Water Security for Canadians

Response to ECCC's Canada Water Agency Discussion Paper

Collective Response | March 1, 2021

Introduction

The Water Security for Canadians Initiative (WSC)[1] welcomes Environment and Climate Change Canada's recent discussion paper and continued efforts to advance the Canada Water Agency. However, we note a lack of urgency in the approach that is at odds with the urgency of the critical water issues facing communities across Canada. While we agree that the priorities outlined in the paper are appropriate focal points for a new Canada Water Agency, we reject the notion that it is not possible to begin working on all of these priorities in an effective and integrated way with the Agency at the helm.

It is our perspective that all ten objectives outlined in the paper can be pursued simultaneously by building mainly (but not exclusively) from existing water strengths in ECCC and across the federal government. There is a need to bring together and rationalize those existing strengths with strong leadership and a common sense of holistic policy and programing purpose. Development of the Agency is a critical opportunity to re-envision our approach to leveraging our federal water expertise; it is not the time to protect existing management structures and portfolios. It is imperative that monitoring, research, and management of water resources are linked, otherwise the Agency runs the risk of being worse than the status quo as water will be further spread out across government.

Furthermore, establishment of the Canada Water Agency should not be viewed as the end game. The Agency is an important milestone, but it is ultimately a stepping stone to other water law, policy, and governance changes that are needed to enhance federal freshwater leadership. Viewed through this long-term lens, we believe it is clear that the Agency can and should be established in a way that addresses each of the objectives outlined in the discussion paper, as

[1] The Water Security for Canadians Initiative is a partnership of Global Water Futures, Forum for Leadership on Water (FLOW), Centre for Indigenous Environmental Resources, University of Victoria's POLIS Project on Ecological Governance, and United Nations University Institute for Water, Environment and Health.

well as situate itself to play a leading role in broader reforms that will create a more water secure future. There is a clear need for an integrated federal water institution that will enhance collaboration and coordination while respecting the jurisdiction of Indigenous, provincial/territorial, and local governments.

This response builds on more than two years of work from the Water Security for Canadians Initiative to help build a vision for stronger federal freshwater leadership. Recently, this work includes our draft white paper, *Modernizing Federal Freshwater Leadership* (May 2020), which describes our vision for the Canada Water Agency in more detail. Through the leadership of Global Water Futures, we also hosted six national webinars to explore different aspects of the Agency (our 'What We Heard' report is available in both English and French).

This response is divided into three parts:

Part I summarizes recommended priorities in relation to each of the ten freshwater objectives outlined in the discussion paper.

Part II summarizes additional objectives that are missing from the discussion paper.

Part III provides recommendations regarding governance priorities of the new Canada Water Agency.

Part I: Priorities Related to the Objectives

This section outlines WSC's perspective on potential priorities related to each of the ten freshwater objectives in the discussion paper.

1. Freshwater Policy, Coordination and Multilateral Agreement

Currently, the federal government is lacking a clear vision and direction regarding freshwater management on a national scale. This issue was best articulated by a Blue Ribbon Panel of national and international experts convened by the National Hydrological Service late in 2017. The Panel suggested that internal fragmentation is a "major impediment to addressing Canada's national water issues". According to the Panel, fragmentation reduces the effectiveness of federal water programs, negatively impacts relations with other orders of government, and reduces the ability of the federal government to provide national leadership.

The federal government should establish a formal interdepartmental structure which is mandated to coordinate federal perspectives on freshwater priorities. The federal government should provide national leadership by increasing coordination efforts between different federal departments, as well as facilitating collaboration with other levels of government key freshwater issues.

2. Freshwater Prediction to Inform Climate Change Adaptation and Disaster Risk Reduction

There is growing public concern about how well water quality and ecosystem integrity are being protected, and how communities are in turn being protected from floods, droughts, infrastructure damage, and energy failure. There is increasing appreciation that a warming climate is having direct effects on these outcomes by: altering the amount, timing, and reoccurrence frequency of precipitation; rapidly melting glaciers and icefields; thawing permafrost in the north; and shifting seasonal patterns of snowpack and snowmelt runoff.

