



# Our Water, Our Future

## A Plan for Action

*Alberta*   
Government



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# INTRODUCTION

## A Renewed Conversation About Water

In February 2013, the Government of Alberta began a renewed conversation with Albertans, including stakeholders, First Nations and Métis organizations about our province's water resources. The conversation built on years of hard work guided by Alberta's Water for Life strategy and its three goals:

- Safe, secure drinking water;
- Healthy aquatic ecosystems; and
- Reliable, quality water supplies for a sustainable economy.

While the commitments of Water for Life continue to serve our province well, we are facing a future that will feature a growing population, an expanding economy and higher expectations about environmental performance. All of these realities will have a profound influence on our water supplies and how we use them.

The Water Conversation engaged participants for their views about enhancements that might be needed to ensure Alberta's water resources will continue to meet our current and future needs. The engagement was broad, involving:

- A total of 20 community conversations held in locations across Alberta;
- A series of in-person conversations with stakeholder groups and others having particular interests in water;
- A series of dedicated conversations with Alberta First Nations and Métis organizations, recognizing their special relationships with water and land;
- A survey, made available online and at in-person conversation sessions;
- The acceptance of submissions from Albertans through post mail, email and social media, including blogs and an hour-long twitter chat; and

- A meeting and written input from the Youth Advisory Panel, which is comprised of Albertans between the ages of 16 and 22 who are committed to improving the condition of the province.

Participants were welcome to share their views about any water issues they felt were important. Four specific topic areas were also presented to participants, given the impacts on water these areas may have in the coming decades:

- Healthy Lakes;
- Hydraulic Fracturing and Water;
- Drinking Water and Wastewater; and
- Water Management.

Those who participated in the Water Conversation spoke passionately about how to better manage and safeguard Alberta's water resources. They provided ideas, advice and compelling personal stories. A summary of the input gathered can be found in the report *Our Water, Our Future: A Conversation with Albertans, Summary of Discussions*.

## Taking Action on Albertans' Views

Based on the input gathered through the Water Conversation, the Government of Alberta has identified a number of strategic actions in each of the four main topic areas.

The strategic actions fall into two categories: short-term and long-term. The short-term actions are designed to respond to immediate priorities identified by Albertans. Action on these priorities will provide a solid foundation for long-term actions, which are more complex and will require further engagement with Albertans as they are pursued.

The long-term actions will inform the renewal of our Water for Life action plan, helping align the Government of Alberta's water priorities and initiatives. With this work, our province will have the blueprint to navigate evolving pressures around water, and to manage our water resources in ways that meet the needs of our society, economy and environment.

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# A PLAN FOR ACTION

## Short-Term Actions

To support the implementation of long-term actions, certain foundational work needs to be done first. Participants in the Water Conversation identified a number of important issues and priorities that should be addressed to set the stage for future work. Accordingly, the Government of Alberta will work with partners to pursue the following short-term actions.



## HEALTHY LAKES

### ACTION:

Enhance lake governance systems to clarify roles and responsibilities.

Participants highlighted the need to strengthen lake governance in the province. There are many groups that play roles with respect to lakes, but right now there is confusion about these roles. Clarifying roles and responsibilities will help these groups collaborate more effectively and work with government in managing Alberta's lakes to help keep them healthy and clean.

To enhance lake governance, the Government of Alberta will play a lead role in participating on an Alberta Water Council team along with other affected stakeholders that will explore how lake management can be improved within the context of provincial policies. Members of the Alberta Water Council along with other affected stakeholders will be invited to participate on this team.

The project team is expected to begin work in fall 2014.

## ACTION:

Fill information gaps to improve lake monitoring, evaluation and reporting.

Although participants supported the idea of a provincial-level policy around lake management, they emphasized the need for better information. Enhanced management of Alberta's lakes and reservoirs is only achievable if there is greater capacity to understand the status of these water bodies and lake-watershed connections through measuring, monitoring and evaluation programs.

