The Water Management Framework for the Industrial Heartland and Capital Region

February 6, 2009
CWRA Workshop

Alberta Environment

Outline

- Background
- Water Concerns
- Developing the Framework
- Objectives and Principles
- Future Vision and Phasing
- Current Status

The Industrial Heartland and the Capital Region

- The amount of development planned for the Industrial Heartland (IH) demanded a change in the approach for review of the environmental impacts in a region such as this

- It was essential to anticipate impacts on the North Saskatchewan River (NSR) considering both water supply and discharge impacts for the upgraders against the backdrop of increasing urban population.

Quantity Impacts on the North Saskatchewan River

- Volume of flow in the river is not currently stressed and it has been established that there is capacity for net withdrawals to support growth

- However, it is important to forecast growth to ensure that total demand does not exceed the capacity of the river

Quality Impacts on the North Saskatchewan River

- Water quality has been negatively impacted; Nutrient levels (phosphates & nitrogen nutrients) and the non-fish biotic health index have approached threshold levels downstream of Edmonton

- Water quality is seen as the most critical issue to manage as urban and industrial demands on the river grow

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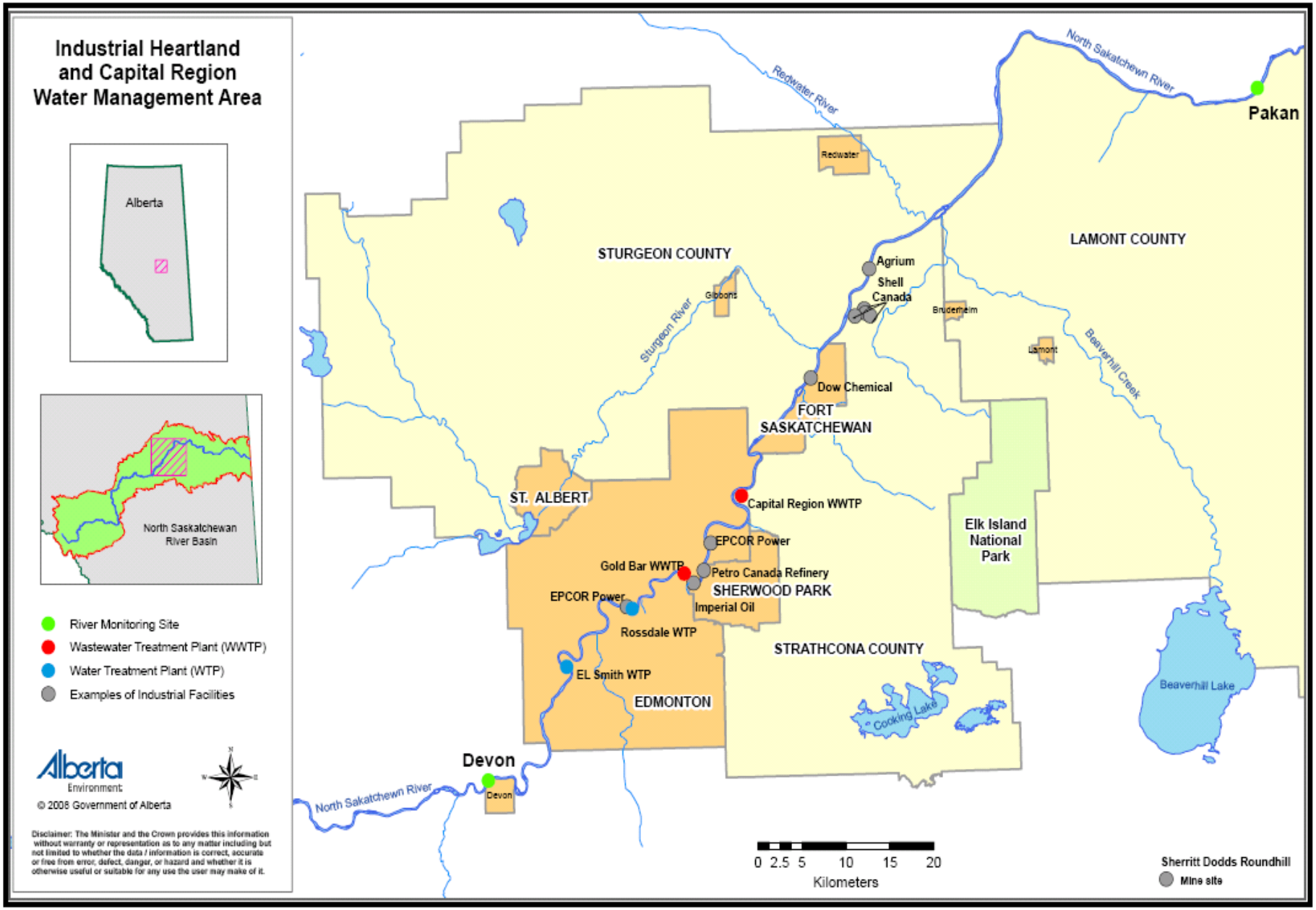
Water Management Framework

