

Provincial
Sustainability Report

2009

for Manitoba

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Sustainability Report
for Manitoba

Manitoba 



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MINISTER'S MESSAGE

Fellow Manitoban: On behalf of the Manitoba government, I am pleased to present the 2009 Provincial Sustainability Report for Manitoba, Manitoba's second sustainability report as required under *The Sustainable Development Act*.

The purpose of the provincial sustainability report is to provide Manitobans with information about important sustainability issues and trends. The report was developed by compiling data on key indicators tracked over time and by analyzing progress towards sustainability since the last report in 2005. The report takes an integrated approach, reporting on the inter-relationships between environmental conditions and social and economic factors.

Measuring progress towards sustainability is complex, particularly when using only one or two indicators over a short time period. By using the indicators and baseline data from the *2005 Provincial Sustainability Report*, the report has been able to provide a better picture of sustainability trends across the province.

I am confident that readers and users of the 2009 Provincial Sustainability Report will be better informed and better able to make the kind of decisions that will contribute to a greener, fairer future for all Manitobans.

I welcome your comments on this report, and any suggestions you may have to improve the process for future reports. I would also like to thank you for your ongoing contributions to Manitoba's environmental sustainability as we work together for a more sustainable, prosperous economy and for greener, healthier communities.

Sincerely,
Bill Blaikie
Minister of Conservation

EXECUTIVE SUMMARY

This is the second sustainability report for Manitoba, as required under *The Sustainable Development Act*. Its purpose is to provide Manitobans with timely, accurate information on important sustainability issues and trends. It is a way of monitoring Manitoba's sustainability by tracking and interpreting key indicators in the province's many sectors. By studying and reporting on these indicators over time, Manitobans can be kept informed about the progress taking place and be encouraged to participate in the long-term strategies for sustainable development in Manitoba. This report is a collaborative effort across all government departments. It follows the original sustainability report produced in 2005 and builds on those indicators introduced and explored for the first time. This report demonstrates some of the sustainability trends that may be becoming more evident over time, and reveals some of the challenges and opportunities that Manitobans face as we strive for sustainability in our province. It is hoped that Manitobans can see how the choices they make can contribute to a more sustainable Manitoba.

SUMMARY OF INDICATORS AND TRENDS

Following is a summary of the 45 indicators presented and explored in this 2009 report, their associated trends and the pages where they are located. The indicators are organized within a framework of three dimensions — natural environment, economy and social well-being. For an interpretation of the indicators, and their implications for sustainability, see the relevant chapters in this report. While the indicators may focus on separate issues within each of the three dimensions, it is helpful to view these issues across dimensions to better understand the implications of the trends and how Manitoba's sustainability may be affected. In a small number of cases, where measurement or an adequate time series was no longer available related to a particular indicator, an alternative indicator may have been adopted or added.

NATURAL ENVIRONMENT

The natural environment dimension, presented in **Chapter 1**, consists of six categories of indicators, each addressing a specific environmental or resource area. These indicators will help determine whether nature's life-supporting capacity is diminishing or being maintained. The categories discussed in the chapter on natural environment are (see Table A):

- **biodiversity and habitat conservation**
- **fish**
- **forests**
- **air**
- **water**
- **climate change**

Sustainable management of Manitoba's rich heritage of natural resources and ecosystems is a complex task with notable successes along with emerging challenges. The list of familiar threats to the environment, such as water pollution, has grown to include risks like climate change and invasive species. Many of these issues are linked and cannot be effectively dealt with in isolation. Integrated programs like *The Manitoba Water Strategy* take these links into account and, therefore, can show significant promise if properly implemented.

The recovery of some formerly endangered species demonstrates that with the right approach negative trends can be reversed. However, focused attention is now needed in a number of emerging problem areas. Excessive nutrients have contributed to a deterioration of water quality in Lake Winnipeg. Although predicting the nature of climate change and its effects is filled with uncertainties, there remains the potential for more frequent, extreme events and higher costs. In many other areas, such as indoor air pollution, lack of information makes it difficult to form any specific conclusions. It will be increasingly important to keep a close watch over the state of the environment in the face of continuing change — it may provide the early warning signals needed to respond in a sustainable way.



Table A: Summary of Natural Environment Indicators

CATEGORY	INDICATOR	TREND	PAGE
biodiversity and habitat conservation	• natural lands and protected areas	stable	10
	• wildlife species and ecosystems at risk	inconclusive	13
fish	• fish species biodiversity and population	changing	16
	• commercial fish harvest	variable, depending on fishery	17
forests	• forest type and age class	stable	19
	• forest renewal	stable	22
air	• air quality	stable - Winnipeg, Brandon and Flin Flon	27
water	• water quality	stable	29
	• water allocation and consumption	stable	31
climate change	• average annual and seasonal temperature	negative	35
	• total annual and seasonal precipitation	inconclusive	36
	• greenhouse gas emissions	stable	36

ECONOMY

The economic dimension, presented in **Chapter 2**, consists of seven categories of indicators. These indicators help describe and track the:

- **impact of the economy on the natural environment**
- **ecological efficiency with which the natural environment is converted into goods and services for human consumption**
- **level of economic welfare generated**

The categories discussed in this chapter are (see Table B):

- **economic performance**
- **agricultural viability**
- **mining**
- **energy efficiency and conservation**
- **consumption and waste management**
- **employment**
- **education**

Based on Gross Domestic Product, the Manitoba economy has enjoyed growth above the national average in 2006, 2007 and 2008. However, with the global economic downturn, growth is now forecast to contract in the short term, with the expectation that Manitoba would continue to surpass the Canadian average as we return to positive growth. This contraction could be viewed as an opportunity by companies to accelerate sustainability plans and initiatives. Green investments such as energy efficient facilities, reduced fleet fuel consumption and leaner manufacturing processes would realize real and immediate operational benefits allowing business/industry to remain competitive and better positioned for economic recovery.

Manitoba's abundant hydroelectricity plays a key role in the province's transition to sustainable development. It benefits our economy by providing an inexpensive source of energy and its renewable nature contributes to Manitoba's energy security. As well, our hydroelectricity is a clean source of energy that is helping Manitoba and Canada minimize their greenhouse gas (GHG) emissions and meet global commitments on climate change.

Successes in Manitoba's agriculture and agri-food sector hinge on local and global forces of change. While farm income remains variable, the average size of a farm in Manitoba has increased over the years due to required economies of scale to offset increased costs. As stewards of their land, farmers have shown a commitment to adopting sustainable agriculture management practices.

Another important component of the economy in Manitoba is the education of our youth. While youth literacy in Manitoba is among the best in the world, some aspects of our children's readiness for school show the need for stronger learning foundations during their early years.

Table B: Summary of Economic Indicators

CATEGORY	INDICATOR	TREND	PAGE
economic performance	• real gross domestic product per capita	positive	42
	• gross domestic product by sector	positive	43
agricultural sustainability	• total net farm income	variable	46
	• farm structure	increasing consolidation	47
	• adoption of sustainable agricultural management practices	positive	49
mining	• mineral exploration	positive	54
	• mineral reserves	stable	55
	• mineral production	positive	55
energy efficiency and conservation	• energy intensity	positive	58
	• renewable energy consumed versus total energy consumed	positive	60
consumption and waste management	• waste disposal	negative	63
	• waste recycled or reused	negative	64
employment	• labour force trends	positive	67
	• labour force opportunities	positive	69
	• building and maintaining vibrant rural communities	stable/positive	71
education	• readiness for school	positive	73
	• literacy and numeracy — youth trend — adult trend	stable	75
		stable	75
	• high school and post-secondary education completion	h/school increasing p/secondary - stable	78
	• academic achievement and socio-economic status	variable	79

SOCIAL WELL-BEING

The social well-being dimension, presented in **Chapter 3**, consists of six categories of indicators. These indicators help describe and track society's capacity to create sustainable economic and social institutions and to care for its members. The categories discussed in the chapter on social well-being are (see Table C):

- **demographics**
- **equity and rights**
- **community and culture**
- **governance**
- **health**
- **justice**

Manitobans are generally healthy, yet particular segments of our population are at high risk of developing certain health problems. For example, rates of diabetes in Manitoba continue to increase.

Manitobans enjoy the many freedoms that are part of life in a democratic society, yet our province and country are experiencing a decline in voter turnout.

While Manitoba's state of social well-being will always show mixed trends, it is our many positive features that will ultimately attract Canadians from other provinces and citizens from other countries to live in Manitoba and, of critical importance, provide a reason for young Manitobans to remain in our province.

Table C: Summary of Social Well-Being Indicators

CATEGORY	INDICATOR	TREND	PAGE
demographics	• population growth	positive	84
	• migration to Manitoba from other jurisdictions	positive	85
equity and rights	• low income	positive	88
	• income inequality	positive	89
	• income dependency	positive	91
	• community supported living	positive	92
community and culture	• community engagement	positive	95
	• heritage conservation	positive	98
	• language diversity	positive	100
governance	• voting rates	positive	102
	• progress toward debt repayment	positive	104
health	• health status	stable	107
	• access and quality of care	stable	110
justice	• crime rate	inconclusive	113

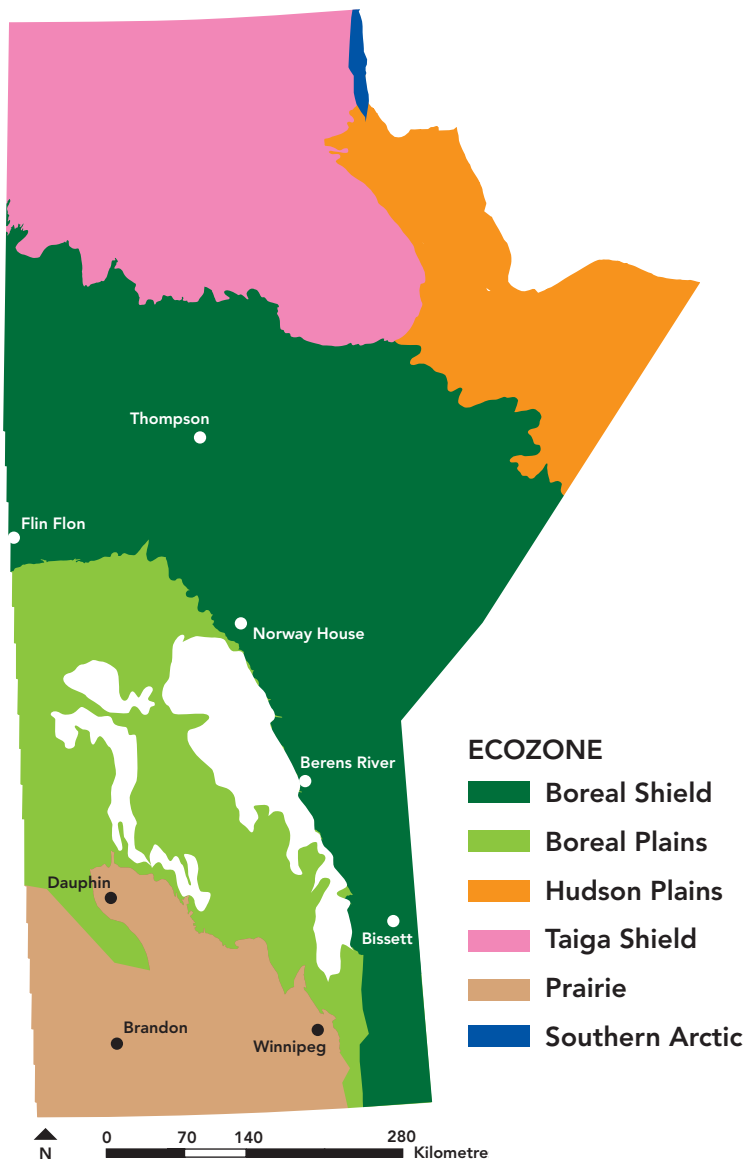


INTRODUCTION

This is the second sustainability report for Manitoba as required under *The Sustainable Development Act*. The purpose of the report is to provide Manitobans with timely, accurate information about important sustainability issues and trends. The report was developed by the Manitoba government based on recommendations for sustainability indicators from the Manitoba Round Table for Sustainable Development. The indicators are intended to be useful supplements to the more traditional measures which our society has typically used, and allow Manitobans a more holistic picture of our society.

PROVINCIAL PROFILE

Manitoba's Ecozones



Located in the geographic centre of North America, Manitoba connects the rich agricultural lands of the Canadian Prairies with the rugged, granite landscape of the Canadian Shield and the Arctic waters of Hudson Bay. Manitoba's boundaries encompass an area of **650,087 square kilometres**, consisting of **54.8 million hectares of land** and **10.2 million hectares of water**. It has a physical variety of tall and short-grass prairie, aspen parkland, hardwood and softwood forests, hills and plains.

Six of Canada's 15 ecozones are represented within Manitoba's borders (see map of Manitoba's Ecozones).

The province has over 100,000 lakes and four major rivers drain the northern reaches of the province and empty into Hudson Bay: the Churchill, the Nelson, the Seal and the Hayes. In the south, the Red and Assiniboine meander through the grasslands to Lake Winnipeg, which is the tenth largest freshwater lake in the world.

Within Manitoba's current population of 1.21 million, more than 100 languages are spoken. This is a reflection of a tradition of newcomers from around the world finding a home in Manitoba and a long history of First Nations and Métis peoples inhabiting the land. This diversity enriches our culture and helps Manitoba do business on the global market.

Manitoba supports a diverse number of economic sectors including:

- **manufacturing (such as food processing and aerospace industries)**
- **financial services**
- **agriculture**
- **biotechnology**
- **information and communication**
- **energy**
- **tourism**
- **forestry**
- **mining**



Maintaining and enhancing a healthy physical environment, a stable and diverse economy and our rich culture and quality of life in the future will require Manitobans to face a variety of sustainability issues and trends described in this report.

ORGANIZATION OF THE REPORT

The report helps monitor sustainability by tracking and interpreting key indicators in many sectors of the province. The indicators are organized into a framework that reflects the different dimensions of Manitoba's sustainability — natural environment, economy and social well-being. The concept of sustainability is rooted in the interconnectedness and interdependency of each dimension on the other, with the notion that we cannot consider each aspect separately. Attempts have been made to show the links and effects of the indicators on each other and each dimension throughout the report.

This 2009 report also includes information on sustainable land use planning activities in Manitoba and a progress report on sustainable procurement.





INDICATOR FRAMEWORK

Within each dimension are categories which in turn present key sustainability indicators and trends. The executive summary of the report provides a quick reference to the trends and where they may be found in the report.

Measuring and reporting on progress toward sustainability is a complex matter. There are an endless number of potential indicators and they must be chosen carefully to ensure the various objectives are addressed.

The indicators presented in this report provide information for a relatively short period of time, in relation to long-term sustainability. They are but one of many tools available to decision-makers. The indicators should not be interpreted in isolation, but rather in combination with other relevant information and ideas for making wise, informed decisions on sustainability issues for Manitoba. Indicators help us reflect trends over time and build understanding of the sustainability of the province.

The type and amount of data available for this report varies and timelines for reporting may be different for each indicator. All efforts have been made to follow-up and build on the indicators introduced in Manitoba's first sustainability report in 2005 so that we might develop trends and links that prove useful to Manitobans. The intent is to develop clear trends for Manitobans through the development of this second, and all subsequent sustainability reports, which are produced every five years. This report is based on the information that was available at the time of printing.



Give us Your Feedback

We would like to know what you think of this report and the accompanying website. Tell us what you liked best and what you think needs to be changed, improved or added so that we can continue to improve our future reporting processes. We welcome your comments by mail, telephone, facsimile or e-mail.

Please submit to:

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Website: gov.mb.ca/conservation/sustainabilityreport/

CHAPTER 1

BIODIVERSITY AND HABITAT CONSERVATION

Why is it important?

Biodiversity refers to the variability, including genetic variability, of living organisms and the ecological complexes of which they are part. Conserving biodiversity is essential for maintaining the health of ecosystems and the essential services they provide to human society. While no one has the capacity to track the number of all species, it is important and possible to monitor those that are particularly sensitive or that are recognized as having unique ecological, economic or cultural importance to society.

Indicators and trends

The following key indicators reflect trends in the area of biodiversity and habitat conservation in Manitoba:

- **NATURAL LANDS AND PROTECTED AREAS, which is measured by the amount of total designated and protected land.**
- **WILDLIFE SPECIES AND ECOSYSTEMS AT RISK, which is measured by the species designated under *The Endangered Species Act of Manitoba*.**

Natural Lands and Protected Areas

TREND - **STABLE**

Manitoba's natural lands play a key role in sustaining ecosystems and biodiversity. Protected areas maintain natural cycles, provide wilderness areas and preserve land for Aboriginal people to continue their traditional activities. Measuring the growth in protected areas over time will tell us how well we are meeting our goal for protected lands that represent the biodiversity in each of Manitoba's natural regions.

Protected areas are land, freshwater or marine areas where logging, mining, hydroelectric development, oil and gas exploration and development and other activities that may significantly and adversely affect habitat are prohibited through legal means. The goal of *Manitoba's Protected Areas Initiative (PAI)* is to create a network of protected lands that represents the biodiversity found in each of Manitoba's natural regions.

In 2000, the Manitoba government released *An Action Plan for Manitoba's Network of Protected Areas*. The plan identified methods and criteria used to develop protected areas that would fulfill PAI goals. In 2003, Manitoba improved the process of establishing new protected areas by incorporating knowledge from a variety of scientific fields to develop and review candidate sites. The 2006 *Green and Growing Strategy* commits the province to protecting five new major areas by 2010.

Manitoba's protected areas network has grown since the first 350,000 hectares of land were protected in 1990. Currently, 5.4 million hectares (or 8.4 per cent) of Manitoba land is protected. This includes two national parks, 21 ecological reserves, all or parts of 44 provincial parks and interim protected park reserves, all or parts of 46 wildlife management areas, two areas designated under *The Forest Act*, and various parcels of conservation agency-owned private land. Since the 1990s, significant progress has been made in expanding the network of permanent and temporary protected areas with many areas receiving permanent designations since 2000. This has been achieved with the co-operation and support of major resource users, especially the forestry and minerals sectors and First Nations.

The trend in establishing new protected areas has been generally stable with some gradual increase since the 2005 report. Much of the lands protected in the last three years are located in southern Manitoba, where very little Crown land remains, and where intensive development limits the opportunity to establish large protected areas. Any lands protected in this region contribute significantly to biodiversity and habitat conservation efforts in Manitoba.

RECENT ACTIONS ADDRESSING PROTECTED AREAS

In December 2008, the province introduced *The East Side Traditional Lands Planning and Special Protected Areas Act*, which would provide a new legal tool to designate land on the east side of Lake Winnipeg as special protected areas. It will also help First Nations develop land-use plans and protect traditional lands in their traditional territories on the east side of Lake Winnipeg.

In July 2008, Ontario and Manitoba established a new Interprovincial Wilderness Area along the Manitoba-Ontario border, which encompasses over 9,400 square kilometres of Canada's central boreal forest. The area includes Woodland Caribou Provincial Park and the Eagle-Snowshoe Conservation Reserve in Ontario, and Atikaki and parts of Nopiming provincial parks in Manitoba. The provinces will work together to conserve ecological integrity by co-ordinating resource management and encouraging research. They will also be enhancing and developing recreation opportunities in the area and working with nearby First Nations, the Pimachiowin Aki World Heritage Project and local communities on various partnerships.

Manitoba continues to work with several east side First Nations, Ontario and Canada to develop a boreal forest World Heritage Site nomination on the east side of Lake Winnipeg for submission to the United Nations Educational, Scientific and Cultural Organization (UNESCO). Background studies for the area are being prepared along with land use plans for each of the traditional areas that comprise the study area. The Pimachiowin Aki Corporation is co-ordinating the work, undertaking extensive communications about the project and researching other World Heritage Site nominations.

Manitoba Conservation continued to work closely with conservation agencies, such as the Nature Conservancy of Canada (NCC) and Ducks Unlimited Canada (DUC), to advance protection efforts in southern Manitoba. In 2008, a \$400,000 grant was awarded to NCC in support of their Campaign for Conservation bringing Manitoba's total campaign contributions to \$1 million since 2005. Targeted areas for protection in the NCC campaign include the Tall Grass Prairie in the Rural Municipality of Stuartburn in southern Manitoba and the Riding Mountain Aspen Parkland (Aspen Parkland lying between the Riding and Duck Mountains) in western Manitoba.

Protected area proposals covering over 165,000 hectares have been developed in southeastern Manitoba and are ready for external consultation. Ten proposed ecological reserves and one proposed addition to an existing ecological reserve have also been identified.

In late 2009, Manitoba added almost 400,000 hectares in the boreal tundra transition area to our protected land base. Kaskatamagan Wildlife Management Area is 259,530 hectares and is home to the western Hudson Bay sub-population of polar bears from July to November and caribou in the summer. The Kaskatamagan WMA protects 133,820 hectares of wilderness in the boreal Arctic tundra transition zone and is recognized as a globally significant bird area.



A land use evaluation and planning exercise is continuing in the Saskatchewan River Forest Section (SRFS) located in Natural Region 5a on the west side of the province. The Saskatchewan River Delta, located in the SRFS, is being considered for protection. The Saskatchewan River Delta is recognized as a globally significant Important Bird Area, the largest freshwater inland delta in North America and one of only two active deltas in the Boreal Plains Ecozone of the western boreal forest.

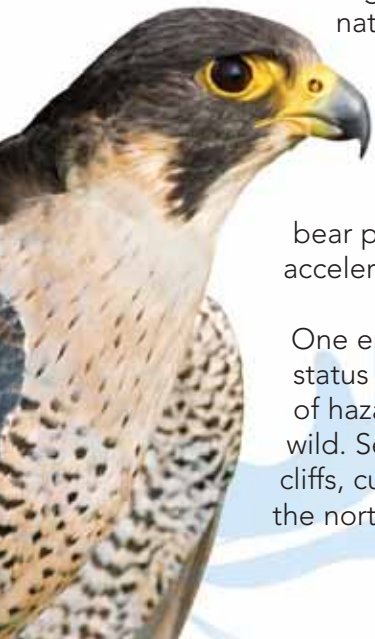
Manitoba is a jurisdictional representative on the Canadian Council of Ecological Areas (CCEA), which provides guidelines for applying for internationally recognized protected area World Conservation Union (IUCN) categories. The CCEA co-ordinates reports on the status of Canada's protected areas through the Conservation Areas Reporting and Tracking System (CARTS). The protected areas are established, protected and managed by the various government agencies and tracked and reported on nationally, which is then made available to the public.

Wildlife Species and Ecosystems at Risk

TREND - **INCONCLUSIVE**

Species at risk are animals and plants that are endangered, threatened or extirpated. Habitat loss and invasive species have been widely recognized as the two primary threats to wildlife. More recently, climate change has become a focal point of concern as well. Preventing species from becoming rare or at risk can be more cost-effective than recovery programs for such species. The loss of wildlife species and biodiversity is a global phenomenon for which there are no simple solutions. Governments and agencies and non-profit organizations are working hard to try and protect species and ecosystems at risk around the world and right here in Manitoba.

While the population trends for some species are well-known, there is little data on the population status or trends for the majority of Manitoba's native species. This is also true for the 35 species of plants and animals that are designated under Manitoba's Endangered Species Act. And of these, 22 species are also considered at risk on a national, Canada-wide, scale.



Some designated species are vulnerable to changes in their environment, such as the woodland caribou. Today they are found throughout much of the eastern and northern boreal forests, but have not been seen in the southern Whiteshell area since the 1950s. The Western Hudson Bay polar bear population has now also become a concern due to the risk associated with accelerating climate change.

One endangered species that has been brought part way back from endangered status is the peregrine falcon. They have responded positively to a ban on the use of hazardous organo-chlorines such as DDT, and to the release of birds into the wild. Several pairs of peregrine falcons, which typically breed on remote northern cliffs, currently nest each year in Winnipeg and Brandon, as well as other cities in the northern United States.

