



# Sustainable Water Management in the Athabasca River Basin Initiative (ARB Initiative)

## **DRAFT Working Group Terms of Reference**



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## 1.0 Background

WaterSMART is committed to improving water management through better technology and practices, for the social, environmental, and economic benefit for all. We do this in part through the development and execution of collaborative, fact-based, basin wide projects that identify and assess water management strategies under current conditions and to meet future needs. The ARB Initiative was first developed by WaterSMART and is being executed by WaterSMART, as an impartial entity, in collaboration with participants representing a broad range of water users.

The ARB Initiative is a **basin wide collaborative effort** to create a common understanding of the issues and opportunities and inform decision making across the Athabasca Basin for proactive water management. Proactive water management means looking at the whole watershed and the current issues, forecast issues and changes, and identifying and discussing mitigation, adaptation, and management options to deal with future changes in flow before they arrive. This Initiative will build on existing data, tools, capacity and knowledge to:

- Provide an integrated modelling tool to inform water and natural resource management plans, approaches, and decision making;
- Provide accessible and transparent information on basin water management;
- Promote a common understanding and trust across the basin;
- Identify strategies for adapting to current and future water challenges; and
- Identify critical gaps in data, science, processes and policy for effective water management.

The ARB Initiative is **NOT**:

- Just a modelling project.

The Initiative is a stakeholder engagement project that uses integrated models to engage the entire water community. The models are important; the intention is to balance the need to have a 'perfect' model with the need to have a good model that is representative of the system and allows meaningful stakeholder engagement and discussion. Discussion facilitated by modelling is where the innovation in this work comes from.

- A GoA initiative.

The intent of the work is to inform and support policy and planning work, not create GoA policy or plans. GoA is not the only recipient of project outcomes; participants and the ARB water community can benefit from this work too.

- Consultation or replacing the "duty to consult".

This work is to provide the ARB water community with a voice in terms of what they would

like to see for water management, adaptation, and mitigation strategies for their watershed. There is no separate and distinct consultation process as this is not consultation. We welcome participation from all First Nations and Métis Communities if they so choose.

## 2.0 Vision

To have a robust, strategic, proactive approach for water management in the ARB ('ARB Roadmap'), from the headwaters to the confluence with Lake Athabasca, that provides practical and implementable management strategies, balances the basin's interests and needs, and provides an improved common understanding of water resource issues and opportunities from a basin perspective.

## 3.0 Project Principles

- Cause no significant, measurable environmental harm.
- Uphold an open, inclusive, and transparent process without prejudice.
- Include interests and needs, as expressed by participants, from across the basin. Management strategies in tributary basins outside of Alberta will not be included at this time. It is assumed that the principles of the Mackenzie River Basin Master Agreement will be upheld by Saskatchewan.
- Make data, findings, and materials from the Working Group, including the final report, available and assumed to be considered public domain.
- Use long term population/economic growth plans as established by provincial/municipal government and industry.
- Maintain minimum flow requirements throughout the basin.
- Align with Alberta's annual bilateral commitments to neighboring provinces and territories.
- Recognize that Alberta's legal water priority system, the Water Act, and all other regulatory frameworks (e.g., LARP, SWQMP) are the guiding legal and regulatory authority.
- Achieve Alberta's policy goals as laid out in the Water for Life Strategy.
- Participants have no legal obligation with respect to any outcomes of this work.

## 4.0 Goals

- Connect climate, land, and water issues to better understand the range of potential effects of climatic and landscape changes on streamflow throughout the ARB.
- Build and apply an integrated modelling tool (climatological, hydrological, land use, and river system simulation tools) with the WG to support basin wide understanding and exploration of water management, mitigation, and adaptation strategies.
- Test the integrated modelling tool and develop performance measures with Working Group participants.
- Build trust surrounding multi-stakeholder engagement in the basin, providing an opportunity for

participants to be heard and possibly to inform decision-making.

- Ensure traditional knowledge and other input that may be provided from First Nations and Métis groups are integrated into the project.
- Enable and facilitate innovation: the innovation associated with such collaborative processes is often seen when participants, who may initially have had conflicting perspectives, seek and offer solutions to meet the needs of other parties.