- The Water Management Framework was created by a multi-stakeholder committee and announced by Minister Renner December 2007
- This Water Management Framework is one component of the province's broad strategy to manage cumulative effects
- It provides for environmental, economic and social sustainability in the Devon to Pakan reach of the North Saskatchewan River

Strategic Objectives

- Make Alberta a world leader in water and water reclamation technology
- Minimize the impact or “footprint” on the North Saskatchewan River by improving the quality of the water and ensuring water conservation practices are in effect
- Implement the framework using distinct phasing
- Offer a regional perspective that can be used as a model for other regional frameworks in the province

Map of Water Management Area



Principles

- **Regional approach that:**
  - is integrated – addresses supply/ withdrawal, treatment/ reuse and discharge
  - is cumulative effects driven and considers the economic, social, and environmental impacts
  - has the ability to serve all municipal and industry users from Devon to Pakan
  - builds on existing commitments to use reclaimed water from return flows

Principles

- **Phased approach to development and implementation that:**
  - uses BATEA and provides the opportunity to move to more efficient, environmentally sound processes as science-based work indicates the need
  - encourages and recognizes solutions that limit the number of impacts and make effective use of existing capital infrastructure
  - allows existing industry to be integrated into the Framework

Principles

- **Meets the criteria for the Framework, describing a way to:**
  - improve the quality of the North Saskatchewan River and meet existing and announced water quantity and quality targets
  - manage water quantity to ensure that sufficient water remains in the river to maintain aquatic life and support current and proposed industrial development

Principles

- **Enables sustainable growth by:**
  - ensuring certainty and an economically viable, secure supply
  - managing the impact of collective development in a sustainable manner
  - signaling a change for the future and demonstrating ways it is future-oriented

Future Vision of the Framework

- Promotes a water conservation ethic for all users
- Advocates for a greater use of reclaimed water for non-potable water demands
- Moves toward a minimal-loading discharge policy
- Uses an integrated approach to the management of solids and wastes