Flood and drought damage are increasing exponentially, and so are the costs of recovery. Federal disaster assistance payments, primarily in the form of flood relief to the provinces, increased from $54 million per year between 1970 and 1994 to $410 million per year between 2005 and 2014 – an increase of 660% in 2010 dollars. The cost of flooding, droughts, and water quality degradation occurrences continues to grow whilst Canada remains the only G7 country without a national flood forecasting system.

Provincial and federal governments are both investing in hydrometeorological and streamflow forecasting to increase capacity for accurate predictions and reduce risk to public infrastructure and health. It makes sense to realise economies of scale by pooling resources to create a Canada-wide water forecasting system and to develop a community of practice around this. The national flood forecasting system must be backed by information and data that is critical for decision-makers in reducing and quantifying uncertainty, including integrated atmospheric models or forcing data, hydrological and water quality models, river models, small lake/large lake/reservoir models, and water economic and management models.

It is our perspective that the federal government, with the creation of the Canada Water Agency, could coordinate currently scattered policies and intergovernmental arrangements covering flood risk mapping, planning, and forecasting that would contribute reducing future flood damage and related human suffering. In addition, improved risk assessment approaches, more fulsome use of financial incentives and disincentives, and a strong and well-defined relationship between the public sector and the private insurance industry, including relevant standards, need to be developed.

3. Indigenous Peoples and Freshwater Management

Water governance and management decisions must respect Indigenous people's goals and rights to self-determination, as well as Indigenous inherent, Aboriginal, and treaty water rights and roles. In recent years, the federal government has adopted and committed to: codifying the United Nations Declaration on the Rights of Indigenous Peoples; implementing a distinctions-based nation-to-nation approach; and, through the Truth and Reconciliation Commission Calls to Action 45-49, eliminating the influence of legal doctrines that have been used to justify European sovereignty over Indigenous peoples and lands (and waters). However, the federal government still struggles to fully operationalize and institutionalize these commitments. Many Indigenous communities continue to face unique and urgent water related challenges. Indigenous Nations are not typically included as equal partners in water governance, leading to escalating water-related conflicts between Crown and Indigenous governments (often involving project proponents, environmental organizations, and other interests). These conflicts have significant impacts on the wellbeing of Indigenous communities, and also create impasses impacting economic development and the health of freshwater ecosystems.

The discussion paper mentions that the federal government is engaging directly with First Nations, Metis, and Inuit peoples on considerations and recommendations for the Canada Water Agency. It is our perspective that Indigenous Nations must be given the opportunity to collaboratively shape the mandate of the Agency, including full co-development if desired.

To fully realize a nation-to-nation approach to water governance, the federal government must also work with Indigenous Nations to ensure federal water law and policy is consistent with the United Nations Declaration on the Rights of Indigenous Peoples. This can be accomplished by providing resources and reforming internal processes to enable co-drafting with interested Indigenous Nations.

4. Agriculture and Freshwater

The agriculture industry faces unique freshwater challenges in the context of climate change. These challenges include increasingly frequent and severe floods and droughts, which threaten the production capacity and predictability of the entire industry. These effects are widespread: for instance, the national drought of 2001-2002 reduced economic activity by $6 billion, employment by 41,000 jobs, and crop production value by $13 billion. Subsequent regional droughts have occurred across Canada every year except 2005 and 2013, creating large costs associated with shipping, agricultural output, forest loss, and wildfire damage. The cost of flooding, droughts, and water

quality degradation, including toxic algal blooms from nutrient loading, occurrences continue to grow.

