REPORT OF THE

Expert Advisory Council *to the* Minister of Conservation & Climate

Recommendations for a Provincial Water Management Strategy for Manitoba

JANUARY 2021

List of Abbreviations

EAC	Expert Advisory Council
GROW	GRowing Outcomes in Watersheds

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Letter to the Minister of Conservation & Climate

Dear Minister,

We present you with the third advisory report of the Expert Advisory Council established under Section 7 of The Climate and Green Plan Act. In response to your mandate letter to the EAC of January 6, 2020, this report contains advice and recommendations on the scope and elements of a modernized, coordinated provincial water management strategy for Manitoba.

This report recognises the past and present context of water management in our province, and considers potential impacts of new and emerging issues, including drought and flood cycles that can affect near-term planning as well as long-term challenges associated with climate change. It also recommends potential measures and considers the role of governance that can contribute to the sustainable management of water resources across the province. This report also advocates for a robust system of measurement that is critical to evaluating achievements and identifying future actions for water management in Manitoba.

The advice and recommendations we provide to you was informed by research on water management across Canada, including an overview of past and present efforts in Manitoba. This research also considered historical trends and future forecasts, particularly with respect to a changing climate and its impacts on water.

To support our research, the EAC engaged stakeholders and experts who provided important insights and perspectives from several different types of organisations, including private businesses, industry, municipalities, watershed districts, and non-government organisations. We met with trusted Canadian water experts to help us broaden our knowledge and understanding. Additionally, we asked the Youth Advisory Council, as a subcommittee of the EAC, to participate in the engagement process and provide their unique and important input.

All of our background work leads us to the belief that a new water management strategy is urgently required. Climate change poses increasingly serious risks to Manitoba's waters, economy and way of life. Our advice and recommendations will help your government create and develop a bold, effective water strategy for all of Manitoba. This will be a foundational piece that will guide Manitoba to a sustainable and climate ready future that supports economic growth and long-term resiliency for decades to come.

We want to thank you for the opportunity to provide our advice and recommendations on this vitally important topic.

Sincerely,

original document signed by

Colleen Sklar, Chair
Andrew MacSkimming, Vice-chair
Ian Gillies
Karla Guyn
Jim Irwin
Tanis Ostermann
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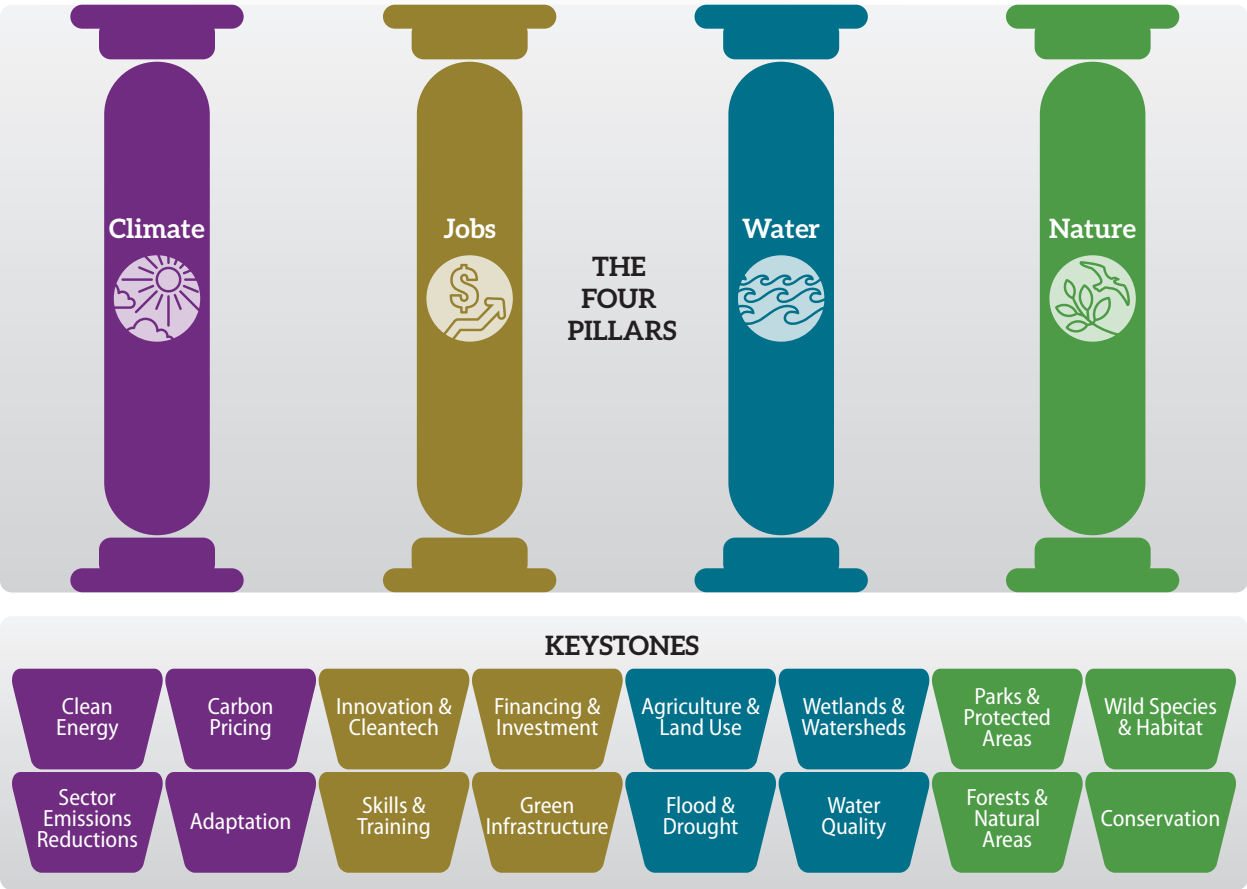
Introduction



