



Building Resiliency to Multi-Year Drought


Name

Date

Venue



Who is this guide for?

- Small urban and rural communities
 - Towns
 - Villages
 - Municipal Districts
 - Other larger communities and organizations
- 

Guide Overview

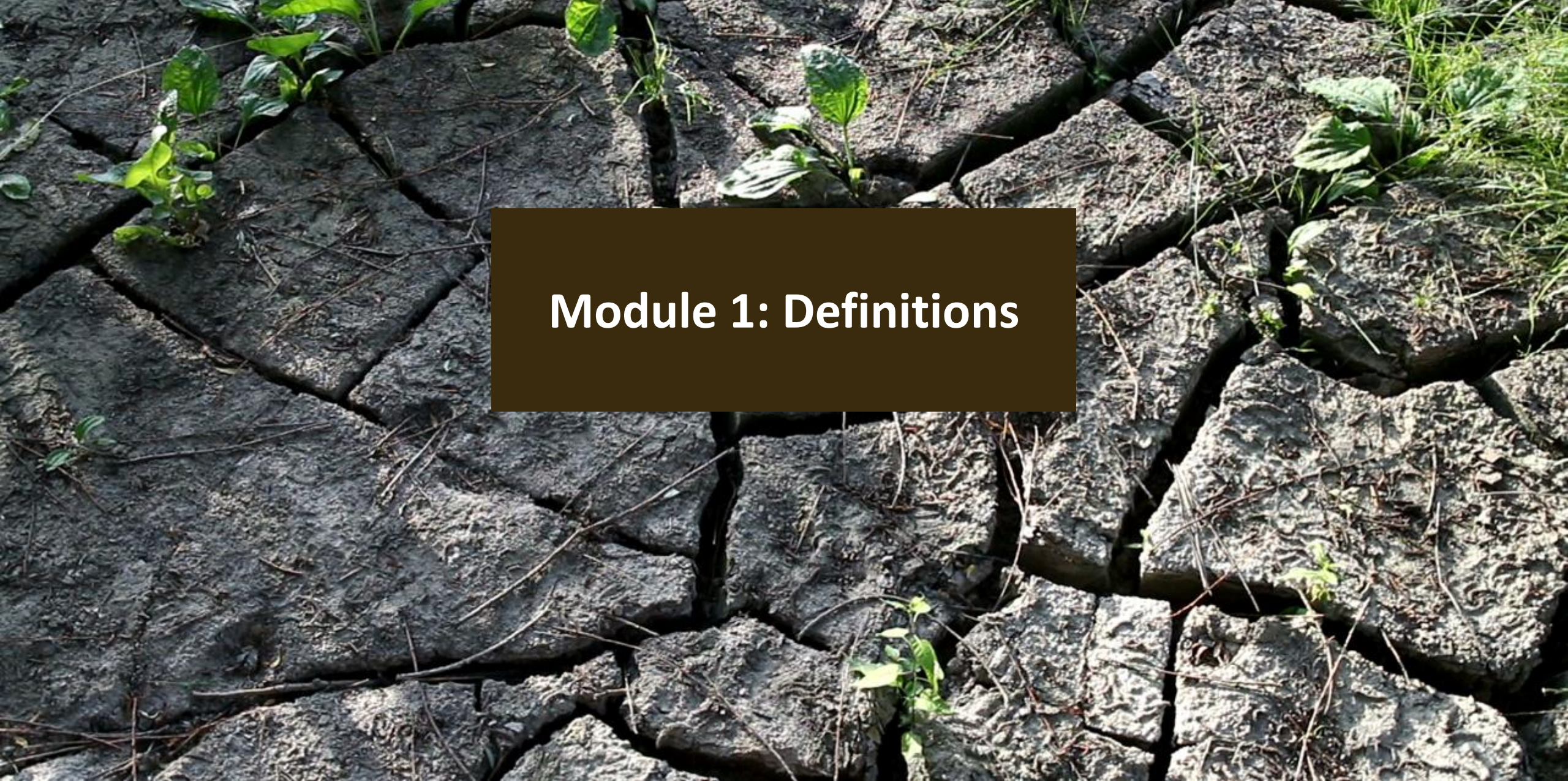
- Documents lessons learned from previous droughts in Alberta
- Brings together the most current information, tools and resources
- Reference for communities before, during and after a multi-year drought



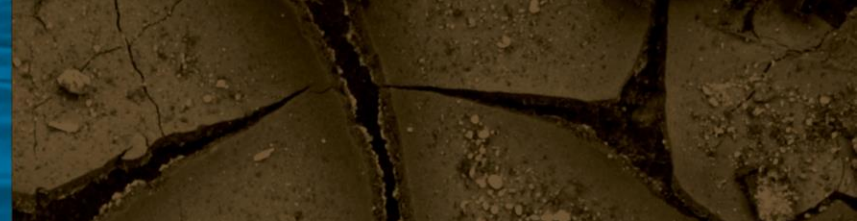


Modules

1. Definitions
2. Multi-Year Droughts in Alberta: Past, Present, and Future
3. Roles and Responsibilities
4. Management Objectives, Strategies, Tools and Resources

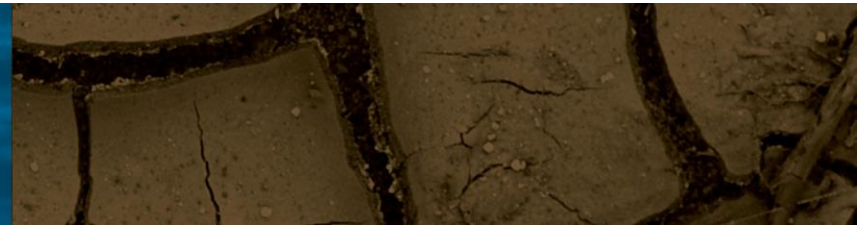


Module 1: Definitions



Drought can be defined as:

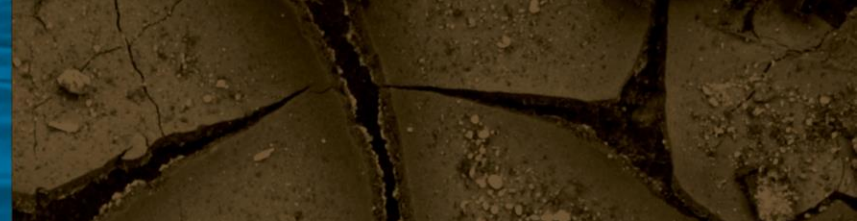
A prolonged period of dry weather that depletes water resources, including natural sources (rivers, streams, lakes, wetlands, groundwater) man-made storage (reservoirs and dugouts), and soil moisture.





