



Submission

House of Commons Standing
Committee on Environment and
Sustainable Development's Study on
Freshwater in Canada

May 2021

DM #388520

The Canadian Association of Petroleum Producers (CAPP) represents companies, large and small, that explore for, develop and produce natural gas and oil throughout Canada. CAPP's member companies produce about 80 per cent of Canada's natural gas and oil. CAPP's associate members provide a wide range of services that support the upstream oil and natural gas industry. Together CAPP's members and associate members are an important part of a national industry with revenues from oil and natural gas production of about \$116 billion a year. CAPP's mission, on behalf of the Canadian upstream oil and natural gas industry, is to advocate for and enable economic competitiveness and safe, environmentally and socially responsible performance.

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Overview

CAPP appreciates the opportunity to submit a brief to the House of Commons Standing Committee on Environment and Sustainable Development, for consideration as part of its study of freshwater policy in Canada. For the upstream oil and natural gas sector to thrive in Canada, it requires access to freshwater to support sustainable operations and to remain economically competitive. CAPP's submission is organized according to the provided questions for stakeholders to guide submissions.

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1 Overall recommendations

Canada benefits from a robust regulatory system for the management of fresh water that leverages the division of powers between the federal government and provincial government. The system has played an important role in protecting Canada's fresh water in the context of resource development and the upstream oil and natural gas industry has been pleased to work with governments to provide our expertise and to support environmental protection.

CAPP does not support an expanded role for the federal government in the management of fresh water. Such an expanded role is likely to bring further duplication and inefficiency into Canada's regulatory framework, which was ranked 38th out of 141 economies in 2019¹. Canada's high burden of government regulation compared to other countries negatively impacts its business environment, at a time when attracting investment is critical for economic recovery. We recommend creating efficiencies and synergies within areas of federal responsibility for freshwater, rather than seeking to expand those responsibilities.

CAPP strongly recommends that the federal government leverage the Canadian Council of Ministers of the Environment to pursue its objectives with respect to freshwater management. There is successful precedent for this approach and it ensures a one-window approach to regulation as well as adaptability for different provincial contexts.

2 Introductory information

a) Which issues related to protecting and managing freshwater does your organization work on?

Water plays an important role in upstream oil and natural gas development, and protecting freshwater resources is a priority for CAPP members. The majority of the freshwater issues CAPP works on are within provincial jurisdiction.

- Improving freshwater use performance
 - Continuous performance improvement through innovation is an area of significant focus for CAPP members; the upstream oil and natural gas sector is continually seeking ways to optimize water use and management in operations and reduce freshwater use
 - CAPP advocates for a regulatory environment that enables the use of alternatives to high-quality freshwater; for example, saline groundwater, municipal wastewater, hydraulic fracturing flowback, tailings pond water
 - Through ongoing innovation, the upstream oil and natural gas sector has achieved high rates of water recycle in conventional oil and in situ and

¹ World Economic Forum, *The Global Competitiveness Report – 2019*:
http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf

mineable oil sands operations, which has considerably reduced the water footprint of these sub-sectors

- CAPP participates on the Alberta Water Council, including in initiatives such as Water Conservation, Efficiency and Productivity (CEP) sector planning to improve freshwater use intensity associated with operations and minimize freshwater use
- Operators share water on a local scale to reduce freshwater use; for example, the Montney Water Operators Group's water sharing initiative in northeastern British Columbia allows members to post water requirements or surplus water volumes to a website and arrange for its transport to a site
- Data collection, monitoring and reporting
 - Freshwater used for oil and natural gas production is licensed through provincial regulators, and water diversion licenses contain conditions regarding allowable volumes, flow rates and timing of withdrawals
 - To comply with provincial regulatory approvals, operators are required to undertake ongoing surface water and groundwater quality and quantity monitoring programs and wetland monitoring programs to detect potential impacts from operations
 - Operators are required to report data related to water use as well as monitoring data to provincial regulators
 - The sector also participates in regional monitoring programs in partnership with governments to assess the condition and trends in water quantity and quality relative to regulatory limits
 - Rigorous guidelines and approvals are in place that dictate allowable water quality, including industrial release limits and water quality based effluent limits
 - The sector develops industry best practices for protecting water resources, such as [CAPP's hydraulic fracturing guiding principles and operating practices](#)
 - Hydrological and hydrogeological modeling is undertaken to plan location and distribution of water for on-site constructed wetland and lake features (closure lakes, compensation lakes) on oil sands mine closure landscapes
 - Fluid tailings management planning is required for oil sands mines
- Research and development
 - Regulatory approvals for in situ and mineable oil sands projects require operators to undertake research related to water quality, reclamation and closure outcomes including wetland reclamation
 - The sector collaborates on and invests in multiple areas of innovation directly relating to improving water use performance through Canada's Oil Sands Innovation Alliance (COSIA) <https://cosia.ca/research/water> and the Petroleum Technology Alliance Canada (PTAC) <https://auprf.ptac.org/water/>

3 Interaction and collaboration with federal departments and agencies

a) Does your organization interact with federal departments and/or agencies on freshwater issues? If so, on which issues and with which departments and/or agencies?

