

A Proposed Approach to Developing a Basin-Wide Nutrient Management Strategy for the International Red River Watershed

Background

Excessive nutrients such as phosphorus and nitrogen are one of the greatest water quality issues facing the international Red River watershed and Lake Winnipeg. While all jurisdictions within the watershed have various regulatory frameworks, plans and approaches in place to reduce the contribution of nutrients to water, the development of an enhanced, coordinated, and systematic strategy is desirable.

The development of a basin-wide plan for the management of nutrients within the shared international Red River watershed was agreed to as part of recent Four-Party discussions between the federal governments of the United States and Canada, the State government of North Dakota, and the Provincial government of Manitoba. For additional background, please see <http://www.gov.mb.ca/chc/press/top/2010/10/2010-10-08-135100-9904.html> and <http://www.gov.mb.ca/chc/press/top/2010/11/2010-11-22-163100-10229.html>. All jurisdictions involved in the Four-Party discussions agreed that South Dakota and Minnesota should be engaged in the development of a nutrient management plan.

The Red River Basin Commission also recognized the need to improve basin-wide cooperation and collaboration on water quality management, in particular with respect to nutrients. Through the support of the Red River Basin Commission, North Dakota, Minnesota, and Manitoba worked to develop a draft "Conceptual Water Quality Management Plan for the Red River Basin". While this draft conceptual plan has not been finalized, the major concepts including the mission, guiding principles, and some of the main objectives have been incorporated into this document reflecting the previous discussions and excellent work that had already occurred in this area.

Mission Statement

To develop a collaborative, science and watershed-based approach to managing nutrients in the Red River and its watershed with the goal of restoring and protecting aquatic ecosystem health and water uses in the Red River watershed and Lake Winnipeg.

Guiding Principles

The development of the nutrient management strategy will be guided by the following principles:

- Efforts, decisions and outcomes will be based on and supported by scientifically defensible methods and research.
- An integrated watershed perspective and approach will be used in priority setting and decision making.
- Coordinated, cooperative and collaborative processes will be used where appropriate and desirable. Notwithstanding, it is understood that jurisdictional independence will be maintained and that jurisdictional participation is voluntary.

- The strategy and its objectives will be goal/outcome based with particular focus on the protection and/or restoration of aquatic ecosystems and water uses.
- Synergies between sub basins and sub watersheds in the Red River watershed will be recognized and considered.
- Lake Winnipeg is the end point and receiving surface water body for the Red River. Efforts and decisions should strive to benefit both Lake Winnipeg and local water quality.
- Information exchange and input between the jurisdictions will be coordinated where possible
- The Parties will use a consensus-based approach to decision making (for the purpose of this document consensus-based means “unanimous” in that all parties agree on the decision).

Proposed Approach for Developing a Nutrient Management Strategy

Where it is possible, practical and advantageous to do so, it is proposed that the Red River watershed include the Assiniboine River watershed. For example, water quality monitoring data are collected for the Assiniboine River watershed and can be included in the determination of nutrient sources to the Red River. Similarly, many of the nutrient reduction actions and activities undertaken in Manitoba will most likely be applied across both the Red and Assiniboine River watersheds.

The following components are not intended to be undertaken consecutively but in fact work could occur concurrently on some components.

- **Component One – Seek Endorsement of the Proposed Approach from the International Red River Board**

It is proposed that the development and implementation of a Nutrient Management Strategy for the Red River Watershed be administered through the International Joint Commission’s International Red River Board and a new committee established specifically to develop and implement the Nutrient Management Strategy in cooperation with the Red River Basin Commission and the Red River Water Resources Council. The International Red River Board would be asked to endorse the proposed approach to developing a Nutrient Management Strategy for the Red River Watershed and would work to ensure the Strategy is developed and implemented.

- **Component Two - Develop a Shared Understanding of Jurisdictions’ Nutrient Regulatory Frameworks and Identify Current Nutrient Reduction Actions, Activities and Plans for the Red River Watershed**

Jurisdictions across the Red River watershed have already implemented some nutrient reduction actions and activities to achieve local water quality goals and to assist in reaching the interim goal of reducing nutrient loading into Lake Winnipeg by 10 % (endorsed by the International Red River Board in 2004). In addition, each of the jurisdictional regulatory frameworks requires different mechanisms for establishing nutrient reduction targets and for implementing nutrient reduction actions and activities.