IMPLICATIONS FOR SUSTAINABILITY

While progress has been made by increasing their protection, natural habitats continue to be under pressure from external factors such as encroachment and the introduction of exotic species. The resulting pressures on biodiversity pose environmental risks and diminished long term habitat sustainability.

While more species are now at risk in Manitoba, there are signs of success and there is reason for optimism. In a number of cases populations of endangered species have responded well to conservation measures and have seen population increases. And then there are also examples, such as with Canada geese, where increased populations have led to problems associated with overabundance, in both urban and rural areas. This underlines the fact that sustainability is neither an end point nor a pathway for unlimited growth. Rather, it is about maintaining viable and resilient populations of wildlife species.

A recovery and conservation strategy has been developed for Manitoba's woodland caribou population. This strategy is in place to minimize impacts on woodland caribou and to ensure its viability by developing partnerships with the various stakeholder groups which will need to be involved. Developing action plans for each range is now a priority. Despite successes, society must be diligent and recognize that all species will not respond equally to conservation measures. Maintaining an inventory and actively monitoring species of concern continues to be a challenge. Information gathered through well-designed monitoring systems continues to be essential for making sound conservation decisions, in support of sustainability and to secure the future of Manitoba's impressive biodiversity.

FOR MORE INFORMATION

More information related to biodiversity, habitat conservation, exotic invasive species, habitat management, migratory game birds and more is available at:

- gov.mb.ca/conservation/wildlife/
- gov.mb.ca/waterstewardship/water_quality.index.html
- gov.mb.ca/conservation/pai/

More information on provincial parks is available at:

- www.gov.mb.ca/conservation/parks/index.html

More information on ecological reserves is available at:

- gov.mb.ca/conservation/parks/ecological_reserves/index.html

The following link also contains downloadable Manitoba government land related information from a variety of departments and agencies for use in GIS systems:

- <https://mli2.gov.mb.ca/index.html>

More information on CCEA is available at:

- ccea.org/

For Provincial Land Use Policy information visit:

- gov.mb.ca/ia/plups/index.html

FISH

Why is it important?

A large part of Manitoba is covered by lakes and rivers with rich fisheries resources that have economic and ecological, as well as social and cultural value. The image of pristine northern lakes and trophy walleye or northern pike attracts a large number of visitors to the province and fishing is of ongoing importance to First Nations peoples both as a traditional livelihood and as a cultural symbol. Fish and other aquatic organisms are also essential components of biodiversity.

Commercial fishing is a valuable industry in Manitoba with \$30 million in direct income to fishers representing a significant contribution to Manitoba's economy. For over 100 years, Manitobans have been commercially harvesting fish, with the majority of production coming from Lake Winnipeg and Lake Manitoba. In addition, there are almost 300 other lakes in southern and northern Manitoba that are fished. This activity provides important jobs and economic opportunities at the local level.

Recreational fishing has become a billion dollar industry in Canada providing economic benefits to communities throughout Manitoba. Proper management of the fishery and fish habitat is critical to allow fish populations to remain viable and ensure a way of life for many Manitobans.

Indicators and trends

The following key indicators reflect trends in Manitoba's fish resources:

- **FISH SPECIES BIODIVERSITY AND POPULATION** which is assessed by determining the number of fish species present and relative numbers of each of those species in a given ecosystem.
- **COMMERCIAL FISH HARVEST** which are used to help determine the status of fish populations by comparing harvest levels to a lake's capacity to produce fish (Maximum Sustainable Yield estimates) and whether the trend is increasing or decreasing.



Fish Species Biodiversity and Population

TREND - CHANGING

Fish species biodiversity includes species richness (the number of species) and species composition (the relative contribution of those species present). Manitoba has 89 fish species. Lake Winnipeg has the same species richness that it did in the late 1800s but there have been significant changes in the abundance of several fish species (see Figure 1-1 and 1-2). High value species, such as sturgeon and lake trout, were sensitive to pressure from large-scale commercial fishing and saw early population declines. This was followed by a shift in fishing pressure to other species, such as whitefish, walleye and sauger, which in some cases led to the decline of even these more robust stocks.

Figure 1-1: Lake Winnipeg Commercial Fishery Yields Walleye, Pike, Sauger

Source: Manitoba Water Stewardship

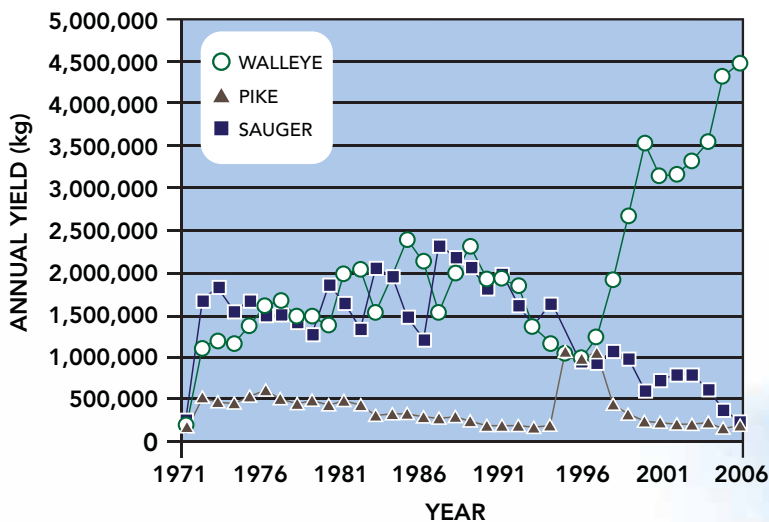
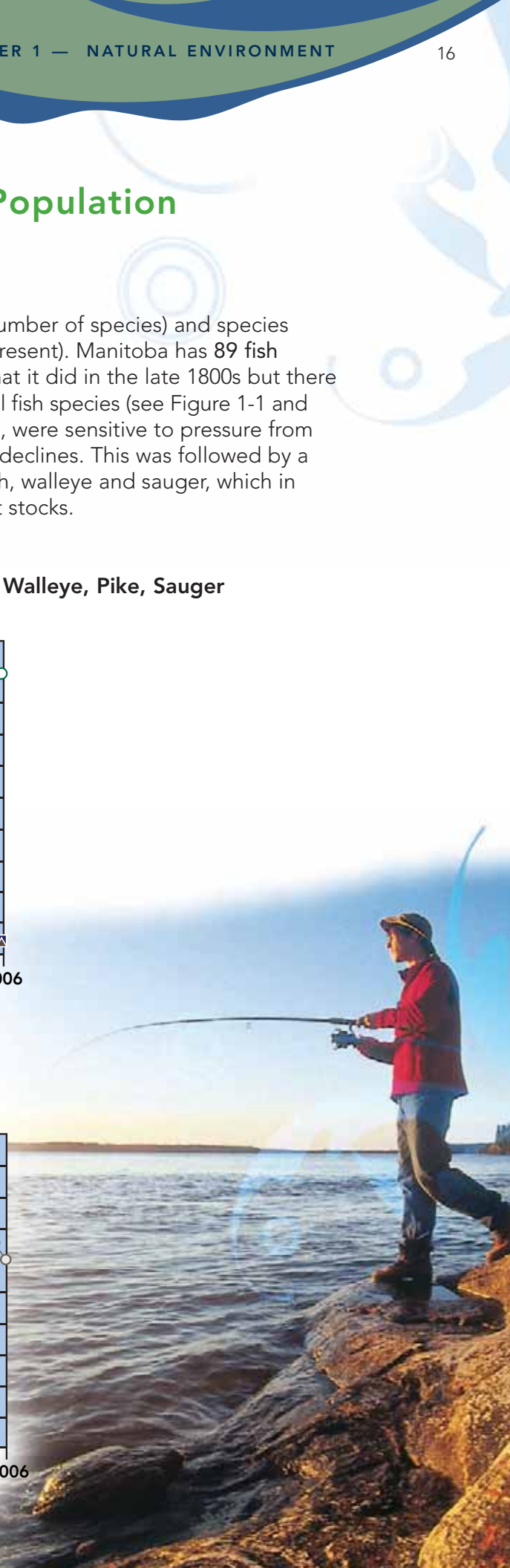
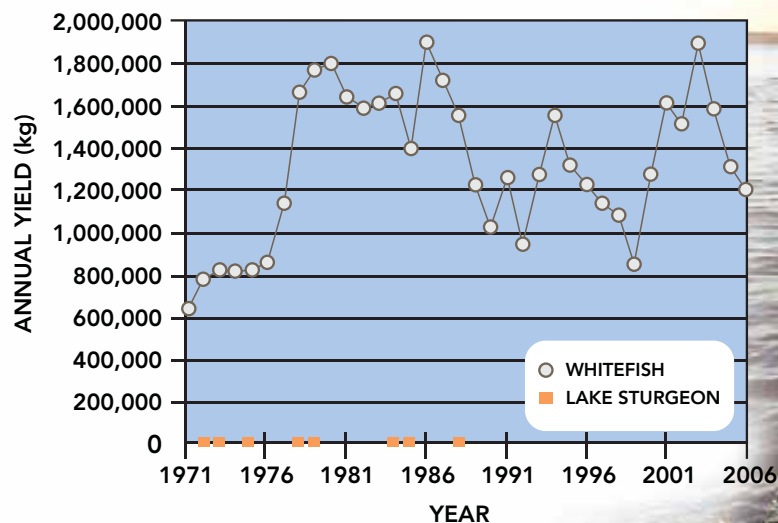


Figure 1-2: Lake Winnipeg Commercial Fishery Yields Whitefish, Sturgeon

Source: Manitoba Water Stewardship



Commercial Fish Harvest

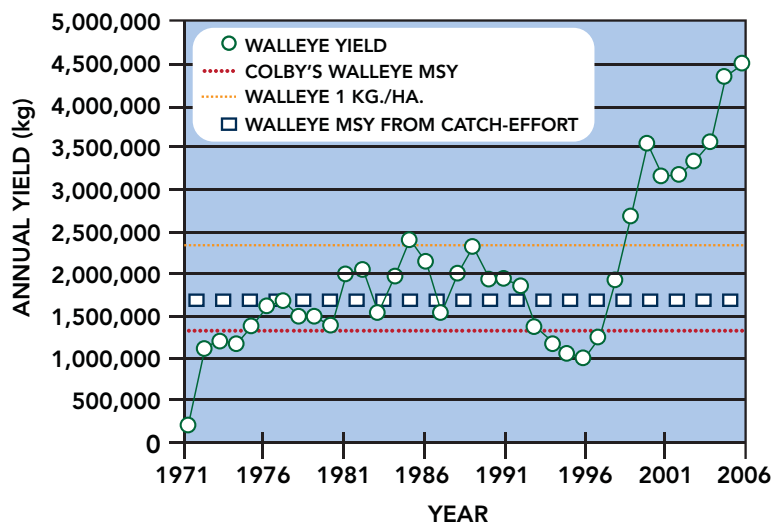
TREND - **VARIABLE** *DEPENDING ON FISHERY*

Fisheries trends are viewed from the perspective of maintaining the long-term sustainability of fish stocks while allowing annual fish harvests. The largest commercial fishery in Manitoba is on Lake Winnipeg and the highest valued species is walleye, commonly known as Pickerel. The recent increase in walleye yields (shown on Figure 1-1) may be explained by the invasion of smelt, which have become a favourite food item of walleye. Some of the trends are also due to changing market demands and the switch in market preference from whitefish to walleye and sauger starting in the 1980s. Harvests that exceed maximum sustainable yields pose an increased risk to the sustainability of the fishery. Both Lake Winnipeg's and Lake Manitoba's fishery trends indicate that the resource is fully allocated.

As part of its mandate, Manitoba Water Stewardship undertakes a number of fisheries management initiatives to sustain walleye and sauger stocks while supporting the largest freshwater fishery west of the Great Lakes. Figure 1-3 and 1-4 demonstrate the relationship of annual walleye yields to three estimates of walleye maximum sustainable yield in the Lake Winnipeg and Lake Manitoba commercial fisheries.

Figure 1-3: Lake Winnipeg's Walleye Maximum Sustainable Yield Compared to Walleye Yields

Source: Manitoba Water Stewardship

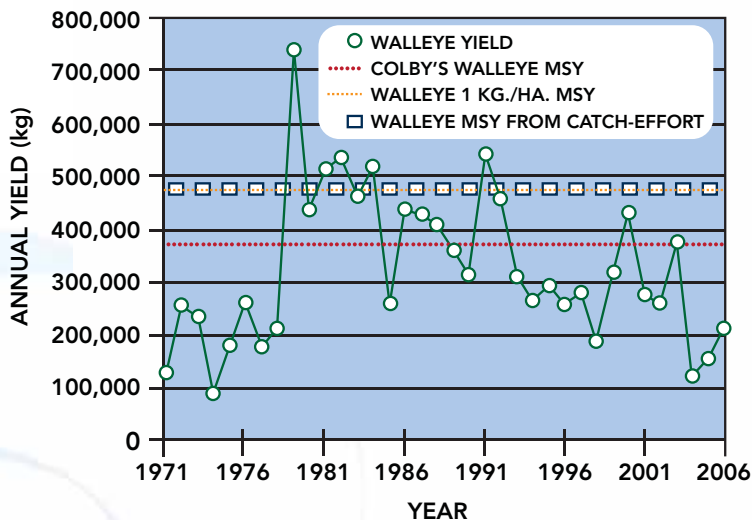


The maximum sustainable yield of one Kilogram Per Hectare (Kg/ha) is based on a mathematical calculation that takes into account lake morphometry (which is the area and depth of a water body) and productivity (total dissolved solids) to estimate potential fish production of a lake, which can be partitioned further into potential production of species of commercial interest. Based on averages from over 100 lakes, researchers have estimated north-temperate lakes to be capable of producing 1.0 Kg/ha of walleye annually.

A more recent estimate of walleye maximum sustainable yield incorporates newer information and tends to result in more conservative estimates of potential fish production. Both estimates are based on lake surface area. Walleye maximum sustainable yield can also be estimated from a catch-effort curve that graphs harvest of fish against the effort used to catch that amount of fish. The point at which increasing effort no longer produces more fish is an indicator of the maximum sustainable yield for the species in question.

Figure 1-4: Lake Manitoba's Walleye Maximum Sustainable Yield Compared to Walleye Yields

Source: Manitoba Water Stewardship



IMPLICATIONS FOR SUSTAINABILITY

To better understand sustainability implications for Manitoba's fisheries, there is a need for:

- **better information and monitoring**
- **improved science to understand both the ecology and social aspects of fisheries management**
- **more substantive stakeholder involvement in the decision-making process**

Based on the observed trends, there is still insufficient evidence to determine whether the policies currently in place will be sufficient. The emphasis on sustainable fisheries management holds promise, but only long-term monitoring of stocks and policy impacts can tell if we are managing the resources successfully and adaptively.

The health of fish habitat in Manitoba continues to be affected by pressures such as intensive agricultural production and forestry. Compared with presumed pre-settlement conditions, fish habitat, particularly in the southern part of Manitoba, is at higher risk of degradation. Increasing emphasis on riparian zone management and sustainable land and watershed management indicate that if conservation measures are implemented systematically and industry-wide, the impact on fish habitat will be positive and ultimately contribute to more robust fisheries.

FOR MORE INFORMATION

More information on Manitoba's fishery resources, including commercial and recreational harvesting, is available at:

- www.gov.mb.ca/waterstewardship/fish/index.html

FORESTS

Why is it important?

Manitoba is home to one of the last remaining large and intact blocks of boreal forests in the world. Forests are important to Manitobans because they provide:

- **food and medicines**
- **tourism and educational opportunities**
- **places for recreation and spirituality**
- **economic opportunities through sustainable forest management**

Forests also:

- **provide wildlife habitat**
- **improve air quality**
- **moderate temperatures and minimize soil and water erosion**
- **play an important role in global cycles by recycling water, carbon, and oxygen**

Climate change is linked to changes in atmospheric green house gas concentrations, particularly carbon dioxide. Forests are large reservoirs of atmospheric carbon, storing large amounts of carbon in standing biomass (trunks, branches, leaves, and roots), soils and peatlands. As well, trees routinely exchange carbon with the atmosphere through photosynthesis, respiration, forest fire and decomposition. Forest management practices, specifically harvesting, protection, and forest renewal activities influence the carbon cycle altering the uptake and storage, and the process of decomposition and release to the atmosphere. Wood, in the form of many products (paper, lumber, furniture and building materials), is another form of carbon storage.

Carbon storage in Manitoba's forests, soils and wetlands offers a potential opportunity for offsetting greenhouse gas emissions. The Province of Manitoba is working with other provincial jurisdictions and the federal government to address research, technology and infrastructure needs to determine a carbon inventory from Manitoba's forests and to develop a credible verification protocol.

Indicators and trends

The following key indicators reflect trends in Manitoba's forest resources:

- **FOREST TYPE AND AGE CLASS** which is a measure of the area and extent of the forest land base and its forest types.
- **FOREST RENEWAL** which is a measure reflecting whether harvested areas and forest stands affected by natural disturbances are successfully regenerated to maintain ecosystem stability.

Forest Type and Age Class

TREND - **STABLE**

The characterization of the area, and extent of the forest land base and its forest types, is the foundation on which allocation and management of forest lands, and their use and preservation, are based. The intent of tracking this indicator is to ensure that natural disturbance events and various forests uses do not reduce forest diversity. The province annually tracks and records natural disturbance events, such as fire and the amount of forest land that is harvested and regenerated, that alter forest type and age.

Manitoba's forest zone is **38.7 million hectares** of which approximately **22 per cent**, or **14.3 million hectares**, is considered productive forest. Manitoba's forested land base has been mapped and forest inventory information is stored in a geographic information system (GIS). Forest inventory information is classified in a number of ways. A complex dataset for each forest stand is either interpreted, calculated and/or measured. Tree species, height and age information coupled with soil information is used to determine site productivity. Forest overstory and understory classifications are used to determine forest biomass and to make inferences about forest succession and wildlife habitat.

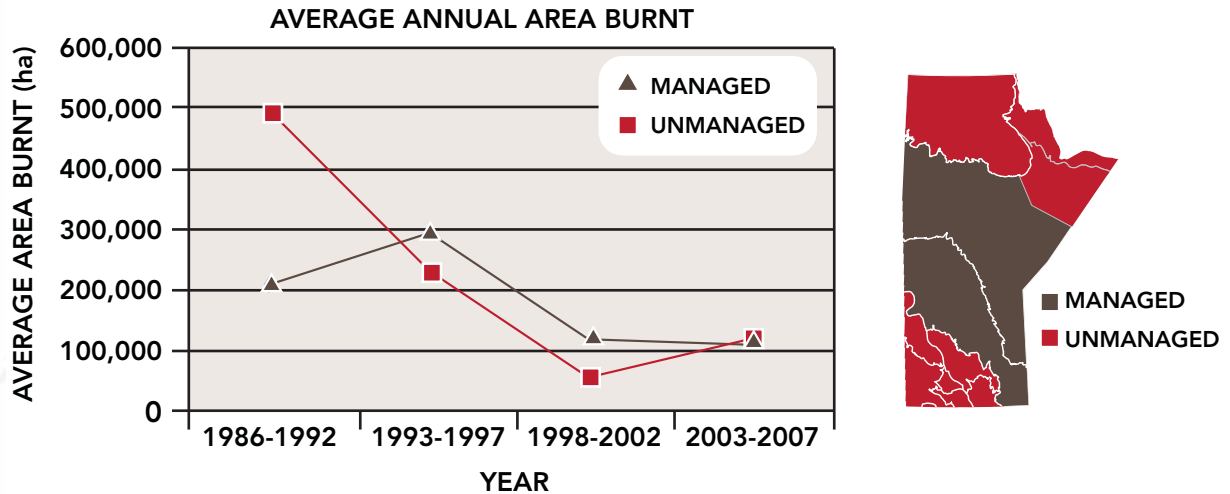
When a new forest inventory for a given area is complete, a volume sampling program is implemented to provide ground level tree attribute information. The volume sampling program is a field survey in which stands are randomly selected from the interpreted inventory and are surveyed. Information collected through this program is used to calculate observed standing volumes (ex: merchantable fiber). Yield curves are then developed which relate the observed volumes to interpreted attributes within the inventory to provide estimates of expected volumes/yields through stand development. These yield curves are used to determine sustainable harvest levels in the province.

An average of **425,000 hectares** of Manitoba has burned over the last 22 years. The burning trend in Manitoba has steadily dropped through time. In the last five years, however, there has been a slight increase in burning in unmanaged areas. This is because fire suppression efforts are not always initiated in these areas and fires are allowed to burn. Over the same time period, areas burned in the managed forest area (see Figure 1-5) increased until 1997 and then decreased for the last ten years.



Figure 1-5: Average area burned in managed and unmanaged forests

Source: Manitoba Conservation



The annual area harvested in Manitoba during the last 10 year period has remained relatively unchanged at approximately 13,842 hectares per year. Between 2003 and 2006 there has been a slight increase in harvest area followed by a drop in 2007 (see Figure 1-6). The average area harvested between 1986 and 2007 and last five years are shown in the graphs below.

Figure 1-6: Average harvests since 1986 in five year intervals compared to annual harvest levels 2003-2007

Source: Manitoba Conservation

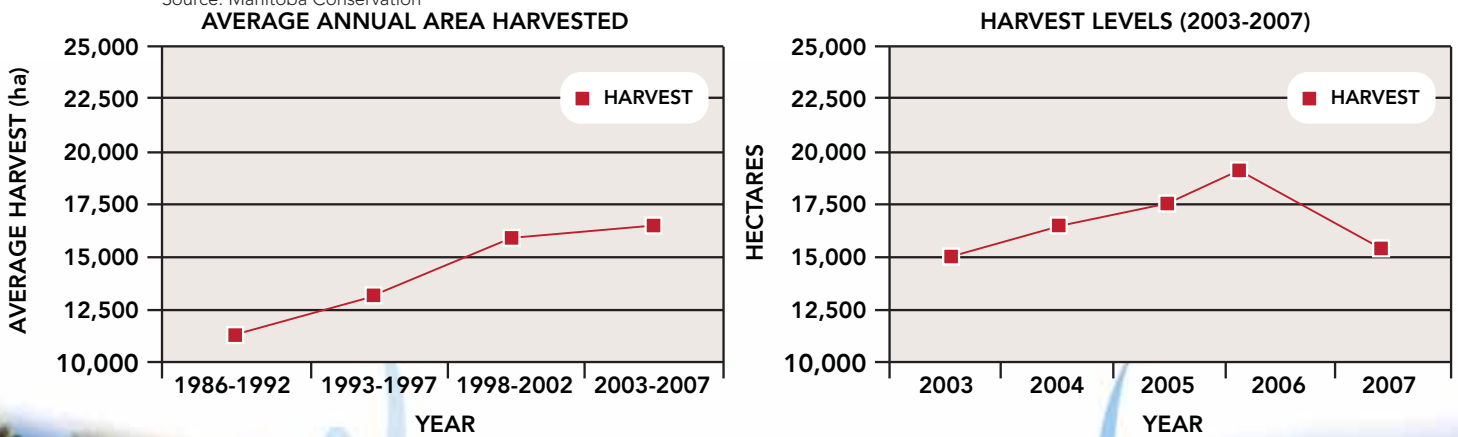
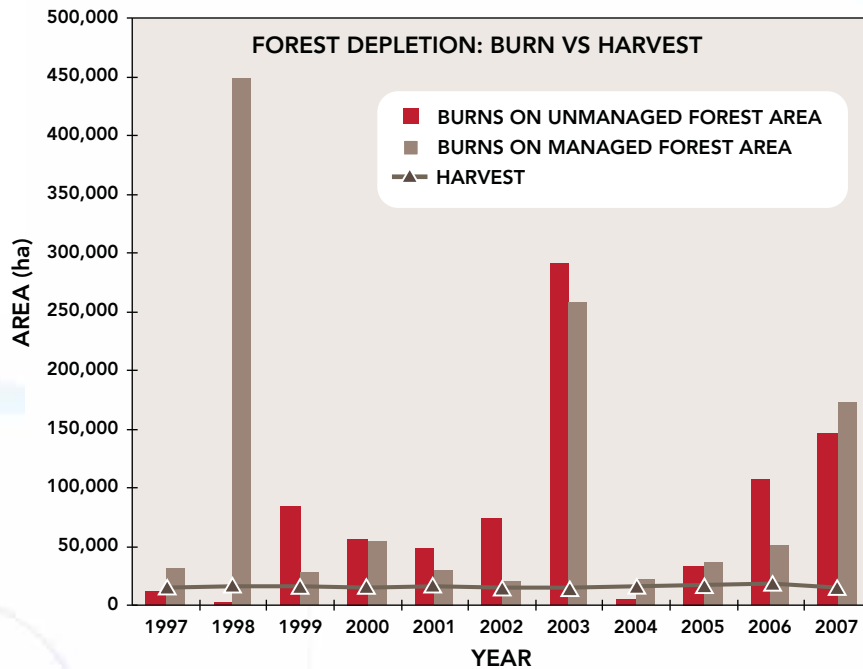


Figure 1-7: Area of forest affected by fire and harvest activities - Fire and harvest areas over the last ten years illustrate that harvest levels remain fairly consistent and substantially less than natural depletions

Source: Manitoba Conservation



Over the past two decades, fire has been the most significant influence on Manitoba's forests where the majority of commercial harvesting occurs. Insect infestations, disease outbreaks and wind storms and flooding have also created forest change. Two recent windstorms in southeastern Manitoba caused significant damage to forests in the Sandilands Provincial Forest and Whiteshell Provincial Park. Between 2003 and 2007, fire affected about 107,800 hectares. That is six and a half times more than what was harvested (16,700 hectares) in the managed forest area (see Figure 1-7).