In 2017, the Made-in-Manitoba Climate and Green Plan set a vision for Manitoba to become the cleanest, greenest, most climate resilient province in Canada. The Climate and Green Plan includes four pillars: Climate, Jobs, Water and Nature. To help guide the Manitoba Government's initiatives towards this vision, the Expert Advisory Council (EAC) to the Climate and Green Plan was established under Section 7 of The Climate and Green Plan Act, passed by the Legislature of Manitoba on November 8, 2018. The Council is an independent group of experts with a mandate to provide advice and recommendations to the Minister. Specifically, under the Act, the Council is to:

a. provide advice and recommendations to the Minister on programs, policies and measures to be included in the climate and green plan;
b. review progress on the implementation of the climate and green plan, and provide advice on any required changes to the plan; and
c. provide advice and recommendations to the Minister respecting greenhouse gas emissions reduction goals to be established under section 3.

In addition, under Section 25 of the Water Protection Act, the EAC is tasked with advising the Minister about matters relating to water management and other related activities.

In its January 2020 mandate letter from the Minister of Conservation and Climate, the EAC was tasked with providing advice and recommendations regarding the scope and elements of a modernized, coordinated provincial water management strategy for Manitoba.

The advice provided by the Council is to be "comprehensive and holistic" and should consider short- and long-term measures, regulatory and governance changes to support watershed-based management and investments like the Conservation Trust and GROW programs. The advice should consider the potential impacts from a changing climate, including drought and flood cycles and events, as well as recommended actions, measures, and regulatory governance to manage water sustainably across the province, its basins and its watersheds in a more coordinated manner.

The following report and recommendation is the result of many months of focused engagement with stakeholders, conversations with experts, additional research, and discussion as a Council.

Manitoba needs a New Water Management Strategy

A new provincial water management strategy must reflect the needs of today while helping us prepare for a sustainable future. The current approach to water management was developed almost two decades ago. It was created to address the major concerns of the time, but is no longer able to anticipate or prepare for new and emerging issues and opportunities related to the impacts of climate change on societies, environments, and economies. Since the release of the last strategy, we have gained new understandings from new research, new data sets, and access to new types of technologies. These have contributed to an increasing societal awareness of the coming challenges and opportunities, and they have provided new advantages for governments, stakeholders, businesses, and communities in their efforts to improve conservation and sustainability of this critical natural resource.

A new water management strategy for Manitoba should plan for a changing climate, enable reconciliation with Indigenous peoples, and enhance inter-jurisdictional collaboration while leveraging the rapid advances in data and knowledge. It should include as many businesses, industries, and other stakeholders as possible, address equity of access, and recognise the limitations of our water resource and how it is used.

Wetlands in the Pembina Valley Watershed District.

Plan for climate change impacts and set a course towards resiliency: Climate change will continue to have an increasing impact on Manitoba, including its water resources and its water infrastructure. Scientific models suggest that Manitoba will experience warmer overall conditions and changes in precipitation patterns with hotter, drier summers, wetter springs and falls, and increased ice storms in the shoulder seasons plus unpredictability of weather with increased frequency of extreme events such as storms, floods, droughts, wild fires, and power outages. Climate change threatens to alter habitats and local wildlife populations, pose major challenges to

Painted turtle spotted on the Winnipeg River.

