

Manitoba Provincial Case Study
Analysis of Water Strategies for the Prairie Watershed Region
Working Draft for Comment

Notice to Reader

This document is one of seven jurisdictional and inter-jurisdictional case studies that will form the knowledge base for a synthesis report entitled “A Synthesis of Challenges and Innovations in Provincial and State Water Strategies for the Prairie Watershed Region.” The other six case studies cover Saskatchewan, Alberta, Interprovincial Management, Minnesota, North Dakota and International Transboundary Management. The synthesis paper will be presented at the Prairie Water Policy Symposium on September 22-23, 2005. The Prairie Water Policy Symposium is a project of the International Institute for Sustainable Development (www.iisd.org).

Information in the jurisdictional case studies was obtained from publicly available sources (e.g., Internet and literature sources) and supplemented through interviews with government officials. **The information was up-to-date as of September 21st 2005.** Comments received after this date are being incorporated and a new working draft will be posted later in September.

This case study is in an unedited, working paper format. Please email comments to Bryan Osborne at panteraman@shaw.ca.

Prepared as input to the Prairie Water Policy Symposium – a project of the International Institute for Sustainable Development (www.iisd.org).

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Prairie Water Strategies and Policies – Manitoba

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1. Provincial Context

Manitoba has 10 major drainage basins, including¹:

- Seal River;
- Churchill River;
- Nelson River;
- Hayes River;
- Saskatchewan River;
- Lake Manitoba;
- Lake Winnipeg;
- Winnipeg River;
- Assiniboine River; and
- Red River.

Water flows to Manitoba from three directions – mainly into Lake Winnipeg, then north to Hudson Bay – representing 13% of Canadian fresh water supplies and 70% of all hydro-electric power production potential on the Prairies.^{2, 3}

The natural variability of Prairie waterways can be problematic during drought periods, although flooding is typically the greatest concern. Recent years have seen excess water during the spring and summer wreak havoc with agricultural operations, while maintaining heavy pressure on both rural and urban infrastructure since a major flood on the Red River in 1997.

The province is set to begin work on a \$750M expansion of the Winnipeg Floodway, designed to protect the city and downstream areas from catastrophic flooding,

An ongoing legal battle with the State of North Dakota over the Devils Lake drainage outlet – combined with intense lobbying efforts with the federal government to obtain U.S. support for an International Joint Commission reference – has been the focus on much activity in Manitoba.

Concerns over the current and future health of Lake Winnipeg are behind new water quality management efforts, including new legislation, regulations, and watershed planning efforts.

¹ Manitoba Conservation. 2003. The Manitoba Water Strategy. Winnipeg, MB, p. 25.

² Manitoba Conservation. 2003. The Manitoba Water Strategy. Winnipeg, MB, p. 5.

³ Keewatin Publications (2003). Focus on Manitoba: Available: http://www.keewatin.ca/Pages/Manitoba_section.html (Accessed 20 June 2005).

2. Vision and Key Goals

Manitoba's Vision for its freshwater resources is stated within the Manitoba Water Strategy⁴ and foresees:

“The best water for all life and lasting prosperity.”

The strategy's Key Goals (described as Policy Areas and Objectives) are focused on⁵:

1. Water Quality – To protect and enhance our aquatic ecosystems by ensuring that surface water and ground water quality is adequate for designated uses and ecosystem needs.
2. Conservation – To conserve and manage the lakes, rivers, and wetlands of Manitoba so as to protect the ability of the environment to sustain life and provide environmental, economic, and esthetic benefits to existing and future generations.
3. Use and Allocation – to ensure the long term sustainability of the province's surface water and ground water for the benefit of all Manitobans.
4. Water Supply – To develop and manage the province's water resources to ensure that water is available to meet priority needs and to support sustainable economic development and environmental quality.
5. Flooding – To alleviate human suffering and minimize the economic costs of damages caused by flooding.
6. Drainage – To enhance the economic viability of Manitoba's agricultural community through the provision of a comprehensively planned drainage infrastructure.

Manitoba Water Stewardship, a new provincial department responsible for strategy implementation is currently in an evolving strategic planning process, and has recently established the following departmental goals in support of the Manitoba Water Strategy Vision (above) – which is identical to the departmental Vision.

While detailed analysis is not possible at this time, it is conceivable that future versions of the strategy will be aligned with the following departmental goals:⁶

- Human Health – Manitobans have safe drinking water and are protected from water and fish related health threats
- Ecosystem Health – Aquatic life support systems are protected and improved
- Quality of Life – Sustainable and productive use of water and fishery resources benefits all Manitobans

⁴ Manitoba Conservation. 2005. The Manitoba Water Strategy (Vision/Mission as of 2005). Available: <http://www.gov.mb.ca/waterstewardship/waterstrategy/index.html> (Accessed 15 August 2005)

⁵ Manitoba Conservation. 2005. The Manitoba Water Strategy: Policy Areas and Objectives. Available: <http://www.gov.mb.ca/waterstewardship/waterstrategy/pdf/index.html> (Accessed 15 May 2005).

⁶ Schroeder, R. (2005). Personal Communication

- Security – Manitobans are adequately protected from floods, water shortages, droughts and other water-related hazards

2.1 Process and Content

The origins of the Manitoba Water Strategy can be traced to the late 1980s. A comprehensive set of soil and water policies were developed using a thorough public consultation process known as the *Manitoba Land and Water Strategy*. This effort served as the template for a series of sectoral strategies (also covering forests, fisheries, minerals, etc.) – all comprising the *Manitoba Sustainable Development Strategy*, developed under the auspices the Manitoba Round Table on Environment and Economy – with extensive inter-departmental cooperation and complete cabinet level political support.

The six dominant policy themes and detailed objectives comprising the Manitoba Water Strategy were first articulated as *Manitoba's Water Policies* in 1990 and originally included a seventh policy objective, which is not featured in the current Manitoba Water Strategy – in favour of the recognition that education is an important feature of each of the six policy areas:⁷

7. Education – To enhance the awareness and knowledge of Manitoba's water resources.

After an aborted attempt to implement a landmark sustainable development act in the mid-1990s (involving the consolidation of some 300 related pieces of legislation), a simplified *Manitoba Sustainable Development Act* was later passed in 1998 – committing to the concept of large area planning concept, regular sustainability reporting, sustainable development codes of practice, financial management guidelines, and continued operation of the Manitoba Round Table. A subsequent stakeholder consultation resulted in the *Report on the Consultation on Sustainable Development Implementation (COSDI)* in 2000. The COSDI report called for Manitoba to make better environmental, land use, and resource allocation decisions – employing the concept of “large area planning,” based on naturally definable areas, such as watersheds. This set the stage for a major discussion paper, based on the first six water policy themes outlined above, *Building a Sustainable Future – Water: A Proposed Strategic Plan for Manitoba*, released in October 2001.⁸

A stakeholder steering committee undertook a review of the strategic plan, providing ministerial recommendations which led to the current Manitoba Water Strategy, released in April 2003. Past activities and proposed future actions are outlined for each of the six policy themes/detailed objectives, while the implementation framework for the strategy is outlined.