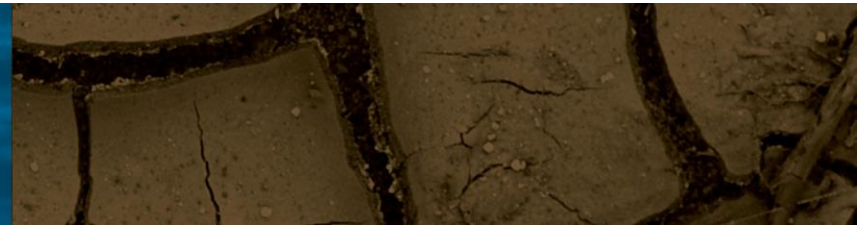
Drought can be further defined based on its impacts

- Meteorological drought
- Agriculture drought
- Hydrological drought
- Socio-economic drought

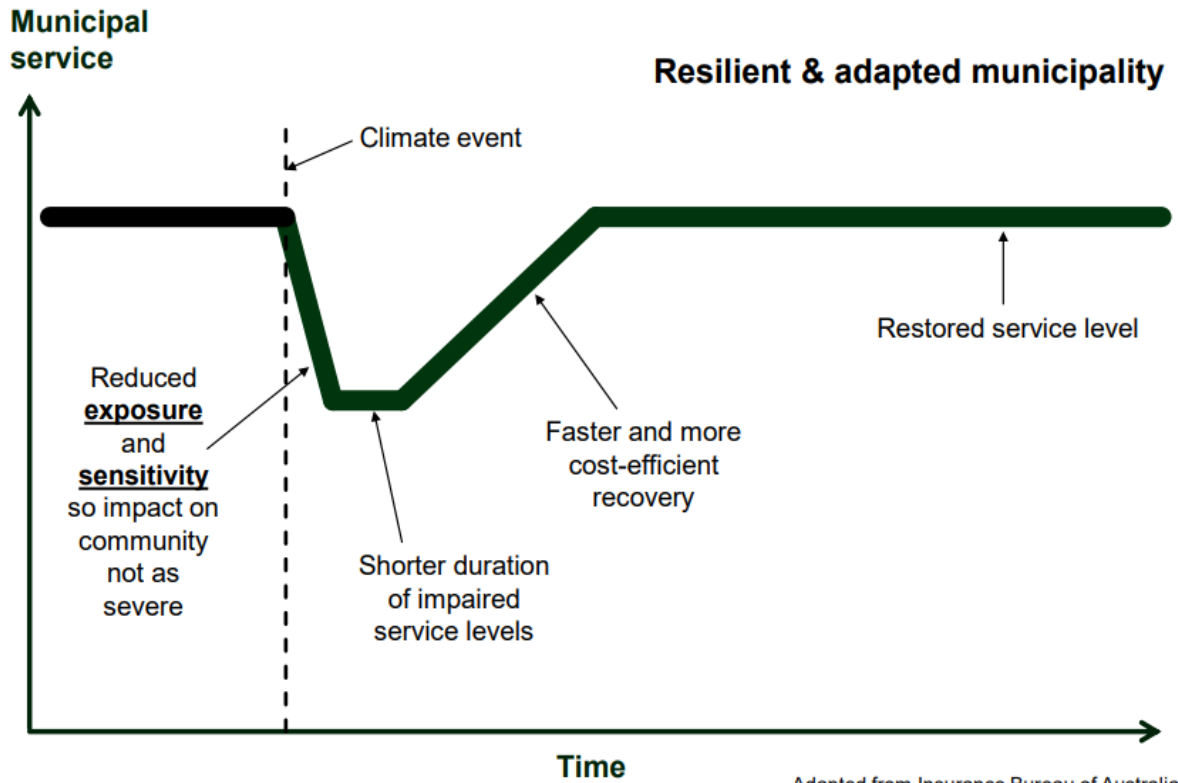


Why Does Multi-Year Drought Matter?

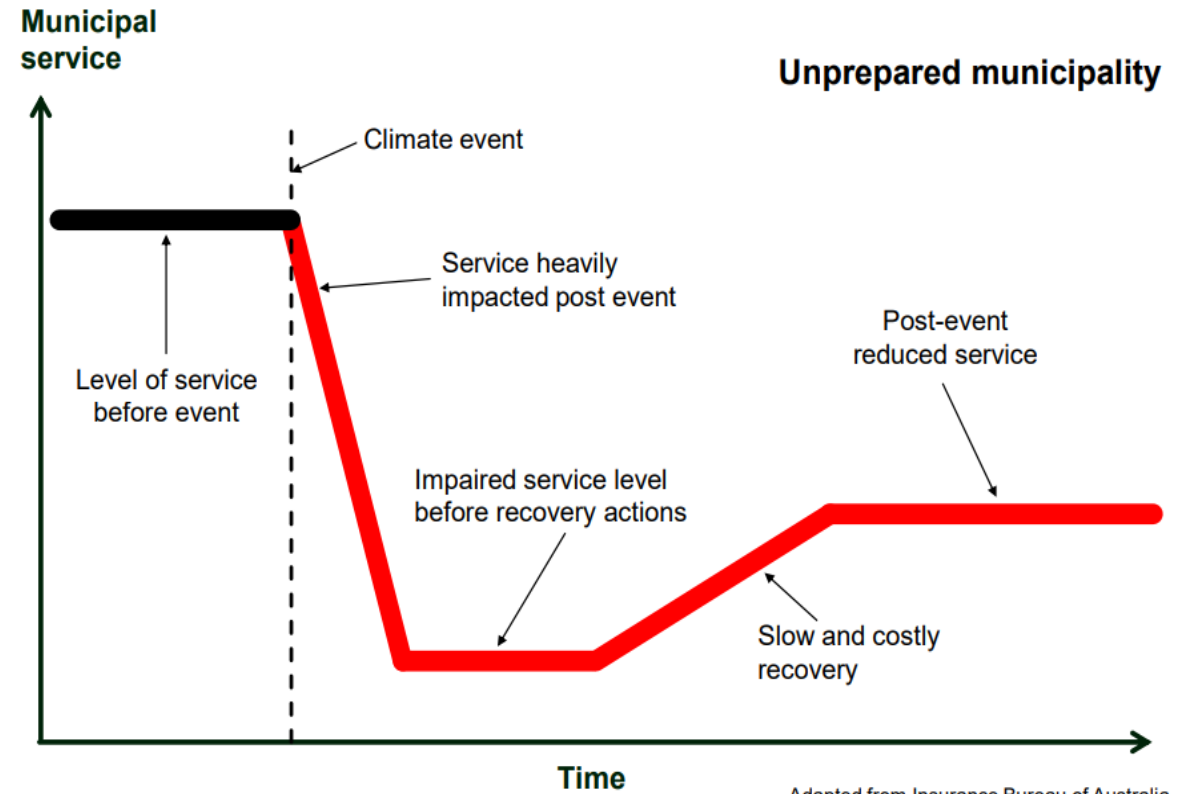
- Cumulative impacts
- Decades or centuries to recover
- Long-lasting effects
- Impacts physical health