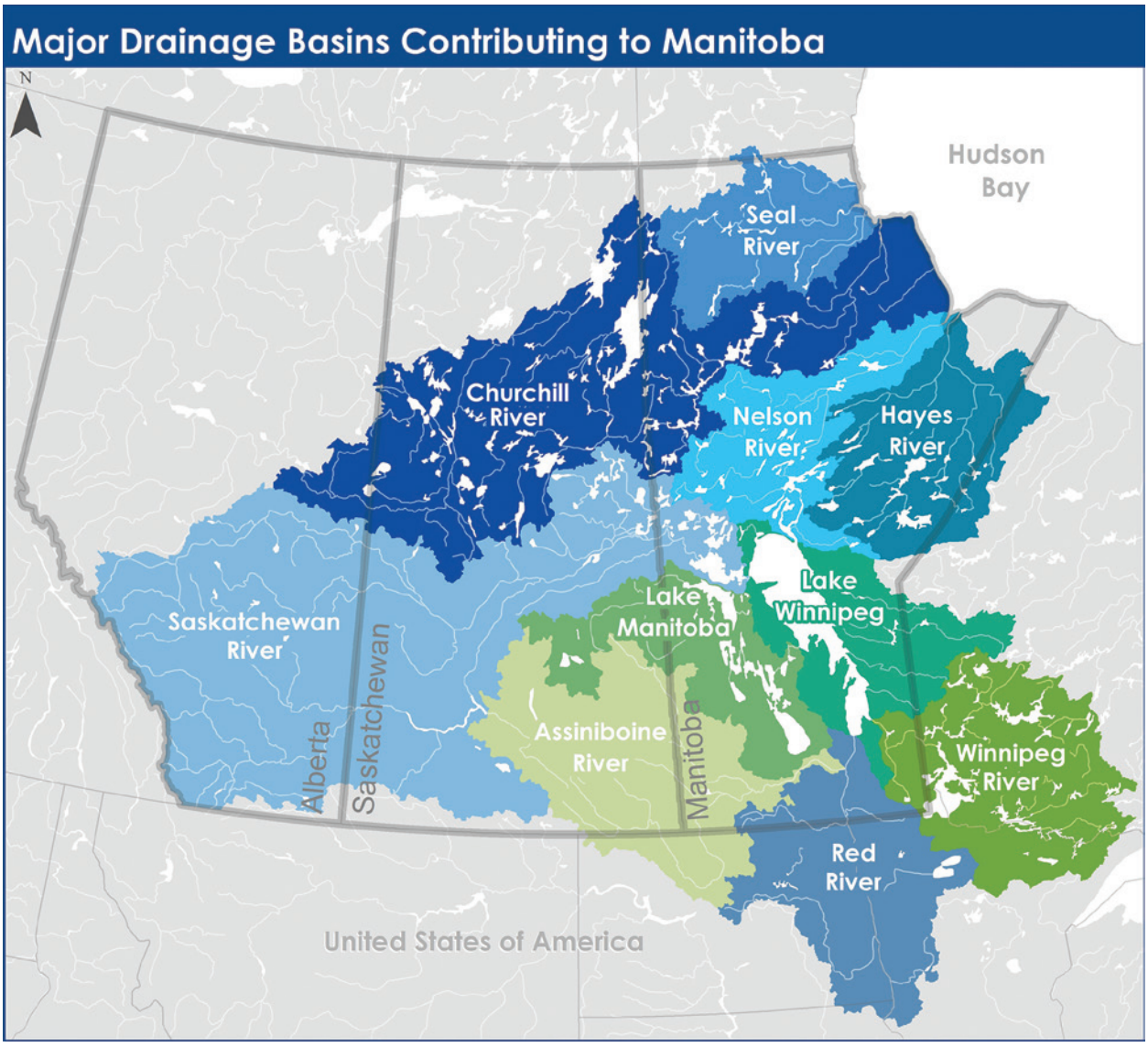
agricultural production, damage infrastructure, affect human health, impact our jobs and employment opportunities, and threaten our economy. However, a changing climate can provide opportunities in our environment and in our economy. This includes new opportunities for climate-resilient types of agricultural production, expansion of green jobs and economy and adoption of technologies for business and industry. Many of these advances are based on the Sendai principle of disaster risk reduction of build back better and including measures that ensure proactive risk assessment for water-related disasters or emergencies in Manitoba. Resiliency involves a robust and forward-looking province-wide water management strategy that acknowledges and considers potential opportunities for all communities and economic sectors to access and utilise provincial waters to help them thrive in a changing climate.

4R Nutrient Stewardship principles and practices optimize crop production and reduce risk to water quality.

Move forward along the path to reconciliation: Indigenous Peoples have a unique and immensely important relationship to water. As laid out in The Path to Reconciliation Act, the Manitoba government is committed to advancing reconciliation that is guided by the principles of respect, engagement, and understanding. As a key component of Manitoba's approach to managing water, the Strategy represents a practical and extremely important opportunity for government to demonstrate its commitment to reconciliation.

Enhance collaboration across jurisdictional boundaries: Water flows into Manitoba from western Canada, eastern Canada, and the United States. Watershed-level or basin-level management can better recognize and address complex challenges occurring in different jurisdictions. In this dynamic, interconnected world, political and administrative jurisdictions that work collaboratively have the potential to achieve what no single municipality, province, or state could do on its own.

Enhance collaboration between multiple actors: There are many groups doing excellent work to support the health of Manitoba's water and many groups that have a vested interest in ensuring that good quality water remains available where and when it is needed. Broader collaboration with municipalities, the business community, industry, non-profit organisations, researchers, and others is necessary to support many aspects of water management. Regional planning, for example, allows for coordination of infrastructure investments across individual municipalities for the benefit of the whole region. Knowledge of, and access to, monitoring information, data, and reporting can dramatically improve our understanding of water systems and how to best manage our water resources.



Major drainage basins contributing to Manitoba.

Address water equity issues: Internationally, the United Nations 2030 Global Sustainable Development Goals are an important "urgent call for action by all countries - developed and developing - in a global partnership. They recognize that ending poverty, providing clean water and sanitation and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change." By starting at home, a new water management strategy for Manitoba can contribute to the global effort to preserve life on land and below water.

There are serious issues of inequity related to water use around the globe, and some of these occur within Manitoba's borders. Some communities face threats of too much water, while others face shortages. Some communities are under boil water advisories. There are municipalities that don't have the financial means to build water treatment, distribution systems, and related infrastructure. There are communities living with past water management decisions that did not adequately consider or address the adverse outcomes now impacting people and the environment.

Address limits to growth: There are regions and industries that are limited by the availability of water and climate change is expected to potentially bring more frequent and acute shortages. Insufficient water for municipalities and communities is a potential threat to population growth, while insufficient water for industry and business is a potential threat to economic growth. Improving our water management practices to address both the challenges and opportunities can help to address and overcome these limitations in ways that are socially, environmentally, and economically sustainable.

The spillway at Stephenfield Reservoir.

What can we do?

To prepare for these challenges and recognise the potential opportunities, Manitoba must seek new practices with a focus on the future of water management in the province. A modern and coordinated water management strategy will be a critical component that supports Manitoba's vision of becoming the cleanest, greenest, and most climate resilient province. This is why the Minister of Conservation and Climate instructed the EAC in her January 2020 mandate letter to "provide advice and recommendations regarding the scope and elements of a modernized, coordinated provincial water management strategy for Manitoba."

This report delivers on that mandate. It is the result of much research and discussion, months of focussed engagement with stakeholders, conversations with experts, and input from the Youth Advisory Council, a subcommittee of the EAC. It recognises the need for a vision, values, and guiding principles that will support the direction of a new approach to water management in Manitoba. It also sets the parameters of activity by defining the scope, implementation methods, and measuring success.

Stakeholder and Expert Input

The Expert Advisory Council's report and recommendations have been informed through research, stakeholder input, and expert advice.

