

Bow River Water Management Project

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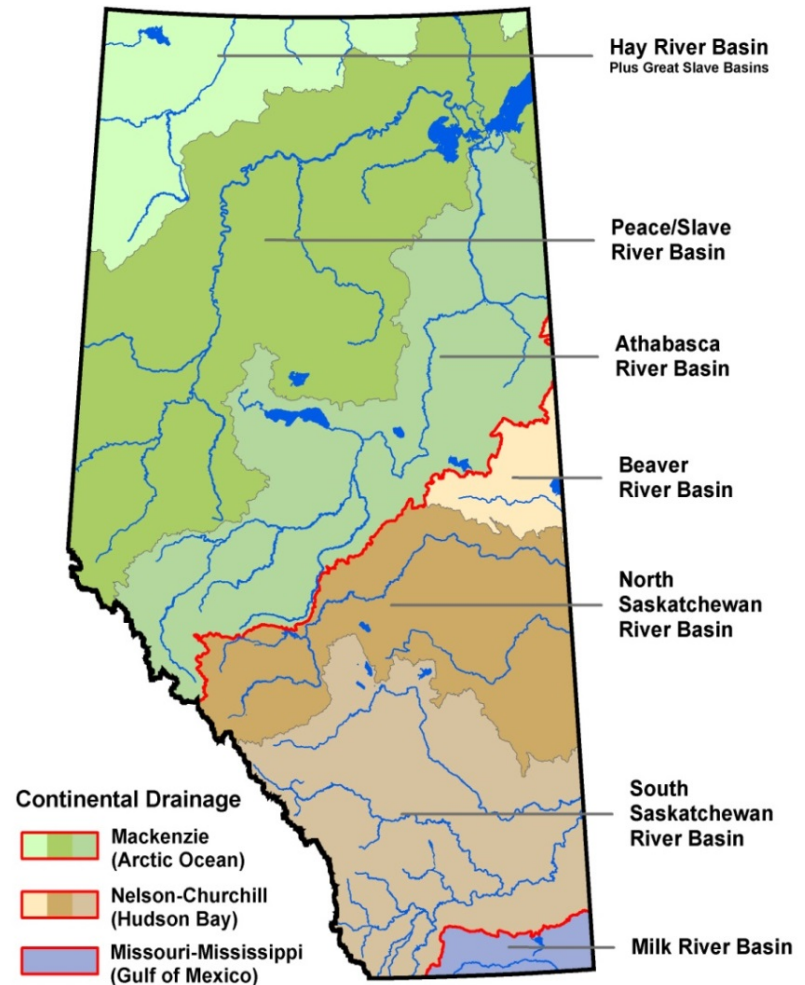
Flood and Drought Mitigation: Purpose and Principles

Flooding and Drought cannot be prevented, but we can be better prepared

- **Preparedness, protection and resilience**
 - **Reduce risk**
- **Assess, select, coordinate and implement mitigation measures and policies**
- **Evaluate based on:**
 - **Understanding causes, risks and impacts**
 - **Social, environmental and economic cost-benefit analysis**