It is our perspective that federal government must contribute to climate change adaptation in the agricultural sector by increasing opportunities for collaboration to advance regionally adapted freshwater strategies to address shared water priorities. The federal government should include more funding opportunities for research and development of innovative water efficient and best field management technologies specific to the agriculture sector. This two-pronged approach can ensure water security in the context of both food production and water quality protection.

5. Economic Sectors and Freshwater

Water is a critical input in many of Canada's most productive and important industries, but water use in the economic sector can also have significant impacts on water quality and the health of aquatic ecosystems. Monitoring changes in water quality and quantity is crucial, particularly given the changing demand for water resources due to economic factors, resource development, and ongoing changes in precipitation, temperature patterns, and extreme weather events due to climate change. Prioritizing water security in the form of clean, abundant water resources can only have positive benefits for the economic sectors that rely on it.

The Canada Water Agency has an important role to play supporting economic sectors in the development and implementation of sector-specific and innovative freshwater sustainability strategies. The Agency should provide additional funding for research and development of innovative technologies, and their implementation, in all of the economic sectors to promote sustainable freshwater management.

6. Freshwater Science

Freshwater science is key to evidence-based decision-making. Many federal departments contribute to freshwater science, including ECCC, DFO, NRCan, AAFC, Health Canada and NRC.

The creation of the Canada Water Agency must create and mobilize the knowledge needed to predict and respond to water problems and opportunities. This can be achieved by: providing centralized and harmonized collection and dissemination of water information; improving future water forecasting to help better predict floods and droughts, water quality issues, harmful algae blooms, and future water supply and use; and providing decision-support services.

7. Freshwater Data

There are currently many initiatives in place to collect and share data on freshwater quantity, quality, use, and demand. While some collaboration and data sharing measures are in place between federal, provincial/territorial, local, and Indigenous governments in the collection and dissemination of water quality and quantity, these systems could be greatly improved upon by a new Canada Water Agency.

The Canada Water Agency should upgrade national water quantity and quality monitoring networks through durable partnerships with provinces, territories, and Indigenous governments. The Agency should provide leadership on developing data protocols, standards, and sharing to facilitate better interoperability and shared decision-making. This will support water planning and management outcomes including building resilience to extreme events, identifying priority areas for watershed restoration, and ensuring effective environmental flow regimes are in place across all levels of jurisdiction and authority.

8. Transboundary Freshwater Management

About 80% of Canadians live in river basins shared with our neighbours to the south who are also facing increasing threats to their water security. This reality stress-tests the limits of institutional and bilateral frameworks for water management and apportionment, as well as our institutional capacity and resolve, to deal with international water concerns including Lake Winnipeg eutrophication, water apportionment in the St. Mary – Milk shared basins, Columbia River Treaty re-negotiations, and the unpalatable notion of bulk water export from the Great Lakes – St. Lawrence Basin to water-short basins in the U.S.

The Canada Water Agency must strengthen transboundary water management and cooperative federalism by prioritizing healthy and intact river basins, as well as committing capacity to anticipate, investigate, avoid, and resolve water-related disputes. Federal government should also provide strong support to the International Joint Commission and other interjurisdictional institutions, including the introduction of international best practices.

9. Freshwater Technology, Innovation, and Infrastructure

Currently, federal government supports research, development and implementation of freshwater technologies and programs such as Sustainable Development Technology Canada, NRC's Industrial Research Assistance Program; NRCan's Clean Growth Programs and AAFC's Clean Technology Program, Canada Infrastructure Program, Disaster Mitigation and Adaptation Fund, the National Disaster Mitigation Program and First Nations Water and Wastewater Infrastructure on Reserves Fund and others. However, there are still gaps in connections between the creators and the users of the programs.

The Canada Water Agency should promote and encourage freshwater technologies, innovation, and improvements in infrastructure to promote sustainable use and protection of freshwater. The new CWA will ensure technological advances both within and outside government appropriately inform federal water policies and management approaches.

10. Engaging Canadians in Managing and Protecting Freshwater

Interest in community based freshwater research and monitoring in Canada is increasing and the quality of data produced is improving, as well as the use of innovative technologies for monitoring and analysis.