The implementation elements include⁹:

I. Development of an Integrated Water Planning and Management System

⁷ Manitoba Sustainability. 1997? Applying Manitoba's Water Policies. Winnipeg, MB, 85p.

⁸ Manitoba Conservation. 2001. Building a Sustainable Future – Water: A Proposed Strategic Plan for Manitoba. Winnipeg, MB, p. 2.

⁹ Manitoba Conservation. 2003. The Manitoba Water Strategy. Winnipeg, MB, p. 20-23.

Watershed-based planning will be supported through the creation of “watershed districts” (subsequently called “watershed planning authorities”) across the province, building on the existing efforts of Manitoba’s conservation districts – which are primarily based on municipal boundaries, but employ sub-watershed-based local committees. Larger basin-level or aquifer districts may also occur where appropriate. Planning partners will be important at every level.

II. Review and Consolidation of Water Legislation

There are at least 20 separate provincial acts and several more legislative regulations related to water in Manitoba. The province hopes to consolidate most existing water legislation into a single act, based on extensive public consultation. Some acts will be repealed, some may be revised, and some (such as those related to federal legislation) may not change or be consolidated. Relevant water legislation includes:

- | | |
|---|--|
| - Conservation Agreements Act | - Conservation Districts Act |
| - Drinking Water Safety Act | - Dyking Authority Act |
| - Fisheries Act | - Fishermen’s Assistance Act |
| - Floodway Authority Act (crown corporation) | - Groundwater and Water Well Act |
| - Manitoba Habitat Heritage Act (crown corp.) | - Lake of the Woods Control Board Act |
| - Manitoba Natural Resources Transfer Agreement | - Public Health Act (relating to drinking water) |
| - Water Commission Act (repealed) | - Water Power Act |
| - Water Resources Administration Act | - Water Supply Commissions Act |
| - Water Services Board Act (crown corporation) | - Water Rights Act |
| - Water Protection Act | - Water Resource Conservation and Protection Act |

III. Development of Mechanisms for Financing Water Management and Planning

Locating adequate, long-term funding in support of comprehensive water management has been an ongoing challenge, although crisis-related funding is more readily available (i.e. flooding). Funding to support the maintenance of provincial waterways, and watershed restoration projects will be expected to reflect an equitable distribution of costs, in accordance with benefits received among all users.

2.2 Formalization

Manitoba has begun to formalize its water policy direction by drafting the Water Protection Act¹⁰, including provisions to:

- Establish and implement water quality standards, objectives, and guidelines;
- Establish water quality management zones and to regulate activities within them;
- Prohibit and otherwise regulate harmful non-native species;
- Establish water conservation programs;
- Designate watershed planning authorities and watershed boundaries for watershed management plans;
- Establish the Manitoba Water Council advisory body; and
- Establish a water stewardship fund.

¹⁰ Manitoba Water Stewardship. 2005. Bill 22: The Water Protection Act (revised after Committee review). Winnipeg, MB, 32p.

The Water Protection Act supports additional legislative efforts passed under the Drinking Water Safety Act, which saw the creation of the Office of Drinking Water – with associated enforcement, inspection, and advisory powers regarding the operation of any public or private water supply system.

2.3 Priorities and Timeframes

Water-related issues are being addressed on several levels – with a strong focus on Lake Winnipeg water quality. Even prior to development of the Manitoba Water Strategy, the province's main priorities relating to water have focused on¹¹:

- Drinking water safety (act passed in August 2002, Office of Drinking Water created);
- Preventing bulk water export and inter-basin transfers both within and beyond the Hudson Bay Basin (Water Resources Conservation and Protection Act, passed in August 2000);
- Extensive legal challenges to the Devils Lake and Garrison Diversion projects in North Dakota, over concerns regarding downstream water quality and biota transfer;
- Rural community flood protection with ring dykes since the 1997 Red River Flood;
- The provision of timely and accurate flood-related water information and forecasting;
- Winnipeg Floodway expansion (creation of Floodway Authority in June 2004);
- Nutrient management, riparian restoration incentives, and research in support of Lake Winnipeg water quality, and the creation of the Lake Winnipeg Stewardship Board (October 2004).

The origins and scope of the Manitoba Water Strategy and the Water Protection Act are rooted on the concept of inter-generational equity, and their intent clearly respects the environmental, economic, and social elements of sustainable development. However, at this time, there are no stated timeframes for any initiatives associated with Manitoba's water policies, strategy directions, or legislative activity.

Also, given that the Manitoba Water Stewardship department has involved the merging of several units from other departments, it appears the original water policies may need to be revised to better reflect current policy trends (i.e. to incorporate an increased focus on fisheries and riparian habitat, among other issues). It is acknowledged that future versions of the Manitoba Water Strategy may look quite different than the current document – to reflect these trends.

Recent announcements regarding the City of Winnipeg's water treatment requirements and proposed agricultural nutrient management regulations have demonstrated strategy progress

¹¹ Manitoba Conservation. 2003. The Manitoba Water Strategy. Winnipeg, MB, p. 4

3. Structure and Planning¹²

The Natural Resources Transfer Agreement between Canada and Manitoba (1930) set out the division of federal and provincial responsibilities relating to water and other resources.

Subsequent related federal/provincial agreements and acts in 1938, 1948, and recently – have generally assigned water-related responsibilities as follows:

Manitoba is responsible for all aspects of fresh surface water and groundwater lying within its boundaries, with the exception of:

- Fisheries – Fisheries and Oceans Canada retains responsibility for fish habitat, while the province has been authorized to set harvest limits and restrict fishing gear;
- Navigable Waters – Public Works Canada retains responsibility for the maintenance of flows and providing reasonable access of historically navigable waterways; and
- First Nations – Indian and Northern Affairs Canada retains responsibility for the domestic and other water-related needs of Status Indians.

3.1 Strategy Structure

Manitoba signaled its intention to make water an even higher provincial priority by establishing a stand-alone water department (Manitoba Water Stewardship) in November 2003. Manitoba Water Stewardship (MWS) is the lead department for implementing the Manitoba Water Strategy and has now assumed responsibility for most water-related programming and policy development.