## 5.0 Scope

- The Athabasca River Basin (ARB) will be regarded and simulated as an integrated system, inclusive of headwaters and major tributaries up to Embarras Airport, which is a commonly measured point of flow just before Lake Athabasca. Due consideration will be given to growth and change of the water uses along its course, as well as potential future effects of changes in climate, land use, and natural disturbance.
- The current scope of collaborative modelling will focus on surface water river management, basin landscape changes, and climatic change over time, as per funding allocations and timelines.
- Flow quantity in the Athabasca River main stem, and the major tributaries (Appendix A) based on budget and data availability.
- Out of Scope:
  - Lake Athabasca;
  - Explicit modelling of the Peace-Athabasca Delta, however changes in flow from the Athabasca River and any components that can be evaluated with respect to the Delta may be in scope (e.g. changes in flow and walleye recruitment);
  - Engineering feasibility or environmental assessment of mitigation, adaptation, or management strategies, however existing feasibility studies will be taken into account where applicable;
  - Water quality modelling; however, water quality may be addressed as it relates to water quantity;
  - Groundwater modelling;
  - Development of GoA policy or plans; and
  - Cost-benefit analysis of mitigation, adaptation, or management strategies.

## 6.0 Working Group Deliverables

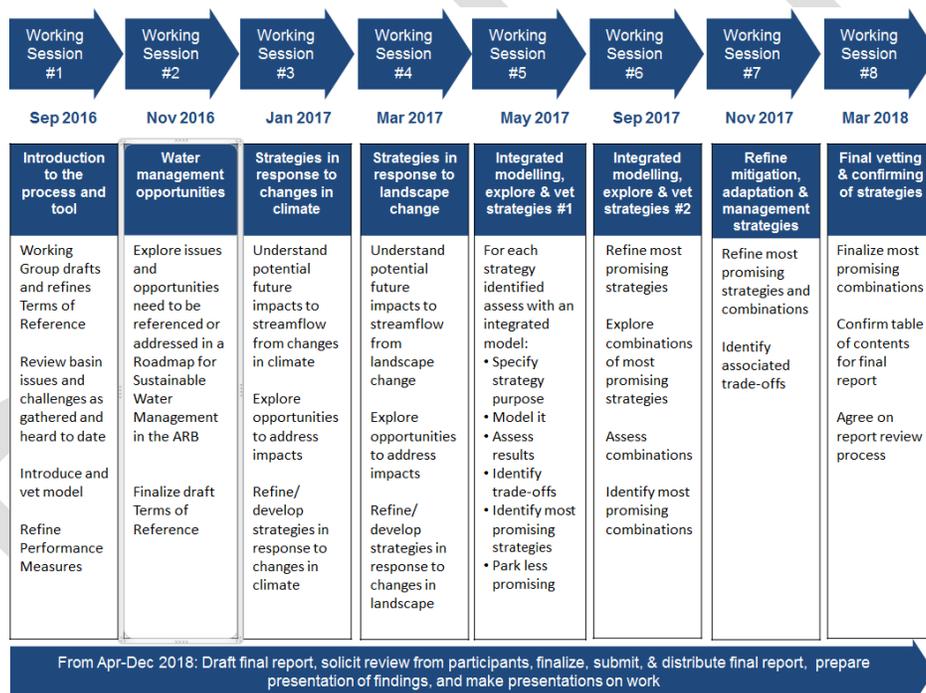
- A roadmap for sustainable water management in the ARB ('ARB Roadmap'), from the headwaters to the confluence with Lake Athabasca that provides useable management and adaptation strategies and balances the basin's interests and needs.

## 7.0 Workplan

The meeting process for all Working Group meetings will include the following:

- Proposed meeting dates will be set at the first Working Group meeting and confirmed at least three weeks in advance.
- Chatham House Rule will be applied to the Working Group meetings: When a meeting, or part thereof, is held under the Chatham House Rule, participants are free to use the information received, but neither the identity nor the affiliation of the speaker(s), nor that of any other participant, may be revealed.
- Meeting summaries will be prepared and distributed to members for review before being considered final.

The following shows the current workplan for the ARB Working Group:



## 8.0 Expected Benefits

- Inform and support participant (e.g., GoA, industry, municipalities) policy and planning work. Policies and plans will not be created. The scenarios developed through this project will be valuable to communities and organizations, including GoA, as future developments or changes in the basin are considered and planned. Recipients of this work include all water users and broader water communities in the basin who can use the products (tools and processes) after

the work is complete. Discussions are ongoing with AEP and other organizations on housing and maintaining the project tools and data. GoA has not agreed to use the outcomes in a specific planning or policy development process; however, their support indicates they see the value of the ARB Initiative. GoA supports this project and encourages participation. It is the hope and expectation of all that are involved, including GoA, that outcomes from this work will be used to further the development, and ongoing improvement of regional plans, sub-regional plans, and environmental management frameworks for the ARB.