CAPP or its members engage with the following federal departments and agencies:

- Environment and Climate Change Canada (ECCC)
 - Oil Sands Monitoring (OSM) program – cumulative effects monitoring
 - Federal environmental assessment process
 - Integrated water management
 - National Pollutant Release Inventory (NPRI) reporting
- Department of Fisheries and Oceans (DFO)
 - Constructing compensation lakes on oil sands mine closure landscapes
 - Deleterious substances
 - Notification and inspection of watercourse crossings
 - Authorization of monitoring around outfalls
- Transport Canada
 - Major and minor works in navigable waters (infrastructure, dredging)
- Natural Resources Canada
 - CanmetENERGY research relating to hydraulic fracturing and water
- Canadian Council of Ministers of the Environment (CCME)
 - Canadian Water Quality Guidelines

b) Do the specific freshwater issues targeted by your organization fit within the mandate of a given federal department and/or agency or do they relate to more than one department and/or agency? If more than one, have you been able to identify a lead department and/or agency with which to engage?

- The freshwater issues CAPP engages on federally generally fit within the mandate of a single department or agency, with the exception of aquatic species at risk, where it is unclear whether the lead agency is DFO or the Canadian Wildlife Service.
- Since more than 20 federal departments and agencies have responsibilities for freshwater, CAPP strongly recommends the federal government focus on creating efficiencies rather than adding another agency with freshwater responsibilities.
- The CCME Water Management Committee, which manages intergovernmental approaches to water issues in Canada, should steward the progress of the federal government's freshwater objectives rather than creating a new agency to do so.
- A potential expanded federal role in provincial water matters would introduce overlapping responsibilities with provincial regulators in addition to intersections between federal departments on freshwater, further complicating the regulatory environment.

c) Have you encountered notable successes in engaging with the federal government on freshwater issues? If so, please specify. If you have not had success in doing so, what in your opinion is the reason (e.g., no program available tailored to your needs, no

identifiable service or unit within a department and/or agency with which to engage)?

- CAPP members have had the following positive experiences on federal engagement with respect to freshwater:
 - Collaboratively working with DFO (Western Canada and Arctic Regions) on compensation lakes;
 - ECCC has been receptive to input from industry with respect to the groundwater monitoring component of the Oil Sands Monitoring program; and
 - Engaging with ECCC on NPRI with respect to reportable substances.
- There have been challenges on freshwater issues that are not top priority for the current government; i.e., urgent priorities drive focus, but longer-term issues do not receive the same attention.
- An additional challenge has been when governmental change results in reversal of progress related to regulatory efficiencies and certainty, which creates an unstable policy environment for sectors.

d) Do you foresee engaging with the new Canada Water Agency? If so, in what way? What are your organization's expectations with respect to the Agency?

- CAPP recommends that the federal government pursue its objectives through a model like the CCME Water Management Committee instead of a new Canada Water Agency. This would avoid duplication of responsibilities and leverage regionally appropriate models for fresh water management.
- CAPP would highlight the significant risk of overlap in purpose and activities between the proposed Canada Water Agency and the provinces' constitutional authority over water.
- Prior to establishing a new agency, CAPP recommends that the federal government review and identify opportunities for its freshwater management objectives to be met through existing public organizations, including through consolidation among the 20 federal departments with responsibilities for water management.
- If a new Canada Water Agency is created, it needs a clear and focused purpose with achievable outcomes and deliverables. CAPP's submission dated February 18, 2021 on the Creation of the Canada Water Agency (included as Appendix A) recommended four key principles:
 - Respecting jurisdiction and constitutional authority over water;
 - Any proposed changes to freshwater governance should be transparent and consider impacts to economic sectors' water security;
 - Creating efficiencies and synergies within areas of federal responsibility; and,
 - Focus on data dissemination and knowledge sharing.

4 Federal water legislation, policies and regulations

a) Does your organization interact with federal departments and/or agencies on policies,

legislation, regulations, or funding programs related to freshwater? If so, please specify.