At this point Manitoba does not have a formal interdepartmental planning mechanism focused on water. However, informal, ad hoc mechanisms do exist and are regularly employed by staff at all levels – mainly involving the departments of MWS, Conservation, Intergovernmental Affairs, and Agriculture, Food and Rural Initiatives.

There is particularly strong program cooperation with Manitoba Conservation, with the latter retaining many water-related enforcement and licensing responsibilities. MWS administers elements of the Public Health Act related to drinking water quality – cooperating Manitoba Health. MWS is also working with Manitoba Intergovernmental Affairs on land use planning and development issues.

3.2 Departmental Structure

Given its relatively recent formation (involving the alignment of most water-related sections from other departments), the operations of Manitoba Water Stewardship are not located in one building, but in several locations, and their roles are still evolving. In addition to its administrative units (Corporate Services and Human Resources), Manitoba Water Stewardship program delivery structure is currently grouped into three general units.¹³

¹² Manitoba Water Stewardship. 2005. Legislation/Acts. Available: <http://www.gov.mb.ca/waterstewardship/licensing/acts.html> (Accessed 8 May 2005).

¹³ Schroeder, Roger (2005). Personal Communication.

Ecological Services Division

This division includes the following branches.

Planning and Coordination

- coordination of legislation and strategy development (Manitoba Water Strategy).

Manitoba Habitat Heritage Corporation

- crown corporation reporting to the minister of Manitoba Water Stewardship;
- coordinates the Riparian Stewardship Program, a partnership initiative designed to improve water quality and fish habitat by providing funding to private agricultural landowners wishing to improve their riparian land management practices;
- works to support the Riparian Tax Credit, coordinated by Manitoba Finance;
- enters into conservation agreements with private landowners;
- serves as the Manitoba coordinator for the North American Waterfowl Management Plan

Water Science and Management

This branch includes:

Surface Water Management Section¹⁴

- flood forecasting;
- hydrologic investigations of streamflows; and
- water conservation awareness (a Water Efficiency Strategy is in development)

Water Quality Section¹⁵

- analytical expertise in various areas of aquatic ecology, water chemistry, biology, limnology, hydrogeology, statistical analyses, plus other related disciplines; and
- focus on surface water ecosystems (e.g. Lake Winnipeg water quality)

Groundwater Section

- provides support for groundwater resource licensing, mapping, management, and protection.

Fisheries¹⁶

- sets annual harvest limits for domestic (Aboriginal family use), recreational, and commercial fishing, as well as fishing gear restrictions(as authorized by Fisheries and Oceans Canada);
- stocks specific water bodies with fish to support annual uses within particular sites; and
- provides public information on the importance of riparian habitat and invasive aquatic species. administers the Fish Enhancement Initiative funding program

¹⁴ Manitoba Water Stewardship, 2005. Water Information. Available: http://www.gov.mb.ca/waterstewardship/water_info/index.html (Accessed 10 May 2005).

¹⁵ Manitoba Water Stewardship, 2005. Water Quality: Rivers, Lakes, and Wells. Available: http://www.gov.mb.ca/waterstewardship/water_quality/index.html (Accessed 9 May 2005).

¹⁶ Manitoba Water Stewardship, 2005. Fish and Habitat. Available: <http://www.gov.mb.ca/waterstewardship/fish/index.html> (Accessed 10 May 2005).

Office of Drinking Water¹⁷

- established to enhance the existing program for the assessment of water infrastructure, licensing and monitoring of water plants and operators;
- provides assistance to the owners and operators of public and semi-public water systems;
- system owners are required to undertake regular water quality testing using accredited private laboratories, with results coordinated by the Office of Drinking Water;
- guidelines and monitoring support is also provided to the owners of private systems, although they have more autonomy and responsibility in operating their own wells; and
- works with Manitoba Health regarding drinking water advisories and orders

*Manitoba Water Services Board*¹⁸

Often working in association with federal partners such as Agriculture and Agri-Food Canada and Western Economic Diversification, the Manitoba Water Services Board provides technical and financial assistance to farmers, municipalities, and local water cooperatives in:

- developing new domestic and agricultural water supplies (Farm Water Source Program);
- securing and distributing water supply (Rural Pipeline/Community Source Program); and
- treating and managing municipal sewage (Municipal Water and Sewer Program)

*Infrastructure and Operations*¹⁹

This branch includes:

Water Licensing Section

- Water use regulation (non-drinking water use licensing and enforcement, data collection)
- Water power regulation (licensing and enforcement of use in hydro-electric generation);

Water Control Infrastructure

- Flood protection (Winnipeg Floodway and Portage la Prairie diversion); and
- Supply management (operation of reservoirs, lakes, and river control structures)

Regional Water Operations²⁰

- Land drainage engineering;
- Allocation planning among uses (application of Manitoba Water Policies); and

¹⁷ Manitoba Water Stewardship. 2005. Drinking Water. Available: http://www.gov.mb.ca/waterstewardship/drinking_water/index.html (Accessed 9 May 2005).

¹⁸ Manitoba Water Stewardship. 2005. Water Services Agencies. Available: <http://www.gov.mb.ca/waterstewardship/agencies/index.html> (Accessed 12 May 2005)

¹⁹ Manitoba Water Stewardship. 2005. Water Services Agencies. Available: <http://www.gov.mb.ca/waterstewardship/agencies/index.html> (Accessed 12 May 2005)

²⁰ Manitoba Water Stewardship. 2005. Licensing, Regulation, and Policy. Available: <http://www.gov.mb.ca/waterstewardship/licensing/index.html> (Accessed 12 May 2005).

Also, the Manitoba Floodway Authority is responsible for managing the design, construction, and maintenance of the expanded Red River Floodway, while also developing the economic possibilities associated with the project.

3.3 Planning Aspects of the Manitoba Water Strategy

The formation of Manitoba Water Stewardship (MWS) and the evolution of the Water Protection Act are viewed as innovative developments, expected to bring about a better working relationship, as a bridge among related departments. MWS is structuring itself as an integrated and cooperative department, with a strong focus on capacity building among its internal and external partners.