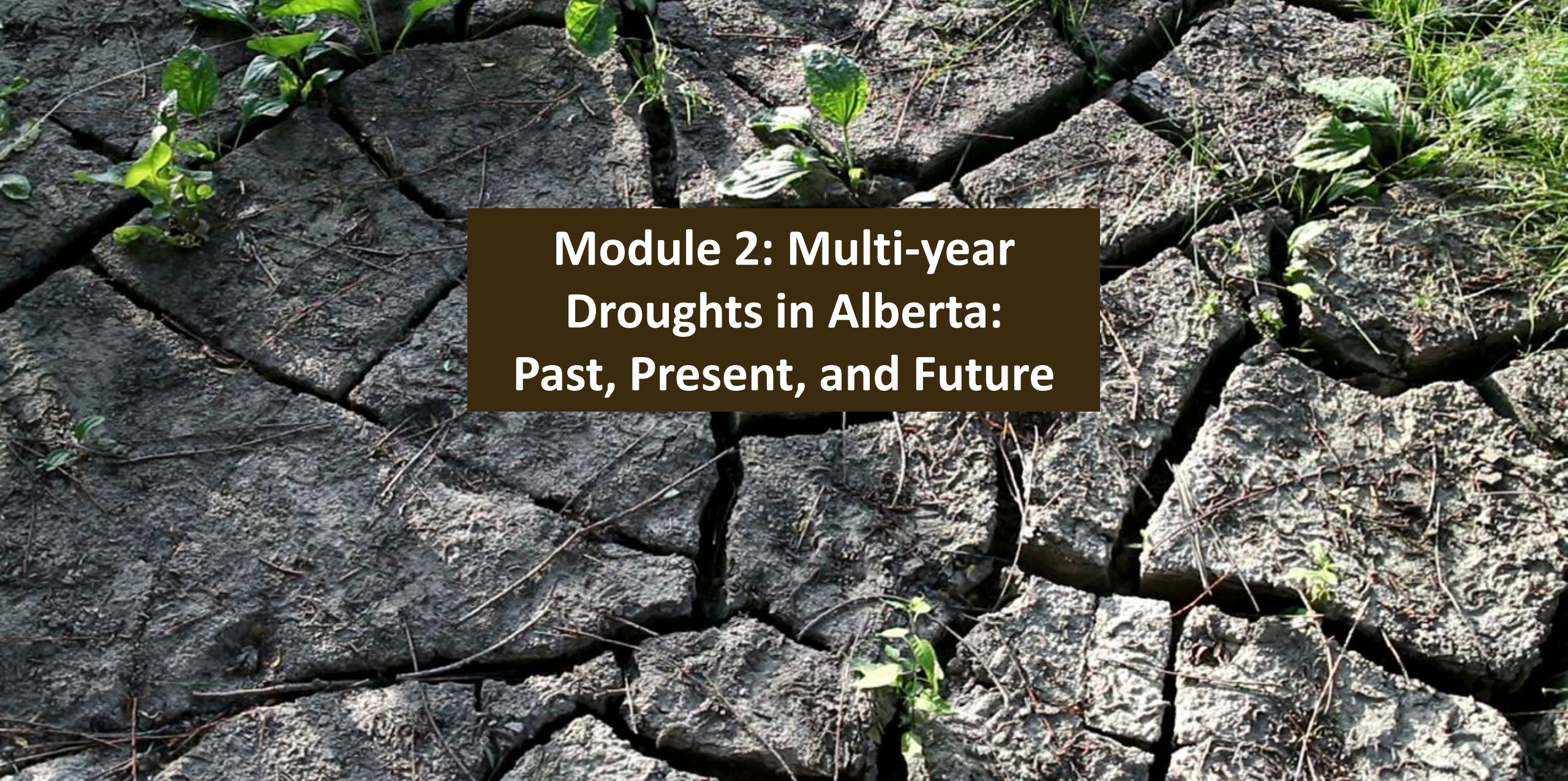
What is a Drought-Resilient Municipality?



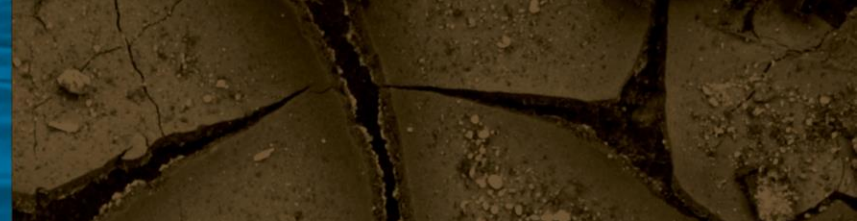
Adapted from Insurance Bureau of Australia