To address this, the new Alberta Environmental Monitoring, Evaluation and Reporting Agency ([aemera.org](http://aemera.org)) will lead work to evaluate information that is currently available on Alberta lakes and lake-watershed connections, and will:

- ensure relevant information, based on sound science, is publicly available in an open, transparent and timely manner;
- identify where there is a lack of information gathering capacity;
- outline a practical, implementable path to fill information gaps and address capacity shortfalls so that Alberta can achieve effective lake monitoring, evaluation and reporting; and
- where appropriate, respect and incorporate both community knowledge, and traditional environmental knowledge from Alberta's aboriginal communities.

This will lead to a better foundation of information about the status of lakes and lake-watershed connections. With this, the Alberta government and all those involved in lake management will be able to make more informed policy and management decisions, helping support more consistent lake management across the province.

The evaluation work will occur in 2015-2016.

## ACTION:

Enhance public awareness about lake management to further support Albertans in keeping lakes clean and healthy.

There was widespread agreement among participants that all Albertans have a significant part to play in lake management, but that many people may not fully recognize this. By better understanding how their day-to-day decisions impact lakes, and the contribution Alberta's lakes make to our overall quality of life, Albertans will be positioned to take actions that support lake management and help keep lakes clean and healthy.

To empower Albertans with this knowledge, the Government of Alberta will work with partners to identify specific studies and programs that should be undertaken to raise awareness in priority areas. These efforts will build upon the successes of existing partnerships between government and local groups that provide programs such as Respect our Lakes and LakeWatch. Respect our Lakes is an education and awareness program that informs the public about lake and lakeshore values to aid in achieving lake management outcomes and LakeWatch is a partnership among the Alberta Lake Management Society, Environment and Sustainable Resource Development (ESRD), and stewardship groups to engage Albertans in water quality monitoring and education.

A specific focus area for Environment and Sustainable Resource Development is that of aquatic invasive species. The department has established a monitoring program and has begun training on prevention methods for staff, local officials, members of environmental groups and Watershed Planning and Advisory Councils (WPACs). In 2015, a multi-stakeholder group comprised of members from the Alberta Water Council is expected to provide recommendations to the Government of Alberta on the issue.

Albertans also raised concerns about algal blooms in lakes. To help address the issue, Alberta Health is supporting research by the University of Alberta into early detection of harmful algal blooms. This work will provide species composition and cell count data to Alberta Health Services to inform their process for advising Alberta's recreational lake users. Work is expected to be complete by 2015.



## HYDRAULIC FRACTURING AND WATER

### ACTION:

Expand the 2006 Water Conservation and Allocation Policy for Oil Field Injection to include water conservation measures for hydraulic fracturing.

Develop a policy guideline setting out water conservation practices for hydraulic fracturing.

Perhaps the strongest message received from participants was the need to reduce the use of fresh water by hydraulic fracturing operations and consider alternative water sources.

Alberta has already made progress in this area with other upstream oil and gas activity. Since 2006, Alberta has required oil and gas operators to minimize the use of freshwater in the processes used to enhance oil and bitumen recovery. The Water Conservation and Allocation Policy for Oil Field Injection requires industry to seek deep saline groundwater sources and use technological alternatives to minimize the use of fresh water. Since the policy was implemented, freshwater use per unit of oil produced has been reduced by almost 30 per cent as of 2010.

In collaboration with Alberta Energy and the new Alberta Energy Regulator, ESRD is updating the existing Water Conservation and Allocation Policy for Oil Field Injection and is developing a policy guideline regarding water conservation practices in hydraulic fracturing operations. A goal of the policy guideline will be to minimize industry's use of fresh water.

From April to June 2014, a range of groups, including First Nations, Métis, environmental groups, industry, the public and municipal associations, were engaged to inform the development of the draft policy and the guideline.

The policy and guideline will be finalized in early 2015, for implementation by the Alberta Energy Regulator.



## ACTION:

Develop and implement science-based standards for baseline water well testing near hydraulic fracturing operations.