Interdepartmental Planning

While effective and regular informal contact around water issues appears to occur at all levels, it is apparent that more regular (formal) meetings among departments with water-related policy, program, and/or planning activities (e.g. Manitoba Conservation, Manitoba Intergovernmental Affairs, Manitoba Agriculture, Food and Rural Initiatives) would be beneficial. They currently meet as needed – focusing on one issue at a time, typically through the formation of ad hoc internal committees including:

- Program Policy Teams – case-by-case, task-based/emerging priorities; and
- Technical Advisory/Review Committees – driven by external needs/specific projects

Like all provincial departments, the priorities and strategies of MWS are developed through the Budgets and Estimates process. A MWS Priorities and Strategies Overview (PSO) is currently being developed and will be annually updated to outline the department's direction. It will include program details, staffing needs, budget requests, and performance measures. PSOs are developed by all departments as part of Manitoba's annual government planning and budget estimates process.²¹

Departmental Cooperation

Cooperation among the water-related departments to date has seen:

- Manitoba Conservation develop and implement several water-related regulations under the Manitoba Environment Act, including regulations related to livestock manure spreading, septic fields, municipal wastewater treatment, and agricultural soil testing for phosphorus. Additional future phosphorus regulation plans have been prepared under the guidance of an external expert committee;
- Manitoba Agriculture, Food and Rural Initiatives participate in reviewing the potential for providing financial incentives under the Ecological Goods and Services concept – for possible implementation on private agricultural lands – in support of Water Protection Act water quality goals; and

²¹ Schroeder, Roger (2005). Personal Communication.

- Manitoba Intergovernmental Affairs conduct a comprehensive review and re-drafting of the Planning Act – to guide agricultural resource development and land use planning within rural municipalities – designed to be consistent with the Water Protection Act.

Broad Planning – Political Level

Formal interdepartmental planning occurs at the political level – through the Community Economic Development Committee of Cabinet (CEDCC) and its secretariat – with strategy coordination and project assessment occurring to support integrated planning and development. The CEDCC replaced the dual approach of the previous administration, which saw two separate cabinet committees (Economic Development Board and Sustainable Development Committee), both with extensive and cooperating (but separate) secretariat support.

It is important to note the earlier (and entire) seven-member Sustainable Development Committee of Cabinet also sat on the multi-sectoral Manitoba Round Table for Environment and Economy which under the previous administration, was chaired by the Premier – who also chaired the Economic Development Board. The Manitoba Round Table was responsible for drafting Manitoba's broad sustainable development strategy, including initial water strategy and policy development. It has not met in recent years, and is assumed to be inactive. Another previously active Provincial Land Use Committee of Cabinet has not met in recent years.

The Policy Management Secretariat of Executive Council has traditionally played a key role in coordinating provincial policy development and strategic initiatives, and this was the case with the earlier Manitoba Round Table and Sustainable Development Committee of Cabinet. A Sustainable Development Coordination Unit of Executive Council provided secretariat support to these bodies, while also managing numerous interdepartmental policy development committees (including water) in support of the broad Manitoba Sustainable Development Strategy.

The Policy Management Secretariat also played a lead role in formation of Manitoba Water Stewardship, evolution of the Manitoba Water Strategy, and eventual development of the Water Protection Act.

Broad Planning – Deputy Minister Level

Provisions exist at the deputy minister level for an Interdepartmental Planning Board (IPB), although this formal committee has not been regularly active in recent years. Under the previous administration, IPB played a key role in coordinating interdepartmental cooperation on many inter-related sustainable development initiatives. Deputies currently meet on an ad hoc basis to address water and related issues as they arise.

The Manitoba Conservation Districts Commission conducts an annual budget review of the Manitoba Conservation Districts Program. It is comprised of deputy ministers from five departments (responsible for agriculture, conservation, intergovernmental affairs, transportation, and water stewardship), in addition to representatives from the Association of Manitoba Municipalities, the Manitoba Conservation Districts Association, and a public appointee.

Broad Planning – Director Level and Departments

The Integrated Directors Group (IDG) of Manitoba Conservation does meet on a regular basis to discuss shared natural resource-related interests and responsibilities; other departments are invited to participate when required. The IDG is supported by Program Policy Teams described above, in addition to the following:

- Integrated Resource Management Teams – rural/regional staff meet regularly;
- Crown Land Classification Committee – ad hoc focus on provincial land types; and
- Block Planning Committees – provincial land use and resource development.

From 1986-96, there was a major interdepartmental focus on marsh management – which saw the extensive review of a series of detailed wetland restoration schemes within Agri-Manitoba. Comprehensive benefit cost analyses were conducted in several locations, although no projects were implemented due to unfavourable economic assessments – partly because analysis did not include full valuation for ecological goods and services to support integrated watershed management.

4. Multi-level Coordination, Participation, Watershed Partnerships

While Manitoba has primary responsibilities and authority for water, the province relies heavily on the cooperation and partnership of the federal government and many delivery partners.

4.1 Federal Government

Aside from solid performance in the area of transboundary water management and agriculture, the federal/provincial water relationship is viewed to be quite grey in Manitoba, at a time when the province is focusing heavily on water issues and cannot afford to address them unilaterally.

Several provincial staff have suggested the federal government could and should play a larger role (mainly in fulfilling monitoring, research, flood damage reduction commitments outlined in the Canada Water Act). Federal water-related policy and programming is seen to be fractured, occurring across several federal agencies and departments.

There is appears to be a need for clarification of federal and provincial water responsibilities in Manitoba, and the lack of a formal process (in the form of regular bilateral meetings) is identified as one key area – to help address confusion over mandates among all departments. Clarification of federal and provincial roles would promote greater policy and program consistency as demonstrated with initiatives such as environmental farm planning under the federal-provincial Agricultural Policy Framework and exploration of the Ecological Goods and Services concept (EG&S) – which are germane to Manitoba's Water Protection Act and strategy.

Specific to irrigation development, federal efforts in supporting this industrial sector are greatly appreciated. Manitoba Agriculture, Food and Rural Initiatives jointly manages an Irrigation Coordinating Committee with Agriculture and Agri-Food Canada, and the program appears to be working well in supporting the rational development of water resources for the agriculture

industry. Relative roles and responsibilities of federal, provincial, and industry partners appear to be clear and very cooperative.

4.2 Other Provinces and States

Aside from the federally-coordinated provincial partnerships such as the Prairie Provinces Water Board and the International Joint Commission's basin boards (Red River, Souris River), Manitoba is also a major partner in the multi-lateral Lake of the Woods Control Board and the Shoal Lake Watershed Working Group.

The Canadian Council of Ministers of the Environment (CCME) and the Council of Fish and Aquaculture Ministers (CFAM) also involve Manitoba. Manitoba Water Stewardship (MWS) is represented on CFAM, although not on CCME – the focus of most water quality discussions, where Manitoba Conservation is represented.

4.3 Municipalities

Through its water-related departments, Manitoba works directly with its rural and urban municipalities on all water issues, including: water supply, drainage, infrastructure, damage, and recreation development.