FOREST RENEWAL

TREND - STABLE

Forest renewal after disturbances, whether natural or caused by humans, is an essential condition for forest sustainability. Forest renewal happens naturally, but it can be enhanced through forest management planning, practices and forest renewal activities. Manitoba's Forest Renewal Program aims to satisfactorily regenerate all harvested forests to maintain a variety of forest ecosystem types and ensure forest sustainability. Measuring harvested areas versus areas successfully reforested determines whether reforestation methods are successful. Tracking the area and volume harvested, as well as recording forest ecosystem diversity provides an important link to biodiversity maintenance and habitat conservation.

Manitoba is recognized as a leader within Canada in the development and implementation of forest renewal standards and enforcement of these standards. Manitoba was one of the first provinces to develop comprehensive forest renewal standards. This allows the province to ensure a variety of stand types is maintained. A strong reforestation commitment by Manitoba Conservation and the province's forest industry has resulted in regeneration surveys being conducted on nearly all harvested areas to ensure adequate forest renewal.

The province began conducting regeneration surveys in the late 1970s. From 1991 to 1993, the province partnered with the Canadian Forest Service to conduct research on the factors that affect the growth of the major tree species by age 14 years. As a result of this research, Manitoba began conducting free to grow surveys. "Free to Grow" surveys assess tree condition and determine if its future survival and development will be influenced by competing vegetation. In 1994, Manitoba became one of the first provinces to establish "Free to Grow" standards based on regionally collected data.

A publication documenting 10 years of survey results Manitoba Free To Grow Survey Results 1994-2003 provides an in-depth report of survey results. Some information is summarized below and more information can be found at:

gov.mb.ca/conservation/forestry/index.html

Figure 1-8: Free To Grow (FTG) Survey Results 1994-2003

Source: Manitoba Conservation

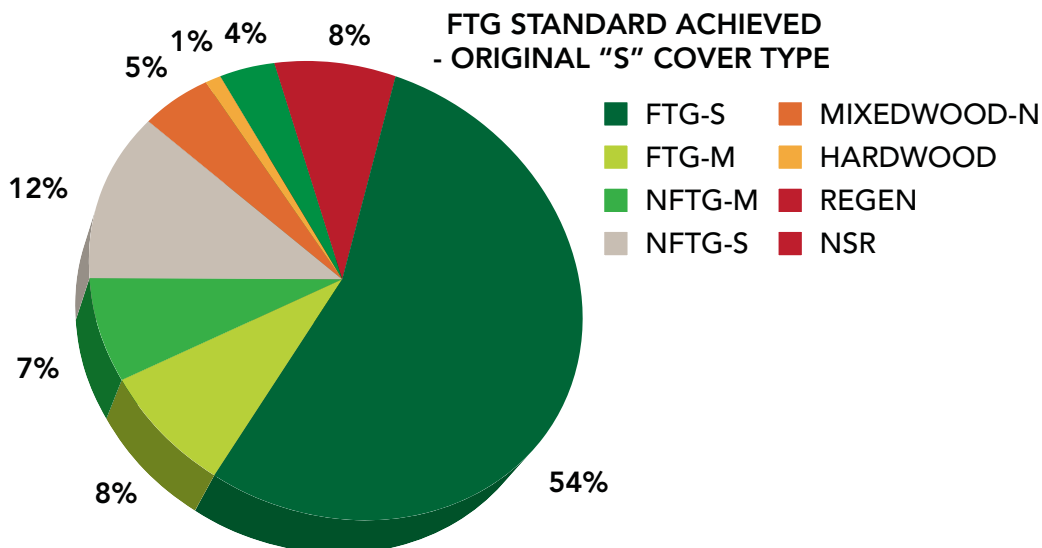


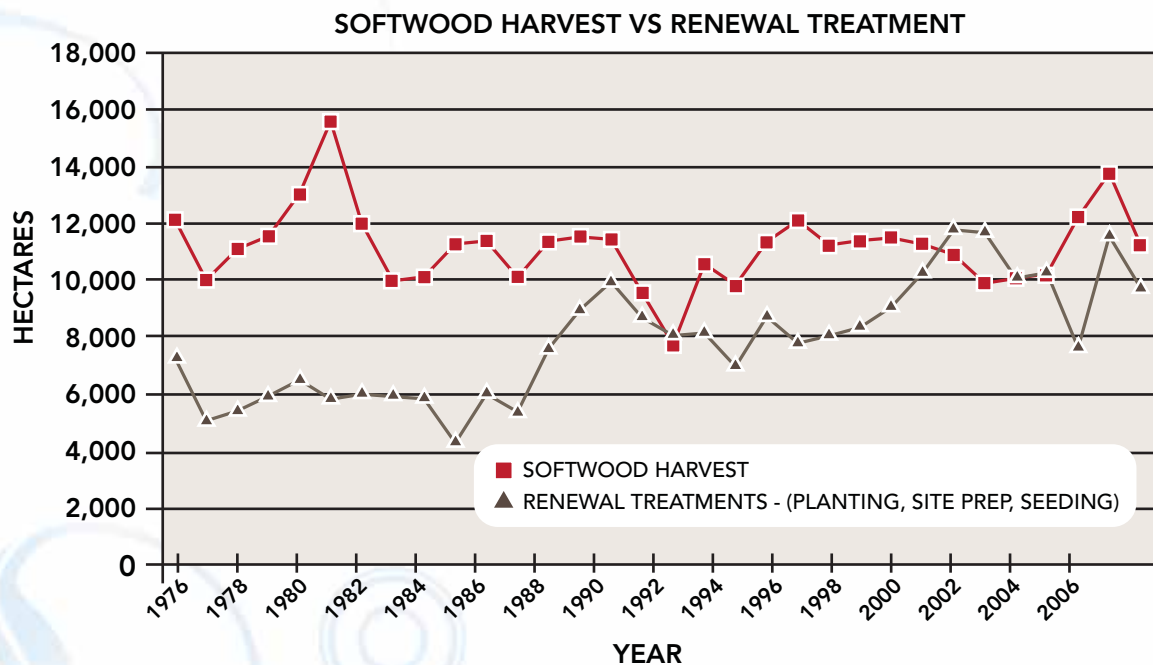
Figure 1-8 show an analysis of the percentage of softwood regenerating area meeting a Free to Grow (FTG) standard or a descriptor. The green wedges represent areas which contain enough softwood stems to meet the appropriate standard. The not free to grow descriptor (NFTG) indicates areas in which there are, in addition, too many hardwood stems to meet the softwood standard. These blocks have adequate amounts of well established softwood to meet the FTG standard if the hardwood competition was controlled early on in the reforestation cycle.

Results show that at least **62 per cent** of all harvested softwood areas meet FTG standards after 14 years with another **23 per cent** (85 per cent in total) containing enough softwoods to meet standard if competition was reduced.

It should be noted that even if a regenerating area meets all the requirements to be considered FTG, it might still result in some changes to the composition of the forest landscape. This is a result of the flexibility of the standards and acceptance of some ecological variability. The tradeoff of some changes to landscape forest composition and stand development is necessary to minimize whenever possible the over-usage of vegetation management techniques such as herbicides or manual tending. Adopting very rigid, tight, forest renewal standards would require treating almost all of the annual softwood harvest areas with herbicides. It is obvious from review of the data that forest renewal programs in Manitoba are not creating vast single species mono-cultures but are creating species-diverse, healthy, forests. It is important to note that this is occurring on areas managed using the clearcut silviculture system as well as those managed under a more selective system.

Figure 1-9: Refers to areas that have been scarified for natural regeneration, seeded and plantations established. Annual fluctuations are a result of harvesting activities

Source: Manitoba Conservation



During this reporting period, softwood harvest levels increased, peaking in 2006. Levels have since decreased due to a lower demand for forest products resulting from the economic downturn in the United States. During this time, the harvested area treated for forest renewal (planted, scarified or seeded) followed a similar trend. Over time, the proportion of softwood areas treated for renewal has remained the same (75 per cent), however, the annual area treated can fluctuate from one year to the next. In some circumstances, renewal work cannot be performed economically on small isolated harvest

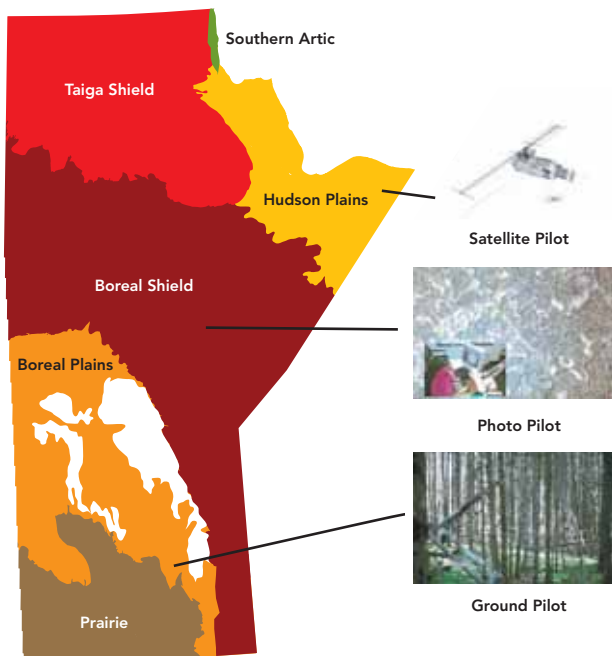
areas and as result, reforestation activities can lag behind by a year or two after harvest. For these reasons, the number of hectares annually harvested versus the amount regenerated normally does not always balance.

The balance of the harvested softwood areas not treated is left for natural regeneration where a sufficient number of cones exist to promote seeding. Survey results show most of these areas regenerate successfully. Hardwood harvest and renewal information is not included as no renewal treatments are normally required for these forest types, except for regeneration surveys to check on renewal status.

IMPLICATIONS FOR SUSTAINABILITY

Based on available information Manitoba's overall forest stock appears stable. However, closer monitoring will be needed as external pressures such as climate change or invasive pest species become more prevalent. To address long-term forest sustainability monitoring, the Forestry Branch of Manitoba Conservation co-operated with the Canadian Forest Service to establish an Ecosystem Monitoring Network comprised of 1,096 satellite image plots, 462 photo plots and 97 randomly located ground plots across Manitoba's ecozones.

Manitoba Ecosystem Monitoring Network



The purpose of the Ecosystem Monitoring Network is the long-term assessment and monitoring of the state and sustainable development of Manitoba's and Canada's forests. It will provide information in support of national and international reporting commitments related to forest health, biodiversity and forest productivity. Manitoba's Ecosystem Monitoring Network provides information on traditional forest inventory attributes and a framework for collecting additional information relevant to carbon sequestration and modeling. The collection and reporting of information based on a set of uniform standards allows for consistent reporting across the country and for tracking changes to Canada's forests over time.

Manitoba is an active member of the Canadian Council of Forest Ministers (CCFM) which has begun work on a collaborative strategy on forest adaptation under the Climate Change Task Force. This involves a study on forest tree species and their vulnerability to climate change. In addition, CCFM is developing a forest carbon management quantification framework that will be a common framework that can be used to develop multiple forest carbon management protocols suitable for differing conditions across Canada.

Climate change may have significant effects on forests through increasing fire frequency and intensity and insect outbreaks. Persistent warming could cause the prairie-forest zone to move northward at a faster rate than the forest zone can migrate onto the tundra, resulting in a net decrease in forest land. Keeping track of Manitoba's forest capital is increasingly important in relation to our response to climate change. The strategy under *Manitoba's Climate Change Action Plan* includes forest management practices to help carbon sequestration (removal of carbon dioxide from the atmosphere by vegetation).

In 2007, Tembec Industries Inc. received Forest Stewardship Council (FSC) certification, the first in Manitoba, for its forestry practices on Forest Management License 1 (FML 1). The FSC is recognized worldwide for its unique regional, multi-stakeholder approach to the development of standards for well-managed forests. In 2004, Tolko Industries Ltd. received certification from the Canadian Standards Association and has maintained this certification. Louisiana-Pacific Canada Ltd. received forest products certification from the Sustainable Forestry Initiative in December 2000 and has maintained this certification.

In December 2007, Manitoba's Submission Guidelines for Twenty-Year Forest Management Plans replaced the Ten-Year Forest Management Plan Submission Guidelines.

FOR MORE INFORMATION

More information on Manitoba's forests can be found at:

- gov.mb.ca/conservation/forestry/index.html
- manitobamodelforest.net/
- ccmf.org/english/index.asp

AIR QUALITY

Why is it important?

The quality of the air we breathe has a large impact on our lives and can affect our health, well-being and quality of life. It is important to monitor air quality in areas where certain conditions may lead to air quality problems. Indicators of air quality help us monitor air quality and better understand its effect on our well-being.

Indicators and trends

The following key indicator reflects trends in Manitoba's air quality:

- **AIR QUALITY is assessed using the Air Quality Index (AQI), a measure of overall air quality based on a number of potential contaminants. It provides a general understanding of air quality.**

Air Quality

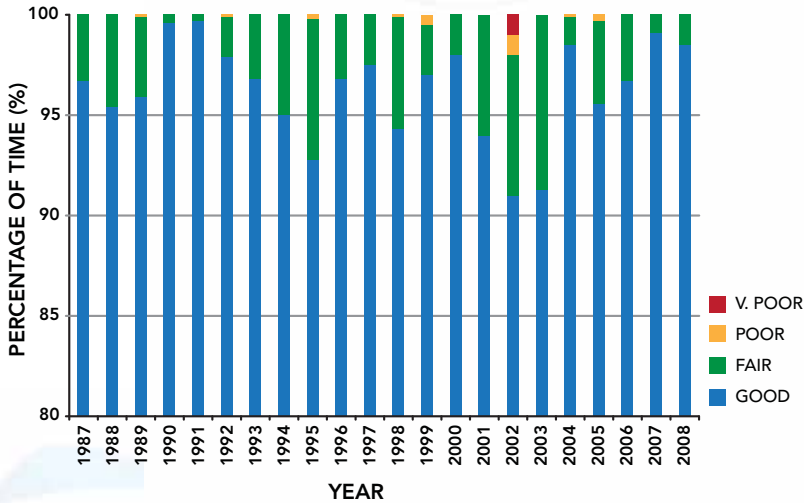
TREND - Winnipeg, Brandon & Flin Flon - **STABLE**

In Manitoba, air quality issues tend to be mostly local in nature and primarily relate to odour and other pollutants, released from specific local sources or activities. In northern Manitoba, emissions from the base metal smelters in Flin Flon and Thompson and smoke from forest fires tend to be the most significant sources of air pollution. Winnipeg's Air Quality Index (AQI) is based on air monitoring data for carbon monoxide, particulate matter (PM10), nitrogen dioxide, ground-level ozone and fine particulate matter (PM2.5). Since 1995, as part of a joint Manitoba Conservation and Environment Canada program, the AQI for Winnipeg has been made available through local and national television cable weather channels (Figure 1-10). The AQI is also accessible through Environment Canada's automated phone-in weather information service.

The hourly AQI has been calculated for Winnipeg since 1987 and for Brandon and Flin Flon since 1997. Air quality in Winnipeg is relatively unchanged and good over 95 per cent of the time, in recent years. Since the last report, Brandon and Flin Flon air quality continues to be good, 85 per cent or more of the time (Figure 1-11 and 1-12). In 2008, there were more instances of poor and very poor air quality in Flin Flon and more instances of fair and poor air quality in Brandon, when compared with previous years. In 2008, for Flin Flon, this was due both to local conditions and forest fire smoke, from northern Saskatchewan and northern Manitoba. In July 2008, there were two periods of time (total time of 38 hours) where air quality was very poor, due to forest fire smoke. These same two events also dropped air quality in the Brandon area into the poor range within a day or two (total time of 39 hrs). Local conditions (in part due to the location of the monitoring site), were influenced by wind-swept, larger-sized particulate matter (dust). This also adversely affected Brandon's air quality in the spring and fall of most years, including 2008.

Figure 1-10: Winnipeg Air Quality Index - Downtown

Source: Manitoba Conservation

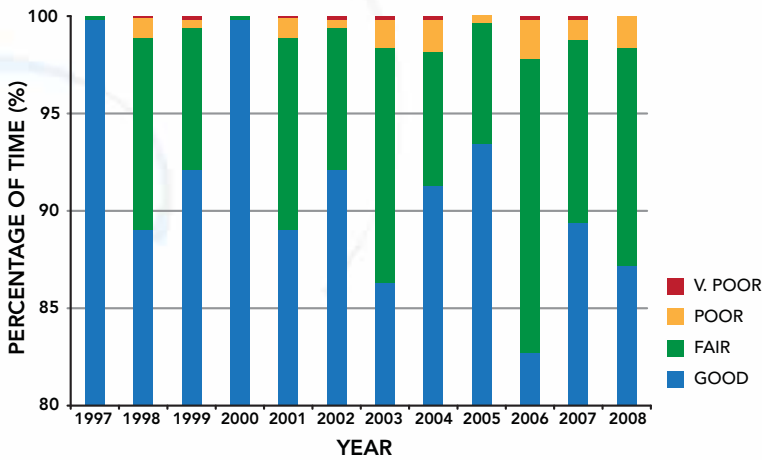


IMPLICATIONS FOR SUSTAINABILITY

Air quality affects human and ecosystem well-being in many ways. Risks can be reduced by lower emissions and reduced exposure. Outdoor air quality in Manitoba is generally good and is certainly comparable to, or better than, air quality in other parts of Canada. Air quality issues in Manitoba tend to be local in nature and usually relate to odour and other pollutants from sources such as industry, motor vehicles, stubble burning and forest fires. Taking action at the local level, such as in Flin Flon, has demonstrated that we can improve local air quality and make communities more sustainable.

Figure 1-11: Brandon Air Quality Index

Source: Manitoba Conservation



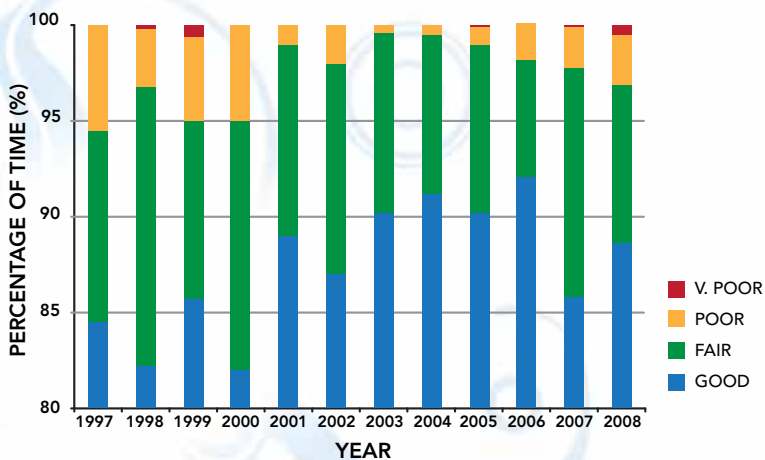
FOR MORE INFORMATION

More information on Manitoba's air quality is available from the Air Quality Section of Manitoba Conservation's Pollution Prevention Branch at:

- gov.mb.ca/conservation/pollutionprevention/airquality/

Figure 1-12: Flin Flon Air Quality Index

Source: Manitoba Conservation



WATER

Why is it important?

Manitoba's lakes, rivers and streams are crucial to Manitoba's economic prosperity and the health and well-being of our residents. We depend on water for almost every aspect of our lives, including hydroelectricity, fishing, agriculture and industrial uses, drinking, recreation, bathing and more. Hundreds of millions of dollars are generated each year as a direct result of our fresh water supply.

With more than 100,000 lakes, Manitoba has an ample supply of fresh water. In fact, more than 15 per cent, or roughly 10.2 million hectares, of the province's area is water. Manitoba recognizes its population is not distributed geographically in proportion to its fresh water supply and that our water can not be managed as an unlimited resource. Proper water stewardship and planning will ensure good water quality and an adequate quantity of water for future generations.

Indicators and trends

The following key indicators reflect trends in Manitoba's water:

- **WATER QUALITY, which is assessed using a measure called the Water Quality Index to determine a general understanding of Manitoba's water quality.**
- **WATER ALLOCATION AND CONSUMPTION, which is measured to determine how much water is allocated and consumed in Manitoba.**

Water Quality

TREND - **STABLE**

Water quality continues to be an issue for Manitobans. Human requirements for water include domestic consumption, agricultural activities such as irrigation and livestock watering and recreational activities. Surface waters also provide habitat for aquatic life, ranging from micro-organisms, such as bacteria and algae, to fish, as well as wildlife, such as ducks and beavers.

Human activity can have an impact on water uses and aquatic life as expanding development increases the potential for pollution of Manitoba's water. Manitoba generally has a good record of water quality management. However, water quality may be threatened in some regions, especially through nutrient enrichment of lakes and rivers. For instance, there are concerns about the water quality of Lake Winnipeg due to elevated nutrient concentrations. The provincial government's interim goal is to reduce nutrients in Lake Winnipeg to pre-1970 concentrations as identified in the *Lake Winnipeg Action Plan* released in February 2003.