The Canada Water Agency should provide and promote educational programs for the general public in collaboration with provincial/territorial, local, and Indigenous governments on freshwater management and regulatory systems for freshwater management in Canada. The Agency should also support existing data collection efforts by enhancing funding and other supports for nongovernmental organizations, academic institutions, Indigenous Nations and organizations, and community-based water monitoring programs. Throughout all of its operations, the Agency should ensure fulsome public participation in its full array of decision-making.

Part II: Missing Objectives

We believe that the discussion paper missed a few objectives that could be accomplished by the new Canada Water Agency.

First, we believe that ensuring deep and long-lasting changes to Canada's federal freshwater regime requires legislative changes, none more important than a comprehensive renewal of the *Canada Water Act.* The Act is Canada's primary federal freshwater legislation, yet it has not been modernized since it was passed in 1970. The federal government should lead *Canada Water Act* renewal in collaboration with provincial, territorial, and Indigenous governments. This should include the option for Indigenous governments to participate in a legislative co-drafting process that is consent-based, rooted in nation-to-nation relationships, and aligned with UNDRIP, Indigenous water rights, and self-determination. In a co-drafting process, Indigenous peoples and the government are co-authors of the proposed legislation, but the subsequent parliamentary legislative process remains unchanged (i.e., once the government introduces the Bill into the House). This reconciliation-based, consent-honouring approach can help avoid water conflicts, build better legislation, clarify governance relationships, and lay the foundation for long-term institutional collaboration.

Second, the discussion paper lacks adequate consideration of international freshwater considerations. The Canada Water Agency provides an ideal opportunity to establish Canada as a leader in addressing the water-related impacts of climate change around the world, as well as to frame its international development agenda around freshwater solutions. In particular, the Canada Water Agency can help lead progress on the UN Sustainable Development Goals, all of which relate to water.

Part III: Governance Priorities

The discussion paper presents a jurisdictional review of relative governance and organizational structures around the world. After this analysis it is evident that there is no single, common model or approach. To modernize federal freshwater leadership and ensure Canada's water security, it is recommended that the following institutional and organizational changes are included in the creation of the Canada Water Agency.

1. Institutional Considerations

- Undertake an **interdepartmental reorganization** that brings together key water units from across the federal government into a single Canada Water Agency. The Agency should be anchored by two major units from Environment and Climate Change Canada: the National Hydrological Service (NHS) and Water Science and Technology Directorate (WST). In addition to the NHS and WST, a cross-departmental review will identify key water units from Agriculture and Agri-food Canada, Fisheries and Oceans Canada, Natural Resources Canada, and other federal departments that should be brought together under the Agency.

- Appoint an **Agency head** tasked with developing an appropriate organizational mandate and structure through extensive and sustained dialogue with provincial, territorial, and Indigenous governments.

- Appoint a **Chief Water Security Officer** to lead science, technical, and policy development in the Agency and build a knowledge-based organization that can implement key freshwater objectives. The Officer should also have an independent investigation function to anticipate disputes and facilitate resolutions concerning waters that flow along or across internal or Canadian boundaries.

- Establish **regional centres of excellence** that rely and build upon existing scientific, regionally focused expertise. These centres will help ensure that freshwater solutions apply cutting-edge science that is well adapted to regional specificities.