Low Carbon Economy Forum

The EAC held a forum on November 29, 2019 on the topic of identifying the economic opportunities in a low carbon economy. The focus for the EAC was to understand the economic factors that influence a shift to a low carbon economy. The primary areas of focus under the umbrella of a low carbon economy were decarbonisation, agriculture (including water sustainability), and transportation.

The forum invited speakers and participants based on their corporate sustainability strategies, knowledge, and interests as stakeholders in the green economy. Speakers addressed the opportunities of a low carbon transition, and included key stakeholders in Manitoba's economic development activities. In attendance were representatives from the Manitoba Chamber of Commerce, North Forge, Simon Fraser University, Wescan Capital, Bison Transport, New Flyer Industries, Richardson International, University of Manitoba, Maple Leaf Foods, and others.

While the purpose of the Forum was to initiate a strategic, results-oriented discussion with key partners to identify and support opportunities in Manitoba that contribute to low-carbon economic growth and job creation, it became apparent that water management was a critical natural resource for economic growth, particularly in energy, agriculture, food processing, tourism, manufacturing, and end-of-life product stewardship (e.g., waste management, composting and recycling).

Research

The EAC asked the International Institute for Sustainable Development (IISD) to conduct a jurisdictional scan of water management strategies across Canada. In addition to gaining a better understanding of best practices and recent developments in provinces and territories across the country, the research included how regional strategies intend to address local issues as well as prominent academic papers on ways to improve regional water management. The research also identified inter-jurisdictional water agreements and how they address transboundary issues and concerns. In addition, the IISD identified potential and emerging developments in water management with emphasis on how the federal government views its activities on water management, particularly through recent work undertaken by Western Economic Diversification Canada and potential activities of the forthcoming Canada Water Agency.

Stakeholder Input

Recognising the limitation and uncertainties related to the COVID-19 pandemic, the EAC commenced its stakeholder engagement process on water in summer 2020. A background document entitled "Manitoba Water Management Strategy - Seeking Perspectives: An Engagement Document" was provided to participating stakeholders as a starting point for discussion and feedback.

On August 13, 2020, the EAC invited stakeholders to two on-line engagement sessions with the aim of initiating discussion on proposed key issues, goals, principles, objectives and performance indicators for a provincial water management strategy. A total of 123 organizations were invited, with 49 participants (~40%) directly engaged by the EAC during web-based discussions. Various stakeholders provided feedback during the on-line engagement, providing their insight and comments to the discussion questions. All participants and invited stakeholders were offered the opportunity to complete a survey and/or provide additional materials regarding aspects of water management within Manitoba. The EAC received a total of 19 organizational stakeholder responses with more detailed comments and inputs on a Manitoba Water Strategy.

Twenty-two (22) stakeholders completed the on-line survey, resulting in a survey completion rate of eighteen percent (18%).Several respondents completed the survey and provided additional material. A total of six (6) stakeholder groups also provided written submissions that allowed for further expansion on survey responses and the ability to include items of interest that may not have been captured within the parameters of the survey. The total written response rate was 17% of all expert stakeholders invited to participate. Even with the limitations COVID-19 posed on stakeholder engagement, the EAC felt satisfied with the feedback received.

Expert Advice

The EAC also sought virtual meetings with internationally renowned water experts including: Bob Sandford (Chair, Water and Climate Security at the United Nations University Institute for Water, Environment and Health), Merrell-Ann Phare (Centre for Indigenous Environmental Resources), Dr. John Pomeroy (Global Institute for Water Security, University of Saskatchewan), and Ute Holweger (Lake Winnipeg Basin Program, Environment and Climate Change Canada). Each expert provided unique pieces of advice and insight that the EAC took into consideration during the creation of this document. In addition, members of the EAC water committee sought inputs from water experts who may not have responded to the official consultation document.

The EAC will continue to meet with other water experts to obtain further advice as part of their on-going responsibilities to the fulfillment of the Climate and Green Plan which includes new water management strategy and its implementation, as well as how this will contribute to targets set for the second Carbon Savings Account (2023-2027) and climate adaptation actions that build resiliency for the Province.

A New Approach to Water Management in Manitoba

The success of a new approach to water management will need to build a common vision, shared values, and guiding principles that recognise the lessons from past initiatives.

Vision

Manitoba needs a clear vision for water management in the province. A clearly articulated, collaboratively-developed vision that brings parties together around a common goal is crucial to bring together a community of "water stewards". A good vision statement will succinctly communicate how water is valued and managed for the quality of life it sustains, the wide array of sustainable ecosystem services it provides, and the economic sustainability and growth it supports. The EAC recognizes that the process of creating the vision is as beneficial as the vision itself. Manitoba needs to create its own strong, clear, made-in-Manitoba vision that defines a level of ambition and sets the strategy on a successful course.

Values

Defining common values is an important part of shaping a modern and coordinated strategy. The following values should be at the core of all decisions and directions, and should include the following:

1. **Respect** can be demonstrated by ensuring full participation in the creation, development and implementation of the Strategy, making a commitment to two-way communication, and listening in earnest.
2. **Transparency** is a key tenet of developing a successful strategy. Transparency forms the basis for communication and is a necessary step toward building trust, and meaningful engagement amongst and between stakeholders.
3. **Collaboration** is needed for Manitoba to be a champion for water issues in their province and beyond, to confront difficult problems, and to engage with difficult questions in the move toward a modern, coordinated approach to water management. Starting with an open-mind to seek innovative paths, Manitoba can become a leader with integrity and commitment in the field of water management in Canada and throughout North America.