- Support decision making for organizations across the basin (e.g., support cumulative effects assessments, basin water management plans, environmental assessments, regional planning, and ongoing state of the watershed reporting).
- Identify, at a screening level, feasible adaptation, mitigation, and management options. Trade-offs of each are identified and understood at a screening level.
- Help to translate science into policy and action.
- Support the political, social, and governance challenges associated with water management decisions.
- Develop broad regional understanding and science based evidence, which may help facilitate informed decision making within government.
- Provide an improved common understanding of water resource issues and opportunities from a basin perspective.

## 9.0 Project Participants and Roles

### Working Group

#### *Criteria for Working Group Participation*

- Broad spectrum of perspectives is represented.
- Significant water license holder, significant future or current need for water, possess important knowledge and technical skills needed for project to succeed, managerial knowledge needed for implementation, and/or vested interest in sustainable water management in the ARB.

#### *Expectations of Working Group Participants*

- Working Group members are asked to volunteer their time to attend up to 8 full day Working Group meetings in 2016-2018 and to complete some additional work (primarily data provision and document review) in between meetings. Every participant brings resources (time, people, data and/or funding) to the table.
- Every participant brings commitment to results.
- Every participant is committed to project principles, including collaboration.
- Every participant at a minimum will be self-supported.
  - Some participants may be supporting the work with financial and in-kind contributions, and some participants may be self-supporting with in-kind contributions.
- Every participant attends the meetings or sends an informed alternate.
  - Efforts to inform alternates of the project's work can be made outside of Working Group meetings in order to ensure maximum productivity with Working Group meeting.

### *Working Group participant role and responsibilities*

- Bring interests/ideas for water management in the basin (e.g., mitigation, adaptation, and management strategies), and their unique perspective on challenges and opportunities, and their expertise.
- Provide quantitative and qualitative data and information if available and can be shared.
- Actively participate in Working Group meetings.
- Assemble data and ensure quality assurance/quality control (QA/QC) of data for accuracy.
- Develop agreement on data in the models, performance measures, and uncertainty metrics.
- Develop scenarios for model runs (i.e., revise, refine, improve).
- Discuss social/community implications of scenarios (e.g. recreation, assured water supply, etc.).
- Participate in a Technical Team as necessary (e.g., Data and Modelling, Economic and Financial Implications and Estimates, Environmental Impacts, Opportunities, Communications, etc.).
- Support preparation and approval of final report.

### *Decision-making*

- The ARB Initiative is a collaborative, integrative approach to water management to provide a common understanding of water resource issues and opportunities from a basin perspective, rather than from a consensus based decision-making model or process.
- WaterSMART works to ensure all voices at the table heard and diverse perspectives are considered.

### *Logistics and Administrative Committee (LAC)*

#### *The LAC will focus on:*

- Resolving issues and associated strategic guidance on:
  - Opportunities that may change scope of original workplan
  - Budget changes from original workplan as needed;
- Advancing the discussions on the 'home' for the tools and work (e.g., WPACs, GoA);
- Providing feedback based on updates on Working Group activities provided in LAC meetings/calls, including deliverables and contractual obligations;
- Reviewing updates to the budget and advising on potential changes to the direction of the work based on Working Group meetings; and
- Scoping support and funding structure for additional work.

### *Alberta WaterSMART (WaterSMART)*

- WaterSMART is an independent third party that is leading and facilitating the process. WaterSMART is responsible for overall project accountability to the funding agencies, as well as project leadership, coordination/management, banker functions, contract management, and administrative processes.