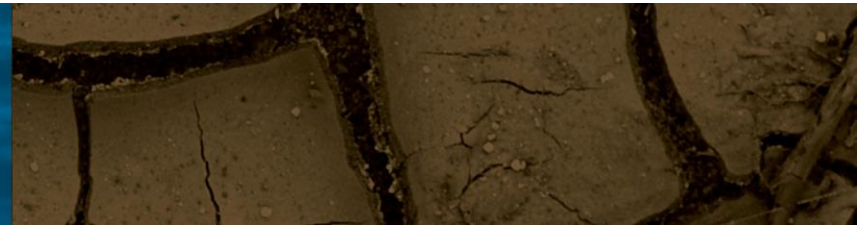
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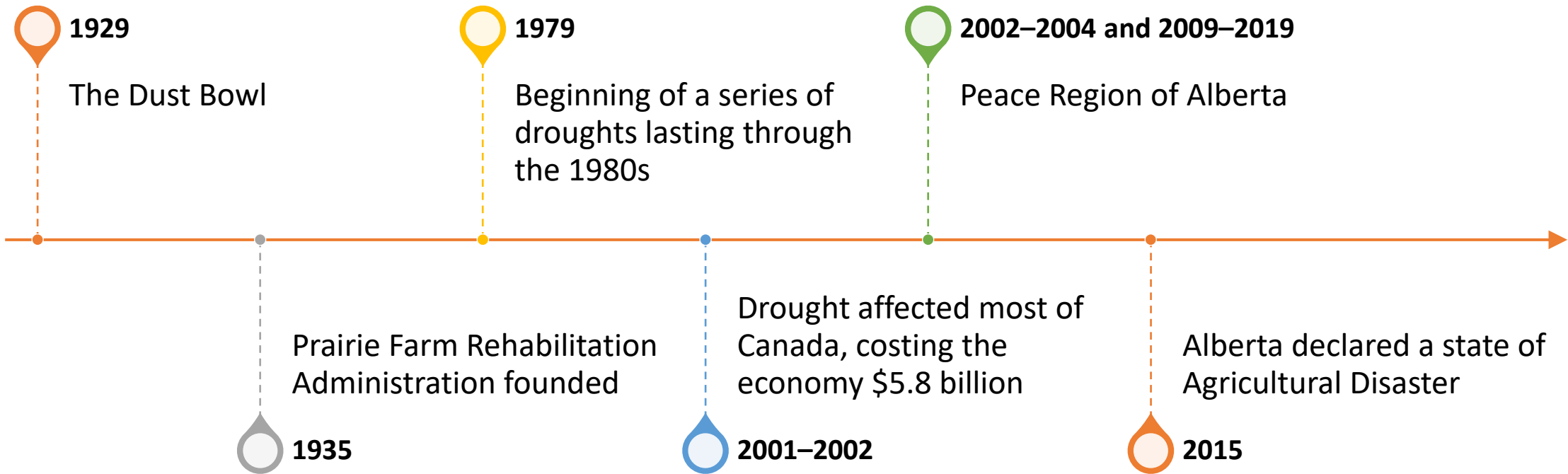
**Module 2: Multi-year
Droughts in Alberta:
Past, Present, and Future**

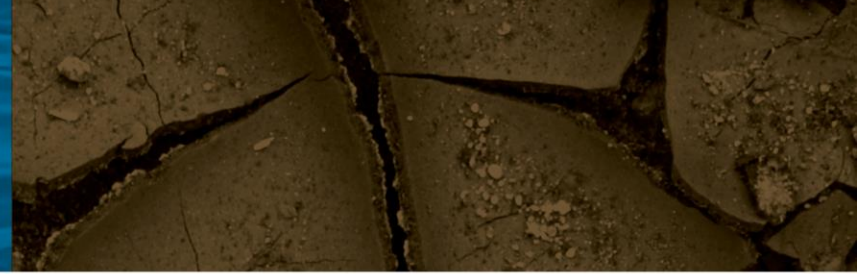


- Natural and recurrent phenomenon in Alberta
- Five major droughts in the last 120 years across the Canadian Prairies



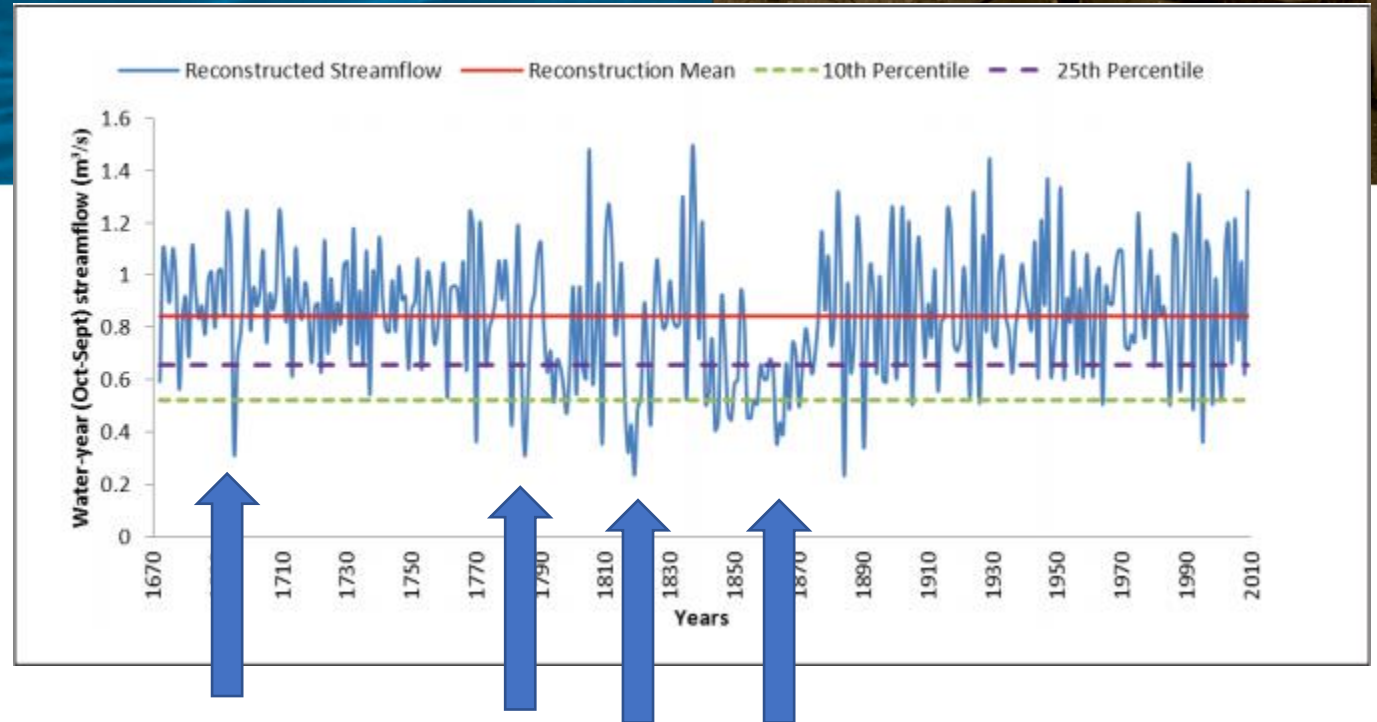
An History of Drought in Alberta since the early 1900s





