

Issue Brief – Regional Water Management Framework for the Industrial Heartland

Introduction

Significant industrial growth is happening in the region, along with corresponding regional municipal growth. With this growth, many are asking questions about the impacts to quality of life, what is being done to plan for the growth, what steps are being taken to protect the environment, to ensure public safety, and what will be done to improve the infrastructure?

Alberta is evolving towards a new approach to environmental management called the Cumulative Effects Management Framework which considers the environmental implications of development for an entire region. The new Cumulative Effects Management Framework allows various stakeholders within the region to work together and agree on environmental outcomes. The burden of meeting those standards is to be shared fairly among all residents, including municipalities and industry.

In 2007, the provincial government announced a series of comprehensive, science-based targets, outcomes and actions for the region to protect the air, land and water. The Cumulative Effects Management Framework for the Industrial Heartland specifies that one outcome is to protect water quality in the North Saskatchewan River water supply and river water quality would not be negatively impacted.

Water Management Framework

Water is an essential resource to NCIA members and to our community, that's why industry sat down with the provincial government, local government, and utilities and developed *the Water Management Framework for the Industrial Heartland and the Capital Region*. While we believe that industry's consumption of water from the North Saskatchewan River is sustainable, we are currently taking and will continue to take a proactive approach by looking at the best ways to maximize water reclamation within our facilities, minimize the amount of fresh water we take from the river and improve the quality of our effluent that we discharge back to the river.

Released in December 2007, *the Water Management Framework for the Industrial Heartland and Capital Region* provides over arching principals for the management of river water from Devon to Pakan (<http://www.environment.alberta.ca/2276.html>).

Some key actions identified in the first phase of the framework include:

- developing an implementation plan to ensure optimum use of existing water withdrawals and infrastructure;
- identifying and implementing key actions for maintaining river quality; and
- assessing the feasibility of alternative approaches to water use, such as the use of recycled water.

The second phase of the framework – proposed for 2009 to 2012 – recommends the transition to a regional water supply network and emphasizes the use of recycled water. A third phase – proposed for 2012 to 2041 – focuses on longer-term sustainability of the North Saskatchewan River.

A Water Steering Committee comprised of representatives from industry, municipalities, non-government organizations and the provincial government has been established to guide the implementation of the Framework. The Steering Committee is also responsible for 'steering' the workplan of two subsidiary groups:

Implementation Sub-Committee – this group will organize and deliver the tasks, people, relationships and technology needed to develop a detailed Framework Implementation Plan. This group has established working teams in the areas of science, engineering, and communications/education.

Governance Sub-Committee – this group is responsible for clearly describing the relationships and linkages of the Framework Implementation Plan to the Capital Region Integrated Growth Management Plan (CRIGMP) and will describe the processes, customs, policies, laws and institutions needed to effectively govern and administer the regional water management network.

NCIA Position on the Water Management Framework

On a go forward basis, the work on the North Saskatchewan Water Management Framework should be on evaluation of multiple solutions based on agreed to parameters (e.g. North Saskatchewan River quality, North Saskatchewan River withdrawal volumes, etc). No single solution can be used for all municipalities and industries. It may make sense for a number of companies to manage water in their local area, alternatively a municipality or utility may have a cost effective solution for another location. Full cycle economic and environmental impacts should also be used to govern the selection of the available options for supply of water and management of effluent.

Water Quality

North Saskatchewan River nutrient loading from the regional waste water treatment plants (WWTPs) and non point sources continue to be a concern, particularly during low flow conditions. Certain metal ion loadings are also approaching quality guidelines. Opportunities to increase treatment and reduce these loadings on the North Saskatchewan River will improve water quality and provide additional capacity for increased population and industrial use.

The North Saskatchewan River is being monitored to better understand the current state and to monitor the effectiveness of future environmental actions. A detailed technical baseline study is being completed to understand the contaminants exceeding the water quality thresholds, and against which to evaluate the expected outcomes of recommended projects. NCIA is supportive of long-term North Saskatchewan River monitoring and recommends that it should be continued.

Water Supply

The volume of flow in the river downstream of Edmonton is not currently stressed and there is room for net withdrawals to support considerable growth. NCIA members support the completion of an Instream Flow Needs (IFN) study by the North Saskatchewan Watershed Alliance (NSWA) to confirm the level of withdrawals available to maintain healthy aquatic life in the river. The overall majority of water allocation volume is returned to the river with net withdrawals constituting a very small fraction of the river flow. However it is important to forecast the impact of growth effectively to ensure that total demand does not exceed the capacity of the river. It is also prudent to institute cost effective water conservation measures where practical for both municipalities and industry.

Number of Water Intakes

A single straw approach for the region is not environmentally effective, cost effective or a reliable option for large scale industry.

There are six existing industrial intakes within the Industrial Heartland reach of the river. Some of the intakes and their associated delivery infrastructure are currently under utilized or may be amenable to upgrading to supply additional users. Many existing industries already share intakes (e.g. Shell, Dow, Sherritt and Agrium). Industry is willing to continue this practice, however it should be contractually driven not mandated by government. Use of existing infrastructure represents an opportunity for economic supply of water while minimizing new intakes on the North Saskatchewan River.

Water Licenses

Based on the current water quantity data there is no impending water shortage including allocations proposed for new projects. As such, the rationalization of water licenses would be premature and unnecessary. New water licenses for withdrawal from the North Saskatchewan River should be an option if economic and impact evaluations for project options indicate other solutions are not cost effective.

Existing industry recognizes they cannot continue to hold large allocations of unused water licenses for decades. A reasonable time frame to use the allocation is a point of discussion between the regulator and individual companies. This should be an evolutionary process rolled into operating approval discussions or new project discussions. Existing industry must protect their ability to expand within reason in the future.

Water Reuse/Recycle:

Re-use of municipal wastewater has been postulated as one means of both managing the nutrient loading on the North Saskatchewan River and also reducing the number of intakes. To accomplish this would require substantial investment in infrastructure to move the recycled water from the municipal Waste Water Treatment Plants (WWTP) to industry, wastewater reclamation facilities to enable re-use, and treatment and management of the concentrated nutrients and contaminants. NCIA expects that this option will only be economically viable versus other solutions with equal impact where municipal WWTP facilities are located very near industry.

Many existing industry players have practiced significant internal recycle for years. All companies in the region should be encouraged by the government to maximize their use of internal recycle. Credit for water conservation currently or historically implemented at existing facilities should be considered. A possible further evolution of this practice is for local groupings of companies to share in integrated water treatment facilities and ultimately water reuse. Shared water treatment facilities will not remove the need for intake from the NSR however will reduce the volumes required from the river overall as well as remove entirely the associated industrial effluent discharge.

Evaluation of all recycle options should include consideration of the full environmental effects i.e. the building of pipelines, green house gas emissions, etc. If mandatory, requirements for water recycle should be phased into existing industry based on actual North Saskatchewan River water quality/quantity measure versus targets and economics.

Next Steps

NCIA supports the government's Water Framework and is continuing to provide input to all working teams established under that framework, on how the recommendations can best be implemented to ensure sustainable economic growth in the Industrial Heartland region. The immediate next steps for NCIA members is to ensure the outcomes of the work being done adhere to the agreed principles and goals outlined in the draft framework document. Work is also underway to complete the science to support the new framework and develop communication and awareness tools to keep the public informed.

NCIA will continue to be a strong advocate that no single solution can be used for all municipalities and industries in the Industrial Heartland and Capital Region and that full life cycle economic and environmental impacts should also be used to govern the selection of the available options for supply of water and management of effluent.

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