- CAPP engages with provincial governments and regulators on freshwater more than the federal government. Some topics of federal interaction include:
 - Oil Sands Monitoring Program
 - *Canadian Navigable Waters Protection Act*
 - *Fisheries Act* (Bill C-68, Standards and Codes of Practice)
 - *Impact Assessment Act* (Bill C-69)
 - Canada Water Quality Guidelines

b) Can you identify any current gaps in federal water legislation, policies, regulations, and/or initiatives, or in general across jurisdictions? If so, please specify.

CAPP has identified four gaps that the federal government could help address in collaboration with provincial governments, within the existing federal freshwater mandate.

- Federal initiatives to educate and promote existing freshwater management practices of economic sectors across Canada
- Inconsistent mechanisms to facilitate integrated water management for economic sectors across Canada:
 - A risk-based approach for all sectors that leverages existing federal mechanisms is needed for effluent management.
- Regional gaps in terms of where federal freshwater data is collected:
 - Data collection tends to be concentrated in areas of interest and is not evenly distributed geographically, which creates challenges for sectors with initiatives in areas where there is a paucity of data to inform decision-making.
 - Reduced funding for the Water Survey of Canada has led to the cessation of water quantity monitoring at some historical hydrometric stations.
- Interprovincial mechanisms to share water:
 - It is not always possible to share water in drought conditions on a watershed scale between two or more jurisdictions.

c) Do you feel the federal government could play a more effective role in protecting watersheds in Canada? If so, which watersheds and how?

- The federal government should prioritize management of Canada-U.S. transboundary watersheds through existing cooperative models such as the International Joint Commission.
- The provinces and territories should lead the management of watersheds that lie solely within their boundaries, or which span provincial/territorial borders, with the federal government supporting those efforts as needed.

d) Are there areas of freshwater policy, legislation and/or regulation where you feel the

federal government should play a greater role?

- No, the provinces and territories have robust regulatory frameworks in place to govern and manage water.
- The constitutional authority of the provinces in water matters should be firmly respected and their singular regulatory authority should be maintained.
- An expanded federal role in provincial water matters should be avoided as duplication and inefficiencies arise from overlap of provincial and federal legislation and oversight.
- Any contemplated freshwater legislative reform should fully consider the impacts on the business environment and Canada's economic recovery, and a comprehensive economic assessment should be undertaken.

e) Are there areas of freshwater policy, legislation and/or regulation that you feel the federal government should vacate and leave to another level of government or to the private sector?

- Provincial governments successfully manage freshwater matters relevant to our sector, including (but not limited to) water use licensing and approvals, monitoring and reporting, Indigenous and public consultation processes, and water basin management planning.
- It is critical that the federal government respect the jurisdictions of provincial and territorial governments, and focus on clear areas of federal responsibility to avoid inhibiting or duplicating efforts led by other levels of government.

f) Are you aware of instances where federal freshwater policy, legislation, regulations, and/or initiatives have clearly benefitted from your organization's input?

- The multi-stakeholder approach to consultation and the wide array of industry and other stakeholder feedback has generally landed NPRI reporting obligations, as they relate to water, in a place that benefits all stakeholders and the environment.

5 Collection of information and data

a) Do you believe that there is sufficient data collected and made available publicly about freshwater in Canada?

- There is an abundance of freshwater data collected by federal, provincial, territorial and Indigenous governments, communities, and industrial sectors.
- Availability of reliable data is inconsistent in terms of timeliness, accessibility and quality.

b) Do you believe there should be improvement in freshwater-related data-sharing?

- Yes, while an abundance of freshwater data is collected by governments and stakeholders and reported in various forms, consolidation of existing data would extract maximum benefit from these efforts.
- The federal government could play an important role in freshwater data management

and building awareness of existing freshwater initiatives, such as:

- Developing a single freshwater data portal that provides timely data access;
- Broadening the application of existing tools, such as the [Alberta Water Tool](#) and [British Columbia Water Tools](#), across Canada; and
- Promoting sector performance, innovation, partnerships and research related to freshwater.

c) Is there any specific type of data or information you would like the federal government to provide to freshwater stakeholders?

- CAPP recommends the federal government focus on consolidating existing data and ensuring timely access to inform future priorities and information gaps.
- Integrated climate-hydrologic modelling (regional and sub-regional) would be helpful to:
 - Forecast floods and droughts, support mitigations and build community resilience;
 - Forecast which watersheds are at risk of becoming “water-short” or over-allocated under different climate scenarios;
 - Inform sector assessments of water supply risk under different activity scenarios; and
 - Support improved assessment of water risks, building upon third party screening level studies such as the Aqueduct tools (<https://www.wri.org/aqueduct>).

d) Has your organization experienced challenges obtaining well-organized data from the federal government on issues relating to freshwater?