**Appendix A: Tributaries and rivers in scope for ARB modelling**

Station Name	Station Code	Period	Drainage Area	MAINSTEM
Athabasca River Near Jasper	07AA002	1913 -- 2014	3,873	Y
Athabasca River At Hinton	07AD002	1961 -- 2014	9,765	Y
Athabasca River Near Windfall	07AE001	1960 -- 2013	19,600	Y
Athabasca River At Athabasca	07BE001	1913 -- 2013	74,602	Y
Athabasca River Below Fort McMurray	07DA001	1957 -- 2014	132,588	Y
Athabasca River At Embarras Airport	07DD001	1971 -- 1984	155,000	Y
Whirlpool River Near The Mouth	07AA009	1966 -- 1996	598	Whirlpool
Miette River Near Jasper	07AA001	1914 -- 2012	629	Miette
Maligne River Near Jasper	07AA004	1916 -- 1997	908	Maligne
Snake Indian River Near The Mouth	07AB002	1971 -- 1993	1,580	Snake Indian
Berland River Near The Mouth	07AC007	1986 -- 2013	5,655	Berland
Gregg River Near The Mouth	07AF015	1985 -- 2012	384	Mcleod
Mcleod River Above Embarras River	07AF002	1954 -- 2013	2,562	Mcleod
Mcleod River Near Rosevear	07AG007	1984 -- 2012	7,143	Mcleod

McLeod River Near Whitecourt	07AG004	1968 -- 2013	9,109	McLeod
Freeman River Near Fort Assiniboine	07AH001	1965 -- 2014	1,662	Freeman
Pembina River Near Entwistle	07BB002	1914 -- 2012	4,402	Pembina
Pembina River At Jarvie	07BC002	1957 -- 2013	13,104	Pembina
South Heart River Near Big Prairie Settlement	07BF905	2005 -- 2012	6,001	Lesser Slave
West Prairie River Near High Prairie	07BF002	1921 -- 2012	1,152	Lesser Slave
East Prairie River Near Enilda	07BF001	1921 -- 2013	1,467	Lesser Slave
Swan River Near Kinuso	07BJ001	1915 -- 2012	1,900	Lesser Slave
Swan River Near Swan Hills	07BJ003	1970 -- 2014	155	Lesser Slave
Driftpile River Near Driftpile	07BH003	1972 -- 1986	835	Lesser Slave
Driftwood River Near The Mouth	07BK007	1968 -- 2013	2,100	Lesser Slave
Lesser Slave River At Slave Lake	07BK001	1915 -- 2012	13,567	Lesser Slave
Lesser Slave River At Highway No 2A	07BK006	1962 -- 1988	14,400	Lesser Slave
La Biche River At Highway No 63	07CA011	1982 -- 1995	4,860	Middle Athabasca
House River At Highway No 63	07CB002	1982 -- 2012	781	Middle Athabasca
Christina River Near Chard	07CE002	1982 --		Clearwater

		2014	4,863	
Clearwater River Above Christina River	07CD005	1966 -- 2014	17,023	Clearwater
Clearwater River At Draper	07CD001	1930 -- 2014	30,799	Clearwater
Horse River At Abasands Park	07CC001	1930 -- 1979	2,130	Lower Athabasca
Hangingstone River At Fort McMurray	07CD004	1965 -- 2014	962	Lower Athabasca
Steepbank River Near Fort McMurray	07DA006	1972 -- 2014	1,320	Lower Athabasca
Mackay River Near Fort Mackay	07DB001	1972 -- 2014	5,569	Lower Athabasca
Muskeg River Near Fort Mackay	07DA008	1974 -- 2014	1,461	Lower Athabasca
Ells River Near The Mouth	07DA017	1975 -- 1986	2,450	Lower Athabasca
Firebag River Near The Mouth	07DC001	1971 -- 2014	5,988	Lower Athabasca
Lac La Biche Inflow				
Sunwapta River				
Athabasca Chaba				
Snaring River				
Rocky River				
Lesser Slave River at the Mouth				
La Biche River at the Mouth				
Calling River at the Mouth				
North Muskeg River				Lower

				Athabasca
Pemmican Creek				Lower Athabasca
Wapasu Creek at the Mouth				Lower Athabasca
Unnamed Creek near Fort MacKay	07DA011	1975-1993	274	Lower Athabasca
Calumet River near Fort MacKay	07DA014	1975-1977	183	Lower Athabasca
Tar River near Fort MacKay	07DA015	1975-1977	301	Lower Athabasca
Dover River near the mouth	07DB002	1975-1977	963	Lower Athabasca
Poplar Creek near Fort McMurray	07DA007	1972-1986	151	Lower Athabasca
Jackpine Creek at the Mouth				Lower Athabasca