

## Alberta's Water Challenges 2022

### Issues and Opportunities

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In 2015, WaterSMART Solutions Ltd. (WaterSMART) produced the first [Alberta's Water Challenges: Issues and Opportunities](#). Given the always shifting landscape of water, we are pleased to provide this update to highlight those issues and opportunities most pressing in 2023. This document is intended to provide a policy guide and brief background for those who are engaged in water management across the province.

#### **A Changing Landscape for Alberta**

Since early 2020, the changes in our lives have been profound. The pandemic shifted how we work and play, prompting a desire to get back into nature, which drove renewed interest in the rivers and lakes in our beautiful province. The pandemic also revealed weaknesses in our supply chain, causing many businesses to look for ways to source products, including food, locally. Changing weather patterns exacerbated extreme weather events, drawing attention to the severe drought conditions impacting our ability to source food from our traditional suppliers. This highlighted the need to increase our food production, which led to generational investments in irrigation and agri-food production. Finally, the conflict in eastern Europe showed the weaknesses in our international energy system, which, along with the push towards a Net Zero economy, has driven investor and policy commitments to alternative energy sources such as hydrogen, small nuclear reactors, hydropower, and others.

The element connecting all these challenges is water. Water is the critical input for agriculture, energy, agri-food processing, municipal growth, recreation, and tourism. The choices we make today to manage our water resources will determine how we grow as a province and as a community for generations to come. The discussion of climate change to date has focussed on emissions reduction; however, climate comes to ground in water. Our water issues are here today. They are local and require adaptation strategies now.

#### **We Have the Tools: We Need to Use Them**

Strategic water management is a long term game and needs to be future focused. A stable policy and regulatory environment is vital to investor confidence and to those water managers that are the backbone of our water management systems. Water management in Alberta has been guided by the Water for Life Strategy first launched in 2003 and updated several times in the last twenty years. This is a great overarching vision for how water should be managed. We are fortunate in Alberta to have a strong and effective regulatory framework within which to manage our varied and complex water issues; the *Water Act* and the *Environmental Protection and Enhancement Act* (EPEA) continue to demonstrate their progressive and practical value to the province. **The Water for Life Strategy and**

**these Acts need to remain in place, with the potential for modernization in the future.** In addition, the *Public Lands Act*, which regulates activity on the beds and shores of crown waterbodies, and the *Municipal Government Act*, which empowers municipalities to foster the well-being of the environment within their boundaries, also impact overall water management in Alberta.

However, as a province, we still lack the guidance and tools necessary to translate policy and planning set at the provincial level into informed and supported water management at the watershed, municipal and local levels. Much progress has been made on developing water policy direction, including water conservation, water reuse, flood and drought mitigation, and return flow release standards. Many of these policies are close to complete, but final approvals and implementations have been delayed. Municipalities and industry need robust guidance on these and other vital water issues. **Continued efforts to resource and build the necessary policy, tools and capacity will directly result in more effective water management that will balance the economic, social, and environmental interests in Alberta's diverse watersheds, now and in the future.**

A barrier to this holistic approach to water management is that water touches so many provincial, municipal, and local organizations that coordination is complex. For example, a pilot facility that processes underground coal into energy sources and animal feed requires approvals from Alberta Environment and Protected Areas (AEPA) and the Alberta Energy Regulator (AER). A food processing plant may purchase water for use from their local municipality, which has a different set of approvals. Irrigation, which is the largest water user in the province, is regulated under the Irrigation Districts Act, administered by Alberta Agriculture and Irrigation (AAI), but approvals for larger modernization programs are through AEPA. The *Public Lands Act* protects the bed and shoreline of waterbodies, but municipalities regulate floodplain and shoreline development with limited input from AEPA, which sometimes results in different requirements for development plans. More recently, the introduction of the Impact Assessment Agency and the potential introduction of a Canada Water Agency is causing additional uncertainty around the federal role in water management. There are many more examples of where **clarity around jurisdiction and approval processes would streamline economic development and municipal growth, while protecting our environment and ensuring safe, secure drinking water for all.**