- We have experienced challenges obtaining the following types of federally collected data:
 - Climate data;
 - Meteorological data;
 - Hydrometric data; and
 - Water quality data.

e) Is the lack of standardized data or information across government jurisdictions a problem or challenge for your organization in accomplishing its objectives with respect to protecting and managing freshwater?

- This is a hurdle but not a barrier with respect to protecting and managing freshwater.
- Compiling and reporting datasets in a central location or hub would offer efficiency gains for companies operating in multiple jurisdictions, and would benefit sector environmental performance reporting nationally and internationally.
- Once data is centrally accessible, opportunities and priorities to harmonize datasets could be assessed.

6 International and business issues

a) Should Canada play a greater role internationally in helping find solutions, either

through government and/or the private-sector involvement, to the challenge of global freshwater security?

- Canada should lead by example and prioritize domestic freshwater issues, but adopt a collaborative model with other countries to discuss shared solutions to global freshwater issues.
- A world-class national freshwater data portal that provides timely access to reliable information would showcase Canada's water leadership and support internationally coordinated freshwater data analytics.

b) Do you feel Canadian private-sector companies, including financial institutions, can and should play a role internationally?

- Many of CAPP's member companies are multi-national, sharing expertise between countries and applying minimum standards globally.

c) What role can the federal government play in better supporting freshwater-related academic research, R&D, businesses, products, and services?

- Continue to support Natural Sciences and Engineering Research Council of Canada (NSERC) to fund collaborative, university-based research in freshwater.
- Increasing accessibility to reliable and timely data.

7 Closing

CAPP appreciates the House of Commons Standing Committee on Environment and Sustainable Development considering our input as part of its study on freshwater policy in Canada. If you have questions or require any clarifications, please contact Tara Payment, Manager, Alberta Operations and Water at tara.payment@capp.ca.

Sincerely,



Shannon Joseph
VP, Government Relations and Indigenous Affairs
Canadian Association of Petroleum Producers

Appendix A. CAPP Submission on the Creation of a Canada Water Agency

February 18, 2021

Mr. Michael Goffin
Director General
Environment and Climate Change Canada
via e-mail: ec.water-eau.ec@canada.ca

Dear Mr. Goffin:

Re: CAPP Feedback on the 'Toward the Creation of a Canada Water Agency' Discussion Paper

The Canadian Association of Petroleum Producers (CAPP) appreciates the opportunity to provide feedback to Environment and Climate Change Canada (ECCC) on the Discussion Paper entitled *Toward the Creation of a Canada Water Agency*.

Water plays an important role in upstream oil and natural gas development, and protecting freshwater resources is a priority for Canada's upstream oil and natural gas industry. CAPP broadly supports the ten freshwater management objectives for the federal government that are proposed in the Discussion Paper. In particular, we welcome the objective 'Canada's economic sectors have the fresh water they need to grow sustainably and the tools they need to improve freshwater management and use'. However, we believe the breadth of possible actions associated with the protection of freshwater resources calls for a clear and focused mandate to best position the Canada Water Agency for success. In that regard, we recommend that the federal government design the Canada Water Agency around four basic principles: (1) respecting jurisdiction, (2) transparent governance, (3) efficiencies and synergies, and (4) data dissemination and knowledge sharing.

Respecting Jurisdiction

CAPP appreciates that the Discussion Paper clearly states that the Canada Water Agency will respect the jurisdictions of provincial, territorial and Indigenous governments, and will work collaboratively to advance shared freshwater priorities. We agree that the constitutional authority of the provinces in water matters should be firmly respected and their singular regulatory authority should be maintained. We recommend the Government of Canada focus on aspects within the federal mandate to ensure the Canada Water Agency does not inhibit or duplicate efforts led by other levels of government.

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While the Discussion Paper states “the Government is not embarking on legislative or regulatory changes through this Discussion Paper”, actions to “update, strengthen, and align freshwater policy” are noted as possible opportunities to improve freshwater management. Additionally, the House of Commons recently voted in favour of a motion (M-34) requesting the Standing Committee on Environment and Sustainable Development to undertake a broad review of all federal policies and legislation relating to fresh water. If policy changes lead to legislative changes in the future, CAPP members are concerned about an expanded federal role in provincial water matters, impacts to industry’s water security, and duplicative requirements resulting from overlap of provincial and federal legislation and oversight. CAPP encourages the Government of Canada to fully consider the impacts of any contemplated legislative reform on Canada’s economic recovery, including undertaking a comprehensive economic assessment and a prioritization considering other government initiatives.