[WPACs to insert history of drought in watershed, if applicable]

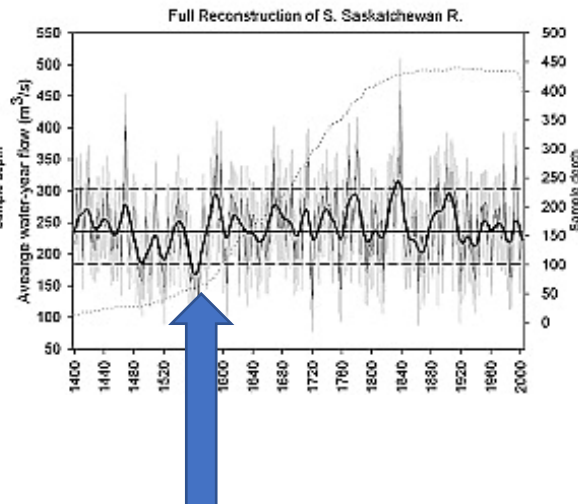
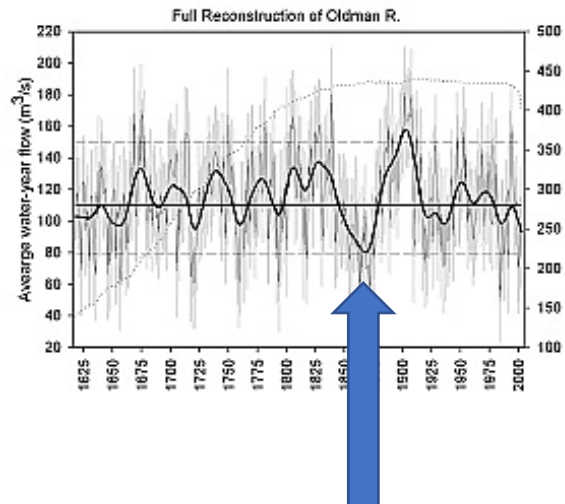
Swift Current Creek, 1670-2000



Oldman River, 1625-2000

South Saskatchewan River, 1400-2000

Sauchyn and Kerr, 2016

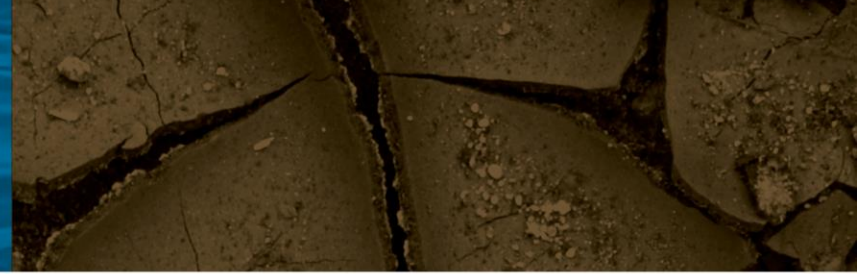


Axelsson, Sauchyn, Barichivich, 2009



What Does the Future Hold?

- Droughts of greater intensity and longer duration
- Dry periods to become drier, wet times to become wetter
- Impacts of climate change will increase the severity of drought
- Precipitation during midsummer expected to decline



[WPACs to insert future of drought in watershed, if applicable]



**Module 3:
Roles & Responsibilities**

Municipality

Examples:

- Water supply and distribution to communities
- Develop community-wide water shortage response plans
- Declare a state of agricultural disaster when applicable



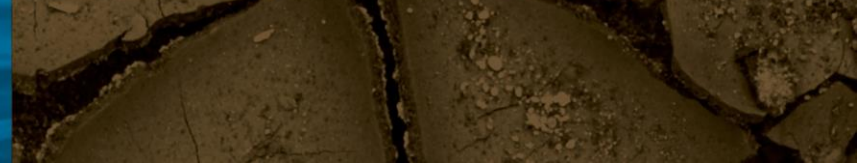


Government of Alberta (GoA) – Alberta Environment and Parks

Examples:

- Operate and maintain GoA-owned water infrastructure within the province of Alberta
- Monitor and forecast groundwater resources
- Manage, approve, and play a part in the broader water reuse requests in Alberta (per provincial guidelines for water reuse)





Examples:

- Provide Agriculture and Drought Risk Management Plan
- Produce monthly Farm Gate Allocation Forecast
- Facilitate the Drought and Excessive Moisture Advisory Group



Government of Alberta – Alberta Health

Examples:

- Responsible for legislation where risks to human health are apparent
- Communication of heat warnings, environmental public health concerns, and coping with emergencies





Government of Alberta – Alberta Support and Emergency Response Team

Examples:

- Activate and coordinate the Inter-Agency Drought Workshop Group
- Deliver AEP's Drought Response Plan
- Establish Regional Emergency Operation Centre (REOC)
- Assign an Emergency Response Officer to each provincial region



Government of Alberta – Alberta Municipal Affairs

Example:

- Provide access to the Community Emergency Management Program, providing municipalities with emergency planning tools

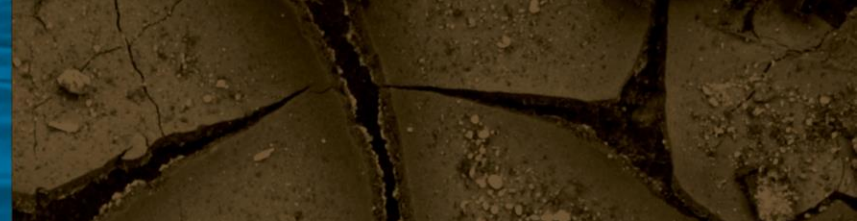




Alberta Energy Regulator

Examples:

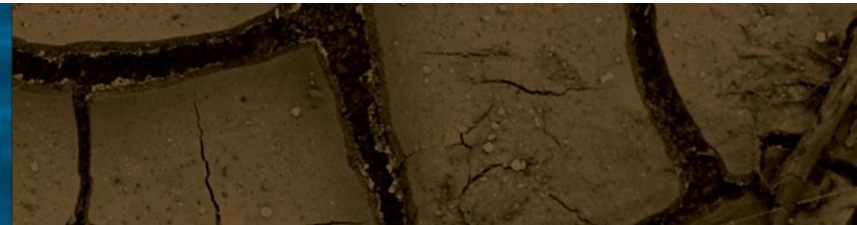
- Is responsible for implementing the *Water Act* governing licences related to oil and gas activity
- 