Finally, internationally, and domestically, the investment community is paying greater attention to water risk. Environmental Social and Governance (ESG) reporting is becoming a requirement for public and private companies, as is clear articulation of their operating risks and mitigation plans associated with water. **This is driving increased interest by operators, producers and head offices in water management plans and the underlying data needed to support the assessment of risk and mitigation plans, beyond required regulatory reporting.**

### **Water Initiatives That Will Make a Difference**

Within this context, here are some key initiatives that can make a difference over the next few years:

1. **Complete Water Management Plans for every major river basin in Alberta**, and update those already in place. All basins need the thoughtful and collaborative discussion and direction on water

related values, objectives and limitations that was experienced in the development and approval of the South Saskatchewan River Basin Water Management Plan in 2006. All water users in all basins would benefit from the water quantity, water quality and water management certainties that are provided through the Plans. Recent experience demonstrates that this degree of water focused consideration and certainty is not achieved through other planning mechanisms. Land-use planning depends on water availability and security, not the reverse.

For example, continued collaborative planning and integration processes in the Peace/Slave and Athabasca basins would allow for the challenging conversations around the impacts of upstream hydropower development on downstream communities, how to deal with water impacts of resource extraction of hydrocarbons and forestry, and the future of the Peace-Athabasca Delta. A collaborative, science-based approach to water management in the entire North Saskatchewan River Basin may identify opportunities to support the growth of new industries in the Alberta Industrial Heartland, while protecting the interests of the communities that depend on the river for their continued growth.

In addition to the value added directly to water resource management from these collaborative planning processes, they also support long-term economic development planning and the energy transition in particular. Water quality and quantity is key to energy production, and many zero-carbon sources of energy are especially dependent on water. Agri-food processing, including advanced technologies in plant protein and biofuel production, requires significant amounts of water and energy. The sectors of agriculture, energy and water management are highly interconnected, and therefore the detailed planning processes to develop water management plans can also provide the overarching understanding that supports good decision making for the direction of economic development.

These collaborative processes need to be sponsored and led by the water managers in the basin, with the government as participants, not drivers or decision makers. In several of the aforementioned basins, leadership of these processes has been assumed by the Watershed Planning and Advisory Councils (WPACs). The role of the government as a regulator is to review and approve the projects that come out of these processes. A recent report on the updated South Saskatchewan River Operations Model outlines the benefits of these collaborative processes and how they might be governed going forward.

- 2. Expedite Alberta Environment and Protected Areas and Alberta Energy Regulator approvals.** While some approvals, for items such as temporary diversion licenses or codes of practice, can be approved in timely fashions, the usual expected wait time for water approvals of even the simplest nature can be eight to twelve months, with many applications waiting for two years or more. These delays impact the competitiveness of our industries. Recent investments in systems (e.g., DRAS) are encouraging, but so far have not significantly reduced approval times. Based on experience, the regulatory staff is committed and knowledgeable. Clarity of jurisdiction and responsibilities, as well as consistent interpretation of the *Water Act* and EPEA, would greatly assist them in their duties. A

process of regulatory review has been underway in AEPA for the last few years, which should provide a roadmap for how to improve the system. A recent review of these processes conducted by the Auditor General's Office may provide additional background and input as to how to further streamline these processes.

- 3. Issue key policies that are currently in draft, specifically the Water Reuse and Stormwater Use Policy, and build on the Water Conservation Policy.** The Water Reuse and Stormwater Use Policy has been in draft form or in development for many years. Industry and municipalities need this policy to provide clarity on critical issues like water conservation, reuse, and stormwater use, which have become much bigger opportunities for water management over the last decade. The Water Conservation Policy was issued for the upstream oil and gas industry, but the necessary implementation framework has not been issued by the AER. In addition, the principles outlined in this policy are applicable in all industries, as well as for municipalities. The issuance of these policies supports the transition towards risk-based regulation, which will provide clarity for water users and reduce regulatory barriers associated with historic regulatory instruments (e.g., restrictive definitions), enabling improved economic and environmental outcomes. Especially in instances of innovation in industry, the regulatory barriers of the current systems make progress on anything non-routine incredibly challenging. There are other key policies, but these two stand out because they impact both AEPA and AER and contribute to the issues of approval delays noted above.
  