MWS views existing municipal partnerships developed through its conservation district program as a central element of the Water Strategy, while Manitoba Intergovernmental Affairs works with municipally-coordinated planning districts as key to its Planning Act provisions. Regional water supply cooperatives are another key municipal partnership – working through MWS's Manitoba Water Services Board.

Municipal infrastructure damage claims are coordinated by the Manitoba Emergency Measures Organization (MEMO), a division of Manitoba Transportation and Government Services

Municipal partnerships through the Manitoba Conservation District Program are discussed in a later section titled *Watershed Management Partnerships*.

4.4 First Nations

Manitoba has been increasing its direct discussions with these communities regarding water. It is clearly acknowledged that more can and should be done. To date, there has been little First Nations' interest in coordinated water management planning, despite efforts by the province to engage several communities.

Several First Nations communities have been quite involved with development of the Water Strategy – and the Lake Winnipeg Stewardship Board. It is anticipated that aboriginal water rights will become a major issue in the future. Section 35 Aboriginal consultation provisions of the federal Fisheries Act were a major focus during the recent Waskwatim hydroelectric development review.

Manitoba Conservation and Agriculture, Food and Rural Initiatives are working to strengthen First Nation relationships. Conservation has several co-management agreements over resource use, which are germane to water. Agriculture has a full time aboriginal coordinator who works

directly with First Nations as needed and upon request. A current major initiative relates to a sizable irrigation development project on Long Plain First Nation.

4.5 Lake Winnipeg Stewardship Board²²

The role of the Lake Winnipeg Stewardship Board is to assist the government of Manitoba to achieve the main commitments in the Lake Winnipeg Action Plan²³ of reducing phosphorus and nitrogen in the lake to pre-1970 levels. Board members represent a variety of interests, including fishing, agriculture, urban land use, First Nations, federal, provincial and municipal government, and non-governmental organizations.

4.6 Public and Other

MWS wants all Manitobans to be accountable for the future of the province's water quality, and it hopes to engage all citizens in the process. The Water Protection Act's proposed watershed planning authorities and planned Manitoba Water Council are central elements of citizen engagement. This commitment has been demonstrated throughout much of the water strategy development process, with additional public involvement aspects including:

- several policy and basin advisory boards appointed by the minister;
- comprehensive media communications campaign; and
- regular release of strategy documents and draft legislation.

Another element of the strategy's participation process involved support of the Manitoba Water Caucus of the Manitoba Eco-Network – an interest/advisory committee open to anyone – to collect comments and engage interested Manitobans on the strategy process, the Water Protection Act, and related developments. MWS also works with other non-government organizations, including Ducks Unlimited Canada, the Association of Manitoba Municipalities, Keystone Agricultural Producers, and the Southern Chiefs Organization, among others.

4.7 Municipal Drainage and Watershed Policy Evolution²⁴

A number of water management problems have existed in Manitoba since the settlement of agricultural families. The roots of these are found in the establishment of a system which, from 1895 to 1935, brought about the drainage of two million acres of natural inherently wet but extremely fertile land for agricultural development in the Red River Valley. A number of long-standing concerns have existed because of the drainage process in Manitoba:

- 1) "Foreign water" (water flowing into other areas from upstream) has regularly plagued the owners of lowland agricultural areas and municipalities;
- 2) Strong perceptions exist that foreign water problems occur and have become worse because of upland drainage, land use changes, and road construction; and

²² Manitoba Water Stewardship (2005). Lake Winnipeg Stewardship Board: Background. Available: <http://www.lakewinnipeg.org/web/index.shtml> (Accessed 25 June 2005).

²³ Manitoba Water Stewardship (2003). 18 February News Release: Available <http://www.lakewinnipeg.org/web/index.shtml> (Access 25 June 2005).

²⁴ Ogrodnick, L. (1984). A History and Policy Review of Water Management in the Lower Red River Basin. Natural Resources Institute, University of Manitoba, 275p.

- 3) Suggestions are regularly made that owners of upstream land should be made to pay a portion of lowland water management costs.

(O'gradnik 1984, p. 15)

Through decades of study and several Provincially appointed commissions, various aspects of the problem gradually became more clearly defined. The Sullivan Commission (1918-1921) addressed the physical design of the agricultural drainage system; it was felt a watershed-based drainage system should have been used versus a gridiron approach. Also, Sullivan suggested upland contributors of foreign water should be paying for the opportunity to dump water on those downstream.

The Finlayson Commission (1935-1936) determined that downstream flows of runoff were accelerated because of associated land clearing and road and ditch construction which facilitated the upland drainage process. This resulted in rapid and high volume runoff, causing erosion and silt deposition in lowland areas downstream. Due to this extra water, local maintenance districts were forced to install more drains, with costs borne by rural municipalities (ultimately local taxpayers). Rising construction costs augmented these problems, and as the costs increased, the proportion of Provincial contributions for drain maintenance decreased.

The Lyons Commission (1947-1949) determined that upstream land use and road and ditch work had affected water flow in two ways: increasing total runoff volumes and the rate or speed of runoff, resulting in increased peak flow during runoff events. However, similar to non-point source pollution, specific liability for foreign water problems could not be proven and; it was recommended that the Province become responsible for two thirds of all future maintenance and construction of drains which intercept, collect, and carry foreign water together with local water.

Two dominant policy themes emerged over time, resulting in:

- 1) The transfer of much financial responsibility from municipalities to the Province and;
- 2) The enactment of legislation which permitted a more holistic approach to land and water management (embodied within the Watershed Conservation Districts Act of 1959, and the later Conservation Districts Act of 1976).

(O'gradnik 1984, p. 16)

4.8 Watershed Management Partnerships

Watershed-based efforts are occurring at several levels.

Local Watershed Organizations

Several Manitoba rural municipalities in the Red River Basin and Interlake area have been working together in an attempt to address longstanding drainage issues outside of the conservation district framework. Similar cooperative efforts have occurred in the past, typically following major flooding events. Today's North West Red Water Management Association is comprised of several south-central Manitoba municipalities – virtually the same membership as an earlier entity, the Lower Red River Valley Water Commission.

There also a number of active watershed restoration associations operating within the City of Winnipeg, notably on the Seine River and several smaller creeks.