Alberta Emergency Management Agency

Examples:

- Coordinate multi-jurisdictional emergency responses when a community or municipality is overwhelmed by emergency events
- Declare a state of emergency relating to all or any part of Alberta





Alberta Urban Municipalities Association (AUMA) & Rural Municipalities of Alberta (RMA)

Examples:

- Provide drought prevention, mitigation and recovery resources
- Provide draft templates for water conservation and water restriction bylaws
- Provide draft water reuse plans to urban municipalities for water-related projects and activities

Watershed Planning and Advisory Groups (WPACs)

Examples:

- Provide a forum for a multi-stakeholder group to steward water resources
- Support municipal drought planning, awareness, and coordination
- Develop State of the Watershed Reports



Other Local Agencies

Examples:

- Intra-basin Water Coordination Committees
- Agriculture Financial Services Corporation
- Watershed Stewardship Groups

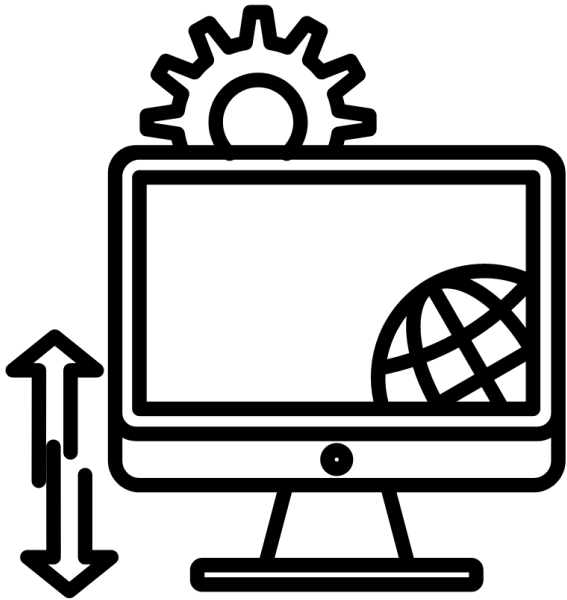




**Module 4:
Management Objectives,
Strategies, Tools, and Resources**

Theme A - Monitoring and Data

Monitoring and collecting data can help reveal major trends, determine key triggers, and inform important management decisions regarding multi-year drought.



Applicable for:

Before a Drought

Warning Signs

During a Drought

After a Drought

✓

✓

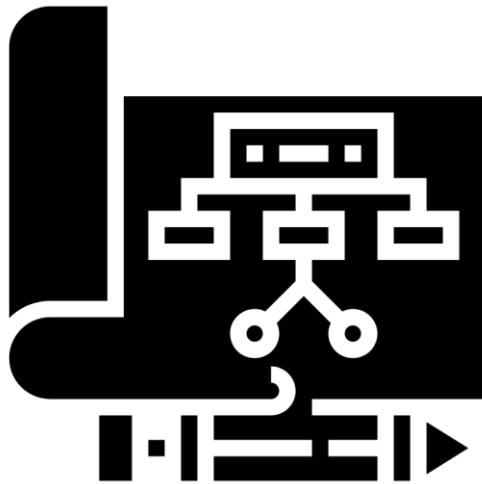
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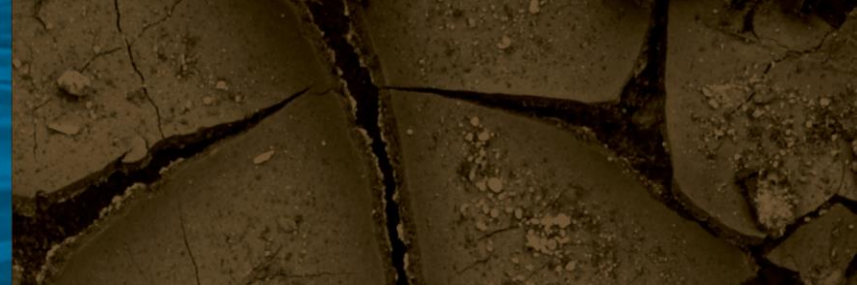


Theme B – Planning for Drought

Drought planning is an important means of facilitating management actions before, during, and after drought to reduce associated risks.



Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓			✓



Theme C – Supply Management

Managing source water supplies, and systems supplying users, enables the provision of adequate and suitable water for all users at a reasonable cost, even during a drought.



Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓



Theme D – Demand Management

Demand management improves water use efficiency, stretching water supplies further.



Applicable for:

Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓

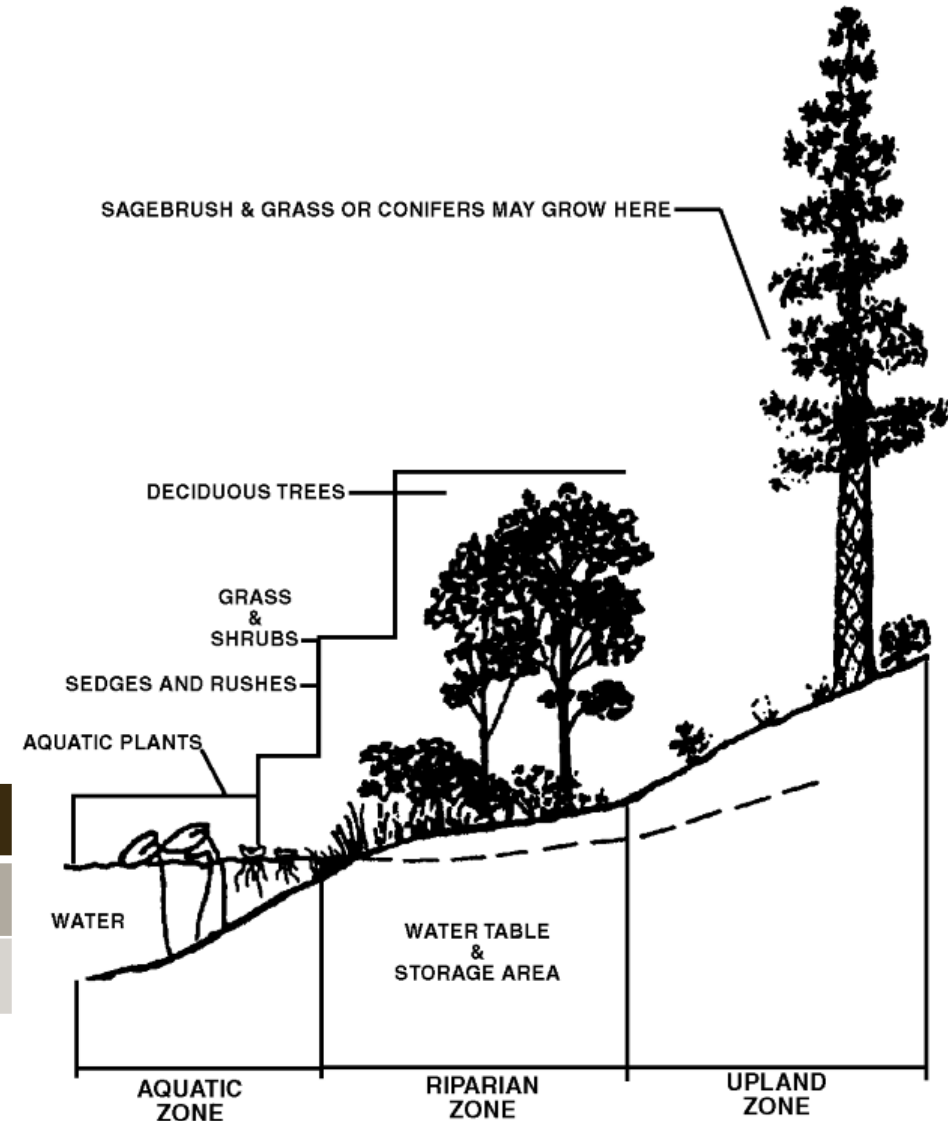


Theme E – Land Use Planning

Land-use planning aims to balance the needs of environmental, economic, and social aspects of a community. Land-use planning can play a key role in determining how resilient a community is to multi-year drought.

Applicable for:

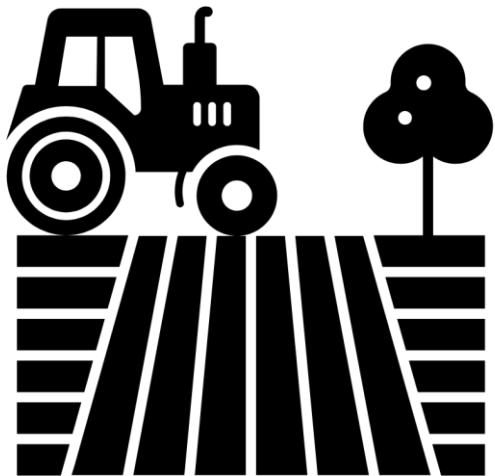
Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓



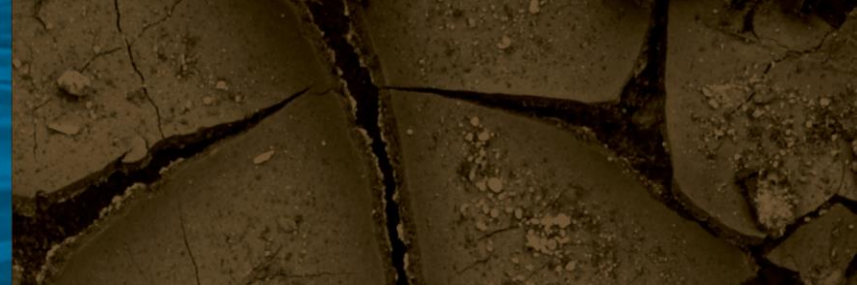


Theme F – Agriculture

In Alberta, agriculture plays a critical part of our economy and, as seen in the past, can be devastated by multi-year droughts.

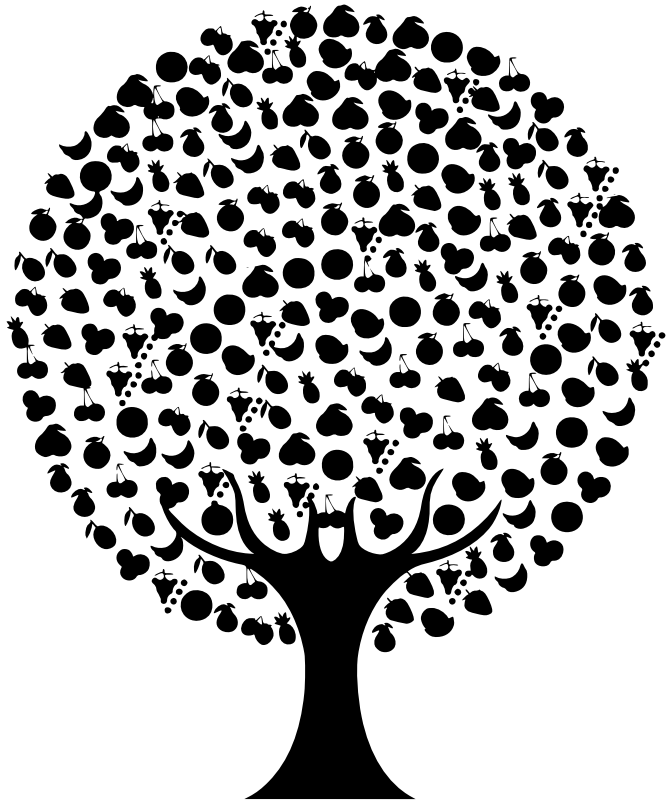


Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓



Theme G – Ecological Systems

Ecological systems can be severely impacted by multi-year droughts; they are also known as ecological droughts.



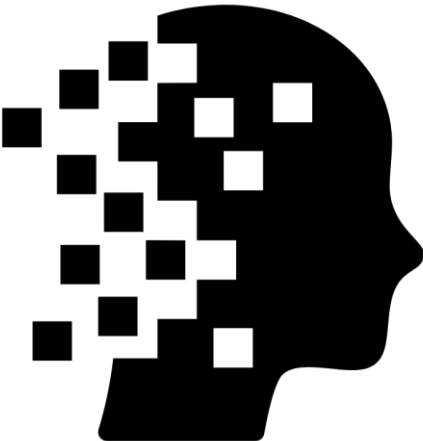
Applicable for:

Before a Drought	Warning Signs	During a Drought	After a Drought
✓		✓	✓



Theme H – Community and Health

Drought-induced depression, anxiety, psychological distress, and other mental health illnesses can have devastating impacts on individuals, families, and communities.