Expansion of Provincial Groundwater Monitoring network in Unconventional Oil and Gas Development area: Buck Lake Drilling Site

A clear message received through the Water Conversation was the need to protect groundwater sources. Many residents, especially those in rural communities, depend on groundwater for their drinking water and livelihoods. Participants emphasized the importance of maintaining the quantity and quality of groundwater sources, and providing assurance that these sources are not undermined by hydraulic fracturing operations. Some were familiar with the baseline water well testing program Alberta introduced in 2006 for areas of coal bed methane development and felt it provided assurance to landowners who had questions or concerns. Testing results are available on ESRD's website at <http://groundwater.alberta.ca/WaterWells/>

To provide assurance that groundwater is being protected during hydraulic fracturing activity, ESRD will develop standards for baseline water well testing near hydraulic fracturing operations. Based on science, the standards will be developed in collaboration with Alberta Energy and the Alberta Energy Regulator, and will be informed by stakeholders.

The standards are expected to be finalized in early 2015.

## ACTION:

### Provide balanced and credible information on how Alberta manages hydraulic fracturing.

It is essential that Albertans have access to greater information about hydraulic fracturing. Throughout the Water Conversation, participants repeatedly signaled that there are gaps in public knowledge about hydraulic fracturing operations. A lack of credible information can quickly lead to a lack of trust and confidence in Alberta's water resources. People want assurance that the Government of Alberta is knowledgeable about hydraulic fracturing operations, their locations, and their risks, and they want this knowledge to be shared.

To provide balanced and credible information, the Government of Alberta will develop an information website in stages that could be modelled on the Oil Sands Information Portal ([www.environment.alberta.ca/apps/osip/](http://www.environment.alberta.ca/apps/osip/)). The website will eventually include information on:

- baseline water well testing results;
- water licensing and water use by hydraulic fracturing operations; and
- groundwater observation well data.

The Government of Alberta will also continue to support Fracfocus.ca, a repository of information on hydraulic fracturing in Canada. Staff of the Government of Alberta will also be available, on request, to speak to community groups about hydraulic fracturing, how it is currently managed and policy initiatives underway to enhance that management.

The website's development will be staged, with initial information on the website in late 2014. Information will be added and updated as data becomes available, and as a database system is completed to support data delivery.

## ACTION:

Support research that will enhance understanding of and protection for natural resources in areas of hydraulic fracturing.

Participants stressed the need to safeguard Alberta's natural resources, which are important for maintaining safe and secure drinking water, agricultural production and recreational opportunities. They said strict controls around chemical use and waste disposal are essential. Many said the integrity of groundwater sources is critical and there needs to be a greater understanding of groundwater resources.

Accordingly, the Government of Alberta will support research efforts that broaden understanding around environmental protection during this activity. In order to better understand waste disposal in the industry, ESRD is supporting a review of wastewater management practices used in hydraulic fracturing across North America, led by the University of Alberta. In order to gain a better understanding of groundwater resources, Alberta Innovates Energy and Environment Solutions (AI-EES) is funding a study led by the University of Calgary that will look at groundwater quality characteristics as they relate to hydraulic fracturing. The study will use data collected at more than 150 sites across the province from the Groundwater Observation Well Network that is operated by Environment and Sustainable Resource Development. The study will create a better understanding of current groundwater quality to help evaluate potential impacts of hydraulic fracturing in the future. A University of Calgary study supported by the Government of Alberta will summarize current research approaches and knowledge of hydraulic fracturing. It will also identify knowledge gaps and present practical research approaches to address them. The Government of Alberta is supporting work being done by the Petroleum Technology Alliance of Canada (PTAC) to support an alliance-led inventory of surface water, groundwater and saline groundwater sources in west-central Alberta. This will support an integrated, sub-regional approach to regulating hydraulic fracturing.

A comprehensive review of the current practices, future trends, and potential environmental impacts of hydraulic fracturing is being sponsored by AI-EES. This report, along with the PTAC research is expected to be completed in 2014.

The university-led projects are expected to be complete in 2016.



## DRINKING WATER AND WASTEWATER

### ACTION:

Promote information about Alberta's drinking water and wastewater systems.

Many participants felt Albertans have low levels of awareness about how drinking water is provided, including the true costs of delivering the service, which can be hidden to the consumer. Participants said work needs to be done to raise awareness among Albertans about how drinking water and wastewater systems work in order to help sustain the systems.

Some suggested Albertans may be unaware that they do not pay for water but they do pay for the systems that treat and transport water to and from their homes. The cost of maintaining and updating these systems is not always reflected at the local level and as such, Alberta has been working with communities to consider the “full cost accounting” of such systems, which involves the need for waterworks systems to develop financial plans that would demonstrate how infrastructure and operations would be sustained over time to ensure the provision of safe drinking water.