These values will help Manitoba develop a new approach to water management that will include a strong network of stakeholders in communities, municipalities, business, industries, and non-government organisations across the province. The values will form the foundation of any commitments to clean, accessible, healthy water resources and its efficient use. Further, these common values and the commitments they inspire will contribute to the long-term success of a modern, coordinated water management strategy for Manitoba.

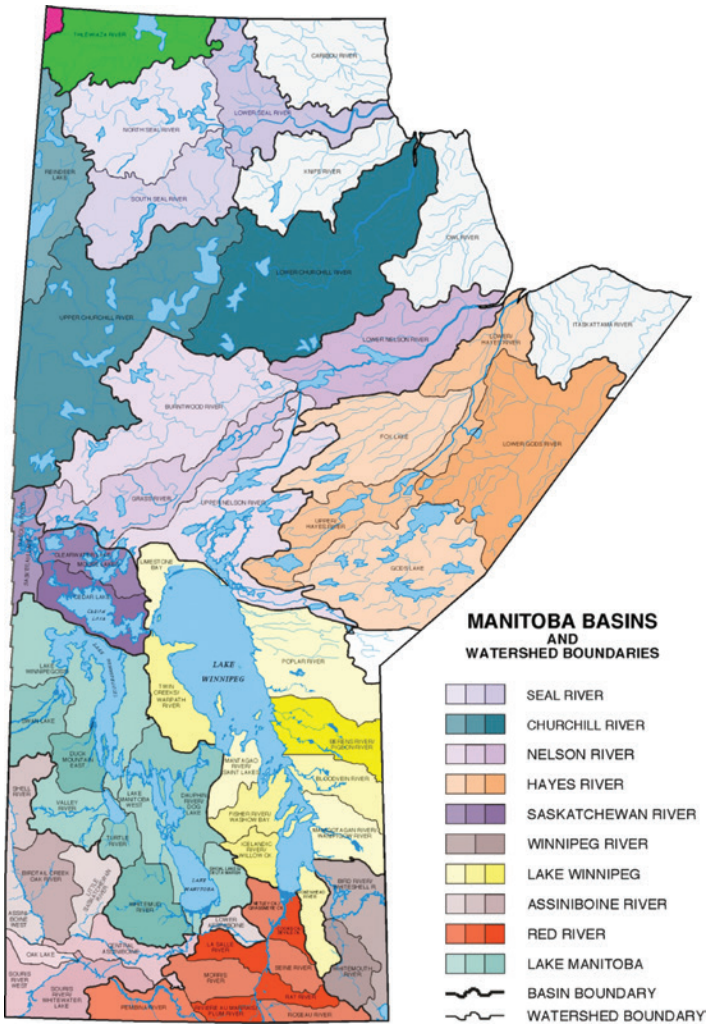
Guiding Principles

The following principles were shaped by the EAC and discussed with stakeholders during the engagement process. They reflect the current attitude of stakeholders and their views on water management in the province, and represent the desired foundations for water management in Manitoba in the future.

1. **Protect the quality and quantity of surface and groundwater**
   Water is critical to Manitoba's people, environment, and economy. Surface and groundwater quality and quantity require ongoing protection for the benefit of all people and the environment, now and in the future.

Riparian area south of Pilot Mound, Manitoba.

2. **Support economic development and address water-based limits to growth**
   Water and water-related infrastructure is critical to economic development in all parts of Manitoba, including the Arctic. Water must be sustainably allocated to support current and future growth and development while preserving the natural environment.
3. **Utilize watershed and basin boundaries**
   Manitoba has managed water on the basis of ecological boundaries, such as watersheds and basins, as effective and measurable management units. Water at this scale crosses local, provincial and national jurisdictional boundaries and requires a coordinated approach to planning.
4. **Link land and water planning**
   Land and water are interconnected, and changes in one part of the ecosystem often affects the other. This necessitates that water planning should also include land-use considerations. For example, the success of agriculture in Manitoba depends on soil health and water, and an imbalance of either resource can cause undesirable outcomes ranging from suboptimal production to outright crop failure. It is necessary that these linkages are reflected in the operations, legislative, and planning processes of government.



Manitoba Basins and Watershed Boundaries.

5. **Plan for the long-term with short-term milestones**
   Sustainable water management requires a long-term planning approach that takes climate change into account. However, short-term milestones are also needed to ensure timely action and accountability.
6. **Ensure Indigenous participation and respect for traditional knowledge**
   Indigenous community involvement is key to the development of any water management approach. The unique Indigenous relationship with water and land, and the use of traditional knowledge, are key aspects to understand, consider and respect.

Wild rice is a traditional food source found in shallow lakes, rivers and wetlands throughout Manitoba.

7. **Encourage the involvement of all Manitobans**
   All Manitobans have a stake in and responsibilities related to water management. Government, industry, communities, and other stakeholders have important contributions in the future of water management and planning.
8. **Define roles and responsibilities**
   Responsibility, authority, and accountability for water management and the implementation of the Water Strategy must be defined and grounded in policy and legislation.
9. **Ensure a basis in science and evidence**
   Effective and appropriate water management requires a foundation in science and actions need to be based on good evidence. This includes a firm understanding of the long-term and cumulative risks of action and inaction and the use of the best available practices and tools.

Lake Winnipeg Research Consortium's research vessel the MV Namao.

Towards a New Water Management Strategy for Manitoba

A water management strategy must address the needs and interests of all Manitobans. It must be developed in a pragmatic, feasible, and practical way to focus on key priorities while achieving long-term improvement to our water resources. To "manage" our water resources effectively, it must identify the scope of activity, as well as leverage the structures and supports needed to implement the strategy and achieve its objectives. Furthermore, it needs to measure and track indicators to determine areas of success and identify areas or actions that need improvement.