Transparent Governance

CAPP welcomes the federal government’s efforts to advance reconciliation with Indigenous peoples with respect to areas under federal jurisdiction. One of the proposed objectives for the federal government is for Indigenous peoples to play an increased role in the management of Canada’s fresh water. If freshwater governance roles are redefined in the future, the Government of Canada should ensure that the process for doing so is transparent to Canadians.

Efficiencies and Synergies

According to the Discussion Paper, more than 20 federal departments and agencies have responsibilities for freshwater. CAPP recommends that the Canada Water Agency seek to create efficiencies, reduce duplication, and improve regulatory certainty for Canada’s economic sectors by clarifying freshwater roles across federal departments and agencies.

Prior to establishing a new agency, CAPP recommends that the Government of Canada review and identify opportunities for its freshwater management objectives to be met through existing public organizations, to avoid duplication and focus efforts going forward. For example, it may be feasible for the Canadian Council of Ministers of the Environment (CCME) Water Management Committee, which manages intergovernmental approaches to water issues in Canada, to steward progress of these objectives rather than creating a new agency.

Data Dissemination and Knowledge Sharing

CAPP members identified a focus on freshwater data management and building awareness of freshwater initiatives as the greatest opportunities for the Canada Water Agency. The federal, provincial, territorial and Indigenous governments, communities and industrial sectors concurrently collect freshwater data and report it in various forms, but coordination is needed to extract maximum benefit from these efforts. A single water data portal that provides timely data access for all Canadians would be a valuable product for the Canada Water Agency to develop, perhaps building upon the Government of Canada's Climate Data Portal.

A credible body of data will support the advancement of science to ensure Canada has the tools to predict, adapt to and manage freshwater challenges, including those related to climate change. CAPP recommends the Canada Water Agency explore opportunities to broaden the application of existing tools, such as the Alberta Water Tool and the Northeast Water Tool in British Columbia.

Please find additional specific feedback on the discussion questions in Appendix A.

CAPP would like to thank ECCC for considering our input. We look forward to further engagement on the creation of the Canada Water Agency. If you have questions or require any clarifications, please contact Tara Payment, Manager, Alberta Operations and Water at tara.payment@capp.ca.

Sincerely,



Shannon Joseph
VP, Government Relations and Indigenous Affairs
Canadian Association of Petroleum Producers

Appendix A: Specific Feedback on Discussion Questions

Discussion Question	CAPP Feedback
3.1 Freshwater objectives	
What are your thoughts on the [proposed freshwater] objectives?	<ul style="list-style-type: none"> • The proposed objectives are very broad. A focused mandate and prioritized agenda for the Canada Water Agency may be necessary to ensure effectiveness. • The Government of Canada should ensure the Canada Water Agency's mandate does not inhibit or duplicate work being undertaken by other federal departments or by provincial, territorial and Indigenous governments. Lending support to existing freshwater initiatives would be appropriate. • Prior to establishing a new agency, the Government of Canada should review and identify opportunities for its objectives to be met through existing bodies. For example, it may be feasible for the Water Management Committee of the Canadian Council of Ministers of the Environment (CCME) to steward the progress of these objectives, rather than creating a new agency. • As outlined in Section 2.2 of the Discussion Paper, there are already more than 20 federal departments and agencies with freshwater responsibilities. If a new agency is established it should identify and clarify existing roles, and seek to create efficiencies and reduce duplication across departments and agencies. This effort could also focus on the data each of those departments is collecting to identify opportunities for consolidation.
Which objectives are a priority for you?	<ul style="list-style-type: none"> • CAPP broadly supports all of the identified objectives; however, we believe that focusing efforts on key opportunity areas will set the agency up for success. • Fresh water plays a role in the construction and operation of many of the upstream oil and natural gas sector's projects; therefore, the objective "Canada's economic sectors have the fresh water they need to grow sustainably and the tools they need to improve freshwater management and use" is important to recognize. • In addition we support the objectives that identify the tools the economic sectors would need to sustainably manage freshwater needs; in particular, "Data and information are available to support informed freshwater decision-making at all levels".