Given the importance placed on safe and secure drinking water, it is important that Alberta engages the public to build greater understanding about ways in which we can all continue to support safe and sustainable drinking water and wastewater systems. To achieve this goal, the Government of Alberta will develop a water literacy plan that would complement other environmental literacy plans for air, land, and biodiversity. These actions will promote environmental stewardship among Albertans by increasing awareness, knowledge and skills in order to bring about collective action in support of future drinking water and wastewater policy.

An interim water literacy strategy is expected to be in place by fall 2014.

## ACTION:

Work with municipalities to identify opportunities for enhancing the sustainability of municipal water systems.

Participants in the Water Conversation recognized the need to make municipal water systems more efficient and sustainable. However, Albertans want this to happen in ways that respect local decision-making so that municipal water systems continue to meet local needs and priorities. Each community's water system faces a unique set of challenges.

Accordingly, the Government of Alberta will continue to act as a resource, facilitator and catalyst for local action to enhance drinking water and wastewater systems. In cooperation with the Alberta Urban Municipalities Association and the Alberta Association of Municipal Districts and Counties, ESRD will leverage its networks and expertise to:

- help individual municipalities understand future local and regional challenges facing their systems, including demand forecasts;
- help municipalities identify and implement possible solutions, including opportunities for partnership with other communities;
- continue to support municipalities in adopting full-cost accounting models for their water systems; and
- support the Government of Alberta's "Working Well" program, which provides information to well owners on the proper design, construction, operation, and maintenance of drinking water wells.

This is an ongoing effort that will continue as long as it is needed.

## ACTION:

Develop a common approach for establishing source water protection plans to be used in all watersheds.

A recurring comment from participants was that sources of drinking water should be rigorously protected. If these sources are kept clean, less extensive treatment of drinking water is required and fewer treatment costs are incurred, helping make water systems more sustainable. Participants also made the point that protection of source waters generally makes sense from an environmental perspective and from a water management perspective.

In-line with this thinking, the Government of Alberta will develop tools such as provincial guidelines for the protection of source waters. The guidelines will enhance existing regulations, policies and strategies that currently support Alberta's approach to source water protection. As part of this process, the Alberta Water Council has identified this issue as a potential Council project and will be forming a multi-sector working group to further scope out the issue.

An Alberta Water Council working group is expected to commence in late 2014.

## ACTION:

Enhance Alberta's approach to protecting source water by funding research that will provide further information on comprehensive management strategies that will support a common approach for all watersheds.

The Government of Alberta is supporting research led by the University of Alberta that will provide information on both the ecological and economic outcomes of different source water management strategies to sustain healthy, secure water resources for Albertans. This study will assess the impact of strategies on headwaters and downstream water quality, quantity and stream ecology. Implications to drinking water treatment also will be assessed. This research will provide comprehensive information on source water management strategies that is needed to help develop watershed management policies. This study is to be completed in 2016.

AI-EES is also supporting a separate project based at the University of Alberta that is focused on developing rapid monitoring tools for testing the quality of source water that is treated for drinking water. The research will collect and analyze source water samples from sites across Alberta. This work will be complete by April 2016.

#### **ACTION:**

**Advance an outcome-based approach to the management of drinking water systems.**

Drinking water systems vary in scale and reach. Some serve fewer than a hundred and others serve large cities and nearby counties. We heard that regardless of size, all systems should achieve the ultimate outcome of safe drinking water for all Albertans. Recognizing the reality of different types of systems across Alberta, ESRD will work with Alberta Health and Alberta Health Services to review the current drinking water regulatory approach and draft revised regulations that will achieve the outcome of safe drinking water with a “right-sized approach” designed for different systems.

This work will take place over 2014-2015.



## WATER MANAGEMENT

### ACTION:

Support the study of water storage potential in the South Saskatchewan River Basin (SSRB).

Participants overwhelmingly sent the message that enhancing water storage should be a key part of efforts to optimize water in Alberta. These efforts should reflect an “all of the above” approach to water management, including conservation. Developing additional water storage capacity would enable our province to capture water during times of high volume and manage its use strategically throughout the year.