Scope

Manitoba faces many water-related challenges. Whether or not these challenges are under our control we have the responsibility to choose how we can best respond to them. These challenges may vary across different regions of the province. They may be time-sensitive emergencies, like floods or droughts, or take years to become apparent (aquifer health or water quality). To address immediate and long-term needs based on predictable or unforeseen risks, all regions in the province require proper water planning. Thus, a new water management strategy for Manitoba must include all of Manitoba.

Floodway control structure.

The main areas of a water management strategy for Manitoba should include water quality, quantity, ecosystem health, and water use efficiency. Also, a robust and resilient strategy needs to consider new and emerging risks and opportunities, as well as potential mechanisms to address them.

Water Quality

Surface water quality in Manitoba's rivers and lakes varies across the province. Like most provinces, Manitoba uses the Canadian Council of Ministers for the Environment Water Quality Guidelines, which indicates that water quality in Manitoba is generally good. Some areas such as the Prairie Ecozone are defined as "fair" while others such as the Boreal Shield Ecozone receive an "excellent" rating.

Bloodvein River - A designated Canadian Heritage River.

Highlighted water quality issues in the province include nutrient loading, the impact of invasive species such as zebra mussels, and concerns around source water protection. All of these are intensified by a changing climate. A contributor to reduced water quality in the prairies is the need for additional wastewater infrastructure renewal and upgrade to address Manitoba's vulnerabilities to water contamination and related health and economic consequences. Additionally, the way drainage

systems are designed, constructed, and maintained affect surface water quality by aiding the dispersal of nutrients and contaminants from land use practices to rivers and lakes.

Water Quantity

Manitoba is all too familiar with water quantity challenges: both too much and too little. Climate change will exacerbate the frequency and amplitude of water extremes, flood, and drought.

Aerial view of flooding in southeastern Manitoba.

Communities, businesses, and landowners are expressing their concerns on how to adapt and build resiliency for future climate impacts. They need clear guidance on how to prepare and invest for future changing water regimes. As water retention gains momentum as a means to address both excess water from floods and water shortage in times of drought, landowners and local governments require a better understanding of how to effectively hold and release water on the landscape.

Dry, cracked soils during a drought event in agri-Manitoba.

Limits on water availability are already affecting some jurisdictions, communities and businesses. Lack of water can severely impact economic growth while continued development will drive further demand of existing water supplies.

Ecosystem Health

Healthy soils and natural habitats are fundamental to healthy watersheds. Healthy watersheds are essential for maintaining the desirable hydrological functions of landscapes and increasing water infiltration and water-holding capacity to recharge groundwater aquifers. They also maintain in-stream flows, control runoff from snow melts and heavy rains, and sustain terrestrial plant growth, including agricultural production, during dry periods.

Wetlands in the Pembina Valley Watershed District.

Healthy watersheds provide significant ecological services such as clean water, wildlife and fish habitat, biodiversity, flood attenuation, climate change mitigation and adaptation, and increased resiliency to extreme events. Wetland protection is a key to ecosystem health supported by the government's commitment to no-net loss of wetlands.

Water Use Efficiency

Efficient use of the existing water supply reduces the vulnerability of the natural environment, wildlife and humans to water shortages and increases resiliency in times of environmental stress.

Efficient water use can also free up water for other priorities including economic development opportunities. In addition, more efficient use of water means that less water needs to be processed, pumped, and heated, and this reduces the greenhouse gas emissions associated with water treatment and use.

Emerging Risks and Opportunities

A robust water management strategy must consider future risks and opportunities that could affect the health and prosperity of Manitobans.

To mitigate risks, adaptive measures are required to increase preparedness and resiliency. Climate change, land and water use changes, variability in upstream and downstream management (including expanded irrigation demand in other jurisdictions), and contaminants of emerging concern, as well as cumulative impacts are all issues that Manitoba will increasingly face in the future.

Economic benefits of healthy watersheds include reduced costs associated with drinking water treatment and infrastructure, reduced flood and drought mitigation costs, increased property values, increased revenue, employment, and recreation opportunities. The economic benefits, while in some cases difficult to accurately measure, are potentially enormous and even conservative estimates can justify significant investment. Moody's and the Insurance Bureau of Canada have identified that smart investment capital is looking for communities that can provide climate resilient and sustainable services and infrastructure. Good quality water and reduced flood and drought threats will help Manitoba attract industry and business.

Storage of spring runoff and tile drainage water in retention pond for irrigation use.

Although the risks are numerous, there are also potential opportunities on the horizon. Manitoba can take an active leadership role to engage the soon-to-be-created Canada Water Agency. The province can also participate alongside the federal government in its recent focus on irrigation in the prairies. These can lead to water-related economic development opportunities and new technological advances that may help to launch Manitoba forward in our collective effort to improve water management and become the cleanest, greenest, most climate resilient province in Canada.

Implementation: Structures, Supports and Tools

To support a new water management strategy for Manitoba, there are key pieces that need to be in place. Any development of new structures and tools should recognize current programs (e.g., watershed planning, "no net loss" of wetlands, established funding mechanisms) that achieve important outcomes and should expand the ability for effective water management planning and implementation in the future without losing the progress achieved in the past.