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Discussion Question	CAPP Feedback
Are any objectives missing?	<ul style="list-style-type: none"> The objectives listed are comprehensive.
3.2 Freshwater policy, coordination and multilateral engagement	
What are your thoughts on the current level of federal engagement on freshwater issues with others in Canada? How can the federal government support engagement?	<ul style="list-style-type: none"> The current level of federal engagement on freshwater issues is sufficient, but there may be an opportunity to reduce the fragmentation within the existing federal departments and agencies that have freshwater responsibilities to create efficiencies, reduce duplication, and improve regulatory certainty for Canada's economic sectors. There may be a role for the federal government in raising awareness of freshwater data, initiatives and commitments. Advancing reconciliation with respect to water management matters under federal jurisdiction is a role that the Canada Water Agency could lead. Based on the division of responsibilities between the federal and provincial governments, the federal government could provide support and financial aid for advancing water projects, with the province providing oversight and guidance.
How should federal, provincial, territorial, municipal, and Indigenous governments work together to coordinate efforts and cooperatively address local and regional freshwater issues?	<ul style="list-style-type: none"> The various levels of governments could better coordinate efforts to cooperatively address water matters to enable watersheds to be managed consistently across Canada. The existing CCME Water Advisory Committee is an appropriate forum for engagement on freshwater priorities. The addition of Indigenous leadership would add value to the committee, and experts can be invite as needed based on initiatives being progressed.
How should the federal government support freshwater-related international activities?	<ul style="list-style-type: none"> Build a world-class national freshwater data warehouse that provides timely access to reliable information to showcase Canada's water leadership.
<i>Other feedback on this section</i>	<ul style="list-style-type: none"> The term 'policy' should be defined. Policy is a course or plan of action adopted by a government, and differs from enforceable statutes and regulations. This is an important distinction since the Introduction section states that Government is not embarking on legislative or regulatory changes, but Section 3.2 identifies policy changes as possible opportunities. The first bullet under 'possible opportunities' referencing the establishment of a formal federal governance structure reads like a Memorandum of

Discussion Question	CAPP Feedback
	Understanding (MoU) between federal government departments. Is a MoU the intent?
3.3 Freshwater prediction to inform climate change adaptation and disaster risk reduction	
What scale and geographic precision of modelling output is needed to support your decision-making and how do you see this evolving over the next decade?	<ul style="list-style-type: none"> The impact of climate change on water resources is of considerable interest to water resource managers, industry and the public. The evaluation of natural and anthropogenic impacts on freshwater systems involves assessing various aspects including the hydrologic, ecologic, and climatic systems. Understanding and adequately representing these processes is key to quantifying climate change impacts on water resources systems, and informs water infrastructure decisions. There is a need for regional and sub-regional modelling to support decision-making. Our sector uses historic environmental flow data at the watershed level, and the quality of this data is good. Over the next decade, continued support of these monitoring networks and more robust datasets may be required to support use of water in certain watersheds.
What are your needs for water quantity prediction products, services, and applications?	<ul style="list-style-type: none"> Needs include reliable data that is readily available. Interactive tools are available (e.g., Alberta Water Tool, BC's Northeast Water Tool) that collect historical and real-time information from surface water and groundwater allocation points, and allow users to produce streamflow data and watershed reports. This data is useful for both water users and decision-makers. Free public access to the tools is provided by the Alberta Upstream Petroleum Research Fund (for the Alberta Water Tool) and the BC Oil and Gas Commission (for the Northeast Water Tool). The Canada Water Agency could potentially support the expansion of these tools to other jurisdictions. The upstream oil and natural gas industry does its own modeling and forecasting based on local conditions with a refined (high number of cells) model grid. Consideration should be given to whether the high risk areas in Canada should have models with smaller local grids to provide more detail.
Which of your needs are or are not being met now? How do you see your needs evolving over the next 10 years?	<ul style="list-style-type: none"> Currently, there are inconsistent mechanisms to facilitate integrated water management for economic sectors across Canada. Following a risk-based approach, and leveraging existing federal mechanisms for all economic sectors, will support their competitiveness across Canada.

