



AWC CALL FOR MEMBERS

Improving Resilience to Drought in Alberta through a
Simulation



July 2019

Background

Drought is often referred to as a creeping phenomenon because it evolves slowly, and its beginning and end tend to be unclear. It can be described as a prolonged period of abnormally dry weather that depletes water resources¹. Multi-year droughts are recurrent events throughout Alberta's history, with significant impacts to our environment, economy, and society

Managing drought involves complex monitoring, decision-making and communication before, during and after a drought to mitigate the impacts and respond accordingly. These are often difficult to plan thoroughly without experiencing a drought. Simulation exercises provide an opportunity to work through a scenario that closely mimics a real-life event and can be a powerful tool to test management structure, communication strategies, and existing resources (e.g., drought management plan, tools, resources). Throughout the exercise, participants will have to react accordingly, in line with draft plans and resources, highlighting potential issues with implementation. Examples of drought simulations undertaken are seen in British Columbia, Saskatchewan, North Carolina, Kansas, Australia, and England to name a few.

The Government of Alberta (GoA) is working on a *Provincial Drought Response Plan* that will outline management and communication actions in times of drought. Additionally, the Alberta Water Council (AWC) is building a guide to assist Watershed Planning and Advisory Councils (WPAC) engage municipalities to better prepare for, mitigate, respond to, and recover from multi-year droughts. This guide is expected to be completed in early 2020 and synthesizes information about drought management tools, resources, case studies, management objectives, triggers, and suggested actions. The Miistakis Institute has also completed a *Municipal Flood and Drought Action Planning Primer*². This simulation will build on the work being undertaken by the AWC, the GoA, and the Miistakis Institute.

The drought simulation is a great opportunity to inform the *Provincial Drought Response Plan* being developed by the GoA. Conducting the simulation in 2020 would allow testing of existing tools developed by the AWC and Miistakis Institute, and the *Provincial Drought Response Plan*, while allowing key learnings to be incorporated where required. Over the past few years, the discussion on extreme events in Alberta has had a stronger focus on flooding, and this project would provide a timely forum to expand this discussion to drought.

At the June AWC board meeting, the GoA presented a statement of opportunity (page 4) for the board to consider. After discussion, there was consensus from members to launch a working

¹ Canadian Disaster Database. Available online: <https://www.publicsafety.gc.ca/cnt/rsrscs/cndn-dsstr-dtbs/rfrnc-tblsmbls-dfntns-en.aspx>. Accessed February 20, 2018.

² Miistakis Institute, 2018. *Municipal Flood and Drought Action Planning Primer*. Available online : <http://www.rockies.ca/miradm/uploads/1c6f89bf3c419806ff8791b2e11b5128f2b6717c.pdf>. Accessed June 2019.

group for scoping terms of reference (ToR) for a project team to execute. The draft ToR will be brought for approval by the AWC board at a future meeting.

If your sector is interested in participating, please let Anuja Ramgoolam (aramgoolam@awc-casa.ca) know who will represent your sector on the Improving Resilience to Drought in Alberta through a Simulation Working Group by **Friday 6 September 2019**. Should you have any questions, please call Anuja directly at (780) 644-7375. We look forward to hearing from you!

Working Group Membership, Expectations, and Commitment

Description

- The main purpose of this work is to scope terms of reference for a project team to execute a drought simulation.
- The drought simulation will test (in a workshop environment), proposed drought management structure, communications channels, tools, and resources. It will provide feedback to the GoA and other key groups on what went well, what did not, and what is missing and requires improvement when it comes to responding to a drought scenario in Alberta.
- The resulting deliverable could be proceedings of the simulation/a lessons learned document.

Membership

- Representative of a sector with an interest in this issue (deal makers, deal breakers, implementers).
- AWC Director, Alternate, or another sector representative.
- Meet the expectations and commitments described below, as per the AWC's [Process Guidelines](#).
- Two representatives from each of the AWC's sector groups: Industry, Non-government Organizations, Government, and the GoA and provincial authorities.

Expectations of Representative:

- Represent an organization or sector.
- Come prepared for meetings, (i.e., reading pre-meeting material, completing homework assignments and being able to negotiate on behalf of their sector).
- Make constructive contributions that advance the committee's goals and objectives and help others to do the same.
- Report regularly to their sector.
- Brief their sector's Director and Alternate regularly, including prior to the team's report and recommendations being presented to the Board.
- As appropriate, participate in briefing Directors and Alternates in their broad category.
- Liaise with their sector's participants on the Board and other AWC teams to maximize synergy, ensure coordination, and prevent duplication.
- Follow the rules and principles of consensus decision making.