Governance Structures

The extent to which the Strategy is supported by government structures, such as departments, agencies, legislative and regulatory frameworks and programs, will influence how effectively it will be implemented and ultimately its success. Some of the structures that are currently in place are:

- The Watershed Districts Act which progresses the work of Conservation Districts in implementing watershed planning and advances it in new Watershed Districts constructed on watershed boundaries;
- The Climate & Green Plan is an overarching document based on four interconnected pillars: Climate, Jobs, Water, and Nature. The Water pillar includes a series of initiatives under the keystones Agriculture & Land Use, Wetlands & Watersheds, Flood & Drought, and Water Quality;
- The Expert Advisory Council was created under the Climate and Green Plan Act, and section 25 of the Act, in which the EAC takes on the responsibilities of the former Manitoba Water Council;
- Law and Practices Related to Indigenous Inclusion: Our understanding regarding the inclusion of Indigenous perspectives and recognition of treaty rights along with constitutional requirements has also evolved. We recognize these items in matters respecting natural resource development and management; and
- The Conservation Trust, GROW Trust, and Wetlands GROW Trust provide funds to support landscape management for outcomes included in this framework (e.g., water quality, flood/drought mitigation).

These structures build upon historic agreements and practices, including intergovernmental agreements. The Boundary Waters Treaty was signed by Canada and the United States in 1909 and the subsequent creation of the International Joint Commission to approve cross border water-related projects and investigate transboundary disputes in 1912. The Prairie Provinces Water Board was created by the Federal Government and the three Prairie Provinces in 1948 and updated with a Master Agreement in 1969 that set goals for transboundary water management and equitably shared water resources.

In addition to these existing structures, Manitoba anticipates other supports and tools that are either directly or indirectly related to water management in the province, such as Bill 37 (The Planning Amendment and City of Winnipeg Charter Amendment Act). If passed, this bill identifies the Capital Planning Region for the Winnipeg metropolitan area and allows for other planning regions to be established by regulation. Planning regions strengthen coordinated land use decisions, help prioritize and plan infrastructure investment and include policies toward sustainable management of water at a regional scale.

Although a new water management strategy for Manitoba needs to recognise past agreements and activities, existing structures should be scrutinized to determine if new and improved ways of managing our water resources is needed. Intergovernmental agreements such as those between provinces within the Mackenzie Basin provide an example of a potential agreement for Manitoba with Ontario to ensure water management across interprovincial waters around specific shared goals important to both provinces, such as the health of the waters and availability to support economic growth in the region. This type of agreement was also ground-breaking in its inclusive partnership of indigenous communities in its development. Bilateral agreements involving the federal government can help to bring multiple players to the table such as with Lake Winnipeg or the Great Lakes agreements. The Federal government also has a central role to play in transboundary agreements between North Dakota and Manitoba.

Implementation

Manitoba has several existing policies, regulations, and programs that may support the implementation of a new water strategy. It is important to ensure that all of these tools are working well. A water management strategy should be continuously monitored and evaluated to identify areas requiring improvement. In addition, the strategy should enable monitoring and evaluation activities to be

strengthened, redesigned, replaced, or removed as warranted. Likewise, implementation should reflect Best-In-Class regulatory practices, and government has the opportunity to set minimum requirements to encourage continuous improvement to support Manitoba being a leader. It is imperative that responsibility and authority for water management and the implementation of the Water Strategy be clearly defined and grounded in policy and legislation.

Strong, definitive language should be used in defining water regulations. Minor changes to wording of regulations such as "may" to "must" can strengthen these legislative tools where needed. Attention to ensuring compliance with provincial regulations is a necessary part of achieving policy objectives. Sustainable water management requires a long-term planning approach, however, shorter-term milestones are also needed to ensure timely action and accountability.

Research, Data, Monitoring and Reporting

Research and data will provide critical underpinnings of the Strategy and its successful implementation. There is a need to improve, alter, and expand research and data collection efforts in the province and the active use of data and information in adaptive decision-making. Targeted research and coordination can focus on more efficient use of resources, embracing new and emerging technologies and methodologies, culminating in better synthesis and analysis to support decision-making.

Research findings and data should be shared openly with interested parties. Actions to bring together the Manitoba water research community will lead to building connections between people and agencies and sharing of knowledge to achieve goals.

Innovative Finance & Funding

New and innovative financial instruments are emerging (e.g., water bonds, water offsets) and may provide a means to avoid the sole reliance on public sector expenditure by leveraging private sector financial support on water related infrastructure and the circular economy. Potential options for consideration include offsets (particularly for industry and other large water users), green bonds, green financing, innovative pricing regimes, water quality credit trading, public-private partnerships, and other potential investment opportunities focused on nature-based solutions.

Communication

Effective and consistent messaging will be required to garner support for this strategy. Public communication (including the development of a clear vision, goals, and educational materials) can be a tool to support change management. Targeted communications with different sectors and demographics may be required and would need a variety of inputs. Trusted sources can amplify the messages of a new water strategy to their constituencies and peers.

Tracking Success

In order to effectively implement the Strategy, monitoring data and evidence needs to complement the decision making process. The development of an action or implementation plan with specific goals, timelines, and an outline of the necessary resources is required. Performance indicators should be SMART (i.e., Specific, Measurable, Achievable, Relevant and Time-bound), and include a defined commitment to transparent and regular progress reports. To the extent possible, indicators should be aligned with those used in other provincial, national, and international jurisdictions. For example, Federal water indicators include measures related to water quantity and availability, water quality, regional ecosystems, and the performance of water management efforts. In addition, indicators supporting the Federal Sustainable Development Strategy include tracking for regionally relevant indicators such as nutrients in Lake Winnipeg and municipal wastewater treatment.

Recommendations

This section provides recommendations from the EAC for a Provincial Water Strategy for Manitoba, which should be developed according to the vision, values, and guiding principles recommended in this document.