Southern Alberta has some of the tightest limits of water supplies and yet faces rising water demands. As such, it makes sense to place an initial focus on the benefits of water storage in this part of the province.

Alberta Agriculture and Rural Development worked with the Irrigation Council to oversee a study of long-term water management options in the SSRB, to support the needs of the irrigation sector, municipalities, industry and the environment. The study included a technical evaluation of potential storage opportunities and an impact assessment of new storage in the watershed.

A final report was received in summer 2014.



## ACTION:

Pursue pilot projects to increase understanding of water storage management opportunities on the Bow River.

One idea offered by participants was to look at leveraging existing water storage infrastructure, since this would likely be more timely than developing new storage infrastructure.

To explore this, ESRD will pursue a virtual “Water Bank” pilot project. As part of the water bank concept, the project would reserve a volume of water within the existing reservoir system on the Bow River as a means of supporting current and potential future water needs. Water that is already being stored would be released at times that would more optimally meet supply and demand needs including environmental needs downstream. This would help assess the feasibility of leveraging existing storage infrastructure in the Bow River. There would also be the potential to learn more about water management opportunities across the entire SSRB.

Background modelling and analysis work has previously been undertaken. ESRD will build on this work to identify potential opportunities for a pilot in 2014-2015.

## ACTION:

Ensure major water use sectors make concrete, measurable and demonstrative improvements in water conservation, efficiency and productivity.

Participants pointed to water conservation as something that every individual, business and industry in Alberta should always be striving to achieve. If all Albertans and Alberta businesses use less water, then Alberta’s available water supplies can go much further to support our province’s long term social, economic and environmental needs.

A key tool used to encourage water conservation in the province is Conservation, Efficiency and Productivity (CEP) plans. These plans have been developed for the seven major water-using sectors: chemical and petrochemical, forestry, irrigation, mining/oil sands, municipal, oil and gas, and power generation. Under Water for Life, these seven sectors set a target of achieving a 30 per cent improvement (based on 2005 levels) in overall water efficiency and productivity by the year 2015.

With the 2015 target date approaching, ESRD will take steps to examine CEP progress.

- ESRD will develop evaluation and reporting options for assessing the effectiveness of sectors' CEP progress in meeting the 2015 target.
- With the 2015 target date approaching, ESRD will work with the Alberta Water Council to examine CEP progress by determining how to measure the overall success of CEP plans in contributing to achieving the Water for Life outcome of a 30 per cent improvement in overall efficiency and productivity of water use by 2015.

#### ACTION:

Take a provincial-level policy approach to water and wastewater re-use and support research into geographically distinct case studies in Alberta that will identify opportunities for flexibility in regulations to accommodate regional needs.

Through the Water Conversation, participants cited a number of situations where fresh water or potable water supplies are being used in applications where some other form of water would be just as effective. (For example, municipal wastewater being used for hydraulic fracturing purposes.)

ESRD will study and review existing requests that have been made to the Government of Alberta for water re-use. Based on these requests, a policy directive will be issued in the short-term to guide current and immediate re-use applications. ESRD and AI-EES will support additional work to examine water reuse in the province and to better understand the implications of water reuse on river flows. This research will consider three geographically distinct case studies across Alberta to better understand the challenges of water reuse in Alberta, identify alternative solutions and address the economic impact of each alternative, and identify opportunities for the future. This work will be completed in 2014.

Over the medium term, and with ongoing input from re-use applications and the case studies, ESRD will develop a broad water re-use policy that will be applicable to a wide range of potential re-use scenarios.

The Alberta Water Council held a water re-use symposium in June 2014. The input from the symposium will also assist in policy development. Work from the case studies was presented at the symposium.

## ACTION:

Explore approaches for establishing protected water through government-led initiatives and support research led by universities.

The concept of protected water found support among participants. People liked the idea of setting water aside in each river basin to meet ecosystem needs. The main questions were how much water should be protected and how best the scheme should be implemented.