Discussion Question	CAPP Feedback
	<ul style="list-style-type: none"> • Availability of reliable data has been inconsistent (i.e., timeliness, access to data) and should be improved to better inform management decisions, especially as some oil sands mines near closure. • Insight on potential climate change impacts using state of the art dynamically downscaled climate projections to drive a tightly coupled, fully integrated hydrologic model for watersheds projected to become watershort would be useful. • The Canada Water Agency could facilitate education actions to help inform Canadians on the current state and future risks to freshwater.
3.4 Indigenous peoples and freshwater management	
<p>What are some positive examples of First Nations, Métis, and Inuit participation in freshwater governance and decision-making? How might the CWA present an opportunity for better freshwater management informed by these examples?</p>	<ul style="list-style-type: none"> • Community-based monitoring within the Oil Sands Monitoring Program • Water quality monitoring in the Lesser Slave Watershed in Alberta • NWT Water Stewardship Strategy • There is an opportunity for Canada Water Agency to help facilitate community-based monitoring with Indigenous people.
3.5 Agriculture and fresh water	
<p>How should Canada support the agriculture sector to sustainably manage freshwater resources needed for production and to enhance resilience?</p>	<ul style="list-style-type: none"> • The Canada Water Agency should benefit all sectors.
<p>What new or improved tools or science-related information would help the agriculture sector to enhance water management?</p>	<ul style="list-style-type: none"> • Tools for climate variability should be shared across economic sectors to support sustainable growth and global competitiveness based on the current and projected local climate conditions.
3.6 Economic sectors and fresh water	
<p>What sectors do you believe will face the greatest freshwater challenges nationally, and in your region in the next 5, 10, and 20 years? What support is needed to assist sectors in addressing these challenges in terms of technology, information, and other approaches for sustainable freshwater management?</p>	<ul style="list-style-type: none"> • Municipalities may face the greatest freshwater challenges nationally, both in treating source water for use and treating effluent for release to the environment. The concept of “polluter pays” is well established when it comes to industrial sectors, but does not work well for the municipal sectors. Municipalities will also start to reach water limits as populations grow. • Recent droughts have caused surface water allocation diversions to be temporarily suspended. Continued droughts could have consequences for unconventional gas drilling (hydraulic fracturing) over the long-term.

Discussion Question	CAPP Feedback
	<ul style="list-style-type: none"> Public assurance of responsible water use and that water quality is being maintained is an ongoing challenge for the upstream oil and natural gas sector. Support for education and awareness about industry's efforts to work toward an integrated water management approach, and current industry compliance requirements for water management, mitigation, monitoring and reporting, would be valuable.
<p>What are some positive examples of freshwater challenges addressed in sector-specific strategies and what can we learn from them?</p>	<ul style="list-style-type: none"> The oil and gas sector across Canada and especially in Alberta has made many advances in freshwater management. For example, Canada's Oil Sands Innovation Alliance (COSIA) is an alliance of oil sands producers focused on accelerating the pace of improvement in environmental performance in Canada's oil sands, through collaborative action and innovation. COSIA's Water Environmental Priority Area has a number of priorities in the in situ oil sands and oil sands mining sectors. More information can be found at: https://cosia.ca/initiatives/water Managing water use in drought conditions has led some upstream oil and natural gas companies to formalize agreements to share water on a local scale. It is not always possible to share water on a watershed scale over two or more jurisdictions. The Canada Water Agency could support work toward interprovincial mechanisms to share water. Through the Alberta Water Council, all major water-using sectors in Alberta developed Water Conservation, Efficiency and Productivity (CEP) Sector Plans. These plans and their progress reports can be viewed here: https://www.awchome.ca/projects/water-conservation-efficiency-productivity-1/
3.7 Freshwater science	
<p>What are the <u>priority knowledge and research gaps</u> to be filled to achieve effective freshwater management over the next 10 years?</p>	<ul style="list-style-type: none"> Regional and sub-regional climate variability and forecast projections. Focus on identifying current data requirements and opportunities to consolidate information to better inform future priorities and gaps. Impacts to water quality and quantity in response to a changing climate and variability. Data analytics on inter-jurisdictional watershed boundaries to support better management. Education on current sustainable water management practices.

Discussion Question	CAPP Feedback
How well is freshwater science coordinated today? If further coordination is needed, how might that be accomplished?	<ul style="list-style-type: none"> • Coordination of water data analytics at the local, provincial, national and international level requires better coordination, and is an area the Canada Water Agency could work on.
3.8 Freshwater data	
What are your experiences with freshwater data? What worked well and what areas have the most room for improvement? Are there good models to learn from?	<ul style="list-style-type: none"> • Data is typically collected to address specific issues or as part of regulatory compliance. The systems are not always setup to extract information or to allow for analytical analyses. • High level data collection and maintenance is an area for improvement. Much freshwater data exists, but it isn't consolidated, easy to access or intuitive to find. • Both the Alberta Water Tool https://alberta-watertool.com/ and BC's Northeast Water Tool https://water.bcogc.ca/newt are working well and are good models to learn from. • Gauge stations are not always running. ECCC monitors certain rivers but improved coverage is an opportunity.
What advances in data analytics present opportunities for freshwater management and decision-making? What can the Government of Canada do to capitalize on these opportunities?	<ul style="list-style-type: none"> • Data collection and availability to the public should be a priority and key to developing other scientifically based options to managing water. • A key opportunity is the creation of an online freshwater data warehouse that integrates data collected by provinces, territories, communities and Indigenous governments for use by all Canadians. • The Alberta Energy Regulator (AER) issues an annual Alberta Energy Industry Water Use Performance Report that publicly discloses water use information accompanied by interpretation and context to help inform the public and build trust. The Canada Water Agency may want to emulate this model in other areas or across sectors. This report is available at: https://www.aer.ca/protecting-what-matters/holding-industry-accountable/industry-performance/water-use-performance • Machine learning could be utilized for trends and to develop options.
What are examples of where compatibility and interoperability of data across orders of government and with non-government organizations has been achieved? What can we learn from these examples?	<ul style="list-style-type: none"> • NWT Water Stewardship Strategy • Uncertain if this has been achieved in Canada. There are some positive examples from Alberta and the NWT, but unaware of this being effectively achieved at the interprovincial level or nationally.