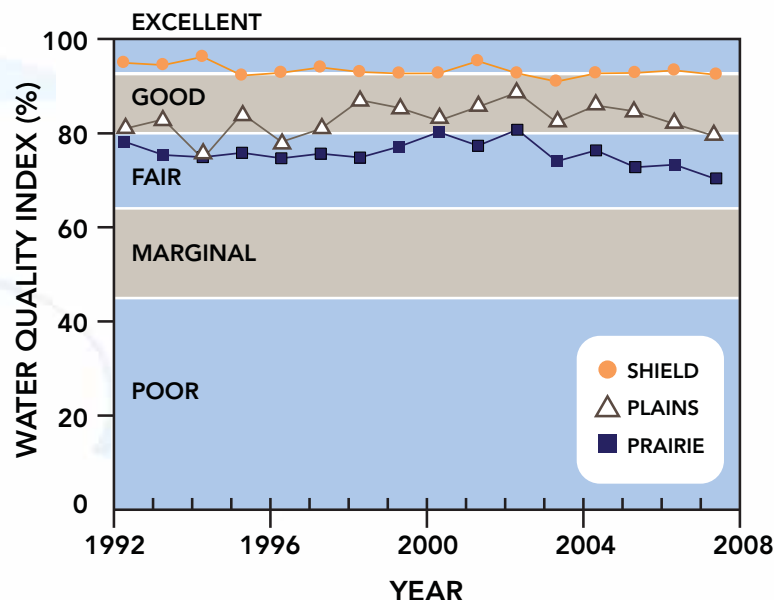
The following key indicators reflect trends in Manitoba's water quality:

Surface Water

The Water Quality Index used in Manitoba was developed through the Canadian Council of Ministers of the Environment. Based on this index, water quality in three Manitoba ecozones is classified in Figure 1-13. Water quality was generally fair in the prairie ecozone and good in the boreal plains and boreal shield ecozones. In all three ecozones in Manitoba, water quality is relatively stable. For locations of the ecozones, please refer to the map of Manitoba in the introduction of this report.

Figure 1-13: Water Quality Index values for the shield, plains and prairie ecozones in Manitoba from 1992 to 2007

Source: Manitoba Water Stewardship



Groundwater

Suitable information is not presently available to provide a general assessment of groundwater quality in Manitoba. Groundwater quality is naturally variable. Increasing development of groundwater supplies, abandoned wells, floods and prolonged drought pose risks of salinization and bacterial and nutrient pollution to our aquifers. However, current information shows that progressive salinization is not occurring in susceptible aquifers.

There are a number of initiatives to ensure the future improvement of groundwater quality in the province including:

- **sealing abandoned wells**
- **adopting more sustainable nutrient containment and application practices by the agricultural community**
- **developing stricter standards for septic systems, waste disposal grounds, municipal lagoons and other potential point sources of contamination**
- **increasing education for well owners about the proper location and maintenance of their water supply sources**

Conservation districts and other partners are gathering information for assessments of ground water quality trends in the future through assessment programs.

Water Allocation and Consumption

TREND - **STABLE**

Manitoba has an abundance of water overall, but much of the province's population is located in the south-central region while most of the water is located in the central to northern regions. The north and east sides of the province have an abundance of rivers and lakes in an area where the population is relatively low and water consumption is low compared to the supply. Southern Manitoba has a more limited supply of surface water while containing the majority of the province's residents. The following information presents the amount of Manitoba's surface water supplies that have been allocated for licensable use purposes with a focus on consumptive use of surface water in the southern region of Manitoba.

Types of Water Sources

Surface water is withdrawn from lakes, rivers, in-channel reservoirs (behind dams) and off-channel reservoirs (dugouts) for domestic, municipal, agricultural, industrial, irrigation and other purposes. Rivers and streams are classified as either intermittent or perennial based on the variability of their flow pattern.

Intermittent Streams

Intermittent streams are streams that have a relatively variable flow pattern. To ensure the sustainability of water licenses in these streams, the instream flow need and withdrawal volume are calculated using recorded flows. This reflects an equitable sharing of water between the environment and humans. The licensing criteria for these streams guarantee that, under any runoff condition, the absolute minimum amount of water left in the stream as part of the in-stream flow need ecological reserve is one-half the total available. In very dry years, much more than half of the available water is left in the stream as environmental reserve, with the volume available for withdrawal being less than the licensed amount. Water is only allowed to be withdrawn during the March to May (spring) period, and only when the flow in the stream is greater than the in stream flow need as stated in the license.



Perennial Streams

The major watercourses have a more reliable flow pattern than intermittent streams, with flow occurring year round. These include the Red, Assiniboine, Souris, Little Saskatchewan and Boyne rivers. The reliability stems from upstream storage locations which store water in times of high flow and release it in times of low flow. For example, on the Assiniboine River, the storage is provided by man-made structures such as Shellmouth Dam and naturally occurring groundwater sources such as the Assiniboine Delta Aquifer.

Firm flow volumes are minimum expected amounts which are determined by analyzing flow records including the driest historical conditions on record. Due to the firm nature of the flow, withdrawals may occur directly from the river at any time of the year, including the summer irrigation season.

Allocation for Consumptive Use

The percentage of water that has been allocated within the portion identified for human consumptive use varies with location. Intermittent streams range from 95 per cent allocated in the Morden-Winkler area to one per cent in several of the central areas as indicated in the map below. The perennial streams that are used for human consumptive use are shown in Figure 1-14 B. There was a significant increase in licensable water use over the past 20 years that was related to the initial development of hog production and irrigated potatoes. There has been a reduction in applications for water use licenses in these sectors over the last few years.

Figure 1-14 A: Amount allocated for intermittent streams

Source: Manitoba Water Stewardship

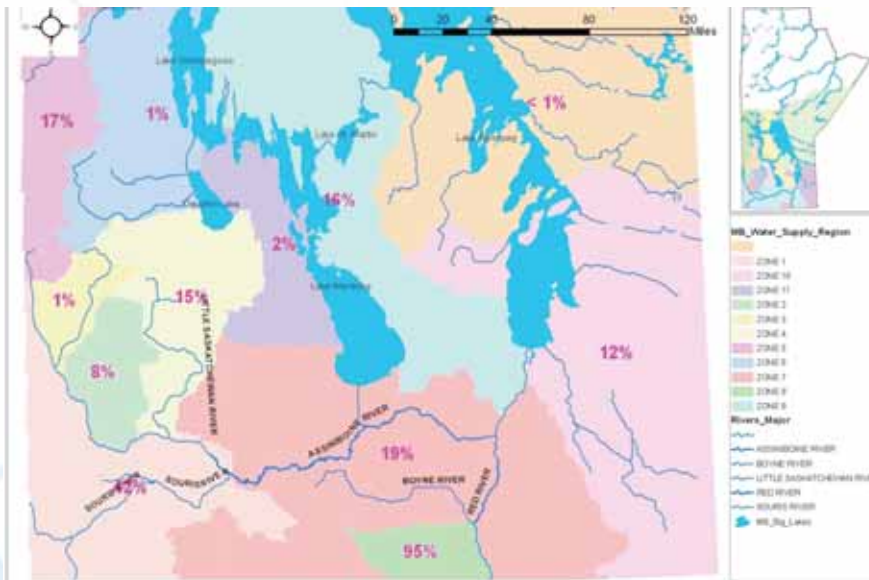


Figure 1-14 B: Amount allocated for perennial streams

Source: Manitoba Water Stewardship

RIVER	% ALLOCATED
Assiniboine	80
Boyne	99
Little Saskatchewan	25
Red	10
Souris	95



Groundwater

Although the consumptive use of groundwater is slowly increasing in the province, there are few aquifers or portions of aquifers in which groundwater withdrawal is equal to, or in excess of, current estimates of sustainable yield. Long-term continuous groundwater level declines or groundwater quality trends, which would indicate unsustainable withdrawal rates, have not been observed. Additional work is necessary to re-evaluate sustainable yield estimates for aquifers where current numbers have been established and to determine sustainable yield numbers for aquifers where this evaluation has not been done. Of particular importance is the establishment of long-term observation stations to provide records of water level responses to pumping stresses over long periods of time.

IMPLICATIONS FOR SUSTAINABILITY

Manitoba's water quality and water allocation and consumption are currently stable, although future challenges such as climate change, increased water demand and expanding human development may have implications for water quality and quantity. Manitoba Water Stewardship is engaged in a number of planning activities at local and provincial levels in anticipation of these, and other challenges.

The Manitoba Water Council is reviewing the *Manitoba Water Strategy* to ensure that it presents an integrated water strategy that adequately addresses Manitoba's current and future needs. Manitoba now has 17 integrated watershed management plans that are either completed or in progress. Integrated watershed management planning brings together watershed residents, government representatives and stakeholder organizations to ensure Manitoba's water and its related resources are effectively managed and maintained now and in the future.

FOR MORE INFORMATION

More information on Manitoba's water quality, water use and other aspects of Manitoba's water resources is available at:

- gov.mb.ca/waterstewardship/
- gov.mb.ca/agriculture/soilwater/watermgmt/



CLIMATE CHANGE

Why is it important?

Climate change affects our lives and the environment in which we live. Climate change caused by greenhouse gas emissions is predicted to raise temperatures in Manitoba four to six degrees Celsius within the next 50 to 100 years. Climate affects almost everything we do, from the building of winter roads in the north, to growing potatoes in the south. We rely on certain weather conditions to maintain our lifestyles and ensure sustainable growth. Indicators are important for measuring the relative changes in our province resulting from changes in our climate.

Indicators and trends

The following key indicators reflect trends in climate change observations in Manitoba:

- **AVERAGE ANNUAL AND SEASONAL TEMPERATURE** which is measured to monitor temperature trends as a relative indicator of climate change.
- **TOTAL ANNUAL AND SEASONAL PRECIPITATION** which is used as an indicator of precipitation trends as a measure of change.
- **GREENHOUSE GAS EMISSIONS** are gases that absorb infrared radiation in the atmosphere and include water vapour, carbon dioxide, methane, nitrous oxide, ozone and other substances. Greenhouse gas emissions caused by human activities contribute to an enhanced greenhouse effect and global warming.

Natural climatic variability occurring over years, decades or longer is caused by variations in large-scale processes including those associated with ocean currents and movements of heat and moisture in the atmosphere.



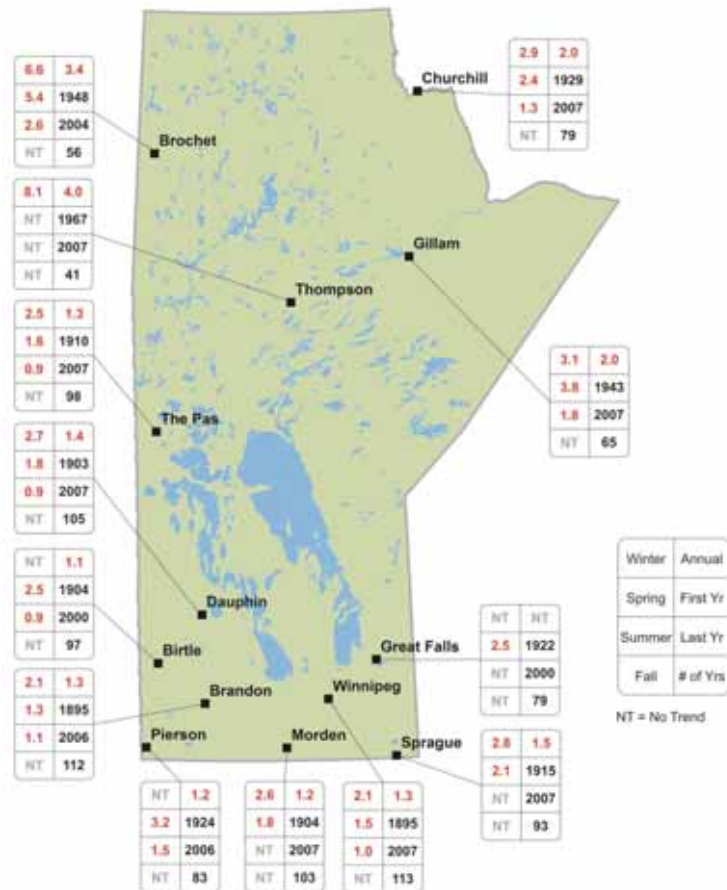
Average Annual and Seasonal Temperature

TREND - **NEGATIVE**

Analysis of the temperature records for Manitoba reveals a trend of increased annual average and seasonal temperature for almost all locations with high-quality long-term weather records (Figure 1-15). The rate of annual temperature increase ranges between 1.1 and 4.0°C per century. The largest rate of change in average temperature occurred in the winter, with locations experiencing warming between 2.1 and 8.1°C per century. Warming in the spring has also been strong, ranging from 1.3 to 5.4°C per century. Smaller increases in average temperature have occurred in the summer, with rates of warming ranging from 0.9 to 2.6°C per century. Northern stations have seen particularly high rates of warming during these seasons and the year as a whole. No Manitoba locations have observed significant changes to average temperature in the autumn. All increases in temperature are greater than the global average rate of warming at many locations. Particularly in the north, the rate of observed warming is many times greater than the global average. Especially high rates of warming were observed in Manitoba in the period 1970 to 2007, a period in which the global average temperature rose rapidly.

Figure 1-15: Seasonal and Annual Mean Temperature Trends

Data source: Environment Canada's Adjusted Historical Canadian Climate Data (AHCCD)
 website: <http://www.cccma.ec.gc.ca/hccd/>



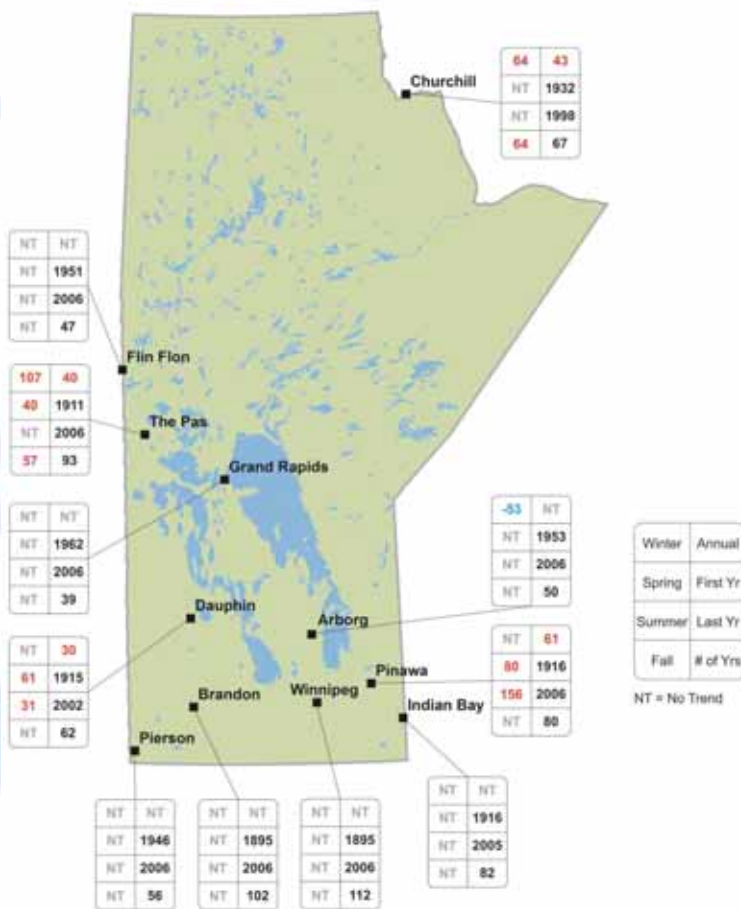
Total Annual and Seasonal Precipitation

TREND - **INCONCLUSIVE**

Analysis of the total precipitation records, including rain and snow, indicates a trend toward increased annual total precipitation for a few locations (Figure 1-16). These trends show increases ranging from 29 to 61 per cent per century. As for seasonal changes, only a few locations have observed significant trends outside of winter. The positive changes in total winter precipitation range from 64 to 107 per cent per century while one location revealed a negative winter trend. No significant trends have been observed at the southern Manitoba locations with the longest data records.

Figure 1-16: Seasonal and Annual Total Precipitation Trends

Data source: Environment Canada's Adjusted Historical Canadian Climate Data (AHCCD)
 website: <http://www.ccma.ec.gc.ca/hccd/>



Greenhouse Gas Emissions

TREND - **STABLE**

Greenhouse gases play a key role in human-induced climate change. Carbon dioxide is produced mainly through burning fossil fuels for energy and the combustion of gasoline in the transport sector. Other important greenhouse gases include nitrous oxide and methane. Nitrous oxide is released through the application of nitrogen fertilizers, soil cultivation and the combustion of fossil fuels and wood. Methane is released primarily by agriculture and landfill sites. Since 2000, Manitoba's emissions have remained relatively stable. In 2007, Manitoba ranked sixth among the provinces and territories with total greenhouse gas releases of 21,300 kilotonnes of CO₂ equivalent. Manitoba's 2007 emissions were similar to those of Nova Scotia and New Brunswick but much less than the neighboring provinces of Saskatchewan, Alberta and Ontario (See Figure 1-17). While Manitoba's emissions increased 14.5 per cent from 1990 to 2007 the increase among Saskatchewan, Alberta and British Columbia was 65.8, 43.7 and 28.2 per cent respectively. The national increase was 25.8 per cent.

Figure 1-17: Total Provincial/Territorial GHG Emissions, 1990 and 2007

Source: Environment Canada

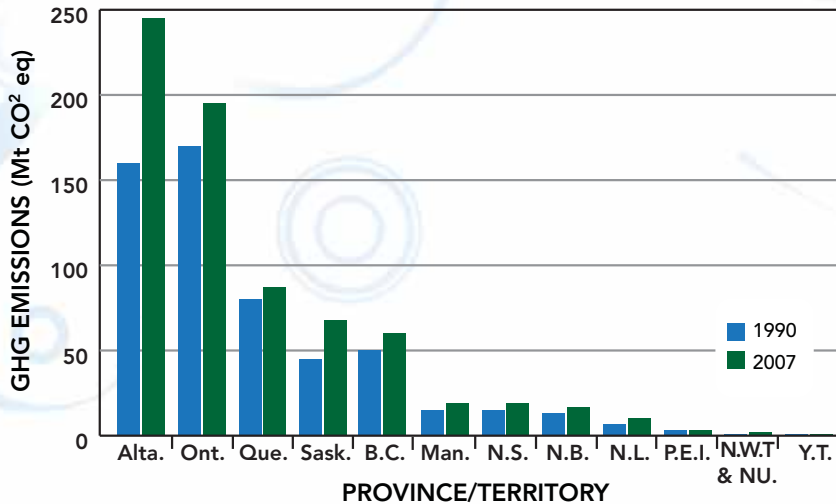


Figure 1-18: 1990-2007 Greenhouse Gas Emissions Trends for Manitoba

Source: Environment Canada National Inventory Report 1990-2007

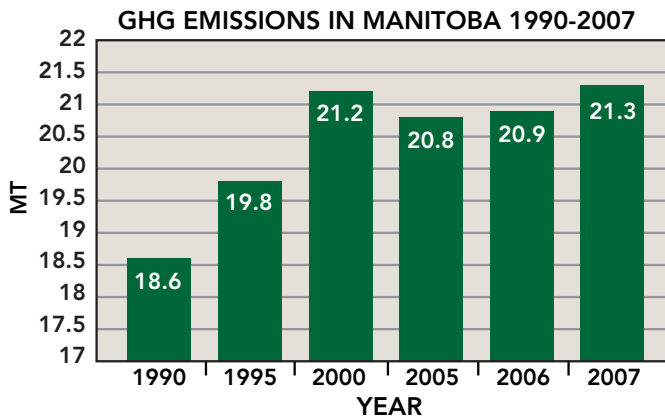
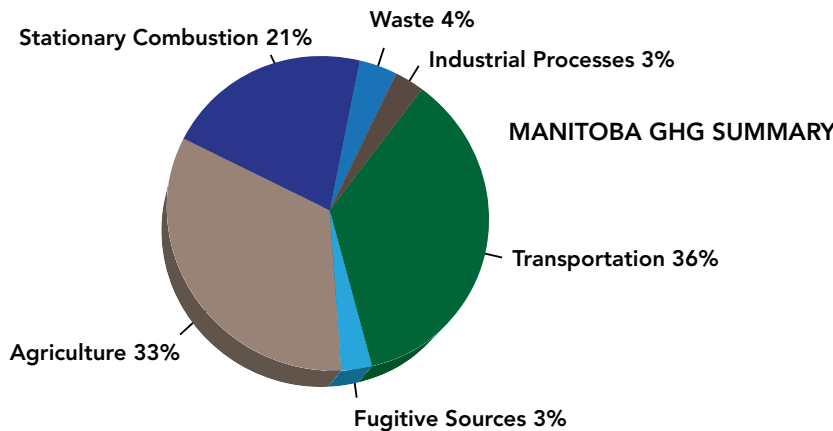


Figure 1-19: Manitoba's 2007 Sector Emissions Profile



The trend for Manitoba's total greenhouse gas emissions over the period of 1990 to 2007 is fairly stable with a decline from 2004 to 2005 and a slight increase to 2007 (See Figure 1-18). Compared to other provinces emissions growth from 1990 to 2005 has been 2.3 megatonnes (MT) versus an increase of 26.8 in Saskatchewan and 63 MT in British Columbia. With our clean, renewable hydro-electricity, wind, and other renewable energy sources, Manitoba contributes only about three per cent of Canada's total greenhouse gas emissions and is well-positioned to help Canada meet international emission reduction obligations, especially through increased hydroelectric generation for export.

Manitoba's 2007 emissions profile (Figure 1-19) show that two thirds of the provincial emissions come from the transportation and agriculture sectors. This includes the use of personal vehicles and various farming operations. Emissions from stationary combustion for heating of home and other buildings was the next highest emissions source followed by waste which comes mainly from methane emissions from landfills.

IMPLICATIONS FOR SUSTAINABILITY

The trend towards increased temperatures, especially in the north and during winter and spring, and more precipitation in general across many areas of Manitoba will continue to affect the northern winter road network and other resource based sectors in Manitoba. Anticipated increased frequency and severity of drought, forest fires and insect infestations will affect the sustainability of agriculture and forestry operations and communities from north to south.

Manitoba has committed to taking action on climate change by passing *The Climate Change and Emissions Reduction Act* in 2008. The act commits Manitoba to reducing emissions six per cent below 1990 emissions levels by 2012. This will be achieved by encouraging and helping Manitobans to collectively work to reduce emissions across all sectors and regions while still supporting a sustainable and prosperous economy.

MANITOBA'S COMMUNITY LED EMISSIONS REDUCTION PROGRAM (CLER)

Up to half of Canada's greenhouse gas emissions (GHG) are under the direct or indirect control of local governments. Manitoba's Community Led Emissions Reduction Program (CLER) is a four year pilot program (2008-2012) being delivered as part of the Province of Manitoba's Beyond Kyoto commitment. CLER will be delivered in 14 rural and urban communities around the province in partnership with 12 municipalities and six not-for-profit community organizations.

The goal of the program is to provide tools, resources, education and incentives to assist local governments, businesses, community organizations and local residents to reduce their greenhouse gas emissions and make more sustainable decisions in the longer term. Participants will establish GHG baselines that identify the amount and source of emissions produced in the following areas: transportation, waste, and energy use, and will establish GHG reduction targets and develop local climate change action plans.

MANITOBA OZONE DEPLETING SUBSTANCES AND OTHER HALOCARBONS MANAGEMENT PROGRAM

The depletion of the earth's stratospheric ozone layer by ozone depleting substances means more harmful ultraviolet rays are penetrating the atmosphere. Ultraviolet radiation rays are known to have detrimental effects on humans resulting in sunburn, skin cancer and cataracts, as well as affecting plants and animals.

Chemical substances that destroy ozone molecules contain either chlorine or bromine and are collectively referred to as ozone depleting substances (ODS), and include:

- chlorofluorocarbons (CFCs)
- hydro chlorofluorocarbons (HCFCs)
- halons
- other halocarbons

These substances are used in refrigeration, air-conditioning and fire extinguishing equipment, as well as in solvents and sterilants.

In 1987, Canada signed the Montreal Protocol, an international multi-lateral agreement. The intent of this agreement is to gradually phase-out, and eliminate, the use of ODS worldwide. Manitoba's ODS and Other Halocarbons Management Program continues to evolve as ozone depleting substances are phased from use and replacement products enter the market place.