There is a long history of federal/provincial partnerships related to soil conservation and sustainable agriculture, dating to 1989, during which the Canada-Manitoba Soil Conservation Agreement was used to establish 44 local agricultural conservation organizations known as “Farming for Tomorrow” groups. Most organizations remaining today work in partnership with, or have formed a conservation district. Many others have disbanded. One very active organization remaining today is the Deerwood Soil and Water Management Association, which operates a long-term, scientific watershed research project in south-central Manitoba.²⁵ Deerwood works in partnership with the federal and provincial governments, universities, local municipalities, and others. The organization is currently focused on evaluating beneficial management practices (BMPs) under Agriculture and Agri-Food Canada’s watershed evaluation of BMPs (WEBs) program and expanding their research and watershed management planning to the next level, in partnership with two conservation districts and five municipalities (Tobacco Creek Model Watershed).²⁶

Conservation Districts

Under the Manitoba Water Strategy and the Water Protection Act, integrated watershed resource management planning is expected to occur primarily via the Manitoba Conservation Districts Program – an existing Agri-Manitoba focused network of provincial-municipal partnerships for improved soil, water, and wildlife management. Most conservation districts are based on municipal boundaries, but employ sub-watershed-based local committees.

Manitoba’s conservation districts are independent local boards sponsored jointly by Manitoba Water Stewardship and partner rural municipalities. Provincial funding is allocated for approved soil, water, and wildlife habitat conservation programming with private landowners – based on a 3 (provincial):1(municipal) funding formula.

Since 1970, 17 conservation districts have been established in Manitoba, and these bodies have a long history of providing a wide range of integrated resource management programming, which are generally perceived to be providing a valuable service to all Manitobans. One of their greatest values is a strong connection to rural communities and agricultural landowners in particular – considered vital to their future success – and in assisting to meet provincial water policy objectives outlined in the Manitoba Water Strategy.²⁷

While the earliest conservation districts were established along watershed boundaries, the majority of those existing today are based upon municipal boundaries. A 1998 conservation districts mandate study (1998) commissioned by the province noted the need for stronger efforts in support of watershed management and focused performance measurement.²⁸

²⁵ Deerwood Soil and Water Management Association (2005). South Tobacco Creek Project. Available: <http://www.deerwood.mb.ca> (Accessed 20 June 2005).

²⁶ Tobacco Creek Model Watershed Management and Research Plan (2004). Available: <http://www.tobaccocreek.com> (Accessed 20 June 2005).

²⁷ FT-Ecologistics Limited (1998). Manitoba Conservation Districts Mandate Study. Winnipeg, p. 93

²⁸ FT-Ecologistics Limited (1998). Manitoba Conservation Districts Mandate Study. Winnipeg, p. 97

Today, their efforts are being increasingly targeted on a watershed basis, and the program's secretariat has developed an innovative visual guide in the form of a sample watershed management plan. The main purpose of the fictional *Rocky River Integrated Watershed Management Plan* is to convey the importance of taking a first step in the planning process by assessing current conditions in the form of a state of the watershed report. Municipal and other conservation district partners are being encouraged to think about science-based watershed indicators – to evaluate if programming toward real improvements in watershed health. These future indicators would also support the provincial priority of completing source water protection plans, as outlined in the Water Protection Act.²⁹

It is recognized that building local watershed planning capacity throughout the conservation districts network will take time. There are resource and staffing challenges at the provincial level in providing professional technical and facilitation support. A coordinated data collection and analysis system to establish baseline planning conditions and monitor watershed management progress has also been identified as a critical requirement.

Watershed planning initiatives are now underway in several conservation districts, notably in the Pembina Valley, Turtle Mountain, and West Souris River Conservation Districts.³⁰

Basin-level Commissions and Advisory Boards

The Red River Basin Commission is a transboundary partnership with multi-stakeholder representation from Manitoba, North Dakota, Minnesota. The organization's main focus is on development of a comprehensive natural resources framework plan for the basin. Manitoba, Minnesota, and North Dakota all support the RRBC (along with numerous municipalities).³¹

In recent years, Manitoba has also supported river basin management advisory boards focusing on the Assiniboine River and Lake Manitoba. Manitoba also supports Partners for the Saskatchewan River Basin..

5. Implementation

Development of the Water Protection Act – arising from the Manitoba Water Strategy and establishment of the department of Water Stewardship – together are viewed as the most significant highlights associated with Manitoba's water policy to date. The Act will:

- enshrine water quality objectives and standards in legislation;
- commit to ongoing consultation through the Manitoba Water Council;
- formalize a provincial commitment to watershed-based planning (through the recognition of “watershed planning authorities,” ideally comprised of existing conservation districts;

²⁹ Hildebrand, Wayne (2005). Personal Communication.

³⁰ Manitoba Water Stewardship (2005). Planning and Coordination: Conservation Districts. Available: <http://www.gov.mb.ca/waterstewardship/mwsb/cd/index.html> (Accessed 20 June 2005).

³¹ Red River Basin Commission (2005). Natural Resources Framework Plan. Available: <http://www.redriverbasincommission.org/> (Accessed 15 July 2005).

- establish “water quality management zones” requiring specific action based on the sensitivity of draining water bodies to nutrient loading (according to soil type and land use); and
- establish a Water Stewardship Fund.

The Water Protection Act is expected to significantly advance the concept of land and water management planning – on a natural systems basis (watersheds) – with the required process and mechanisms in place. The legislation is viewed as intellectual, logical, practical, and scientific – addressing many of the systemic, institutional, cultural, and traditional barriers to effective watershed management.

The Water Protection Act is recognized as lacking a strong economic incentive component, and has been criticized from the agriculture industry in particular (for setting the stage to penalize farmers) and from some environmental organizations (for being too weak). However, final amendments appear to have addressed most major concerns, with the Act proclaimed in June 2005. A discussion paper on the creation of nutrient management zones for every municipality in Agri-Manitoba has also been released. The Act’s enshrinement of plans to create a Water Stewardship Fund are particularly significant, creating a direct opportunity for funding watershed management and stewardship solutions, in partnership with other funding sources.

An emerging question relates to the Act’s prescription for addressing the long-term challenge of integrated watershed resource management – through the creation of local “watershed authorities.” While the legislation appears to be flexible in how these entities may be created and funded, the department’s direction seems to be focusing heavily on the existing conservation district program to facilitate watershed planning and authority creation. Limited watershed planning capabilities at the conservation district level and harmonizing provincial policy goals with local interests will be significant challenges.

The Manitoba Water Strategy is rooted in the original set of Manitoba Water Policies first articulated in 1990. Implementation of these policy themes has occurred with the following initiatives.

5.1 Specific Policy Instruments^{32, 33}

Manitoba has applied a mix of policy instruments to support of its water strategy – including **institutional** instruments (strategies), **regulatory** (laws), **expenditure** (education/awareness, research/development), and some **economic** instruments (taxes/incentives). Several aspects of Manitoba’s water policy approach are:

Strategy Goal Areas	Key Policy Instruments	Status
1. <u>Water Quality</u> – To protect and enhance our aquatic ecosystems by ensuring that surface water and ground water quality is	<ul style="list-style-type: none"> • Office of Drinking Water established (institutional) 	<ul style="list-style-type: none"> • In operation

³² Manitoba Conservation. 2003. The Manitoba Water Strategy. Winnipeg, MB, p. 9-18

³³ Manitoba Sustainability. 1997? Applying Manitoba’s Water Policies. Winnipeg, MB, 85p.