- 4. Maintain momentum on flood and drought adaptation and mitigation strategies and actions.** 2013 saw devastating floods that raised the profile of flood preparedness throughout the province. Since then, severe drought conditions have occurred in various parts of Alberta almost every year. The provincial mandate on climate change must do more to recognize and drive adaptation for our water management systems and resilience for our watersheds. This means continuing to systematically assess and implement options for flood and drought adaptation and mitigation, based on good science, policy, and engineering, while recognizing the social and environmental impacts of these actions. Note that the responsibility for disaster risk reduction has been moved to the Ministry of Public Safety in the recent mandate letter to that Ministry. Discussion is needed as to the Ministry responsible for flood resilience in the context of basin water management.

The South Saskatchewan River Basin (SSRB) Roadmap, produced in 2016 through the collaboration of hundreds of water managers across the basin, provided a path forward to a more resilient and adaptive watershed that reduces flood risk in affected municipalities, as well as supports continued economic growth across the basin. Many recommendations from the SSRB Roadmap have been implemented or further explored in subsequent and current work. For example, the Bow River Reservoir Options initiative is assessing the feasibility of additional infrastructure on the Bow River upstream of Calgary to reduce flood damage in Calgary, and is also supporting additional irrigation and agrifood development lower in the Bow Basin.

- 5. Focus clearly and diligently on collecting and delivering vital and timely water data and information to businesses and communities in an applied and transparent way.** Many of the water

issues and opportunities in the province, including expanding irrigation and food production, cannot be fully addressed without reliable data that is scientifically validated, and where the monitoring activities and the resulting outputs are open, transparent, available, and understandable to the general public. Effective implementation of the various frameworks and plans for water management depends on effective monitoring. In the current restructuring of the government departments, it is vital that this focus is not diminished. Good water management is grounded on good data and science. Equally important is the need for collaborative analysis and synthesis to produce meaningful interpretation for decision makers.

- 6. Address groundwater issues by committing resources to understand and map groundwater.** It is vital to invest the resources needed to map groundwater and coordinate the research work currently underway. This will specifically support our energy and agricultural industries, as well as rural communities that depend on groundwater for domestic use. Managed sustainably, our groundwater resources may provide a sustainable competitive advantage for the Alberta economy over those jurisdictions that have already squandered this precious resource.

There are recent technologies and systems in use in other parts of the Western Sedimentary Basin that could provide data that would help with this mapping, which is currently within the purview of the Alberta Geological Survey, which is within the AER. WPACs are building awareness regarding how many surface waterbodies are recharged by shallow groundwater, confirming that watersheds are one system above and below ground and need to be managed as such.

- 7. Maintain and increase funding for collaborative water management and watershed organizations across Alberta.** Water is personal, shared, and local. Water programs, policies and practices need to be understood, defined, and implemented at the local level. Grassroots watershed outreach groups [WPACs and Watershed Stewardship Groups (WSGs)] are the essential and effective forum for watershed-based activity. Their grassroots work needs continued support, as they will do much of the heavy lifting for local outreach and engagement for all the initiatives outlined above.

WPACs and WSGs are a key part of the governance structure outlined in the Water for Life Strategy mentioned previously. These organizations are volunteer driven and are responsible for producing data and science-based State of the Watershed reports. The core funding for these organizations has been through AEPA. The funding structure means that these WPACs basically compete for access to these funds, which at the moment are not enough to allow the WPACs to execute their good work. In addition, the Alberta Water Council is a forum where grassroots organizations meet to assess and support the Water for Life Strategy. The funding structure for these grassroots organizations should be reassessed and increased.

- 8. Continue to work with Indigenous Peoples to incorporate traditional knowledge in water management and watershed planning.** This requires developing and enabling meaningful processes that support the Truth and Reconciliation Commission of Canada (TRC) mandates. The engagement of Indigenous Peoples in current projects, such as the Bow River Reservoir Options project and

several projects in the Regional Municipality of Wood Buffalo, could provide good practices that can be widely shared.

As stated in the 2015 summary, Alberta has a spotlight on its water issues. The initiatives outlined above are intended to help guide the province forward in addressing spotlight issues and providing the policy direction necessary for regulators, municipalities, and operators to implement best in class water management practices now and into the future. This will drive economic growth in Alberta for generations to come.