Timeline

1. Manitoba should approve a new Water Management Strategy no later than December 31, 2021. This strategy should include:
   a. a clear, inspiring vision that reflects the spirit and intent of this report and its recommendations on the future of water management to 2050;
   b. a commitment and plan to report on its implementation and achievements no later than 2025, and every 5 years thereafter;
   c. the Minister of Agriculture & Resource Development will collaborate with colleagues to develop a government-wide report to the Legislature, and ensure the public release of these reports; and
   d. a public-facing synthesis report every 2 years on the top-level indicators that complements, but does not replace, reporting requirements under The Sustainable Watersheds Act on the operations of watershed districts.

Governance

2. Ensure that accountability and responsibilities for implementing the Strategy are clearly defined within government, with:
   a. each major element of the strategy having an associated implementation plan (including specific goals, timelines, milestones and resources needed) and an "owner" who is responsible for monitoring and tracking success; and
   b. making these plans available to the public; and
   c. securing an independent, recognized subject matter expert with proven project management skills to work with the department in leading the development of Manitoba's new water Strategy.
3. Embed the Strategy in legislation and regulation that prescribes roles and responsibilities of current and new government structures to support sustained action over the long term. This includes:
   a. creating formal cross-departmental water committees as a tool for collaboration within government;
   b. integrating watershed management planning with provincial, municipal, and regional land-use planning. The instruments, and the teams that develop them, must be brought together and not work in isolation from each other; and
   c. creating a standing water sub-committee of the Expert Advisory Council that includes external experts as allowed under the Act to support the EAC in discharging its water duties under the Act.
4. Actively participate in and contribute to Canada Water Agency and its development by the federal government.

Coordination

5. A new water management strategy for Manitoba should:
    a. include activities, communities, and water resources from all regions of the province;
    b. update and expand watershed management planning to all regions of the province, including eastern and northern Manitoba; and
    c. clarify how to incorporate watershed planning into policy and planning at the local, municipal, regional and provincial levels.
6. Manitoba should work with other jurisdictions to update and strengthen existing interprovincial and international mechanisms (e.g., International Joint Commission, Prairie Provinces Water Board), and develop new inter-provincial agreements as needed to:
    a. ensure they have the necessary resources and authority to tackle today's critical problems; and
    b. include the creation of new mechanisms where none are currently in place.
7. Ensure that collaboration with Indigenous communities is substantive and meaningful, and includes involvement in decision-making from the beginning of the Strategy development.
8. Develop a professional, coordinated communications campaign designed for inclusion and accessibility, including youth-friendly messages and platforms and prioritized, targeted, specific communications across business, industry, and other sectors.

Modernisation

9. Manitoba should build upon existing water management plans with the aim of modernising its scope and improving resiliency of communities, natural resources, economic sectors, and public sector organisations by:
    a. Including municipalities, Indigenous organizations, business, and knowledge institutions such as non-governmental organizations and academia, and other stakeholders in the strategy development;
    b. involving business and industry to ensure that economic perspectives on the economy, circular economy, and sustainable "green" market-based mechanisms are included;
    c. providing an effective mechanism to receive all stakeholder feedback for consideration; and
    d. Encouraging a regulatory environment that removes red tape and fosters economic and environmental innovation to enable new technologies and encourage continued investment into clean water and remediation of eutrophication.
10. A new water management strategy should include plans to address emerging, complex, regional and provincial issues by:
    a. bringing together experts, local residents, and other stakeholders;
    b. including measures that ensure proactive risk assessment for water-related disasters or emergencies in Manitoba;
    c. producing detailed and collaborative responses to new challenges, such as irrigation, drainage, drought, economic growth plan for water; and
    d. enabling the creation of special advisory groups to undertake project-specific advisory activity under limited time frames.
11. A new water management strategy must facilitate and include the work of researchers and stakeholder organizations to:
    a. support agricultural beneficial management practices that provide the highest value ecological services for watersheds and return on investment for provincial funding programs; and

b. aggregate and integrate data with available water quality and quantity monitoring data to monitor overall implementation successes and identify areas of continued concern.

12. The future of water management should explore market-based mechanisms, such as water quality trading, Manitoba-focussed research and business development of new and improved technologies, water management processes, and innovative financing approaches utilized in other jurisdictions.
13. Manitoba, as part of a new water management strategy that supports economic activity and related infrastructure, should:
    a. continue support of sustainability certification of Manitoba's commercial fishery production and investigate other certification processes that reflect best practices relative to water resources; and
    b. address challenges related to Aquatic Invasive Species and other emerging risks.

Indicators

14. Develop a clear set of indicators for reporting based on standards for indicator selection and reporting that that reflect a high and noticeable standard of excellence in the world of water management. Wherever possible, indicators should
    a. be consistent at the regional, national and international levels; and
    b. assess and reflect cumulative impacts.
15. Require that all available data for water collected under provincial license is made publicly available.
16. Explore new technology and innovative approaches to produce accurate remote and real-time monitoring and data generation in ways that:
    a. reduce traditional resourcing problems;
    b. promote hydrologic and hydraulic predictability through remote tracking of landscape and ecological status and cumulative impacts by monitoring watershed health, and measuring efficacy and progress of Provincial 'Green' programs;
    c. monitor the real-time water quality status of Manitoba lakes; and
    d. use available hydro-geospheric models to monitor landscape function with respect to land-use; and
    e. support research and development and create economic opportunities for Manitoba businesses.

Conclusion

The EAC has dedicated a considerable amount of time and energy to research and identify recommendations that are critical for Manitoba to consider as it develops a new water management strategy for Manitoba.

The information and recommendations contained in this report are based on information obtained during engagement with stakeholders and advice from experts who have considerable experience and expertise on the use and management of water resources.

Based on these efforts over the past year, the EAC presents a report with advice and recommendations that focus on improving the ability of government to ensure that provincial water resources will continue to serve the best interests of Manitobans today and in the future.

These recommendations are respectfully provided to the Minister of Conservation and Climate for consideration.