The purpose of *The Manitoba ODS Act* is to minimize, and avoid, the ultimate release of ozone depleting substances and their replacement products. Manitoba has implemented regulatory measures to protect the stratospheric ozone layer under the Montreal Protocol, in addition to implementing complementary measures to reduce greenhouse gas emissions. In December 2005, the ODS regulation was amended to include other halocarbons as regulated substances. Although these replacement products are not ozone depleting substances, they are greenhouse gases that contribute to climate change. Replacement products generally have much lower global warming potential than the CFCs originally used as refrigerants.

These measures contribute towards Manitoba's climate change initiatives through:

- using less harmful chemical substances
 - restricting and minimizing releases of substances that contribute to climate change
 - helping to replace old equipment with new energy-efficient equipment
- In addition, they ensure a level playing field is maintained and that industry handles greenhouse gases in the same manner as ODS, where releases are prohibited and substances must be recovered, recycled and reused.

In 2008, Manitoba's action plan on climate change was released. Beyond Kyoto: Manitoba's Green Future identifies over sixty initiatives across the transportation, energy, agriculture and business sectors, for municipalities and government to:

- **reduce greenhouse gas emissions**
- **adapt to the effects of climate change**
- **continue to support a green and sustainable future for Manitoba.**

FOR MORE INFORMATION

Beyond Kyoto: Manitoba's Green Future:

- gov.mb.ca/beyond_kyoto/index.html

The Climate Change and Emissions Reduction Act, 2008:

- web2.gov.mb.ca/laws/statutes/ccsm/c135e.php

Energy, Climate Change and Green Initiatives, Manitoba Science, Technology, Energy and Mines:

- gov.mb.ca/stem/climate/index.html

Energy Development Initiative at Manitoba Science, Technology, Energy and Mines:

- gov.mb.ca/stem/energy/index.html

Manitoba Agriculture, Food and Rural Initiatives:

- gov.mb.ca/agriculture/soilwater/climate/

Manitoba Hydro:

- www.hydro.mb.ca/

CONCLUSION

NATURAL ENVIRONMENT DIMENSION

A sustainability perspective continues to be an effective tool for analyzing challenges arising from the interaction between Manitoba's human and natural communities. Sustainable and balanced management of natural resources and fragile ecosystems demand of us both active management and applied wisdom. First Nations traditional area land use planning will have beneficial implications for the long term sustainability of Manitoba's environment and abundant natural resources.

Threats to the environment, such as water pollution, climate change and invasive species are often linked issues that cannot be effectively dealt with in isolation. Climate change may have significant impacts on forests through increased fire frequency and intensity of insect outbreaks. Persistent warming could also cause the prairie-forest zone to move northward at a faster rate than the forest zone can migrate, resulting in a decrease in forest land.

Manitoba's Climate Change Action plan therefore includes a strategy of forest management practices which facilitate carbon sequestration by vegetation.

Conserving biodiversity maintains the health of ecosystems and the ecological services they provide to society. Natural lands play a key role in sustaining ecosystems and *Manitoba's Protected Area Initiative* (PAI) seeks to create a network of protected lands representing the biodiversity of each of Manitoba's natural regions. There are 35 species of plants and animals designated under *Manitoba's Endangered Species Act*.

Challenges such as climate change and increased water demand will have implications for both water quality and quantity. Manitoba now has 17 integrated watershed management plans, either completed or in progress, to guide water stewardship and planning to ensure adequate water quality and quantity for future generations. Fish and other aquatic organisms are essential aspects of biodiversity and effective riparian zone management and sustainable land and watershed management will also have positive impacts for Manitoba's fishery.

Air quality affects both human and ecosystem well-being. Monitoring air quality is important and taking action on pollutants from sources such as motor vehicles, industry, stubble burning and forest fires shows that we can improve air quality.



CHAPTER 2

ECONOMIC PERFORMANCE

Why is it important?

A strong economy is vital to Manitoba's sustained prosperity. Manitoba continues to expand and enhance its multi-faceted economic structure with strong sectors in manufacturing including food processing and aerospace, agriculture, transportation, service sectors including commerce and insurance, mining, forestry, energy, biotechnology and life sciences. This diversity provides stability in uncertain economic times. As well, our central geographic location, low hydro rates, research and innovation capacity, and reasonable cost of living are additional advantages that contribute to Manitoba's appeal as a place to live and invest.

Indicators and trends

Two key indicators used to track and monitor economic performance in Manitoba are:

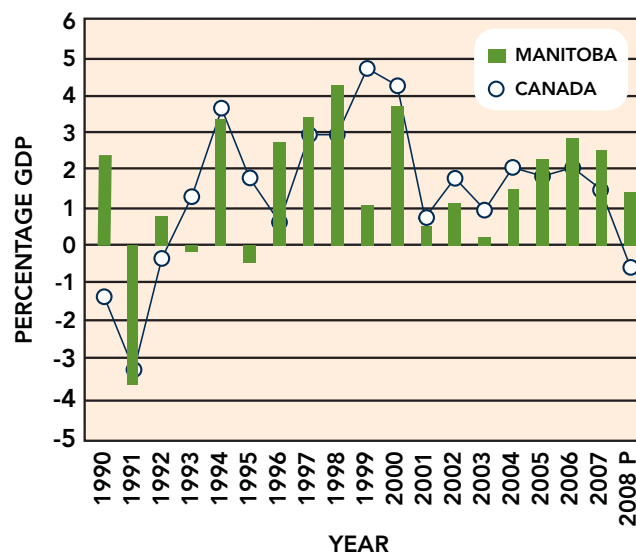
- **REAL GROSS DOMESTIC PRODUCT (GDP) PER CAPITA:** a measure of the total value of final goods and services produced within Canada per person, during a given year.
- **GROSS DOMESTIC PRODUCT (GDP) BY SECTOR:** a measure of the distribution of economic activity in Manitoba and the degree of diversification of the economy.

Real Gross Domestic Product (GDP) Per Capita

TREND - **POSITIVE**

Figure 2-1: Real Gross Domestic Product Per Capita Manitoba and Canada

Source: Manitoba Bureau of Statistics



Real GDP per capita provides a measure that accounts for the size of the economy (Figure 2-1). Manitoba Real GDP growth grew by 3.3 per cent in both 2006 and 2007, outpacing Canadian growth each of those years. Manitoba has now recorded an average of 3.0 per cent real growth over the past four years. Despite the global economic downturn, as of February 2008, Manitoba's real GDP is projected at 2.1 per cent for 2008, above the national average of 0.7 per cent. According to Statistics Canada's real GDP data, Manitoba has the most stable economy in Canada as measured by the least amount of variation in growth over a ten-year period.

In 2007, total real GDP per capita for Manitoba was estimated at \$34,579 per person, up 2.5 per cent from 2006. Over the past five years, Manitoba's real GDP per capita has increased by an average of 1.8 per cent annually. Since 1990, Manitoba's real GDP per capita has increased by 29.1 per cent from \$26,775 to \$34,579.

Real Gross Domestic Product (GDP) by Sector

TREND - **POSITIVE**

Figure 2-2: Industrial Share of Gross Domestic Product

Source: Manitoba Bureau of Statistics
Based on the North American Industry Classification System (NAICS)

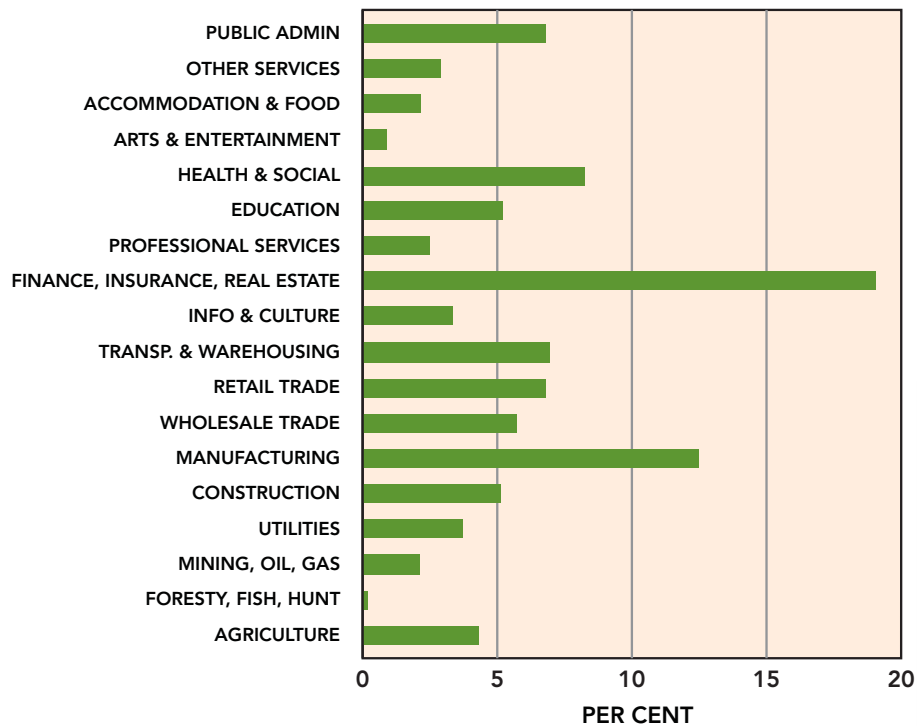


Figure 2-2 illustrates the diversity of Manitoba's economy. This diversity has provided Manitoba with economic stability and measured growth over the past decade. Manufacturing is the single largest industry and accounts for about **12 per cent** of Manitoba's real gross domestic product and for more than **70,000** jobs. Within manufacturing, processed foods and transportation equipment represent about **37 per cent** of shipments, with the remainder of industry shipments comprised largely of machinery, wood products, chemicals, fabricated metal products, plastics, furniture, printing, clothing and electrical products. Manitoba is also home to several major service sector operations including the head offices of two major financial corporations: Great-West Life and IGM Financial, and one of the country's largest media companies, CanWest Global Communications Corporation.

Manitoba's pattern of external trade is another contributing factor to our economic sustainability. Manitoba is the most export-oriented province in Canada. Total exports accounted for **63 per cent** of our economy in 2006, outpacing Canada's average of **60 per cent**. In 2007, international exports increased by **17.8 per cent**, compared to a **2.1 per cent** increase in Canadian export growth. The United States is our largest export market (**72 per cent** of exports); however, non-stateside exports increased by **50.4 per cent** in 2007. The average provincial ratio between international and inter-provincial exports is **3:2**. Manitoba is the most balanced among the provinces with a **1:1** ratio, providing some degree of stability from economic downturns.

IMPLICATIONS FOR SUSTAINABILITY

For 2006 and 2007, Manitoba's economy has been stable with steady growth, outpacing overall Canadian growth. This trend should continue despite the affects of a global economic downturn. As of February 2008, positive growth of **2.1 per cent** in 2008 and **0.8 per cent** in 2009 is predicted for Manitoba's economy. Diversity in the face of economic downturn promotes sustainability through the relative protection afforded by multiple and diverse sectors. Our economy is comprised primarily of small businesses and strategies such as Aboriginal skills training and upgrading or targeted immigration have been successful in offsetting skills shortages.

FOR MORE INFORMATION

More information on Manitoba's economy is available at:

- gov.mb.ca/finance/pdf/statistics.pdf - Manitoba economic indicators
- gov.mb.ca/finance/pdf/highlights.pdf - Manitoba Economic Highlights
- gov.mb.ca/finance/pdf/facts.pdf - Manitoba Economic and Fiscal Facts

AGRICULTURAL SUSTAINABILITY

Why is it important?

Agriculture is embedded in the socioeconomic and ecological fabric of the province. Agriculture is an important income-generating sector in Manitoba directly and indirectly contributing about 12 per cent of the province's GDP. More than 98 per cent of Manitoba farms are family owned. Agriculture employs over 30,000 people and covers 7.7 million hectares of the province's landscape.

As well as providing food and fiber, farmers play a key role in the development of Manitoba's bio-economy by producing green energy such as biofuels, wind power, biomass energy and biogas. Sustainable agricultural practices provide multiple environmental, social and economic benefits, including reduced GHG emissions, improved water quality, bio-diversity, enhanced farm profitability and new marketing opportunities for green agri-products. The recently completed Alternative Land Use Services (ALUS) pilot project in the Rural Municipality of Blanshard (the first of its kind in Canada), demonstrated that Manitoba farmers are very interested in preserving wetlands and riparian areas and protecting natural areas on their lands.

Vibrant rural communities are important to Manitoba. The ability of Manitobans to find off-farm employment in rural areas is one of the determinants of whether these communities can maintain their population base. The viability of agriculture plays an important role in Manitoba's sustainability.

Indicators and trends

The following key indicators reflect trends in the area of agricultural sustainability in Manitoba:

- **TOTAL NET FARM INCOME** which is measured by net cash income minus depreciation plus income-in-kind and value of inventory change.
- **FARM STRUCTURE** which is measured by the number and size of farms and the type of organization.
- **ADOPTION OF SUSTAINABLE AGRICULTURAL MANAGEMENT PRACTICES** which is evaluated through a number of measures including the development of environmental farm plans, adoption/continuation of sustainable agriculture practices (zero tillage, continuous cropping, crop rotations, cover crops, organic production), and sustainable application of chemical inputs (commercial fertilizer, herbicides, insecticides and fungicides).



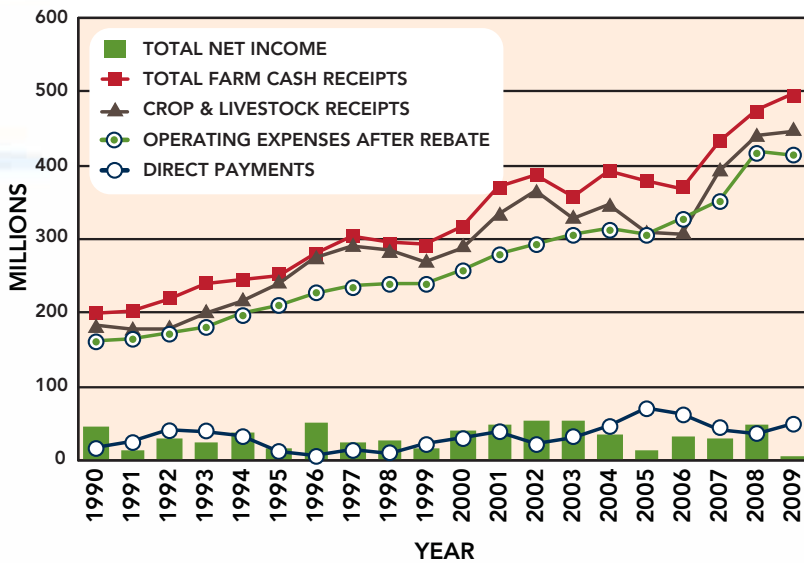
Total Net Farm Income

TREND - VARIABLE

Provincial net farm income has been somewhat variable; from a low of \$102 million in 1991 to a high of \$507 million in 2003. Net farm income for 2008 increased to \$452 million, from \$276 million in 2007. While market income can be extremely variable year to year, due to market and climate factors, government program payments have contributed to the stability of the industry over the last 20 years. Without government payments, net farm income would show a more pronounced downward trend and be negative in several years. Figure 2-3 illustrates the receipts and net incomes, as well as the program payments from 1990 to 2008.

Figure 2-3: MB Farm Income and Expense Estimates

Source: Industry Intelligence, Knowledge Management, MAFRI — February 18/2009



This farm income situation has resulted in a trend to earning more income from off-farm sources. The situation has been aided by opportunities to work in value-added processing of agricultural products.



The food processing sector comprises over one fifth of Manitoba's manufacturing industry sales. In the last 15 years, the value of food manufacturing sales (which includes all intermediate and final consumption goods processed in Manitoba) has increased by more than two billion dollars. The highest value contributor to Manitoba's food processing sector is meat product manufacturing, comprising over 40 per cent of total food manufacturing sales. Growth in meat product manufacturing can be attributed in large part to hog processing.

Manitoba has recently supported growth in food product manufacturing through a variety of means including:

- **strategic investment in infrastructure to support processing**
- **investments in the Food Development Centre to help new and expanding businesses develop and commercialize new food products**
- **the Manitoba Agri-Innovation Suite, which supports all phases of agri-product commercialization**
- **the Value Chain Manitoba Program, which helps supply chains to gain competitive advantage by better responding to the needs of the consumer**

Farm Structure

TREND - INCREASING CONSOLIDATION

Information related to general farm structure is provided in Table 2-1. The number of farms in Manitoba has declined from approximately 35,000 farms in 1971 to 19,054 farms in 2006. Farm consolidation has resulted in the average size of a farm increasing from 220 hectares (543 acres) in 1971 to 405 hectares (1,001 acres) in 2006.

Agricultural infrastructure has undergone numerous changes over the years, including the closure of railway and elevator branch lines. These changes and other reductions in rural services have forced producers to travel greater distances to deliver their production and purchase inputs resulting in higher costs of production. To become economically feasible, producers needed to reduce the average cost of producing a commodity. To take advantage of economies of scale, farms needed to operate on larger acreages.

Technological changes in machinery and equipment have also driven the change. Advances in farm equipment reduced the labour requirements, allowing producers to farm vast tracts of land with virtually the same labour. The purchase of this farm machinery required an increasing amount of capital and fewer individuals were willing to take on debt necessary to farm on a larger scale. Large cash outlays for farm equipment increased specialization.

Operators began producing larger quantities of a limited number of products. As a result, fewer farms were needed to meet the demand for agricultural products. Structural change took place and continues to take place today. In periods of low commodity prices, those producers who are not economically viable sell the farm with land being purchased by those who have more capital.

Table 2-1: Manitoba Farm Structure

	1971	1976	1981	1986	1991	1996	2001	2006
Farms and Finances								
Number of Census Farms	34,981	32,104	29,442	27,336	25,706	24,383	21,071	19,054
Average Size Census Farms								
Hectares	220	240	259	283	300	317	361	405
Acres	543	593	639	700	743	784	891	1,001
Area Rented/Leased								
Hectares	2,001,124	2,199,689	2,518,269	2,866,798	2,866,674	2,803,402	2,854,731	2,992,044
Acres	4,994,953	5,435,550	6,222,788	7,088,953	7,083,706	6,927,357	7,054,197	7,393,422
Average Capital per Farm	58,764	141,253	354,968	349,525	399,010	518,213	726,346	941,004
Type of Organization								
Sole Proprietorship	32,183	29,748	25,701	22,869	17,017	15,340	12,322	10,866
Partnership	2,094	973	2,653	3,229	7,075	6,847	6,394	5,467
Corporation								
Family	548	1,089	882	1,035	1,279	1,719	1,936	2,301
Other	67	165	85	81	207	372	356	361
Other	89	129	121	122	128	105	63	59

The proportion of farmland rented or leased from others increased steadily from 1971 to 1986. It remained relatively constant from 1986 to 2001 before again increasing in 2006. Farm organization has undergone a substantial shift towards partnerships and corporate structures. Some can be attributed to tax strategies for farm succession.

With increasing longevity, improved health and technological advances in farm equipment, many older farmers can manage their operations into their senior years. Succession planning is an important sustainability tool with an aging population. The Province of Manitoba has initiated programs to help inter-generational farm transfers and to encourage younger people to enter the industry. Manitoba Agriculture, Food and Rural Initiatives, in conjunction with the Manitoba Agricultural Services Corporation (MASC), offer the Succeeding Generations Program. This programming seeks to enhance the ability of young farmers to network and receive additional training to help them succeed in the agriculture industry.



Adoption of Sustainable Agricultural Management Practices

TREND - **POSITIVE**

Environmental Farm Plans

The Agricultural Policy Framework (APF), Environmental Farm Planning (EFP) and the associated Canada-Manitoba Farm Stewardship Program (2003) have together provided over **\$42 million** to producers over six years to foster the health of soil, water, air and biodiversity through incentives for Beneficial Management Practices (BMPs). The EFP process continues to be developed in the new federal/provincial/territorial agriculture policy agreement. BMP project uptake in Manitoba provides awareness of environmental risk and investment in infrastructure that will improve agricultural operations impact on the environment. Manitoba producers are leaders in Western Canada in the completion of EFPs and the adoption of BMPs to improve the sustainability of their operations. By 2008/09, more than **46 per cent** of Manitoba's farmland had been assessed through the EFP process, with the completion of **5,611 environmental plans**.

Soil Conservation Practices

Common soil conservation practices employed by farmers include:

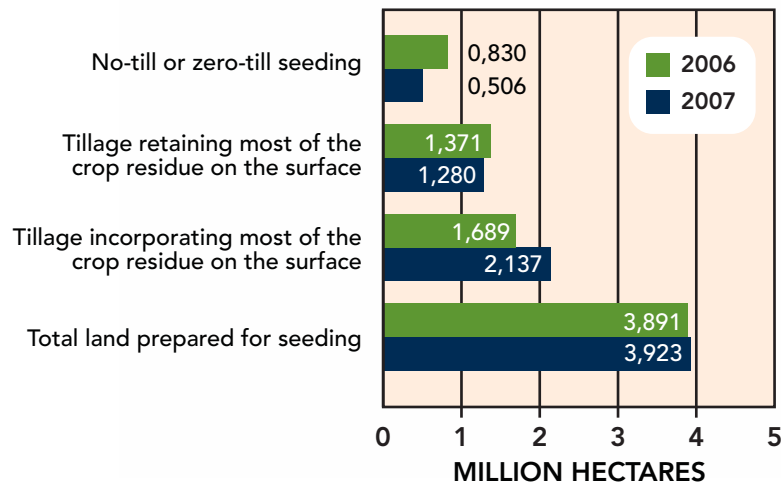
- **the use of minimum (conservation and no-till) tillage practices**
- **a reduction in the use of summer fallow (leaving fields bare without crop cover during the growing season)**
- **crop rotation**
- **winter cover crops**

In Manitoba, no-till methods were used on **21.3 per cent** of the land prepared for seeding in 2006, up from **12.9 per cent** in 2001 (See Figure 2-4) and **10 per cent** in 1996. Total acres of summer fallow land in Manitoba were **50 per cent** lower in 2006 compared to 2001, and are part of a long-term downward trend for this practice. Although the use of crop rotation remains a common soil conservation practice, the percentage of farms using crop rotations in Manitoba (**63 per cent**) has not changed between 2001 and 2006. The less common practice of using winter cover crops has doubled from occurring on **3.7 per cent** of farms in 2001 to **7.4 per cent** in 2006. As a result of these practices, soil organic matter (SOM) has been increasing on Manitoba cropland since the early 1980s to the point where agricultural soils in the province are now considered to be a net sink for carbon storage. ⁽¹⁾

(1) Source: AAFC, 2005. Environmental Sustainability of Canadian Agriculture Agri-Environmental Indicator Report Series, Report # 2.

Figure 2-4: Tillage practices used to prepare land for seeding in Manitoba, census years 2006 and 2001

Source: Statistics Canada, 2006 Census of Agriculture, Farm Data and Farm Operator Data, catalogue no. 95-629-XWE.



Organic Farming Practices

The number of certified organic farms in Manitoba increased by 117.8 per cent between 2001 and 2006. During that same time, the total number of farms decreased by 9.6 per cent. In 2006, there were 809 farms with organic production in Manitoba, 4.2 per cent of all farms in the province. Of the 809 farms reporting organic products in Manitoba, 24.2 per cent produced certified organic products; 6.8 per cent were in transition to becoming certified; and 74.2 per cent produced organic products but were not certified by a Certifying Agency.

The Manitoba Organic Transition Program (MOTP) is providing support for the growth and development of the organic sector in Manitoba. By encouraging more organic production and processing, the program is helping the industry expand by taking advantage of growing opportunities in the marketplace. Organics is the fastest growing sector in agriculture, with retail sales increasing at 20 per cent per year, yet production has not been able to keep up to the rapid growth in consumer demand for organic food.