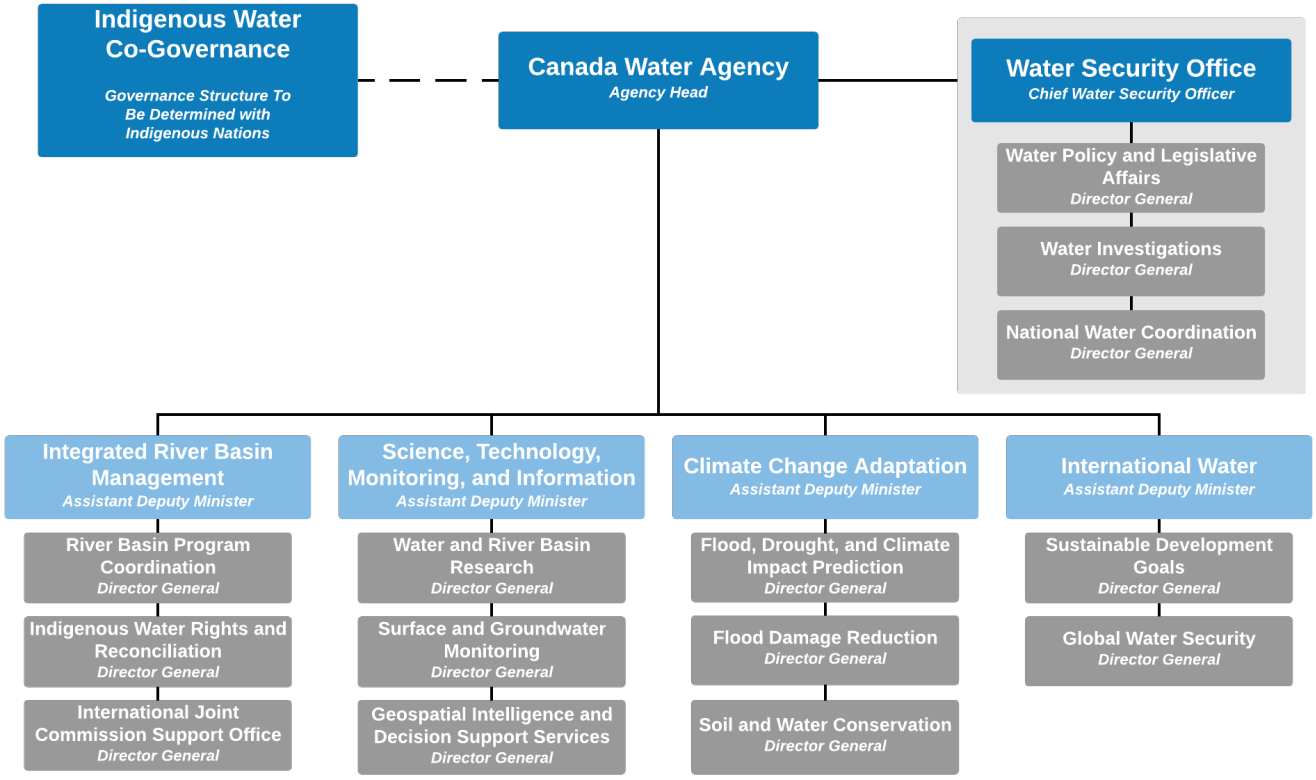
- **Co-develop** the mandate of the Agency with Indigenous Nations, including providing avenues for developing water co-governance structures that recognize and respect Indigenous self-determination and nation-to-nation relationships.

- Leverage expertise and capacity from **water-focused academic institutions and organizations** from outside of government to better inform governmental science, policy, and program development. This should include development of a research subvention program administered by the Tri-Council federal research agencies to support key research priorities and to establish centres of scientific and technical excellence in support of the Agency.

- Mandate the Agency to guide federal **water-focused stimulus spending** related to COVID-19 and green recovery efforts.

2. Proposed Organization Structure for the Canada Water Agency

This notional organizational chart below provides a starting point for how the Agency could be structured. Each component of the organizational chart is described in more detail below.



The following are cursory descriptions of proposed organizational units. The intention is to illustrate the range of functions that will be needed to address the Agency's initial mandate. Once established, the Agency will itself enrich the mandate and partnership arrangements in collaboration with others throughout the freshwater community. Indigenous water co-governance should be a fundamental component of the Agency's development that is determined in collaboration with Indigenous Nations; for this reason, it is not described in detail below.