Commitment:

- Approximately four months.
- Two to three full-day meetings, with some hours required between meetings to review materials (e.g. draft terms of reference).

Statement of Opportunity: Improving Resilience to Drought in Alberta through a Simulation

Background on the issue and why it is important

Drought is a natural, recurrent phenomenon in Alberta. Recent studies have shown that we can expect extended droughts to become more frequent in the future, and a number of initiatives are underway in the province to improve drought preparedness. The Government of Alberta (GoA) is developing a *Provincial Drought Response Plan* that will outline management and communication actions in times of drought. At the same time, the Alberta Water Council (AWC) is working on building a guide to assist Watershed Planning and Advisory Councils (WPACs) as they engage municipalities to better prepare for, mitigate, respond to, and recover from multi-year droughts. This guide is expected to be completed by fall 2019 and aims to synthesize available information about drought management, tools, and resources in the province. Finally, the Miistakis Institute is also working with a pilot community to develop a process for drought mitigation planning; this project is expected to conclude by June 2019.

Drought is often referred to as a creeping phenomenon because it evolves slowly, and its beginning and end tend to be unclear. Managing drought involves complex monitoring, decision-making and communication before, during and after a drought to mitigate the impacts and respond accordingly, but these are often difficult to plan thoroughly without experiencing a drought. Simulation exercises provide an opportunity to work through a scenario that closely mimics a real-life event, and they can be a powerful tool to test management structure and communication strategies. The Invitational Drought Tournament developed by Agriculture and Agri-Food Canada provides one example of a simulation tool that uses game theory to explore and test drought preparedness.

This project proposes to build on the work being conducted by the AWC, the GoA, and the Miistakis Institute to develop a simulation that will allow communities to test in a workshop environment proposed drought management structure, communications channels, tools and resources. Throughout the exercise the participants will have to react accordingly, in line with draft plans and resources, highlighting potential issues with implementation. The exercise will lead participants through the initiation of a drought through to high pressure and stress on their system, and then into recovery and evaluation phases. The participants will be reflective of the different roles across communities, stakeholders, and government agencies.

How the issue aligns with the AWC's core business, goals and mission, and with the GoA priorities for implementing *Water for Life*

This project would support all three core businesses of the AWC:

1. Advance the outcomes of Water for Life: preparing for drought is a key step in mitigating the impacts of drought on the availability of water for the environment, economy and society.
2. Provide advice that informs policy or actions: a simulation would provide an opportunity to test the Provincial Drought Response Plan as it is being developed and identify potential gaps in the existing management structure, communication channels, tools and resources.
3. Provide a forum to discuss water perspectives: the simulation environment provides an innovative forum to bring stakeholders together and discuss challenges surrounding drought preparedness, mitigation, response, and recovery.

The expected benefits of the AWC's involvement in the issue

The AWC's multi-stakeholder membership and its proven track record at addressing complex issues that require the collaboration of multiple stakeholders make it well-suited to explore drought management through a simulation. Although this project would not be seeking to achieve consensus on a specific topic, it would be an effective way to build a shared understanding and raise awareness of drought preparedness and planning among the AWC membership. This work also aligns very well with the current AWC project on multi-year drought resiliency brought forward by WPACs.

Evidence of a client and potential funding sources

Alberta Environment and Parks is developing the *Provincial Drought Response Plan* and reached out to the AWC to put forward this Statement of Opportunity. The GoA would be the main client for this project, but this is also an opportunity to bring clarity around drought management and communication to other AWC sectors.

The project team would be looking at raising approximately \$(TBD) amount to hire a consultant to assist with planning and facilitating the simulation.

Potential stakeholders who would be involved in developing terms of reference for the project

In addition to AWC sectors, the Miistakis Institute should be involved in developing terms of reference for this project, given their ongoing work on developing a drought mitigation tool. Other Government of Alberta Ministries that are not represented on the AWC board should also be considered, such as Municipal Affairs.

How timeliness of response would affect the issue

The drought simulation is a great opportunity to inform the *Provincial Drought Response Plan* currently being developed by the Government of Alberta. Conducting the simulation in early 2020 would allow to both test the tools developed by the AWC and Miistakis Institute and the

Provincial Drought Response Plan, while allowing key learnings to be incorporated into the Plan. Over the past few years, the discussion on extreme events in Alberta has had a stronger focus on flooding, and this project would provide a timely forum to expand this discussion to drought.