Chemical Inputs Applied To Farmland

The area of farmland being treated by synthetic fertilizer and herbicides has been decreasing over the last ten years. The total land area on which commercial fertilizers were applied decreased by 2.2 per cent between 2001 and 2006 and by 9.9 per cent between 1996 and 2006. Similarly, the land area where herbicides were applied decreased by 10.0 per cent between 2001 and 2006, and by 6.2 per cent between 1996 and 2006. However, the area of land treated by insecticides and fungicides increased by 3.8 per cent and 4.6 per cent, respectively, between 2001 and 2006, with the latter increasing 98.8 per cent from 1996 to 2006.

Fertilizer sales, excluding mixed fertilizers, decreased to 838,000 tonnes in 2006 from 840,000 tonnes in 2005 and 943,000 in 2004. Sales have retreated from a record high of 1,000,000 in 2003 and are similar to the 837,000 tonnes purchased in 2001. Based on volume of sales, synthetic fertilizer inputs appear to have leveled off and may be decreasing. However, over the same period manure application to land would likely have increased due to an increase in provincial cattle (+10.4 per cent) and hogs (+15.4 per cent) populations between 2001 and 2006. Manure nutrient management is being regulated by new legislation through Livestock Manure and Mortalities Management Regulation (2006) under *The Environment Act* in conjunction with the implementation of BMPs such as improved manure handling and storage and nutrient management planning.

Manitoba Sustainable Agriculture Practices Program

Manitoba's agriculture sector has also begun to address the issue of greenhouse gas emissions. The Manitoba Sustainable Agriculture Practices Program (MSAPP) was initiated in 2008, with a focus on reducing GHG emissions in the agriculture by 2012, while providing environmental, social and economic co-benefits, including soil and water quality enhancement. The MSAPP will provide direct payments to producers to implement Beneficial Management Practices that reduce GHG emissions, strategic investment in research to build capacity for enhanced mitigation and adaptation and organize extension activities to support the implementation of BMPs.

Assurance of Food Safety, Quality, and Sustainable Food Supply

Consumers are demanding access to a safe, high quality, sustainable food supply. In response to this demand, and to ensure safety of food products, producers are implementing on-farm food safety programs. Food processors are implementing post-farm food safety systems such as Good Manufacturing Practices, Hazard Analysis Critical Control Points, and ISO 22000. MAFRI continues to assist and train producers and food processors to help implement these food safety systems.

Manitoba has introduced new legislation — *The Food Safety Act* — that would improve protection of food from farm to table. Under this act, Manitoba would not only ensure that any food safety issues at any point in the food system are addressed but would deal with significant disruptions in Manitoba's food supply caused by major emergencies such as a pandemic.

Traceability — the ability to track a product's flow or attributes throughout the production process and supply chain — is also attracting consumers' interest. Manitoba is developing the tools to ensure animals and food supply is traceable to place of origin.

The Northern Healthy Foods Initiative has been undertaken to improve the level of healthy food self sufficiency in northern Manitoba communities. In 2007, over 300 new gardeners received technical support for growing, preserving and preparing fresh vegetables in 27 remote northern communities.

IMPLICATIONS FOR SUSTAINABILITY

Because of the strong reliance on exports, the success of Manitoba's agriculture and agri-food sector hinges on global forces of change. The sector is competing in a global marketplace, where success is defined by knowledge, technology, agro-climatic variables (ex: heat units, frost free days, rainfall) and market access. Overall stability of the sector also masks the economic hardships faced by small farms that continue to pursue a commodity production system. Diversification can provide greater economic stability for the sector, farm communities and the overall provincial economy. The result is a primary agricultural sector characterized by income volatility and increased risk for producers.

Continued enhancement of the processing of Manitoba-grown agricultural products adds more economic impact in Manitoba versus shipping raw commodities to be processed elsewhere. The results are increased employment and wealth in Manitoba. Adding value to primary agricultural products lessens the impact of global market forces on raw commodity trading. Processing for local consumption reduces reliance on transportation compared to exporting primary agricultural products to processors out of the province and importing the processed products back to Manitoba for final consumption.

Consumer preferences in Canada and abroad for safer food and more environmentally-sustainable production and processing practices are increasingly important in making decisions about what, where and how to produce and sell. Food safety programming is essential to maintaining market access. Environmental responsibility is becoming an increasing priority for the industry. The adoption of sustainable agricultural practices helps to conserve soil, improve water quality, reduce greenhouse gases and enhance bio-diversity. Reduced synthetic inputs indicate a lower reliance on non-renewable resources such as fossil fuels, increased energy efficiency, reduced risk of environmental contamination and lower input costs for farmers.

Government has undertaken many initiatives over the years to provide for agricultural sustainability and producers have responded through active participation and co-operation. The partnership between the province and Agriculture and Agri-Food Canada to implement the Growing Forward agricultural policy framework sets the stage for continued innovation and adaptation to ensure sustainable development.

FOR MORE INFORMATION

More information on agricultural sustainability is available at:

- gov.mb.ca/agriculture/

For specific program reference areas:

- Agriculture statistics: gov.mb.ca/agriculture/statistics/
- ALUS Pilot Project: gov.mb.ca/agriculture/soilwater/ecological/feg01s00.html
- Agri-Environment: gov.mb.ca/agriculture/soilwater/
- Organic production: gov.mb.ca/agriculture/organic/
- Food safety/quality/processing: gov.mb.ca/agriculture/food/

MINING

Why is it important?

Mining and mineral products are indispensable in our daily lives. Their contributions to our material well-being and comfort are often overlooked in public discussions of sustainability issues.

Mineral resources are non-renewable. Manitobans use minerals in many forms and combinations and incorporate them into a wide range of products. In fact, mineral products underpin our society's well-being. For example, nickel, copper and zinc are all produced in Manitoba mines and are essential in the manufacturing of motor vehicles, buses, airplanes, industrial equipment, home appliances, recreational products and health care equipment. Petroleum is used in manufacturing a variety of plastic products and farm and garden fertilizers. Petroleum also fuels cars, heats homes and drives industry. Manitobans use construction materials, such as sand, gravel, limestone, gypsum to build homes, roads, railway lines and sewer and water infrastructure. Mining is also a vital component of the economy. It provides significant employment opportunities and tax revenue to help pay for important health and social programs. It is the second leading primary resource sector after agriculture. Much of Manitoba's mineral product is exported and significantly contributes to the province's merchandising export.

Indicators and trends

The following key indicators reflect trends in the area of mining in Manitoba:

- **MINERAL EXPLORATION** which is a reflection of the future of the mining industry, which needs active and healthy investment levels for mining exploration to replace existing reserves.
- **MINERAL RESERVES** which are the quantity of proven or probable reserves at a producing mine reflecting the anticipated life of the mine.
- **MINERAL PRODUCTION** which is a reflection of the economic contribution that the sector makes to Manitoba's gross domestic product.



Mineral Exploration

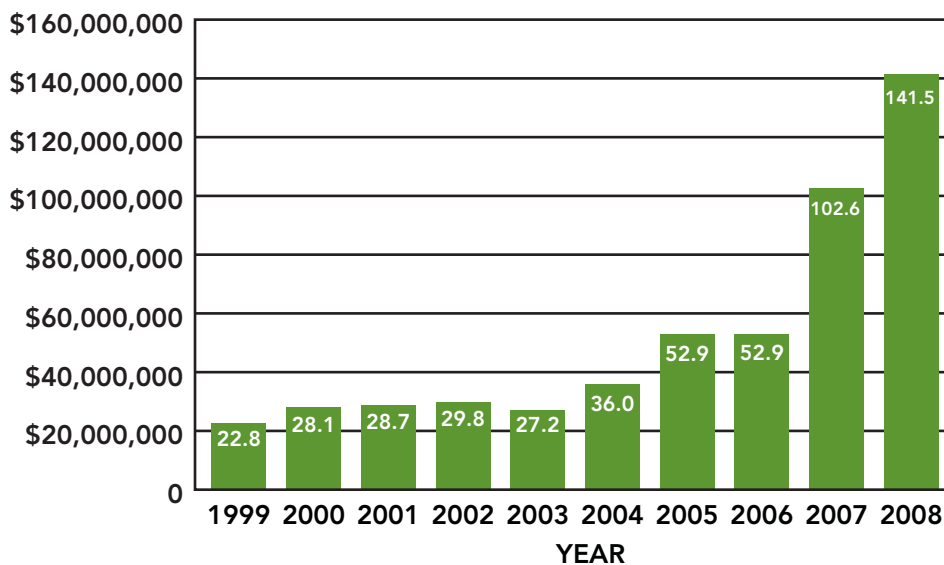
TREND - **POSITIVE**

Mineral exploration and development are the future of the metal mining industry. To sustain the mining industry over the long term, new economically viable mineral deposits must be discovered and put into production. Mineral exploration is a financially high-risk venture typically based on past and current mineral exploration activities within a favourable geological setting. It is a lengthy and expensive process.

In Manitoba, mineral exploration increased significantly in the past five years which can be attributed to Manitoba's positive business climate, high commodity prices as well as favourable geology (Figure 2-5). In fact, for the past 10 years, the annual Fraser Institute Survey of Mining Companies has ranked Manitoba as one of the top ten jurisdictions worldwide for its mineral policies.

Figure 2-5: Mineral Exploration and Deposit Appraisal Expenditure in Manitoba 1999-2008

Source: Natural Resources Canada



Mineral exploration expenditures represent all field activities including capital, repair and maintenance expenditure carried out (on or off mine sites) to search for, discover and carry out the first delineation of a previously unknown mineral deposit to establish its potential economic value.

Mineral Reserves

TREND - **STABLE**

Estimates of Manitoba mineral reserves come from Natural Resources Canada (Table 2-2). The ore reserves are estimates from information contained in annual, and other corporate reports, and from responses of mining companies to the annual Federal-Provincial Survey of Mines and Concentrators. Reserves reported only include metal contained in material that is classified by mining companies as proven or probable at producing mines and in deposits that are committed to production.

Table 2-2: Manitoba Reserves of Metal (in tonnes)

Source: Natural Resources Canada

METAL	1999	2000	2001	2002	2003	2004	2005	2006	2007
Copper	509	485	417	115	554	485	469	499	454
Nickel	1025	949	893	802	745	568	476	451	439
Lead	0	5	4	3	0	0	0	0	0
Zinc	893	1122	958	401	1166	1044	935	1027	951
Silver	579	615	528	100	587	555	490	530	527
Gold	79	65	46	10	47	41	47	50	48

The sustainability concept recognizes that mineral resources are non-renewable and that new economically viable deposits must be continually discovered and put into production to sustain the economic and social benefits the industry generates. For example, the mining industry has prospered in the Flin Flon mining district for over 75 years through the continual discovery of new mines. The long-term trend in recent times has been stable with newly discovered reserves keeping up with those that are mined. Manitoba has worked very diligently to enhance the business climate for mining activity. By maintaining exploration levels, it is anticipated that new reserves will be discovered providing community stability and the economic and social benefits that the mining industry offers.

Mineral Production

TREND - **POSITIVE**

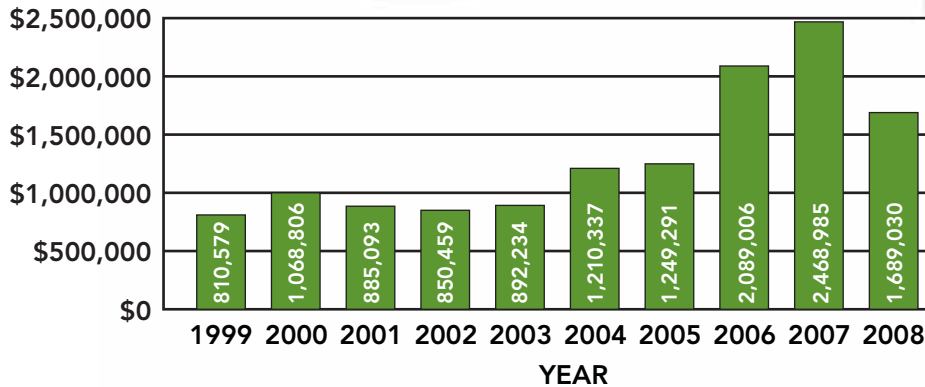
Mining, milling, smelting and refining industries are major contributors to the Manitoba economy, providing raw materials, exports and employment opportunities (Figure 2-6). Mining can dominate local economies and, in fact, the viability of some northern communities is highly dependent on mining.

Mining activity provides 6.0 per cent of provincial Gross Domestic Product and provides direct employment for 5,200 people and indirect employment for 18,000 people.

Figure 2-6: Total Value of Mineral Production - 1999-2008

Source: Natural Resources Canada

note: Mineral production represents the total value of Manitoba's mineral production by Natural Resources Canada



IMPLICATIONS FOR SUSTAINABILITY

The mining sector is a cornerstone of the provincial economy and is integral to job creation and community development, particularly in northern Manitoba. To maintain a healthy northern economy and provide community stability, the ongoing success of the mining industry is critically important. Canadians and Manitobans enjoy a high standard of living, which is dependent, in part, on our ability to export goods and services internationally. The mining industry in Manitoba produces significant wealth, averaging greater than \$1 billion annually, and also contributes to the balance of payments at about 10 per cent of provincial exports. The success of the mining sector helps enhance long-term economic and social benefits provincially.

Sustainability within the mining sector requires that Manitoba and the mining industry use minerals and other natural resources to support our economic, social and environmental well-being in a manner that does not damage or diminish prospects for future generations. Manitobans need to ensure that mineral exploration, development and extraction, and the products derived from these activities are able to maintain and improve our living standards, while allowing future Manitobans to live equally well, or better, in a cleaner environment.

Manitoba has adopted the principles of sustainable development as a cornerstone of public policy. The mining and oil and gas sectors in partnership with the province have committed to continually improving their environmental performance. For example, the oil and gas industry, in partnership with Manitoba, have created a pilot project for carbon sequestration in the Sinclair Field. The project will determine if it is feasible to capture CO₂ from large industrial emitters in Manitoba and inject the CO₂ in existing oil pools to increase oil recovery while storing the CO₂ underground. The enhanced oil recovery process has the potential to increase oil production and simultaneously reduce greenhouse gas emissions.

Manitoba's current mining regulations provide the framework to support and expand the mining industry while protecting the environment and meeting the safety, health and economic needs of communities. However, a legacy of orphaned and abandoned mines poses environmental, health, safety and economic risks to communities, the mining industry and governments.

In Manitoba, 149 sites have been identified as orphaned or abandoned. The province, working in partnership with industry and communities, is committed to the rehabilitation of all former mines. All sites have been inspected for safety and environmental hazards and scheduled for rehabilitation. Work has started, or is ongoing, at five high-priority sites and other sites across the province. Long-term rehabilitation plans are being developed for 31 sites identified as high-hazard. The goal is substantial completion of rehabilitation on the five high-risk sites and the 31 high-hazard sites by December 31, 2012.

Developing and applying new technologies and best practices within each industrial sector is significantly advancing environmental management, contributing to the long-term sustainability of Manitoba's mining and petroleum industries and our communities as well as creating a cleaner and healthier environment for all Manitobans.

FOR MORE INFORMATION

More information on Manitoba's mining and petroleum resources is available at:

- manitoba.ca/minerals



ENERGY EFFICIENCY AND CONSERVATION

Why is it important?

Investments in energy efficiency and development of renewable energy sources will ensure a sustainable and secure energy future for Manitoba. Accelerating energy and water efficiency throughout the residential, commercial and industrial sectors reduces Manitobans' utility bills, creates economic development, and increases electricity exports. Efficiency and renewable energy development also help to lower greenhouse gas emissions not only in our province, but in other North American jurisdictions that import electricity generated here. Significant reductions in the consumption of imported, non-renewable fuels, such as refined petroleum products and natural gas can also offset the economic leakage resulting from Manitobans consuming over \$5 billion annually in fossil fuels.

Indicators and trends

The following key indicators reflect trends in the area of energy efficiency and conservation in Manitoba:

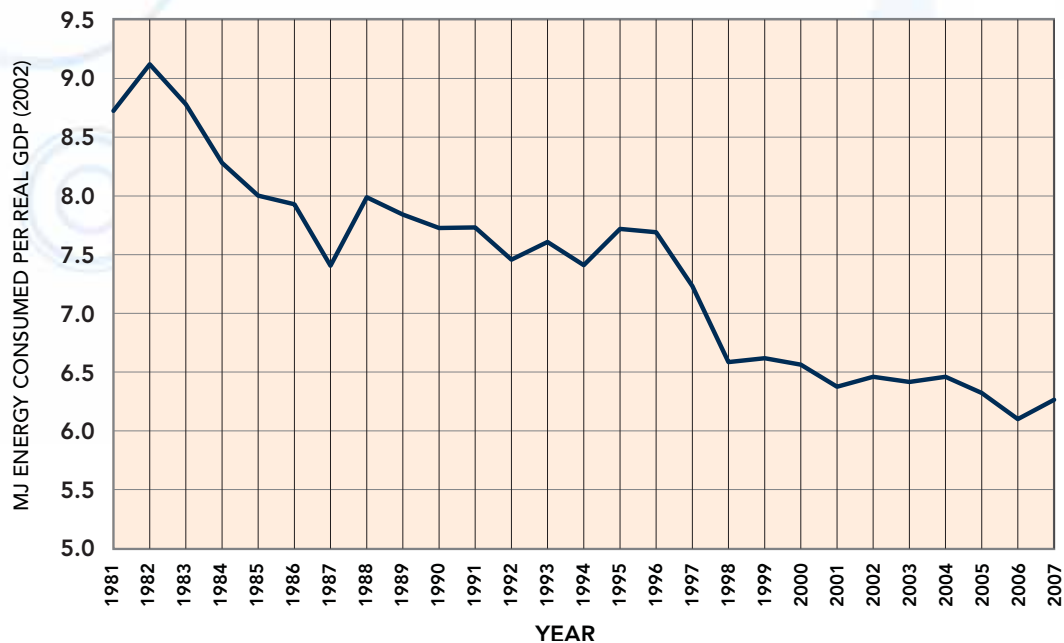
- **ENERGY INTENSITY** which is measured by the ratio of energy consumed to real gross domestic product (GDP).
- **RENEWABLE ENERGY CONSUMED VERSUS TOTAL ENERGY CONSUMED** which is expressed as a percentage.

Energy Intensity

TREND - **POSITIVE**

Energy intensity is defined as the ratio of energy consumed to Real GDP. A decrease in energy intensity can indicate improvements in energy efficiency. Figure 2-7 shows that Manitoba experienced a 17 per cent reduction in energy intensity over the five-year period from 1996 to 2001 and a 30 per cent overall reduction from 1982 to 2001. Energy intensity stabilized from 2001 to 2004, followed by a three per cent reduction from 2004 to 2007.

Figure 2-7: Manitoba Energy Intensity



Several major factors may have contributed to the decline in energy intensity:

- **energy efficiency and market transformation efforts in areas such as LED lighting, compact fluorescent lighting, high efficiency furnaces, and insulation programs. For example, over 15,000 Manitoba families have upgraded to high efficiency furnaces and 12,000 families have upgraded their home insulation**
- **increased insulation requirements for new homes, from R12 to R20, implemented in the Manitoba Building Code and one of the highest requirements in Canada**
- **improved efficiency in energy and hot water using products, in the residential, institutional, and commercial sectors**
- **consumers in the residential, and commercial sectors switching from refined petroleum products and natural gas liquids to electrical energy (refined petroleum products and natural gas liquids are less efficient for space heating than electrical heat), or ground source heat pumps**
- **displacement of natural gas with electrical energy in the industrial sector**
- **improved processing efficiencies in the industrial sector**

Energy efficiency and conservation are a priority as demonstrated by the Green Building Policy for Government of Manitoba Funded Projects. Implemented in April 2007, the Policy requires provincially-funded new buildings and major renovation projects to achieve a minimum of a LEED Silver rating; be at least 33 per cent better than the Model National Energy Code of Canada for Buildings; and give preference to renewable, low carbon energy sources where they are cost-effective. The policy is one of the first of its kind in North America in that it captures almost all publicly-funded projects. This is an important policy both economically and environmentally because it ensures that large government funded projects are designed to minimize their long term consumption of energy, and water. This also reduces operating costs and greenhouse gas emissions.

Renewable Energy Consumed Versus Total Energy Consumed

TREND - POSITIVE

The ratio of renewable energy to total energy consumed in Manitoba increased from 18 per cent in 1980 to 26 per cent in 2007 as demonstrated in Figure 2-8. Improvements in energy efficiency and the use of clean renewable power contributed to this increase. The ratio will continue to increase through energy efficiency activities and the implementation of new and sustainable initiatives, such as wind farms, increased use of ground source heat pumps and biodiesel fuel sources.

Renewable energy sources include hydroelectricity, geothermal, biomass, biofuels, solar and wind energy. Manitoba has a significant advantage when it comes to renewable energy development. Renewable hydroelectricity accounts for approximately 95 per cent of our domestic electric energy consumption. Manitoba is advancing on new hydroelectricity projects to meet our own demands and export opportunities. The 200 MW Wuskwatim generating station is currently under construction and is scheduled to be online in 2011. Planning is also underway for:

- **modernization of the Pointe du Bois generating station, increasing its capacity from 78 MW to approximately 120 MW with a proposed in-service date of 2015**
- **the 695 MW Keeyask generating station, scheduled for a 2018 in-service date**
- **the 1485 MW Conawapa generating station, scheduled for a 2022 in-service date**

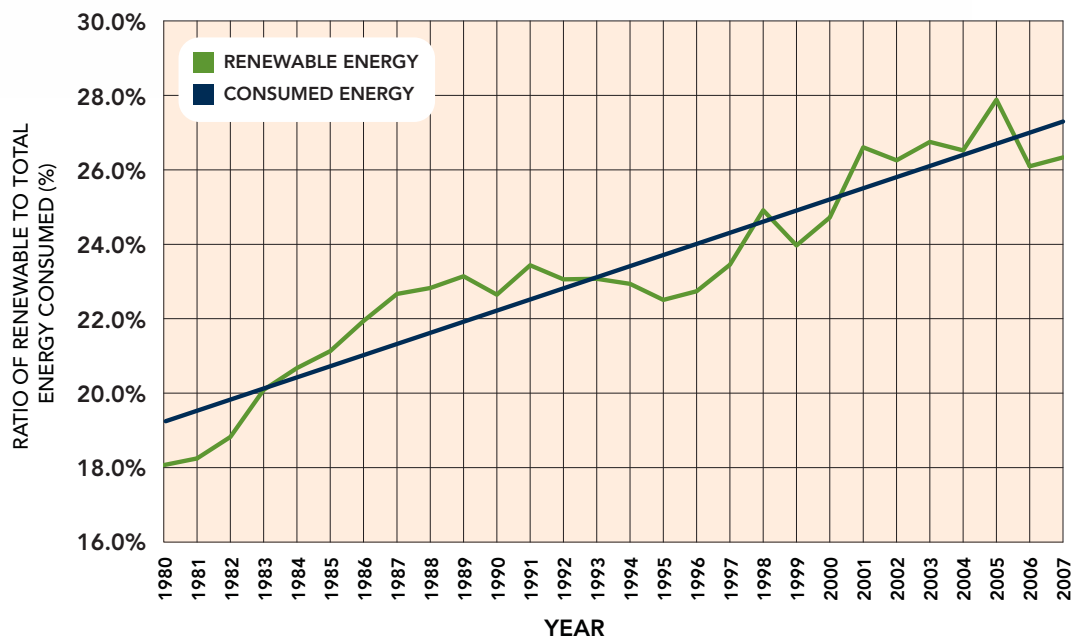
Manitoba is also fortunate in having a world class wind resource. In 2006, the St. Leon wind farm was constructed. This wind farm generates 99 MW of wind power from 63 wind turbines. The proposed St. Joseph wind farm will bring an additional 300 MW of wind power to southern Manitoba. Subject to successful negotiations, St. Joseph wind farm could begin delivering power in 2011.