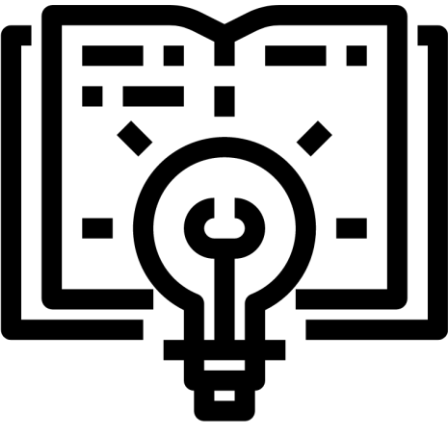


Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓



Theme I – Public Education

Drought education is an important part of the management process because it creates awareness among key groups and the public about multi-year drought triggers, impacts, management actions, and how and where residents can find help and resources in times of emergency.

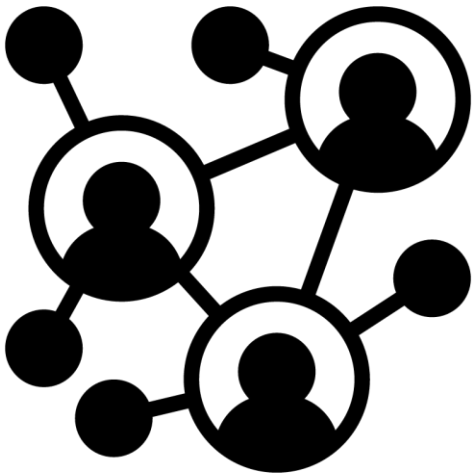


Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓



Theme J – Collaboration

If you are in a drought, neighbouring municipalities and other water users in your region are most likely experiencing similar challenges and looking for solutions.

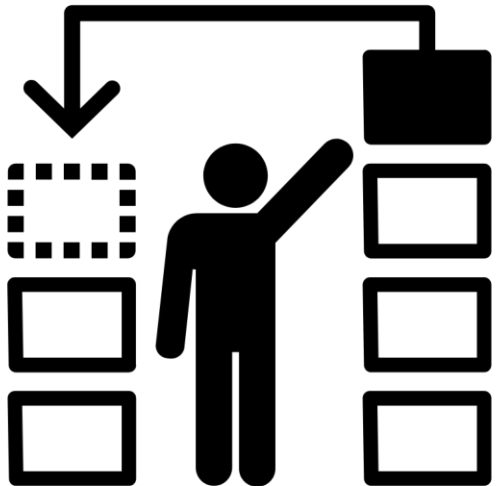


Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓	✓	✓	✓



Theme K – Emergency Management

In times of a multi-year drought, organizing and managing resources and responsibilities for emergency preparedness, response, mitigation, and recovery is important for reducing the impacts of multi-year droughts on a community.



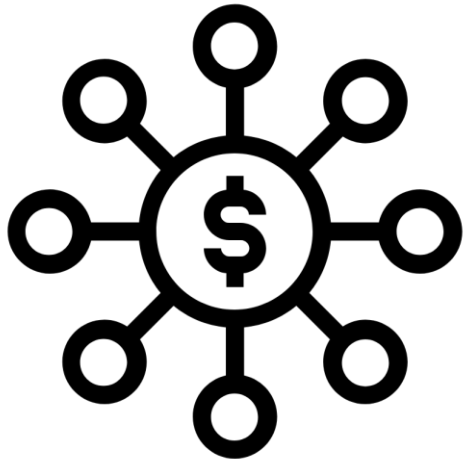
Applicable for:

Before a Drought	Warning Signs	During a Drought	After a Drought
✓		✓	✓

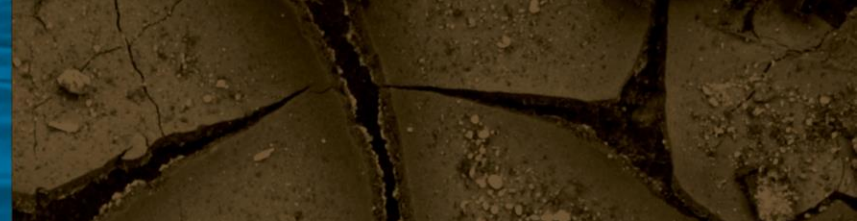


Theme L – Funding

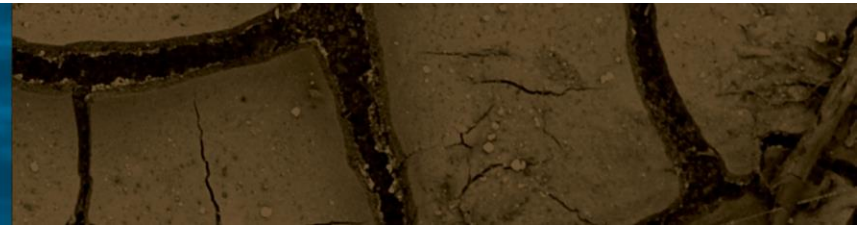
Funding can greatly assist with many activities from implementing management actions to supporting disaster relief.

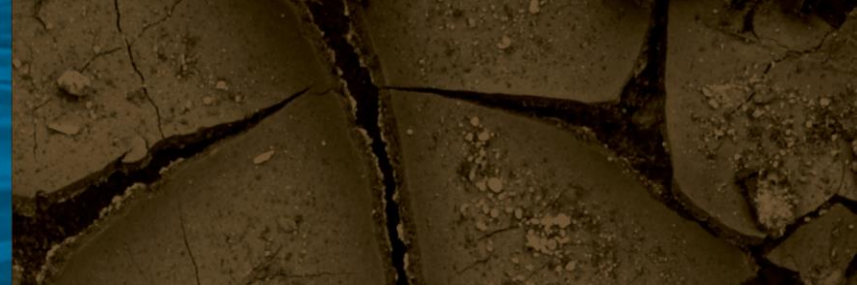


Applicable for:			
Before a Drought	Warning Signs	During a Drought	After a Drought
✓			✓



Questions?
Comments?
Feedback?





[WPACs to
insert contact
information]