SSRB WATER SUPPLY – PLANNING FOR THE FUTURE

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SSRB One of the most Diverse Basins in Canada
THE ALBERTA PORTION
SOUTH SASKATCHEWAN
RIVER BASIN
This is the most developed basin in the
Prairie Provinces.

- Population of ~1.6 Million
- Less than 20% of Alberta’s area, but
  produces almost 50% of the economic
  activity.

Agriculture, petroleum, power generation
and manufacturing are the major
industrial activities.

City of Calgary - ~70% of this region’s major
spending.
From a National Perspective: Agreement on Apportionment Prairie Province and International

Prairie Province Water Agreement

Boundary Waters Treaty

Hudson Bay
Canada
United States
Gulf of Mexico
South Saskatchewan River Basin

- Highly Regulated – approximately 20 on-stream reservoirs
- 15 to 20 Hydro Power generating sites
- 1.9 million acres of irrigated land
- More than 2 million people
What Planning Have we Done?
Planning in the SSRB has been ongoing for years!

- 1984/85 SSRB Public Hearings – Supply and Irrigation needs
- 1991 SSRB Water Allocation Regulations – Irrigation Supply
- 1993 SSRB Irrigation Impact Study – Economic and Social
What's been done most recently?
Where to in the Future?
KEY FINDINGS - WATER SUPPLY AND DEMAND

- **Future water supply**
  - Reductions in SSRB natural flow volumes more likely than increases

- **Current water demands**
  - Frequent deficits to WCO’s, junior non-irrigation users throughout SSRB
KEY FINDINGS - NON-STRUCTURAL MEASURES

- Modify existing storage reservoir operations
  - Red Deer and Bow River basins
  - Re-management of rivers using existing infrastructure.

- Preliminary analysis of potential for new on-stream storage
  - Additional storage potential of 1 million dam$^3$ in SSRB

- Additional on-stream storage
  - Could improve water availability for instream and consumptive users
BRP: Preferred Scenario
(Stabilized Kananaskis + 60,000af (75,000 dam³) Water Bank)
Dramatic Reduction in Low Flow Days Below Bassano

Increasing flows at Bassano during low flow periods served as an indicator for environmental improvement for the lower Bow
Snowline rises in elevation
• Smaller area to accumulate snow
• Less snow
• More runoff from rainfall or snowmelt in winter
• Earlier exhaustion of groundwater flow
• Lower summer/fall flows
WHAT’S HAPPENING WITH WATER QUALITY?
What are we Working on and Where to from here?
WATER STORAGE OPPORTUNITIES STUDY

Assess on- and off-stream storage sites for ability to:
1. Reduce risks to existing users.
2. Provide protection of the aquatic environment.
3. Support the needs of First Nations.
4. Mitigate impacts of climate change and variability.
$250,000 Study – Irrigation Council
Based on existing studies

Not an Engineering Study
• Can it be filled
• Impact of available storage

(Companion Document) Assessment of Potential Water Storage Sites and Diversion Scenarios (January 2008)
Assessment of Potential Storage Sites and Diversion Scenarios

<table>
<thead>
<tr>
<th>Basin</th>
<th>Potential Sites</th>
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<tbody>
<tr>
<td>Bow</td>
<td>35</td>
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<tr>
<td>Oldman</td>
<td>39</td>
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<td>Red Deer</td>
<td>33</td>
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This project’s primary objective is to increase capacity and resiliency for water resource management throughout the SSRB.

We are building a comprehensive river system model for the Oldman and South Sask. (OSSK) Basins with an adaptation focus.
SouthGrow Regional Initiative

Water for Communities
Water for Economic Development

Water is a key regional asset

SouthGrow continues to focus on ensuring that it is considered in all planning, including for economic development.

Water for economic development must stay on the “radar” of all regional and government stakeholders.
SouthGrow Regional Initiative

Water for Communities
Water for Economic Development

SouthGrow Studies

- Looked at Future Water needs of Communities
- Working together as Regional Partnership – District amendments will be critical.
- Water and Wastewater Treatment Hubs.
Strategies for the Future

- Increased productivity.
- Improved efficiencies and water conservation.
- Assessment of water supplies opportunities.
- Assessment and promotion of environmental stewardship.
Increased Productivity

- Continue plant breeding, irrigation management and agronomy research
- Test new crops for suitability in Alberta
- Support for agri-processing and economic development.
Improved Efficiencies and Water Conservation.

The provinces world-class irrigation and water management infrastructure; will play a major role in meeting economic, social and dietary needs into the future.
Assessment of Water Supply Opportunities and Impacts

- Enhancement of modeling capabilities to analyze expansion opportunities while balancing existing users and environmental needs.
- Support OSSK and other in assessing potential re-management of existing infrastructure to enhance the ecosystem.
- Move forward with new knowledge gained from Water Storage Study
ASSESSMENT AND PROMOTION OF ENVIRONMENTAL STEWARDSHIP

- Assess practice change to reduce Phosphorus loading
- Continue irrigation water quality monitoring
- Development of assessment tools for identifying sources of bacteria and tracking

There are increased public expectations related to environmental performance.
Irrigation’s future in southern Alberta faces many water management challenges . . . but equally many opportunities!