Regarding the fossil fuel sector, Manitoba put an ethanol mandate in place on January 1st, 2008, requiring fuel suppliers in the province to replace at least 8.5 per cent of their gasoline available for sale with ethanol. This pool average will result in a requirement for roughly 130 million litres of ethanol annually which will mainly be supplied from Husky Energy's new plant at Minnedosa. It is estimated that a plant of this size will require 350,000 tonnes of locally grown feed wheat and corn and produce in addition to the ethanol, 125,000 tonnes of distillers' grain, a high protein non-animal based livestock feed. It is estimated that the ethanol consumed each year will reduce greenhouse gas emissions by over 135,000 tonnes and the locally-produced ethanol and distillers' grain will reduce financial outflows from the province of \$65 to \$70 million.

Manitoba is also planning to introduce a biodiesel mandate in 2009 as a renewable replacement for diesel fuel at an initial pool average of two per cent. One commercial biodiesel plant has been licensed under *The Biofuels Act* and two other commercial facilities are under construction with completion and commissioning expected by the summer of 2009.

It should also be noted that Manitoba continues to be leader in North America in heat pump installations on a per capita basis. There are now over 6,000 residential heat pumps installed in the province.

Figure 2-8: Renewable Energy Consumed Versus Total Energy Consumed



IMPLICATIONS FOR SUSTAINABILITY

Manitoba's leadership and efforts in the area of energy efficiency and conservation are recognized nationally and earned the province an "A+" rating from the Canadian Energy Efficiency Alliance in 2007. This was up from an "A" in 2005 which means that Manitoba continues to rank first in Canada. In fact, Manitoba has the highest per capita spent on electric efficiency in the country. These efforts and our continued investment in a diversified renewable energy portfolio reflect the vital importance of energy to Manitoba's future.

Our predominately hydroelectric system is a clean source of energy that helps Manitoba minimize its greenhouse gas emissions and reduce those of neighboring jurisdictions many of whom depend on coal and natural gas to generate electricity. This reduction in fossil fuel consumption in Canada and the American Midwest is a positive contribution to addressing climate change. Development of new hydroelectric projects and other renewable energy sources such as wind, biofuels, and ground source heat pumps, will ensure the security and sustainability of our energy supply from both an environmental and economic perspective.

Electricity production and consumption represents only a part of our overall energy picture. Refined petroleum products and natural gas are still the dominant fuels in Manitoba. Our transportation sector, accounts for almost a third of all energy consumed in Manitoba. Hydrogen fuel-cell and plug in hybrid electric vehicles may contribute to the transportation industry's transition to greater environmental and economic sustainability. Winnipeg is the leading vehicle production centre in North America for buses and New Flyer Industries is the largest manufacturer of hybrid transit buses in the world.

FOR MORE INFORMATION

Information on energy efficiency, conservation, and renewable energy initiatives is available at:

- <http://www.gov.mb.ca/stem/energy/index.html>

Information on Manitoba Hydro is available at:

- www.hydro.mb.ca



CONSUMPTION AND WASTE MANAGEMENT

Why is it important?

The earth's ability to sustain human development and assimilate its impacts is limited. The impacts of some forms of waste know no boundaries and the associated costs can be passed on to future generations. The legacy of more waste includes increased health risk and cost to society and higher potential for environmental degradation. It also leads to economic loss by failing to recognize that waste from one form of economic activity may be a useful input to another. A comprehensive and effective system for waste management is a basic component of a sustainable society.

Indicators and trends

The following key indicators reflect trends in the area of consumption and waste management in Manitoba:

- **WASTE DISPOSAL** which is measured by tonnes of solid waste disposed in landfills represents materials taken out of the production and consumption cycle.
- **WASTE RECYCLED OR REUSED** which is measured by recovery in tonnes of waste materials from all sources.

Waste Disposal

TREND - **NEGATIVE**

Total waste disposed in Manitoba increased by 10.4 per cent, from 928,117 tonnes in 2004 to more than one million tonnes in 2006. Total waste disposed is the amount of non-hazardous waste disposed in public and private disposal facilities.

Waste disposed in Manitoba increased by 0.076 tonnes per capita from 0.793 tonnes per capita in 2004 to 0.869 tonnes per capita in 2006. Manitoba was ranked seventh of nine provinces in waste disposed per capita in 2006, which is above the national average.

Waste Recycled or Reused

TREND - **NEGATIVE**

Total waste diverted from landfill in Manitoba decreased from 157,492 tonnes in 2004 to 152,799 in 2006, while per capita diversion of waste materials from all sources declined by five kilograms to 130 kilograms per capita in 2006.

Residential Recovery Rate

The latest annual report of the Manitoba Product Stewardship Corporation (MPSC) shows an increase in the amount of residential materials diverted from landfill. The total amount of eligible materials recovered from residential recycling programs in Manitoba increased by more than four million kilograms from 64,766,163 kilograms in 2006/07 to 68,808,670 kilograms in 2007/08 (Table 2-3).

Table 2-3: Recovery of Residential Materials

Source: Manitoba Product Stewardship Corporation

ELIGIBLE MATERIAL CATEGORIES	TOTAL RECYCLED 2006-2007 (KGS)	TOTAL RECYCLED 2007-2008 (KGS)	CHANGE FROM PREVIOUS YEAR	AVERAGE KGS RECYCLED PER MANITOBBAN (2006 POP. = 1,170,300)
Newspapers, Magazines, Flyers & Telephone Directories	34,747,628	36,460,354	1,712,726	31.15
Corrugated Cardboard (OCC)	9,148,516	9,701,547	553,031	8.29
PET Plastics	2,162,710	2,403,418	240,708	2.05
4, 5, & 7 Rigid Plastics	905,960	1,091,802	185,842	0.93
Glass Containers	5,430,166	5,779,403	349,237	4.94
Boxboard	5,496,882	5,841,826	344,944	4.99
Aluminum Cans	926,459	1,035,668	109,209	0.88
Metal Cans	2,567,909	2,792,798	224,889	2.39
Polycoat & Aseptic Containers	1,065,067	1,170,420	105,353	1.00
HDPE Containers	2,314,866	2,531,434	216,568	2.16
Total Eligible Materials	64,766,163	68,808,670	4,042,507	58.80

The Waste Reduction and Prevention Act (1990) provides the legislative authority for waste reduction programs in Manitoba. Regulations under the act have established authorities that are accountable to the Conservation Minister for achieving specific waste reduction goals and to operate transparently to the public and stakeholders.

More than 90 per cent of Manitobans have access to multi-material recycling, which has continued to increase since the Manitoba Product Stewardship Corporation (MPSC) was established under The Multi-Material Stewardship (Interim Measures) Regulation in 1995. MPSC works in partnership with local governments to improve recycling systems through support payments, education programs and technical assistance. MPSC is funded through a two-cent distributor paid levy, on all non-deposit and non-dairy beverage containers sold in Manitoba.

In December 2008, the Manitoba Government passed a new regulation, The Packaging and Printed Paper Stewardship Regulation, under *The Waste Reduction and Prevention (WRAP)*, which will strengthen support for Manitoba's multi-material recycling program and build on the successful blue box program managed over the past **14 years** by MPSC.

The regulation is based on extended producer responsibility (EPR) and makes the stewards of packaging and printed paper responsible for organizing and supporting a program to recycle those materials and reduce litter. Stewards are companies and people who sell or distribute packaging or printed materials in Manitoba.

Several industry associations representing stewards have joined together to form Multi-Material Stewardship Manitoba (MMSM) to develop a program plan, based on requirements outlined in the regulation and accompanying Guideline for Packaging and Printed Paper Stewardship and Guideline for Plastic Bags.

In November 2006, a new Tire Stewardship Regulation based on EPR was passed, initiating a process to establish Tire Stewardship Manitoba (TSM) an industry organization. Following approval of TSM's program plan in September 2007, the organization assumed responsibility for management of used tires in Manitoba on April 1, 2008. The former Tire Stewardship Board (TSB) and accompanying regulation will be dissolved in 2009.

The Used Oil, Oil Filters and Containers Stewardship Regulation prohibits sale of lubricating oil products unless the vendor is registered and belongs to the stewardship program operated by Manitoba Association for Resource Recovery Corporation (MARRC). MARRC has **153 members** and, as part of their membership agreement, vendors must pay environmental handling charges based on product sales. In total, **53 eco-centres** have been established in partnership with municipal governments. There are **22** privately operated depots to collect used oil, filters and containers. MARRC's new five-year business plan for used oil management was approved in December 2007. The MPSC, TSB and MARRC spent approximately **\$15 million** in 2007 on multi-material, tire and oil-recycling programs.

Current waste management mechanisms and initiatives promoting sustainability also include environment protection taxes (EPTs) of **five to 10 cents**, applied to liquor beverage containers and a seven per cent provincial sales tax (PST) applied to disposable diapers. These funds are allocated annually to the Sustainable Development Innovations Fund (SDIF) to support environmental sustainability projects.



IMPLICATIONS FOR SUSTAINABILITY

Economic progress in Manitoba has typically translated into increasing consumption of material goods. However, progress founded on the growth of material consumption too often means more waste. One of the key challenges of sustainable development is de-linking the two. Greater emphasis on awareness, participation and education to reduce waste is still required.

FOR MORE INFORMATION

More waste management information is available from the Pollution Prevention Branch of Manitoba Conservation at:

- gov.mb.ca/conservation/pollutionprevention/

Other links:

Green Manitoba

- greenmanitoba.ca

Manitoba Product Stewardship Corporation

- mpsc.com

Tire Stewardship Manitoba

- tirestewardshipmb.ca

Manitoba Association for Resource Recovery Corporation

- usedoilrecycling.com

Resource Conservation Manitoba

- resourceconservation.mb.ca

Manitoba EcoVille™ — on-line site for local recycling and sustainability information

- myecoville.com/ca/mb/home

Composting Council of Canada

- compost.org

Statistics Canada

- statcan.gc.ca



EMPLOYMENT

Why is it important?

Employment indicators reflect both the rate at which individuals seek work and the rate at which employers hire workers to produce goods, develop resources and provide services. In other words, they show the balance between supply and demand in the labour market.

Indicators and trends

The following key indicators reflect trends in the area of employment in Manitoba:

- **LABOUR FORCE TRENDS** which is measured by labour force participation rates, employment rates and unemployment rates.
- **LABOUR FORCE OPPORTUNITIES** which is measured by number of clients receiving employment and training services.
- **BUILDING AND MAINTAINING VIBRANT RURAL COMMUNITIES** as measured by the size of the rural labour force, the rural unemployment rate and the labour participation rate.

Labour Force Trends

TREND - POSITIVE

Labour Force Participation Rates – The labour force participation rate measures the percentage of the population that is either working or actively looking for work. It is also an indicator of the abundance of jobs, because people may be drawn into the labour market when there are opportunities to attain rewarding work. After decreasing in 2005, Manitoba's labour force participation rate is once again on the rise, increasing from 69.1 per cent in 2004 to 69.6 per cent in 2008.

Employment Rates – The employment rate represents the percentage of Manitobans aged 15 years and over who have paid employment or are self-employed. Since the previous report, Manitoba's employed workforce increased by 5.2 per cent, from 576,600 in 2004 to 606,700 in 2008. The employment rate rose from 65.4 per cent in 2004 to 66.7 per cent in 2008 (Table 2-4).

Aboriginal people in Manitoba have increased their employment rate and maintained their participation rate in recent years. Between 2001 and 2006, the proportion of Aboriginal people employed increased from 47.8 per cent to 50.1 per cent, while their participation in the labour force remained constant at 59 per cent. While these rates are lower than those for the province as a whole, the Aboriginal population is also much younger and therefore less likely to be established in the workforce. Manitoba's Aboriginal population has a median age of just 24 years compared to the median age of 40 for non-Aboriginals.

Unemployment Rates – Unemployment rates are an indicator of the opportunity for employment in the economy and the relative economic well-being of individuals. It can also be used as a measure of availability of labour for the expansion of industry and as an indicator of whether the skills held by the citizens of the province match those required by the evolving economy. Manitoba's unemployment rate continued to decline from 2004, decreasing from 5.3 per cent in 2004 to 4.3 per cent in 2006 and 4.2 per cent in 2008.

Since 2004, the unemployment rate in Winnipeg decreased from 5.6 per cent to 4.5 per cent in 2008. The North Central, Interlake, Southeast and Southwest regions, which previously had unemployment rates between 4.5 per cent and 4.9 per cent, all had lower unemployment rates in 2008, ranging from 2.8 to 4.2 per cent. The only region in Manitoba to see rising unemployment during this period was the South Central region, which still had lower unemployment than the provincial average (3.9 per cent). The lowest regional unemployment rate in 2008 was in the Southwest section of the province (Table 2-5).

In 2008, Manitoba experienced the largest decrease in unemployed persons in Canada. The largest regional unemployment rate decrease in recent years occurred in the Parkland and Northern regions. There, unemployment fell from 6.8 per cent in 2004 to four per cent in 2008. However, those living on reserves or engaged in a more traditional livelihood are not included in these Figures.

While Aboriginal unemployment rates remain much higher than the provincial average, there have been some very positive program developments to address these differences. Manitoba has signed agreements with a number of key hiring authorities (for instance, regional health authorities) to help develop Aboriginal hiring strategies and friendly workplace policies. As well, the Hydro Northern Training and Employment Initiative provides pre-construction training to prepare northern Aboriginal individuals to qualify for employment on proposed northern hydro construction projects, such as the major development in Wuskwatim. As the fastest growing and youngest component of Manitoba's population, improving the participation and employment of Aboriginal persons in the labour force is a promising strategy to address labour force shortages and promote regional development.



Table 2-4: Annual Participation and Employment Rates by Gender and Age Group, Manitoba

Data Source: Statistics Canada Labour Force Survey April 1, 2009

		15+	15 TO 64	15 TO 24	25+	25 TO 54
Participation rate both sexes	2004	69.1	81.1	71.3	68.6	88.8
	2008	69.6	81.0	72.2	69.0	88.7
men	2004	74.9	85.4	72.7	75.4	93.5
	2008	75.6	85.6	73.4	76.1	93.8
women	2004	63.4	76.7	70.0	62.1	84.1
	2008	63.7	76.2	71.1	62.2	83.5
Employment rate both sexes	2004	65.4	76.7	63.5	65.8	85.0
	2008	66.7	77.5	65.7	66.9	85.9
men	2004	70.7	80.6	64.2	72.2	89.4
	2008	72.4	82.0	66.0	73.9	91.0
women	2004	60.3	72.8	63.0	59.7	80.7
	2008	61.1	73.1	65.5	60.2	80.7

Manitoba Bureau of Statistics

Table 2-5: Annual Unemployment Rate by Economic Region, Manitoba, 2004 to 2008

	2004	2005	2006	2007	2008
Manitoba	5.3	4.8	4.3	4.4	4.2
Southeast	4.9	4.8	4.0	4.2	4.2
South Central	3.1	2.8	2.9	3.4	3.9
Southwest	4.4	4.9	4.1	4.1	2.8
North Central	4.5	4.3	2.6	3.0	3.7
Winnipeg	5.6	5.0	4.8	4.8	4.5
Interlake	4.6	4.9	2.8	3.4	4.0
Parklands & North	6.8	4.0	4.6	4.2	4.0

Labour Force Opportunities

TREND - **POSITIVE**

Employment and Training Services

Employment Manitoba provides a variety of labour market programs and services for individuals to prepare for, find and maintain employment, including employment and

career counseling/planning services and financial and other supports for skills enhancement and development. Services are delivered to over 30,000 clients each year through a province-wide network of sixteen Employment Manitoba Centres and third party service providers.

Since *The Adult Learning Centres Act* came into force in July 2003, Adult Learning Centres (ALCs) have helped adult learners upgrade their skills, complete their high school diplomas, or earn credits needed to access educational or employment opportunities. In 2006 and 2007, the ALCs served over 8,000 adult learners each year⁴. Around 1,200 adult learners are now graduating from ALCs annually, including over 400 Aboriginal graduates each year (Table 2-6 and 2-7).

Table 2-6: Labour force activity characteristics of the Aboriginal population - 2006 Census

	MANITOBA			CANADA		
	TOTAL	MALE	FEMALE	TOTAL	MALE	FEMALE
Total Aboriginal identity population 15 years and over	117,200	55,555	61,640	823,890	393,680	430,205
In the labour force	69,385	35,390	33,995	519,250	264,980	254,270
Employed	58,715	29,345	29,370	442,395	222,355	220,045
Unemployed	10,670	6,045	4,625	76,860	42,625	34,225
Participation rate	59.2	63.7	55.2	63.0	67.3	59.1
Employment rate	50.1	52.8	47.6	53.7	56.5	51.1
Unemployment rate	15.4	17.1	13.6	14.8	16.1	13.5
LABOUR FORCE INDICATORS FOR THE ABORIGINAL IDENTITY POPULATION – 2001 CENSUS						
Participation rate	59.0	64.8	53.8	61.4	66.8	56.5
Employment rate	47.8	51.1	44.8	49.7	52.5	47.1
Unemployment rate	19.0	21.2	16.7	19.1	21.4	16.7

Table 2-7: Data from Adult Learning Centres

	2004/05	2005/06	2006/07	2007/08
Learners registered at ACLs		8,446	8,300	7,929
ACL graduates	1,229	1,238	1,260	1,174
ACL graduates - Aboriginal		441	419	423

Building and Maintaining Vibrant Rural Communities

TREND - STABLE/POSITIVE

Over the period of 2001/2007, the size of the rural labour force increased. Unemployment in rural areas has been low throughout the entire period, and has dipped below **four per cent** in recent years. Increasing economic growth and aging of the rural workforce has put pressure on labour availability in rural Manitoba. Although the total number of workers has risen over the past eight years, the availability of skilled labour, especially trades, remains a challenge. See Table 2-8.

Table 2-8

STATISTICS CANADA LABOUR FORCE SURVEY - RURAL MANITOBA		
	2001	2007
Size of labour force	229,800	246,700
Unemployment rate	4.6%	3.8%
Participation rate	63.4%	63.7%

IMPLICATIONS FOR SUSTAINABILITY

The long-term trend of increasing participation and employment rates among Manitobans has continued through 2008. Low unemployment and the availability of rewarding work at home has pushed participation rates up to **69.6 per cent** of the population, indicating a positive outlook toward opportunities in a Manitoba economy with shared benefits and sustained growth. Further positive initiatives are under way which aim to enhance sustainable communities and development for all Manitobans. Continued enhancement of the processing of Manitoba-grown agricultural products adds more economic impact in Manitoba versus shipping raw commodities to be processed elsewhere. The results are increased employment and wealth, which help Manitoba communities prosper.

Regional hiring strategies and hydro developments aim to encourage further employment opportunities for the young and growing Aboriginal population. Adult education and training centres allow Manitobans to acquire the skills necessary in a changing economy and remain in Manitoba. Also, newcomers to the province are being better integrated with provincially funded English as an Additional Language courses, partnerships with over **200 community-based** immigrant service providers and more fair and transparent credential recognition for both immigrant and migrant workers who settle in Manitoba.

FOR MORE INFORMATION

- Manitoba Labour and Immigration: gov.mb.ca/labour/
- Manitoba Education: edu.gov.mb.ca/ael/
- Manitoba Agriculture Food and Rural Initiatives: gov.mb.ca/agriculture/community
- Manitoba Competitiveness Training and Trade, Northern Hydro Training Initiative: gov.mb.ca/tce/hnti/

EDUCATION

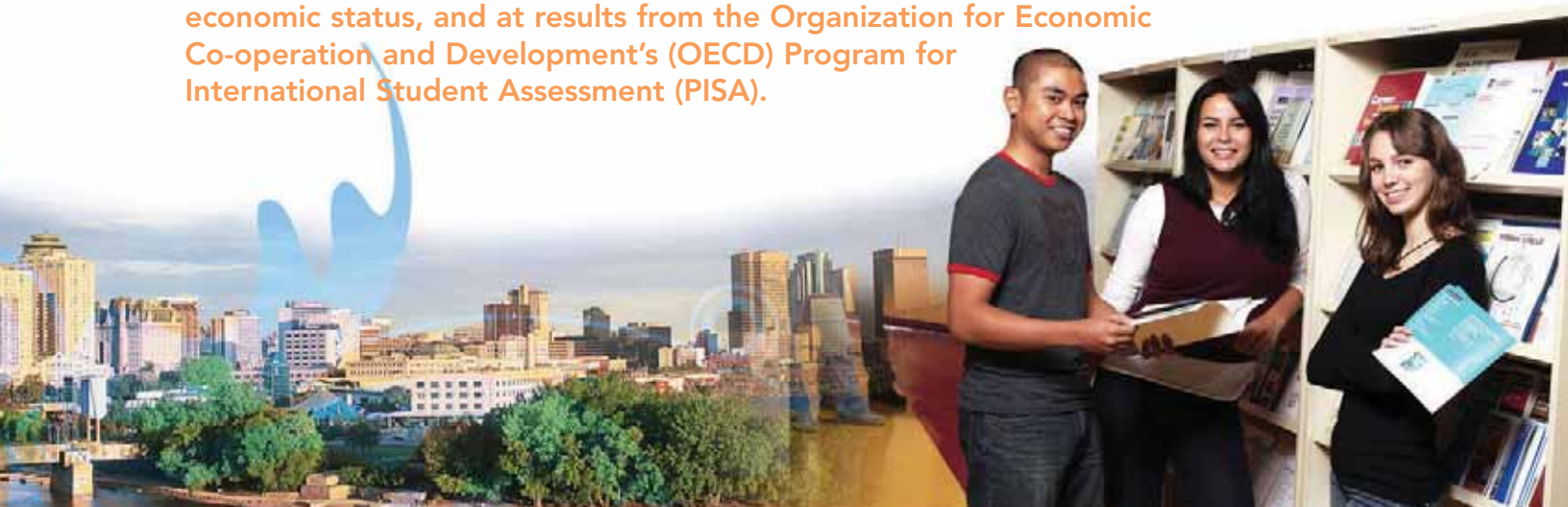
Why is it important?

An educated citizenry and a skilled and adaptable work force are considered among Manitoba's most important assets in our knowledge-intensive society. Instilling a strong learning foundation during children's formative years and providing accessible life-long learning opportunities for youth and adults are essential for the province's future well-being and economic prosperity. Linking education and sustainable development is a high priority in Manitoba. Education is the primary agent of transformation towards sustainable development, increasing people's capacities to transform their visions for society into reality. Educated citizens who have learned to make decisions that consider the principles, values and practices of sustainable development (education for sustainable development) will create a more sustainable future in terms of environmental integrity, economic viability and a just society for present and future generations in Manitoba. In pursuing these goals, a priority area for education in Manitoba is the presence of high quality, responsive educational opportunities for all students.

Indicators and trends

The following key indicators reflect trends in the area of education in Manitoba:

- **READINESS FOR SCHOOL of children as they move from kindergarten to Grade 1, which is measured by the Early Development Instrument and collected by kindergarten teachers.**
- **LITERACY AND NUMERACY which are measured by youth and adult international assessments, a pan-Canadian assessment program, provincial classroom-based reading and numeracy assessments at Grades 3, 7 and 8 and provincial summative assessments in language arts and in mathematics at Grade 12.**
- **HIGH SCHOOL AND POST-SECONDARY EDUCATION COMPLETION which are measured by high school graduation rates and post-secondary completions.**
- **ACADEMIC ACHIEVEMENT AND SOCIO-ECONOMIC STATUS which is assessed by looking at patterns in graduation rates across strata of socio-economic status, and at results from the Organization for Economic Co-operation and Development's (OECD) Program for International Student Assessment (PISA).**



Readiness for School

TREND - **POSITIVE**

School readiness is an important indicator of future learning success and achievement. Under the Healthy Child Manitoba Strategy, the Government of Manitoba supports many programs and initiatives that promote school readiness and healthy early childhood development of Manitoba's children. As a way to track the impact of these important investments, Manitoba uses the Early Development Instrument (EDI) to measure school readiness of Manitoba's children as they move from kindergarten to Grade 1.