It is proposed that jurisdictions would compile an overview document describing the different regulatory frameworks in place across the Red River watershed. Work is also underway through several jurisdictions in planning, monitoring, stressor identification and delineation of priority management areas.

It is also proposed that jurisdictions would identify actions and activities that:

- 1) Are currently contributing to nutrient reductions across the Red River watershed.
- 2) Have been proposed or are to be implemented in the next two years that are expected to reduce nutrient loading to the Red River watershed.

Where possible, jurisdictions would provide information on the costs of implementing nutrient reduction actions and activities including information to quantify the nutrient reduction and any ecological goods and services provided by the actions and activities.

Jurisdictions would ensure information exchange regarding nutrient reduction actions, innovative options for nutrient reduction, and practical beneficial practices with demonstrated effectiveness.

Examples of nutrient reduction actions and activities include wastewater treatment technologies, beneficial management practices for agriculture and forestry, education and stewardship programs aimed at individual households and businesses, innovative technological approaches for nutrient reductions in small communities, and surface water management programs such as stormwater retention and constructed wetlands.

Nutrient reduction measures could be compiled in a matrix organized by area of the Red River watershed and type of reduction action or activity (point, non-point, education, etc.).

Proposed Timelines: Complete by December 31, 2011

- **Component Three - Recommend and Implement Nutrient Load Allocation and/or Water Quality Targets for Nutrients**

Jurisdictions would work collaboratively to develop nutrient load allocations and/or water quality targets for nutrients along the Red River including at the international boundary and at sub watershed discharge points in the Red River watershed. Work to develop nutrient objectives will be coordinated with other work underway across the watershed including the development of nutrient objectives for Lake Winnipeg and could include water quality modelling and additional research to better understand the nutrient stressor and response relationship in the Red River. The nutrient load allocations and water quality targets will include timelines for implementation.

A number of subcomponents to this project have been identified including:

- **Identify High Priority Areas for Implementing Nutrient Reduction Measures**

Using existing data and information, jurisdictions would identify sub-watersheds that are a high priority for implementation of projects that contribute to reducing

nutrient loading to the Red River and its watershed. Work could include watershed modelling and/or compiling information on nutrient export rates.

- **Identify Nutrient Reduction Actions and Activities for the Red River Watershed that could assist in achieving Nutrient Load Allocations and/or Water Quality Targets for Nutrients**

Building on the work in component two, the jurisdictions would collectively identify actions and activities that could be implemented to help achieve Nutrient Load Allocations and/or Water Quality Targets for Nutrients. It is recognized that ultimately jurisdictions will make the final decisions regarding the nutrient reduction measures that are most appropriate for their own jurisdiction but this component is intended to provide open communication, information exchange and to support consistency wherever possible.

- **Develop a Common Set of Indicators for Measuring Progress**

Where possible, develop a common set of indicators for measuring progress towards reducing nutrient loading to the Red River watershed. Indicators would likely include nutrient concentrations and loads but also measures of aquatic ecosystem health.

Proposed Timelines for Component Three: Complete by March 31, 2013

- **Component Four - Monitor and Report on Progress towards Meeting Water Quality Targets and Nutrient Load Allocations**

- 1) Assess comparability of existing water quality monitoring programs and data throughout the watershed with emphasis on nutrients and identify and reconcile differences where possible and/or appropriate.

Proposed Timelines: Start immediately

- 2) Determine what additional information is required to develop the nutrient load allocations and/or water quality targets under Component Three.

Proposed Timelines: Start immediately

- 3) Determine what information is required to monitor progress towards meeting nutrient load allocations and/or water quality targets for nutrients for local water bodies, the Red River, and Lake Winnipeg.

Proposed Timelines: Start immediately and refine as targets are developed

- 4) Monitor and report water quality conditions and progress in improvement of the Red River watershed and Lake Winnipeg on a periodic basis.

Proposed Timelines: Begin immediately

- **Component Five - Facilitate ongoing technical, scientific and methodological dialogue and information sharing relevant to nutrients and nutrient loading in the Red River watershed including exchanging information on the goals and scientific basis for the long-term ecologically relevant objectives that are under development for Lake Winnipeg.**

Proposed Timelines: Ongoing

- **Component Six - Adapt the nutrient management strategy based on progress and ongoing evaluation.**

Proposed Timelines: Ongoing