Discussion Question	CAPP Feedback
3.9 Transboundary freshwater management	
Canada has many positive examples of transboundary freshwater management. What can we learn from these experiences and build on moving forward?	<ul style="list-style-type: none"> Domestic transboundary matters should be led by the provinces and territories directly involved. The federal government could moderate when disagreements arise.
What is needed to ensure that water boards have the science and data they need to manage and protect transboundary waters, including in the context of climate change adaptation?	<ul style="list-style-type: none"> The federal government could establish an online freshwater data warehouse.
3.10 Freshwater technology, innovation, and infrastructure	
What are your thoughts on the technology and infrastructure priority areas identified above? Should others be considered?	<ul style="list-style-type: none"> The upstream oil and natural gas sector puts a strong emphasis on technology and innovation to support environmental outcomes. For example, COSIA's Water Environment Priority Area has undertaken many projects that relate to the priority areas identified in the Discussion Paper. www.cosia.ca Technology innovations tend to remain within the sectors that develop them. The Canada Water Agency could work with applicable parties to develop a water technology warehouse to share technology successes and challenges.
What are the most important freshwater infrastructure priorities for your community, including those needed to adapt to a changing climate?	
What models should the Government of Canada consider to enhance coordination and collaboration on freshwater technology, innovation and infrastructure?	<ul style="list-style-type: none"> There are existing efforts in the area of freshwater technology that are already quite successful. The main barrier has been access to consistent funding.
3.11 Engaging Canadians in managing and protecting fresh water	
What specific tools and approaches will be most effective in advancing high-quality citizen and community science and data for freshwater decision-making, and in enabling involvement by all groups?	<ul style="list-style-type: none"> It is important to start with a better understanding of community questions and concerns, and how each community would like to monitor and manage a program and data. Where possible, conducting monitoring using standard operating procedures should be incorporated to enable a comparison with broader program components. Increased levels of transparency and communication of existing programs from both western science and

Discussion Question	CAPP Feedback
	citizen/community programs will improve understanding of current conditions and gaps and priorities going forward.
3.12 Overarching discussion questions	
What are your views on the possible opportunities to enhance freshwater management identified in sections 3.2 to 3.11? Which should be the highest priority? What is missing?	<ul style="list-style-type: none">As outlined in Section 2.2 of the Discussion Paper, the federal government’s involvement in water is already fragmented. The highest priority would be to enhance and improve the understanding of existing work and data within the various federal departments, and identify synergy opportunities such as:<ul style="list-style-type: none">CCME Water Management Committee, adding Indigenous participation.Data collection, storage and management to provide accessibility to all Canadians, including aligning federal government departments to have a single water portal.Create efficiencies, reduce duplication, and improve regulatory certainty across federal departments and agencies that have freshwater responsibilities.Education and advocacy with Canadians and Indigenous communities on information sharing, and community-based monitoring opportunities in freshwater systems.Building a national data system on freshwater characteristics of major rivers.Facilitating water management in interprovincial and/or inter-jurisdictional watersheds.
Which of these possible opportunities should be priority roles for a CWA?	
4.0 Governance considerations for a Canada Water Agency	
What are examples or best practices from other jurisdictions or other governance models the Government of Canada should consider in creating a CWA?	<ul style="list-style-type: none">It may be feasible for the CCME Water Management Committee, which manages intergovernmental approaches to water issues in Canada, to steward progress of these objectives, rather than creating a new agency.
What are your views on the considerations presented? What should be the highest priority? What is missing?	<ul style="list-style-type: none">Waters that lie solely within a province's boundaries fall within the constitutional authority of that province. The federal government should focus their priorities on aspects within the federal mandate, and seek to create efficiencies and reduce duplication.