Watershed Management: A Systems Approach

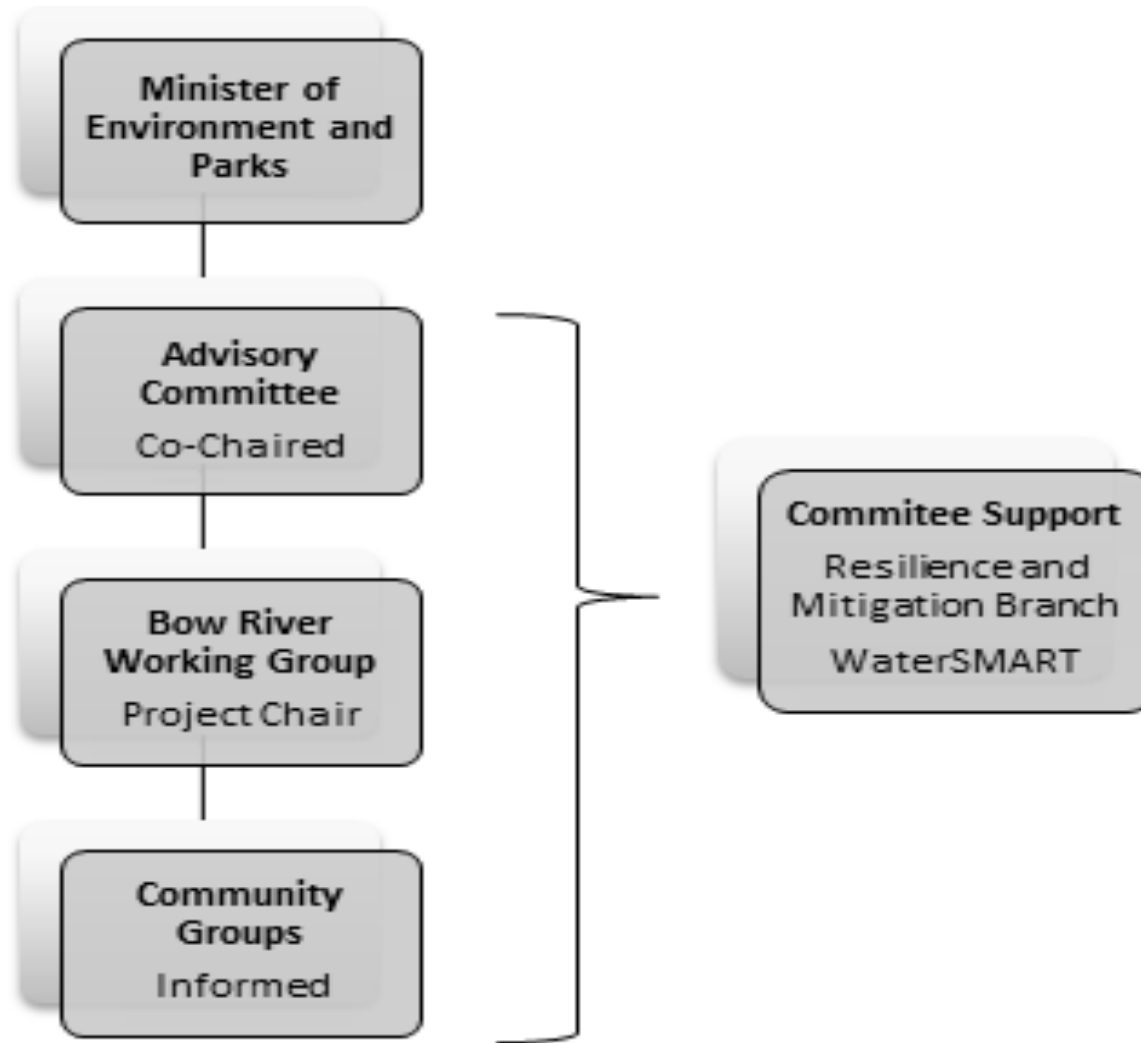
- Each river basin is a system
- Focus on river basins where flooding and drought risks are highest
- Implement best combination of upstream, local, individual and policy-based mitigation measures to protect against flooding events
- Enhance the ability to protect against drought



