the private insurance industry;
   - Climate change adaptation, with a particular emphasis on soil and water conservation in the agricultural sector; and
   - Contributions to global Sustainable Development Goals, particularly related to water security.

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