Over 80% of the most urgent capacity needs (perhaps in the order of 600 – 800 staff) can be met by building from existing ECCC strengths, and much of the rest (probably less than 100) can be added from other federal agencies. Importantly, although drawing strengthen from existing components of ECCC, the Agency must be its own independent body that is not housed in any one department.

As indicated in each of the descriptions below, some modest new resources will also be required. In addition to the human resources, in the future it may also be advisable to recreate the former Canada Water Act Fund to enter into new intergovernmental agreements. The budget of the Canada Water Act Fund was close to $20 million.

WATER SECURITY OFFICE

Water Policy and Legislative Affairs: This Directorate will lead ongoing federal water policy and legislative review and renewal, taking into account international best practices. The 1987 Federal Water policy is outdated with respect to climate change adaptation and the increasing role of the private insurance industry in flood damage reduction, and advances an extremely outdated approach to Indigenous water relations. The 1970 *Canada Water Act* is similarly outdated, especially with respect to Indigenous water rights, and in acknowledging climate change as a major driver of water management challenges.

Water Investigations: This Directorate would support the Chief Water Security Officer in a role similar to the Chief Public Health Officer of Canada position. The Directorate will continually evaluate and make recommendations regarding science, policy and program development and priorities in the Agency, and carry out independent investigations to anticipate emerging freshwater issues of national significance.

National Water Coordination: This Directorate will be responsible for establishing and supporting appropriate interdepartmental coordination, federal-provincial-territorial consultative mechanisms, and relationships with shared governance and scientific bodies at more local levels. There is some existing capacity in the Strategic Policy Branch and MSC's Policy, Planning and Partnership Directorate.

INTEGRATED RIVER BASIN MANAGEMENT

River Basin Program Coordination: Existing river basin programs (Canada – U.S., interprovincial and others) and their full-time Secretariats, which are dispersed throughout several area of ECCC, will report through the ADM of Integrated River Basin Management. This Directorate will coordinate the activities of these basin programs, including ensuring they are receiving the necessary science and technical support; and will conceptualize and negotiate new agreements. It is expected that new agreements will be needed in areas such as climate change adaptation, flood damage reduction, and Indigenous co-management, among others. In the immediate future, the core capacity can be drawn from the existing NHS and WSTD. In the longer term, it may be advisable to consider establishment of a Canada Water Act fund to support new agreements.

Indigenous Water Rights and Reconciliation: This Directorate will ensure broader water policy and law developed in the Water Policy and Legislative Affairs Directorate and elsewhere in water-related programs across government is consistent with the United Nations Declaration on the Rights of Indigenous Peoples. It will also strive to implement a distinctions-based nation-to-nation relationship with Indigenous governments, including adopting a consent-based, co-drafting approach to renewing the Canada Water Act; and coordinate Indigenous relations in all Agency programming to ensure all programs take into account impacts on the well-being of Indigenous communities. There is only minimal relevant capacity in the current ECCC, so most requirements will have to be defined in later phases.

International Joint Commission Support Office: Over the years, governmental science and engineering support to the International Joint Commission and other Canada – U.S. activities has significantly diminished, just at a time when pressures on shared resources are intensifying. This Directorate will analyze and bring transparency to all water-related activities in the U.S. that may affect Canada, work

with Foreign Affairs Canada in negotiating effectively with our southern neighbors, and ensure the capabilities throughout the Agency appropriately support International Joint Commission and other Canada – U.S. initiatives. There is some existing capacity in the Bilateral and International Trade Branch of IAB, but it will have to be significantly strengthened over the coming years.

SCIENCE, TECHNOLOGY, MONITORING, AND INFORMATION

Water and River Basin Research: This Directorate will develop and maintain a world-class science capability in direct support of Agency mandates. It will play a freshwater science leadership role nationally; re-establish a water research subventions program through the Tri-Council federal research agencies; collaborate closely with the academic community more generally to both support the excellent work going on in Canadian universities, and ensure science programs appropriately inform governmental and non-governmental freshwater policies and programs. The initial capacity will be drawn from the Water Science and Technology Directorate of ECCC.