To answer these questions, ESRD will identify approaches that our province can use for establishing protected water, or unallocated water, in each river basin to meet ecosystem needs. Existing planning efforts will inform much of this work. Specifically, ESRD is developing a water quantity management framework for the Lower Athabasca River, which is expected to be implemented in 2015. The framework will manage cumulative water withdrawals in support of both human and ecosystem needs, while balancing social, environmental and economic interests. Through this process, ESRD will explore possible approaches for establishing protected water.

Alberta Innovates Energy and Environment Solutions is funding several initiatives which will support our understanding of protected water. These projects include work by the University of Lethbridge, which will examine water requirements for healthy instream and riparian ecosystems, and research by the University of Alberta, which will address knowledge gaps on impacts to fish from changes in stream hydrology.

## ACTION:

Address potential impacts of climate change on the South Saskatchewan River Basin (SSRB) by studying how Alberta can manage for a range of potential impacts of climate variability throughout the SSRB.

Many participants observed that climate change stands to affect the quantity of Alberta's water resources over time. This could have significant impacts, especially in areas of the province with limited water resources, such as the SSRB. People said it makes sense to examine, prepare for and guard against potential impacts before they occur.

Accordingly, the Government of Alberta will work to improve understanding of the potential impacts of climate variability on the SSRB, and explore how to manage for these impacts. This will be done by making use of existing data, tools and knowledge of water users and decision makers, and building on these where necessary. It will include modeling of potential scenarios (e.g., low flows with drought conditions, and high flows with flooding conditions), and consider potential next steps for implementing adaptation measures. This work started in 2013 and will continue in 2014.

Alberta Innovates Energy and Environment Solutions is funding several initiatives which will support our understanding of potential impacts of climate change in the SSRB and across Alberta. AI-EES, along with the Climate Change and Emissions Management Corporation, is supporting research in the South Saskatchewan River Basin looking at developing strategies to assist communities in adapting to existing and future climate variability, while identifying opportunities for environmental improvement and economic growth. The work will also explore improvements in water storage and infrastructure, as well as the timing of withdrawals, releases and flows, using an informed, collaborative and adaptive approach to water resource management. Work on the Bow, Oldman and South Saskatchewan has been completed, and initial meetings of stakeholders have commenced in the Red Deer watershed. Completion of the work for the entire SSRB will be done by 2016.

AI-EES is also supporting work led by researchers at the University of Regina, in collaboration with the cities of Calgary and Edmonton, to understand how climate change will impact flows on the Bow and North Saskatchewan Rivers. This will allow for improved planning for growth and development of these cities. Another project supported by AI-EES will look at understanding groundwater recharge in the Edmonton-Calgary Corridor. Led by researchers based at the University of Calgary, and in collaboration with ESRD and the Alberta Geological Survey, this work will assist in the long-term sustainable management of groundwater in the province.

## ACTION:

Conduct analysis on conjunctive water use to inform future policy development.

Participants encouraged the Government of Alberta to explore innovative approaches for optimizing water, including conjunctive water as a storage approach. Conjunctive water generally refers to the practice of storing surface water in groundwater basins during wet periods and withdrawing it when needed.

ESRD will work with Alberta Innovates Energy and Environment Solutions, the University of Alberta's Water Initiative, and others to examine different applications of conjunctive use in other jurisdictions. The goal will be to explore innovative options for conjunctive water, such as temporary use of groundwater resources to offset surface water shortages or using an aquifer for underground storage of water from various sources for short and long-term periods.

Further study on how these uses might be applied in Alberta will be completed in 2014-2015.

## ACTION:

Consult with stakeholders on the need to reduce existing tailings ponds

Tailings ponds remain an issue for many Albertans. Participants expressed a number of concerns about tailings ponds, including risks of potential leaking and contamination of land and water sources. Albertans would like tailings ponds to be reclaimed as soon as possible.

As part of the commitment under the Lower Athabasca Regional Plan, the Government of Alberta is working on a framework that will lay the groundwork for addressing current and future tailings ponds. The intent of the framework is to guide the long-term management, including slowing the rate of growth and eventual decrease in Alberta.

Initial engagement has taken place with stakeholders, First Nations and Métis. Pending approval, implementation of the framework will take effect in 2015.