Future Vision of the Framework

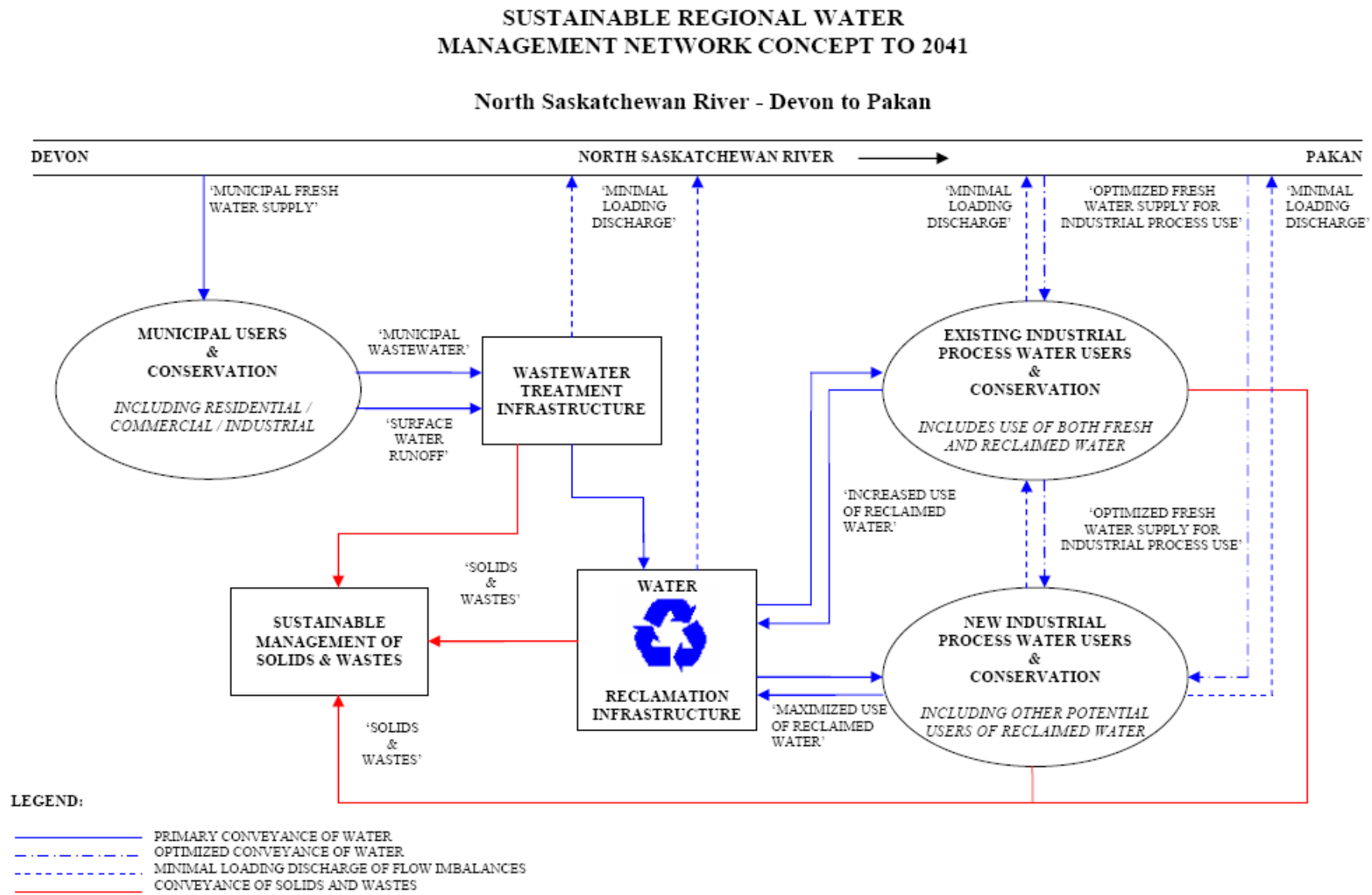
- Maximizes value by evaluating options based on environmental, full-cycle economics and social impacts
- Ensures a secure, reliable supply of water
- Optimizes the supply of raw river water for industrial process uses by utilizing and upgrading existing intakes
- Uses existing infrastructure for the short term growth demands

Future Vision of the Framework

- The Water Management Framework will manage cumulative effects in the North Saskatchewan River, supporting the goals of Alberta's Water for Life Strategy

- The end result will be a system that protects the aquatic environment, provides incentives to improve environmental quality, and is flexible to the unique demands of the Industrial Heartland and Capital Region

Conceptual Network



Phase One (Current)

“Enabling Current Developments”

- build toward the regional system
- establish a baseline on current NSR conditions
- strive for optimum use of existing infrastructure
- supply current industry needs
- no new physical intakes on the NSR

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Phase Two
(2009 – 2012)

“Foundation Building for Long Term Sustainability”

- enabling industry to make the transition to the new regional system(s)
- existing withdrawals are upgraded to become a part of the supply network, or phased out as they reach the end of their service life

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Phase Three (2012 – 2041)

“Sustainability”

- integration of existing facilities into the framework, making an integrated supply network
- world class integrated water management system within the North Saskatchewan River
- sustainably support the environment, and social and economic development

Implementation Governance

Multi-stakeholder Steering Committee comprised of representatives from:

- Alberta Environment
- Alberta Finance and Enterprise
- Alberta Capital Region Wastewater Commission
- North Saskatchewan Watershed Alliance
- Existing and Proposed Industry
- The City of Edmonton
- Strathcona County
- Sturgeon County

Implementation Sub-Committees

- Sub-Committees of this Steering Committee are in place and focused on implementation activities related to:
  - Baseline Science
  - Engineering Studies
  - Governance and Management of Assets
  - Communication and Education.

Baseline Science

- Water Quality
  - assuring the outcome of improving water quality
  - tool to determine proportion of point source versus non-point source loading under various scenarios
- Water Quantity
  - assist in defining and managing instream flow requirements and targets
  - tools to understand future management of water licenses

Engineering

- Evaluate alternative technologies and facilities for:
  - industrial wastewater reclamation
  - freshwater withdrawal optimization
  - effluent loading minimization

as defined in the Framework

Future Certainty

- Opportunity to provide the regulatory certainty and clarity required to support sustainable water use in the region over time

- Ensure that credible, science-based decisions can be made, resulting in better information to assist organizations in future planning and investment decisions

Questions/ Comments?

http://environment.alberta.ca/1933.html

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