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<p>adequate for and designated uses and ecosystem needs.</p>	<ul style="list-style-type: none"> • Water Quality Standards finalized (regulatory) • Nutrient Management Strategy completed (institutional) • Shoal Lake Watershed Plan completed (institutional) • Devils Lake diversion opposed – seeking role for International Joint Comm. (institutional) • Lake Winnipeg Stewardship Board report completed (institutional) 	<ul style="list-style-type: none"> • To be enshrined in Act • Nutrient Management Zones proposed • In progress • Bilateral agreement on filtration and scientific monitoring reached without IJC; Manitoba claims North Dakota breached agreement with premature diversion operation • Implementation team announced
<p>2. <u>Conservation</u> – To conserve and manage the lakes, rivers, and wetlands of Manitoba so as to protect the ability of the environment to sustain life and provide environmental, economic, and esthetic benefits to existing and future generations.</p>	<ul style="list-style-type: none"> • Water export/inter-basin transfers banned (regulatory) • 17 conservation districts established since 1970 (expenditure) • Riparian Tax Credit established (economic) • Land and Water diploma program at Assiniboine Community College (expenditure) • Several watershed plans in development (institutional) • Wetland classification system tested (expenditure) 	<ul style="list-style-type: none"> • Act proclaimed • In operation • In operation • In operation • In progress • Unclear
<p>3. <u>Use and Allocation</u> – To ensure the long term sustainability of the province’s surface water and ground water for the benefit of all Manitobans.</p>	<ul style="list-style-type: none"> • Allocation plans (for key aquifers/rivers) (expenditure) • Water licensing staffing needs improved (expenditure) • Aboriginal interests and views invited (institutional) • Basin/watershed priority-setting process committed (institutional) 	<ul style="list-style-type: none"> • In operation • In operation • In operation • Unclear
<p>4. <u>Water Supply</u> – To develop and manage the province’s water resources to ensure that water is available to meet priority needs and to support sustainable development.</p>	<ul style="list-style-type: none"> • Groundwater mapping and use improved (institutional) • Storage, distribution, and irrigation supported (expenditure) • Possible impacts of climate 	<ul style="list-style-type: none"> • In operation • In operation • In progress

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	<ul style="list-style-type: none"> change explored (expenditure) • Future demand management explored (expenditure) 	<ul style="list-style-type: none"> • In progress
5. Flooding – To alleviate human suffering and minimize economic costs of damages caused by flooding.	<ul style="list-style-type: none"> • Red River flood damage potential reduced (expenditure) • Land planning to minimize flood damage implemented (institutional) • Real-time hydrologic monitoring capability improved (expenditure) 	<ul style="list-style-type: none"> • In operation • In operation • In operation
6. Drainage – To enhance the economic viability of Manitoba’s agricultural community through the provision of comprehensive drainage infrastructure.	<ul style="list-style-type: none"> • Drainage funding increased (expenditure) • Drain licensing pilot project implemented (expenditure) • Number of conservation districts expanded (expenditure) • Fisheries and Oceans Canada guidelines encouraged (institutional) 	<ul style="list-style-type: none"> • In operation • In operation • In operation • Unclear
7. Education – To enhance the awareness and knowledge of Manitoba’s water resources	<p>This original policy theme is not featured in the current Manitoba Water Strategy – in favour of the recognition that education is an important feature of each theme</p> <p>However, there are some elements which may require future additional attention.</p>	<p>Policy 7.3 (Establishing a Forum for Scientific and Technical Input) and Policy 7.4 (Information for Community Leaders and Elected Representatives)</p>

5.2 Funding

MWS has seen significant budget funding increases approved in support of Water Protection Act implementation, while some other provincial departmental funds through Manitoba Conservation have been earmarked in the interim for water-related initiatives.

The main funding focus of the future Water Stewardship Fund will be in support of watershed management planning, and eventually – project funding to support plan implementation –through conservation districts and/or other designated local watershed planning entities.

MWS will also seek to top up federal funding available through the federal-provincial Agricultural Policy Framework’s “environmental farm planning” initiative – in support of helping agricultural producers implement beneficial management practices (BMPs) for improved water quality.

A related initiative is seeking to find ways to pay farmers for the provision of “ecological goods and services,” a concept strongly promoted by agricultural producers and the conservation sector – within Manitoba, nationally, and in the U.S. Significant national level EG&S policy

development work is occurring. Proponents have proposed pilot projects in Manitoba, Ontario, and Prince Edward Island.

A provincial riparian tax credit program (delivered via Manitoba Finance) to agricultural landowners may be enhanced in support of improved water quality. At this time, this initiative is not formally connected to application of the EG&S concept, although the possibility has been explored. While it is a fairly unique policy, the riparian tax credit initiative is a small program and has experienced limited uptake thusfar.

Major federal/provincial partnership funding agreements are seen as the primary vehicle for funding municipal infrastructure-related water quality initiatives, such as water supply and sewage treatment plants. There is also a long history of water-related federal-provincial development partnerships, covering areas such as irrigation and rural water supply. Each year the Manitoba Water Services Board coordinates water-related federal-provincial infrastructure investment in excess of \$10M.

6. Monitoring and Review

MWS recognizes the importance of establishing science-based indicators to evaluate Manitoba Water Strategy progress and assess departmental performance for ongoing program improvement. MWS has considered various types of indicators as part of its overall departmental Priorities and Strategies Overview – and has discussed the concept with conservation districts and other stakeholders – as part a sample guide for integrated watershed management planning³⁴. The development of a set of scientifically sound and locally credible indicators will take some time.

General MWS targets appear to relate to: a reduction of water quality advisories/orders for municipal water supply systems; growth of the conservation district program; and the number of completed watershed plans. There are no timebound commitments at this time.

It is important to note that the Province of Manitoba, through Manitoba Agriculture, Food and Rural Initiatives (MAFRI) has committed to the implementation of “measures needed to improve the management of nutrients, pests, land and water, nuisances and biodiversity” by 31 March 2008 – on 75% of all farms for which an “environmental farm plan” or “equivalent environmental farm plan” has been completed under the Canada-Manitoba Agricultural Policy Framework Implementation Agreement.³⁵

The strongest water quality commitments made by MWS have occurred as part of Manitoba’s Nutrient Management Strategy³⁶ and resulting Lake Winnipeg Action Plan, which outlines detailed policy direction to be implemented under the Water Protection Act. Proposed Water

³⁴ Hildebrand, Wayne (2005). Personal Communication.