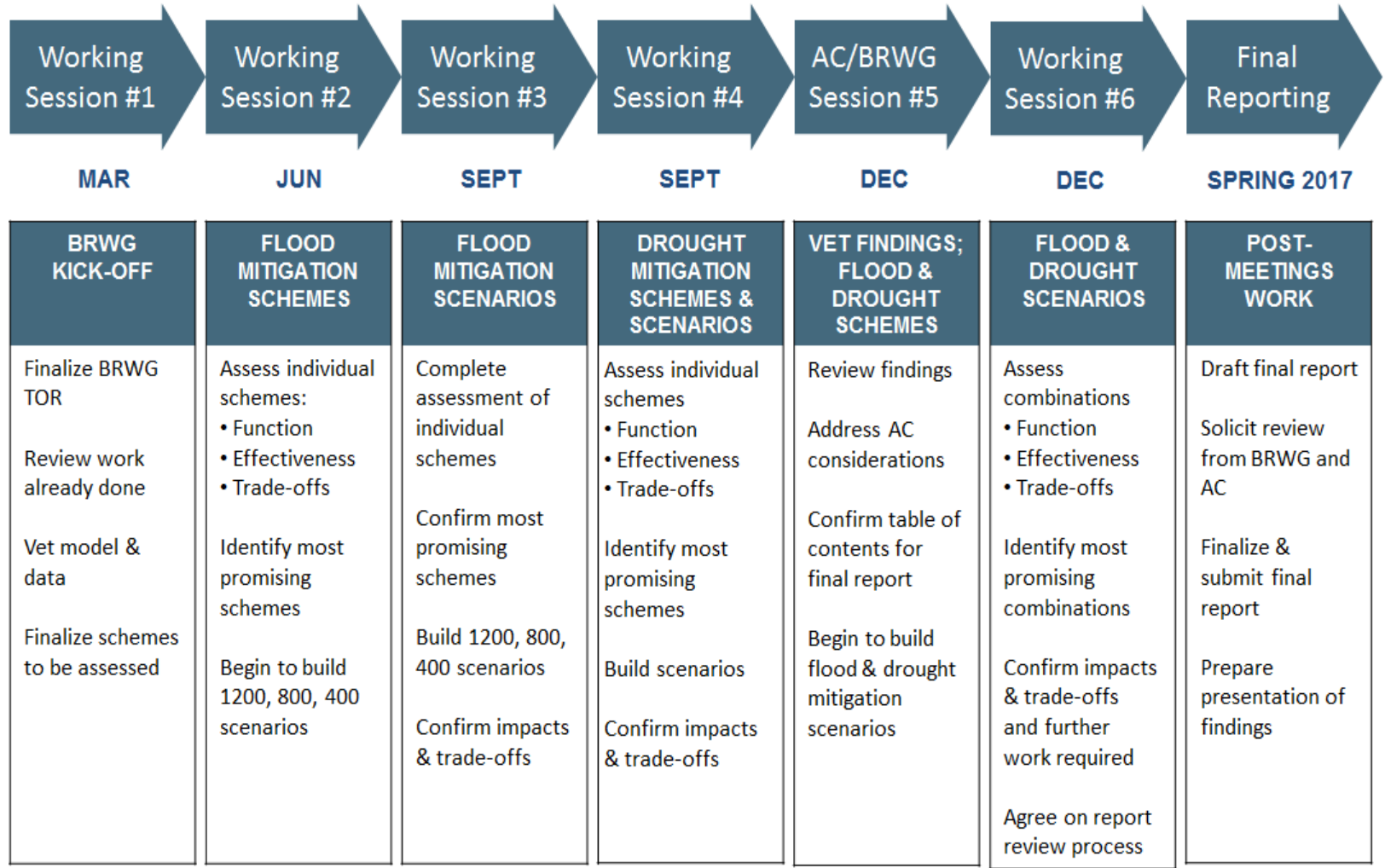
Background

- **The Bow River Working Group established in 2010.**
- **In late 2013 and early 2014 they worked together to identify and assess flood mitigation options in the Bow Basin.**
- ***Bow Basin Flood Mitigation and Watershed Management Project* report, released in March**
- **A separate report conducted by Amec Foster Wheeler in 2015 for Alberta Environment and Parks identified 11 potential flood storage schemes for the Bow River.**
- **This 2016 project is a continuation of both of these prior studies.**

Governance Structure



Timeline



One on one engagement with participants and other parties as required

Bow River Water Management Project

January 2016 – April 2017

- 5 Advisory Committee sessions
- 7 Bow River Working Group (BRWG) sessions
- 3 Community group sessions
- 2 Sub Committees (Data and Drought)

Broad representation of water users, managers and stakeholders, including:

- 10 municipalities
- 2 First Nations
- 6 reservoir operators
- 3 watershed groups
- 2 Environmental Non-Governmental Organizations
- 2 government departments