Surface and Groundwater Monitoring: This Directorate will immediately bring together two large blocks of staff from the National Hydrological Service and the Water Science and Technology Directorate conducting water quantity and water quality monitoring (including laboratory services). The NHS and its predecessors have been the backbone of federal freshwater programming and federal-provincial cooperation for over a century. There is potential to harmonize and enhance federal freshwater monitoring networks and related analytical skills, as well as intergovernmental relations. Later, it will be advisable to add the modest groundwater monitoring capacity currently in NRCan.

Geospatial Intelligence and Decision Support Services: This Directorate will play an important role in creation and mobilization of knowledge to predict and respond to water problems and opportunities by developing, applying, and transferring mathematical models and other decision support tools. This will require continually studying and reporting on international models and best practices, collaborating with academic, consulting and other Canadian experts, and working with a broad range of public and private decision-makers, including the many organizations involved in shared water governance at the level of river basins. Some capacity will be available in stage 1, for example in WSTD, but more will have to be introduced in subsequent phases, for example from the river basin mapping and other geospatial intelligence support systems areas of NRCan.

CLIMATE CHANGE ADAPTATION

Flood, Drought and Climate Impact Prediction: The core of this Directorate already exists in the Montreal offices of the Meteorological Service of Canada (MSC). The Directorate's fundamental role will be to establish and operate critically important national prediction systems for floods, droughts, and climate impacts. This capacity should be integrated directly into the Agency to capitalize on the very strong federal-provincial working relationships that have been built over decades by the NHS and other elements that will make up the Agency. It will also be important that the unit collaborate closely with MSC and its world-class computing capacity and modeling skills.

Flood Damage Reduction: Current federal flood damage mitigation and reduction policies and programs are inadequate due to decades of fragmentation and neglect. These inadequacies are becoming costly

as climate change and land use changes exponentially escalate financial costs and human suffering. This Directorate will have to be created by bringing together modest capacities in ECCC, NRCan and perhaps Public Security, along with some new recruitment.

Soil and Water Conservation: This Directorate will focus on practical measures to assist the agriculture sector to adapt to changing water supply extremes related mainly but not exclusively to a changing climate. To do so, it will have to rebuild some of the kinds of skills that existed in the former Prairie Farm Rehabilitation Administration. Although some existing skills can be found during phases 2 and 3, for example in Agriculture and Agri-Food Canada, most resources will have to come from elsewhere, for example through Western Diversification, Infrastructure Canada, pandemic recovery funding and future budgets. A high priority will be placed on working with Western Diversification and provinces on a Prairie Water Strategy.

INTERNATIONAL WATER

Sustainable Development Goals: Addressing water issues on a global scale can be a lynchpin to an equitable, prosperous, and sustainable future, and it is clearly in Canada's interest to contribute to that outcome. The 2030 Agenda for Sustainable Development includes 17 intergovernmental aspirational goals and 169 targets. Goal # 6 deals with clean water and sanitation, but few if any of the 17 goals can be met without improved water management on a global scale. This Directorate will coordinate Agency contributions to the attainment of SD goals and targets, as well as review and report on broader contributions throughout the Canadian water sector. Resources currently in the Strategic Policy Branch will be devoted to these objectives.

Global Water Security: Canada already contributes to global water security through the U.N. and other international agencies such as the Interaction Council, development agencies, and a relatively active water engineering and consulting industry. There is also considerable additional potential to participate in multinational consortiums to advance strategic options in specific countries or regions to share the knowledge in the Agency and Canada's many centers of excellence. This Directorate will promote and coordinate Agency and broader Canadian contributions in that regard. This will likely have to be met through recruitment.

Partner Organizations of the
Water Security for Canadians Initiative