³⁵ Canada-Manitoba (2003). Canada-Manitoba Implementation Agreement (in support of the Agricultural Policy) Framework Agreement on Agricultural and Agri-Food Policy for the Twenty-First Century. p. 177-178.

³⁶ Manitoba Conservation (2000). Development of Nutrient Management Strategy for Surface Waters in Southern Manitoba, Winnipeg, MB, 11p.

Quality Management Zones for Nutrients (with regulations)³⁷ are focused on reducing nutrient loads from lands within Agri-Manitoba – to achieve a 10% reduction target committed by Manitoba in 2003,³⁸ as part of a nutrient loading reduction agreement among all jurisdictions within the Red River Basin – subsequently endorsed by the International Joint Commission.³⁹

Manitoba Conservation has a number of water-related indicators included within its Sustainable Development Reporting process – which, until MWS has formalized its series of indicators and performance measures – appears to contribute toward Manitoba’s water policy indicator set.

MAFRI has committed to a comprehensive set of agriculture-environment indicators as part of the five year Agricultural Policy Framework (APF) agreement with the federal government (expiring in March 2008). Achievement of these indicators will be driven by the completion of environmental risk assessments and environmental farm plans or community-based (ecozone, watershed, or commodity-based) “equivalent environmental farm plans.”⁴⁰ The APF indicator process may provide important direction for MWS’ indicator development, particularly given that Canada’s leadership in this area has been recognized by the European Commission.⁴¹

Table XX. Water-related Indicators for Manitoba

Document	Indicator Elements	Time-bound Targets
MSW Departmental Priorities and Strategies	TBA	10% reduction in MB-based Lake Winnipeg nutrient loads within five years (2010) ⁴²
2005 Provincial Sustainability Report ⁴³ Water Quality Index	Prairie Ecozone Boreal Plains Ecozone Boreal Shield Ecozone	None, currently “fair” None, currently “good” None, currently “good” to “excellent”
1997 MB State of the Environment Report ⁴⁴ Water Quality Index	Prairie Ecozone Boreal Plains Ecozone Boreal Shield Ecozone	None, “fair” in 1997 None, “fair” in 1997 None, “good” in 1997
2005 Provincial Sustainability Report Water Allocation –	Agriculture Industrial Irrigation	None, currently 6490 dam ³ None, currently 69,035 dam ³

³⁷ Manitoba Water Stewardship (2005). Regulation Under the Manitoba Water Protection Act: Consultation Document for Initial Review – Respecting Water Quality Management Zones for Nutrients. Winnipeg, MB. See <http://www.gov.mb.ca/waterstewardship/licensing/acts.html>

³⁸ Manitoba Water Stewardship (2005). Water Quality: Rivers, Lakes, and Wells. Available: http://gov.mb.ca/waterstewardship/water_quality/lake_winnipeg/action_plan.html (Accessed: 20 July 2005).

³⁹ Manitoba Water Stewardship (2005). Regulation Under the Manitoba Water Protection Act: Background Document. Winnipeg, MB.

⁴⁰ Canada-Manitoba (2003). Canada-Manitoba Implementation Agreement (in support of the Agricultural Policy) Framework Agreement on Agricultural and Agri-Food Policy for the Twenty-First Century. p. 177-178.

⁴¹ Personal Communication. Herb Schellenberg.

⁴² Manitoba Water Stewardship (2005). Regulation Under the Manitoba Water Protection Act: Background Document. Winnipeg, MB.

⁴³ Manitoba Conservation (2005). Provincial Sustainability Report. Winnipeg, MB. p. 20-24. Available: <http://www.gov.mb.ca/conservation/sustainabilityreport/index.html> (Accessed 20 July 2005).

⁴⁴ Manitoba Environment (1997). State of the Environment Report. Winnipeg, MB. p. 29-35; 94-103. Available: <http://www.gov.mb.ca/conservation/annual-report/soe-reports/soe97/index.html> (Accessed 20 July 2005).

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Consumption	Municipal	None, currently 53,970 dam ³ None, currently 114,465 dam ³
1997 Provincial Sustainability Report ⁴⁵ Water Allocation - Consumption	Agriculture Industrial Irrigation Municipal	None, unclear in 1997 None, unclear in 1997 None, 15,948 dam ³ in 1997 None, 126,934 dam ³ in 1997
2003 Canada-Manitoba APF Implementation Agreement ⁴⁶	Water (quality) Soil (erosion by water) Soil (annual cover) Biodiversity (permanent cover)	12% reduction in average residual nitrogen from agriculture on MB farmland from estimated BAU* baseline (58.6kg N/ha) by 2008 16% reduction in average water erosion rate on MB farmland from estimated BAU baseline (2.2 t/ha/yr by 2008) 373% increase in agricultural soil carbon from estimated BAU baseline (0.15 Mt) by 2008 5% increase in total agricultural habitat availability from estimated BAU baseline by 2008

* “business as usual” scenario, resulting in 2008 baseline estimate

6.1 Review and Improvement

Aside from the provincial sustainability reporting process mandated (every five years) by the *Manitoba Sustainable Development Act* or through the Environment Chapter of the 2003-08 Canada-Manitoba Implementation Agreement under the APF, at this time there is no designated timeframe for reviewing and evaluating Manitoba’s water indicator trends – or evaluating the Manitoba Water Strategy or the *Water Protection Act*.

MWS is committed to formalized water indicator development through its departmental Priorities and Strategies document (in development). Ideally, this process will also include timebound targets and a formal mechanism for evaluation and improvement – based on annually measured indicator progress. Identifying clear responsibility for this process will be important.

⁴⁵ The Agriculture and Industrial water allocation-consumption estimates for 1997 appear to have been generated using different methods than the 200 figures, making comparisons difficult. The Irrigation and Municipal estimates are comparable between years and reflect apparent trends.

⁴⁶ Canada-Manitoba (2003). Canada-Manitoba Implementation Agreement (in support of the Agricultural Policy) Framework Agreement on Agricultural and Agri-Food Policy for the Twenty-First Century. p. 177-178. In addition to the indicators listed, an additional indicator not directly related to water is included – Air (greenhouse gases): 22% reduction in greenhouse gas emissions from estimated BAU baseline (8.99 Mt CO₂ equivalent by 2008).

7. Manitoba Interview Contacts

We wish to thank the following government personnel for their assistance with the preparation of this case study through providing interview time, direction, and commenting on drafts of this study:

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