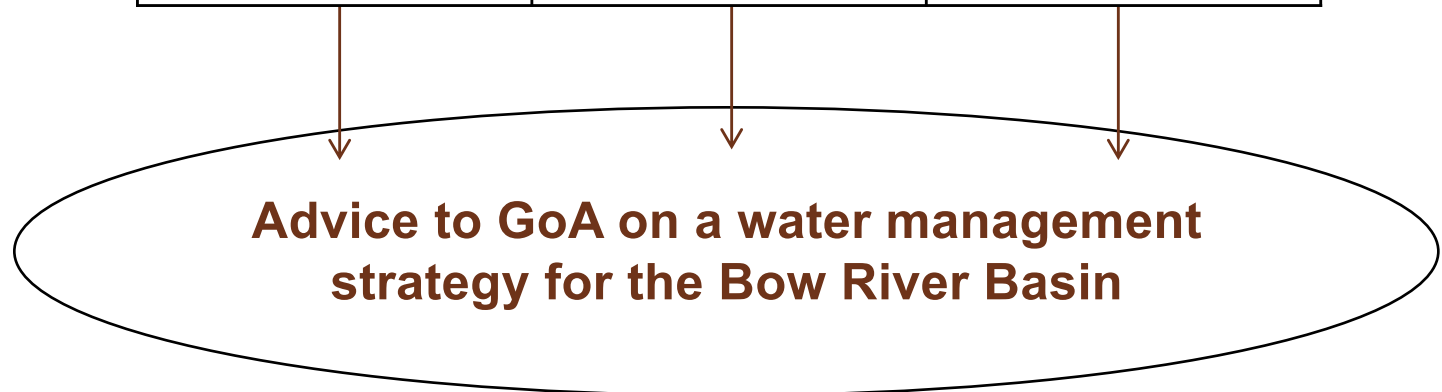
Transparent process

Best available data and tools

Collaborative, frank assessment of options

Informing a water management strategy for the Bow River Basin

Flood mitigation	Balancing the system	Drought mitigation
Identify flood mitigation scenarios to achieve mitigation objectives	Identify schemes required to offset increase in risk from flood mitigation	Identify most promising mitigation schemes that surpass mitigation objective



Flood mitigation schemes

1. Spray Lake Reservoir flood operations
2. Lake Minnewanka flood operations
3. Upgrade Ghost River diversion to Lake Minnewanka
4. New reservoir on Ghost River upstream of Waiparous confluence
5. New reservoir on Waiparous Creek upstream of confluence with Ghost River
6. Kananaskis Lakes flood operations
7. New reservoir on Kananaskis River
8. Barrier Lake flood operations
9. New reservoir on Jumpingpound Creek
10. New Glenbow reservoir on Bow River upstream of Bearspaw
11. New Morley reservoir on Bow River upstream of Ghost Reservoir
12. Ghost Reservoir flood operations (2016 agreement)
13. Expand Ghost Reservoir (by raising full supply level and/or adding a low-level outlet)
14. Expand Spray Reservoir
15. Increase Ghost Reservoir drawdown rate

Drought mitigation schemes

1. Restore Spray Reservoir to full design capacity
2. Upgrade Ghost diversion to Lake Minnewanka
3. Kananaskis System Water Shortage Mitigation operations (2016 agreement)
4. New storage capacity in Kananaskis system
5. New Morley reservoir on Bow River upstream of Ghost Reservoir
6. Expand Ghost Reservoir (by raising FSL and/or adding a low-level outlet)
7. New Glenbow Reservoir on Bow River upstream of Bearspaw
8. New Delacour reservoir in WID
9. Revise Western Irrigation District (WID) licence to increase diversion at all river stages
10. New Deadhorse Coulee reservoir in BRID
11. Operate McGregor Reservoir at the design FSL
12. Build Eyremore reservoir low in Bow River Basin

Preliminary Project Advice to GoA

1. Build on the current and future agreements to put in place the prerequisite needed in the upper Bow system
2. Implement the relatively quick wins that can be completed while larger projects are being assessed
3. Ensure full risk management, feasibility, and cost–benefit assessments are completed in subsequent steps as the schemes and scenarios are advanced
4. Do not implement flood mitigation schemes without implementing the accompanying schemes to balance the system and improve its adaptive capacity
5. Establish a process to set and achieve drought mitigation objectives for the Bow River Basin given that the most promising drought mitigation schemes assessed in this project can achieve far more than the original 5-10% objective
6. Continue to invest in natural watershed functions, floodplain protection and local mitigation
7. Commit to collaborative engagement for advancing and implementing these schemes as part of the water management strategy in the Bow River Basin, with clear timelines and coordination with policy development

Questions?