## Long-Term Actions

As part of the Water Conversation, participants were presented with a number of possible options for enhancing Alberta's water policies and management approaches in the future. Not all of the options were supported by Albertans, who in some cases told us to go back and do more detailed work and carry out further public engagement. However, the long-term actions below represent the areas where Albertans provided strategic direction for the long term and urged us to move forward.

### Healthy Lakes

**ACTION:** Advance a provincial lake policy that supports an integrated approach to healthy lakes in support of economic, environmental and social interests.

Participants in the Water Conversation recognized the need for a provincial-level policy to guide the management of lakes in Alberta. They provided several examples of how lake management can be strengthened, including more coordinated and consistent policy regarding development on and around lakes. Participants emphasized the importance of having a provincial policy that takes a holistic and integrated approach, considering not only individual lakes but also water bodies upstream and downstream of lakes. The policy needs to preserve local decision-making and flexibility, and support the various social, economic and environmental interests that Albertans have in our province's lakes.

### Hydraulic Fracturing and Water

**ACTION:** Advance an integrated, sub-regional approach to hydraulic fracturing providing assurance that water supply and quality are safe and secure.

One proposed concept presented to participants was the use of sub-regional approaches to regulating hydraulic fracturing. This would help ensure that the procedures required of hydraulic fracturing operations are suitable and appropriate for the surrounding geological conditions, which vary considerably across the province. Participants supported this concept, but emphasized that these efforts must support the "bottom line" of protecting water supply and water quality.

## Drinking Water and Wastewater

**ACTION:** Develop options for watershed/regional-focused approaches to support the sustainable management of drinking water and wastewater systems.

There was a widely shared view among participants that municipalities should collaborate on the management of drinking water and wastewater systems. This would realize efficiencies, help make water systems more sustainable, and in some cases bring reliable drinking water supplies to more Albertans in rural areas. However, participants signaled that the Government of Alberta needs to examine different options for encouraging collaboration, to avoid creating unnecessary bureaucracies or interfering with local decision-making. This includes options that consider collaboration at the watershed level, recognizing that drinking water sources (and wastewater returns) in a watershed are connected.

**ACTION:** Develop options for First Nations, Métis Settlements, Municipal, Provincial and Federal governments to collaboratively provide water and wastewater services on First Nations reserves and Métis Settlements.

First Nations and Métis Settlements expressed concerns about quality, quantity and assured access to drinking water. While First Nations would like to own and operate their own water systems, they see challenges with federal funding and also experience the same difficulties that many small communities across Alberta have in retaining the necessary capacity to maintain or upgrade the water systems when necessary. There was interest in collaboration in areas where the infrastructure, such as all-weather roads, would support such opportunities for regional management of water systems.

## Water Management

**ACTION:** Optimize the water management system by taking actions on the water demand and supply sides, and enhancing overall system clarity.

A range of enhanced management strategies were presented to participants, all consistent with the goal of optimizing the use of Alberta's water. Pursuing these strategies would help our province better match water supplies with water demands throughout the year. The management strategies included those on the supply side, such as developing more water storage in Alberta, and on the demand side, such as further encouraging water conservation. Once progress has been made towards the Water For Life 2015 target of a 30 per cent improvement in the overall efficiency and productivity of water use by major sectors, Albertans will be moving forward with future conservation efforts. Albertans said the sectors need support from the Government of Alberta through maintained and enhanced programs, such as those that currently help agricultural producers adopt technology, infrastructure and management practices that improve water-use efficiency, all with the goal of encouraging the major sectors and all Albertans to conserve water.

Many of these enhanced management strategies are not overnight fixes, but will require culture changes over the long-term and ongoing research, such as projects funded by Alberta Innovates Energy and Environment Solutions. This research will be guided by a renewed Alberta Water Research and Innovation Strategy that will help ensure Alberta will be prepared and able to manage changing water needs in the future.





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# CONCLUSION

Albertans care deeply about the province's water resources, and they recognize the importance of these resources for meeting our social, economic and environmental goals now and in the future. Participants in the Water Conversation offered many ideas about how the Government of Alberta, stakeholders and all Albertans can take action to accomplish this.

This action plan is a reflection of their wisdom, experience and perspectives. With a shared commitment to enhance our policy and management approaches, we can ensure that Alberta's water resources are clean, healthy and abundant for current and future generations of Albertans.







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