Beginning in 2005/2006, the EDI has been collected by kindergarten teachers across Manitoba by all 37 of the provincial school divisions, though many school divisions have been collecting the EDI since 2002/2003. With two full provincial EDI collections completed in 2005/2006 and 2006/2007, the EDI is now collected on a biennial cycle, with 2008/2009 marked as the province's next collection year. The EDI, as a measure of children's readiness for school, provides valuable group-level data on the strengths and needs of communities, as related to the early childhood development of a community's children.

The EDI provides this group-level data on children's readiness for school across five areas of early childhood development:

- **physical health and well-being**
- **social competence**
- **emotional maturity**
- **language and cognitive development**
- **communication skills and general knowledge**

Despite significant gains over the past decade, gaps still exist between Aboriginal and non-Aboriginal people with respect to educational outcomes, particularly on-reserve. These gaps exist in every jurisdiction across Canada and are also apparent in Manitoba. Results from the 2005/2006 administration of the EDI indicate a large gap in readiness between Aboriginal and non-Aboriginal children at school entry in kindergarten. In Manitoba, approximately **45 per cent** of Aboriginal children are not ready for school, compared to **25 per cent** of non-Aboriginal children. The EDI is currently not collected on-reserve, with the exception of reserve schools partnered with the Frontier School Division. It is likely that EDI results for Aboriginal children on-reserve are similar to, if not worse than, for Aboriginal children off-reserve.

While it is important to have three years of data to interpret trends related to the school readiness of Manitoba's children, preliminary analyses comparing 2005/2006 and 2006/2007 provincial EDI data show the following:

- **The overall school readiness of Manitoba's children is generally comparable to Canadian results, regarding the proportion of children who are very ready and not ready (see Figure 2-9).**
- **Compared to the 2005/2006 and 2006/2007 EDI results, Manitoba has a lower proportion of children who are very ready and a higher proportion of children who are not ready in the language and cognitive skills area of development compared to the Canada results (see Figure 2-10).**
- **According to preliminary analyses, the proportion of children in Manitoba who are very ready appears to be increasing across all areas of development (see Figure 2-11). The proportion of children in Manitoba who are not ready appears to be decreasing across all areas of development (see Figure 2-12). It will be important to track whether improvements continue to be made, particularly in the area of language and cognitive skills.**

Figure 2-9:

Early Development Instrument (EDI): Proportion of Manitoba and Canadian children who are very ready and not ready in: **one or more areas of development**

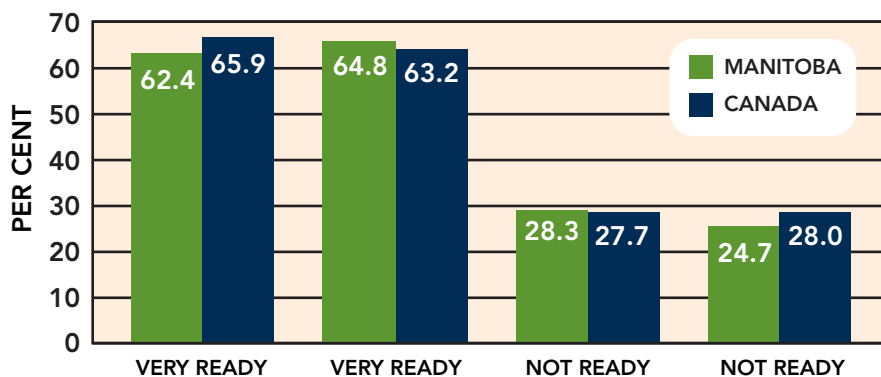


Figure 2-10:

Early Development Instrument (EDI): Proportion of Manitoba and Canadian children who are very ready and not ready in: **language and cognitive development**

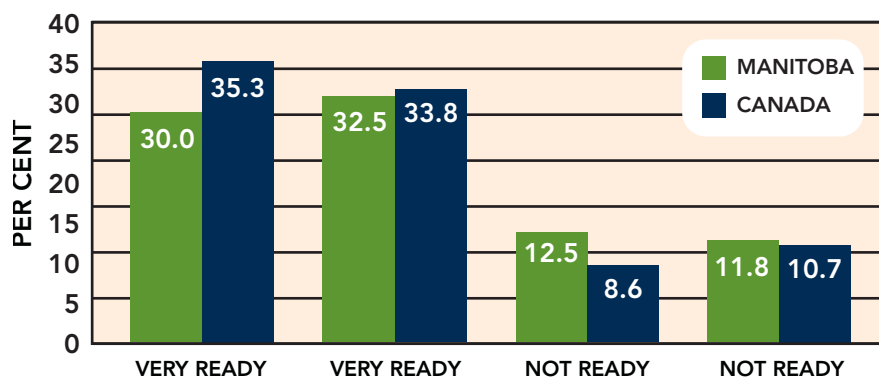


Figure 2-11:

Early Development Instrument (EDI): Preliminary trend analyses for proportion of children very ready in Manitoba for 2005/2006 and 2006/2007 in: **All five areas of development**

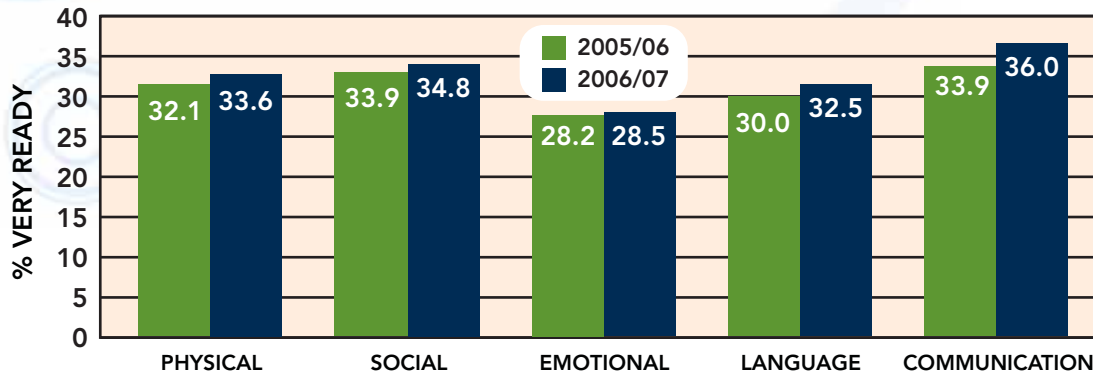
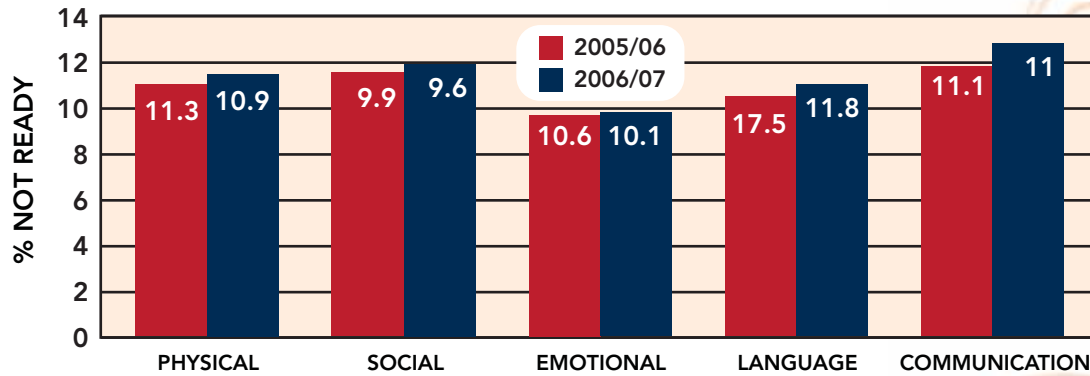


Figure 2-12:

Early Development Instrument (EDI): Preliminary trend analyses for proportion of children not ready in Manitoba for 2005/2006 and 2006/2007 in: **All five areas of development**

Source: Healthy Child Manitoba Office



Literacy and Numeracy

Youth TRENDS - **STABLE**

Adult TRENDS - **STABLE**

Early Years

Annually, since 2001, a classroom-based Grade 3 reading and numeracy assessment has found that the majority of Manitoba students have successfully mastered all reading competencies and most numeracy competencies expected at this stage of their schooling. Areas of challenge identified by teachers are number skills associated with addition and subtraction, a current focus for educators and the government. Financial support is available to schools to implement and evaluate programs that address numeracy and reading in the early years.

Middle Years

Beginning in the 2007/2008 school year, a new middle years assessment policy was introduced. It is a classroom-based assessment. In addition to number sense and skills (Grade 7) and reading and writing (Grade 8), this policy also focuses on student engagement with their learning in Grade 7. This focus highlights the importance of thinking about engagement at a time when students are often at risk of disengaging with their learning. First results indicate that from **65 per cent** to **75 per cent** of Grade 7 students regularly or quite often demonstrate being engaged with their learning. Most Grade 7 students are demonstrating appropriate number skills competencies, but number sense competencies are posing a challenge. At Grade 8, most students are approaching or meeting mid-grade achievement levels in the reading and writing competencies, with areas of challenge being critical response to text and conventions of writing (eg: spelling, grammar).

Middle and Senior Years

Manitoba participates in two large-scale assessments permitting evaluation of Manitoba students' academic performance in comparison to other jurisdictions. The Pan-Canadian Assessment Program (PCAP) was first administered in the spring of 2007 to 13 and 14-year-olds. In reading, the major domain of this study, Manitoba students ranked sixth among provinces, an improvement from a ranking of tenth when reading was last assessed at this age group in 1998 under the pan-Canadian School Achievement Indicators Program (SAIP). In mathematics, a minor domain in 2007 (less thoroughly assessed and with a smaller sample), Manitoba students ranked fifth, comparable to the findings of the SAIP 2001 mathematics assessment.

The second program is the Organization for Economic Co-operation and Development's (OECD) Program for International Student Assessment (PISA), administered in 2000 (reading was the major domain), 2003 (focus on mathematics), and 2006 (focus on science) to 15-year-olds in OECD and a growing number of PISA partner countries. In PISA 2006, Canadian students ranked second in reading (minor domain of the study) among OECD nations, and Manitoba students ranked fifth among provinces in Canada and performed slightly below the Canadian average. Looking at PISA 2003 when reading was also a minor domain, Manitoba students ranked sixth in Canada, with Canada ranking third among OECD nations.

In mathematics, Manitoban students ranked fifth in Canada in PISA 2006, while Canada ranked fifth among OECD nations. For PISA 2003 when mathematics was the major domain of the study, Manitoba ranked fifth in Canada while Canada ranked sixth among OECD nations. Both Manitoban and Canadian students have performed consistently above the OECD average in the domains of the PISA assessments since 2000, placing our students among those from the top-ranked countries of the world.

At Grade 12, a credit in language arts and a credit in mathematics are required for graduation. As part of provincial programming in assessment, students write a language arts provincial test and at least one of three mathematics tests which count for **30 per cent** of the final course mark.

In English language arts, pass rates for the past three years have been consistent at between **80 per cent** and **85 per cent** of students taking the test. In mathematics, pass rates have been between **75 per cent** and **85 per cent** of students participating in the tests over the past three years, ranging from **78 per cent** to **85 per cent** depending on the math course.

With regard to Aboriginal students in the K-12 provincial school system, Aboriginal identity data is collected by schools from parents/guardians through Aboriginal Identity Declaration (AID). MECY continues to work with educational partners to strengthen the collection of this data that supports program planning toward improved Aboriginal student success.

School divisions and individual schools are being encouraged to use achievement data that provincial assessment programs yield. This is being done through cyclical meetings with divisional senior staff and through providing information and support to teachers and other divisional staff about how data can be used to support learning.

Currently, information about the academic achievement of Aboriginal students, both in on-reserve schools and in public schools, is incomplete — the identification of Aboriginal students being one of the issues. Manitoba is working with partners in education and in the Aboriginal community to address this in a number of ways, including promoting Aboriginal self-identification and the participation of on-reserve schools in provincial, national and international assessments.

The patterns described above for early, middle and senior years can best be characterized as stable, with minor fluctuations over the past several years.

Adult Literacy

The Adult Literacy Act, enacted on January 1, 2009, committed the government to develop a provincial adult literacy strategy which is being developed, implemented and evaluated in collaboration with a wide variety of government and non-government stakeholders. The legislation also formalized the Manitoba Adult Literacy Program (MALP) as a component of the Adult Literacy Strategy.

Adult Literacy Programs help adult learners upgrade their literacy skills (reading, document use, writing, numeracy and other essential skills) to meet employment, training and and/or personal literacy related goals. In 2007/2008 over **2,700 adult learners** participated in adult literacy programming across the province, including approximately **31 per cent** who self declared as Aboriginal.

In 2003, Canada participated in the International Adult Literacy and Skills Survey (IALSS), which assessed literacy skills of adults aged 16 to 65. The assessment measured prose literacy, document use and numeracy. Canada's performance was in the middle when compared to other countries surveyed and ahead of the United States. Manitoba was generally situated at the Canadian average (Table 2-9).

Table 2-9: Literacy Statistics (IALSS, 2003) Total population 16-65 — 717,000

MANITOBA DISTRIBUTION BY LEVEL			
	PROSE	DOCUMENT	NUMERACY
Level 1	91,000 (12.7%)	93,210 (13.0%)	130,494 (18.2%)
Level 2	194,000 (27.0%)	192,873 (26.9%)	230,157 (32.1%)
Level 3	294,000 (41.0%)	294,687 (41.1%)	253,101 (35.3%)
Level 4/5	138,000 (19.3%)	136,230 (19.0%)	103,248 (14.4%)

High School and Post-Secondary Education Completion

TREND -

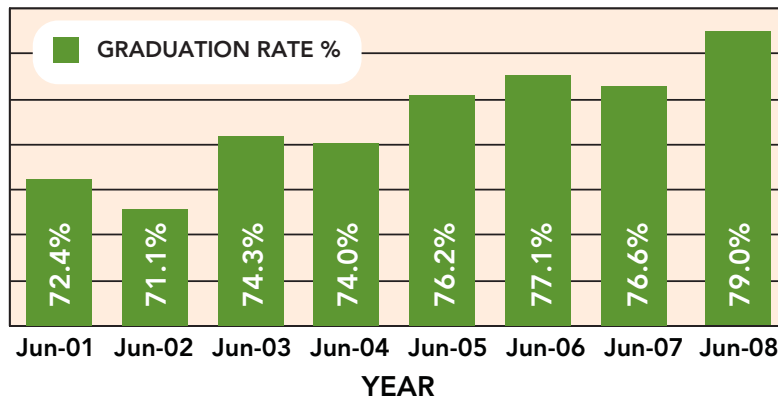
HIGH SCHOOL INCREASING;
POST-SECONDARY STABLE

Manitoba High School Graduation Rates for Public and Funded Independent Schools (Graduates divided by Grade 9 enrolment four years previous) is shown in Figure 2-13. Over the past decade, approximately 11,500 to 13,000 public and funded independent students have graduated annually from Manitoba high schools. In June 2001 the Manitoba graduation rate (public and funded independent high school graduates divided by Grade 9 enrolment four years previous) stood at 72.4 per cent. By June 2008, the combined graduation rate had increased to 79.0 per cent. This represents a 6.6 point increase over this time period.

Figure 2-13: Manitoba High School Graduation Rates

Source: Manitoba Education, Citizenship and Youth.

Manitoba High School Graduation Rate for Public and Funded Independent Schools. Graduates to Grade 9 Enrolment Four Years Previous - June 2001 to June 2008.



Adult Learning Centre Graduates - Adult Learning Centres (ALCs) provide tuition-free high school credit and upgrading courses for adults to obtain recognized educational credentials or necessary prerequisites to pursue further education and employment opportunities. The number of graduations (individuals obtaining a secondary education diploma) has been stable. In 2007/2008, there were 1,174 graduates.

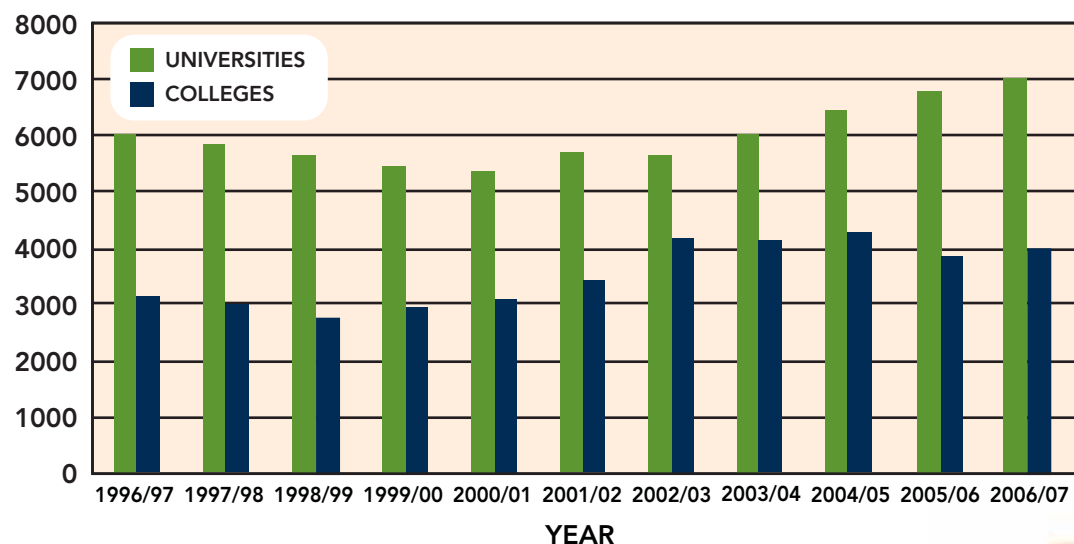
Post-secondary Education Completion – As shown in Figure 2-14, the number of university graduates declined each year between 1996/1997 and 2000/2001, but since then, has been steadily increasing. Over the last five years, the number of university graduates ranged between 5,000 and 7,000 per year. From 1999 to 2007, the number of university degrees granted increased by 27.3 per cent. The number of college graduates (diploma and certificate) averaged about 3,000 per year between 1996/1997 and 2001/2002, increased to just over 4,000 between 2002/2003 and 2004/2005, before dropping down again to just under 4,000. Overall, between 1999 and 2007, the number of college graduates increased by 37.9 per cent.

Figure 2-14: Manitoba University and College Graduate Counts (1996/1997 to 2006/2007)

College Graduates – includes day programs and full-time programs at regional centers and apprenticeship

University Graduates – includes regular and summer sessions

Source: Council on Post-Secondary Education



Academic Achievement and Socio-Economic Status

TREND - VARIABLE

The increasing rate of Manitoba youths graduating from high school was presented earlier. The relationship between income and high school graduation for Manitoba students has been studied by the Manitoba Centre for Health Policy. Significant differences between rural and urban areas were found with higher completion rates associated with higher area-level income. This remains an area of focus as we work to provide opportunities and avenues for high school graduation for all students.

Grade 12 Provincial English Language Arts Test, performance relative to socio-economic status

The Manitoba Centre for Health Policy (MCHP) examined data to explore the per cent of students who wrote and passed the Grade 12 English Language Arts Standards Test in the year that they should have written the test if they progressed through the school system in the anticipated way. Analysis revealed that 55.4 per cent of students born in 1984 passed the test on time (44.6 per cent either failed or did not write the test), while 59.3 per cent of students born in 1988 passed the test on time, indicating an increase of 3.9 per cent.

MCHP also reported that the per cent of students passing the test on time was significantly related to area-level income in both rural and urban areas in both time periods. Higher rates of on-time passing were reported in areas with higher income levels and lower rates were observed as income levels decreased.

Aboriginal people in Manitoba continue to have high-school educational attainment levels lower than the non-Aboriginal population. According to the 2006 Census, 41 per cent of Aboriginal people between the ages of 25 and 64 had not completed high school as compared to 17 per cent of the non-Aboriginal population.

Manitoba has made the improvement of educational results for Aboriginal children a key priority and has taken concerted action through the development of a series of strategies under the Manitoba Aboriginal Education and Employment Action Plan. To the extent that these efforts continue to be successful at enhancing early educational attainment results, it is possible that the broader impact on Aboriginal well-being will be substantial. For example, a 2001 Statistics Canada study of Aboriginal people in Canada's major metropolitan areas found that those who complete high school and go on to finish a university degree had employment rates on par with the remainder of the population.

Past and current research indicates that poverty has a significant negative impact on student learning and achievement. Manitoba Education, Citizenship and Youth is working in partnership with schools, school divisions and communities on a number of initiatives intended to address the educational needs of students in schools in low-income communities. ⁽¹⁾

Performance in International Assessment relative to socio-economic status (SES)

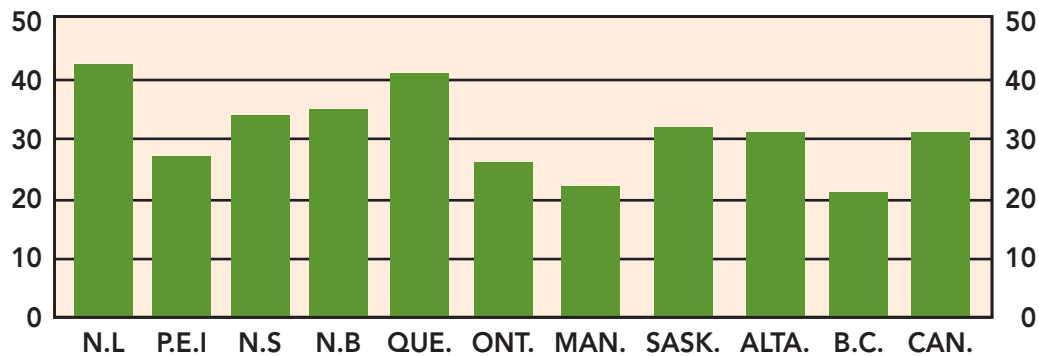
Manitoba's participation in the Program for International Student Assessment was described earlier in the section Youth Language and Literacy. Among the analyses carried out is student achievement relative to SES factors. SES was determined through student responses on a questionnaire regarding parental education level and home possessions. Detailed results from the most recent PISA study are available in the Canadian report *Measuring Up: Canadian Results of the OECD PISA Study, The Performance of Canada's Youth in Science, Reading and Mathematics, 2006 First Results for Canadians Aged 15*. The main domain of study in this report was science: cmec.ca/Programs/assessment/interstudent/pisa2006/Pages/default.aspx

Reference is also made below to the PISA 2003 study in which the main domain was mathematics: cmec.ca/Programs/assessment/interstudent/pisa2003/Pages/default.aspx

(1) Source: Brownell, M, De Coster C, Penfold R, Derksen S, Au W, Schultz, J, Dahl, M. Manitoba Child Health Atlas Update. Winnipeg, MB: Manitoba Centre for Health Policy, November 2008. <http://mchp-appserv.cpe.umanitoba.ca/reference/ch.atlas.pdf>

Difference in score points of the combined science scale between students whose parents had some post secondary education and students whose parents had high school or less.

Figure 2-15: Performance in International Assessment 2003 Study



The PISA report also compares provinces in terms of the relationship between students' SES and their PISA science score, and compares Canada to the other countries participating and to the OECD. These results point favorably to Canada in that SES is less associated with science achievement here than it is on average in the OECD countries. In Manitoba in particular, this effect is seen particularly for our lower-SES students who had significantly higher PISA science scores than similar (in terms of SES) students in other OECD jurisdictions, while our (Manitoba's) high-SES students performed at the same level, on average, as other high-SES students in the OECD.

Similar results were observed in the PISA 2003 study when the focus was on mathematics. The association between SES and PISA reading score was the least for Manitoba among Canadian jurisdictions. As with the PISA 2006 science study, the effect was seen most strongly in the average score of Manitoba's low-SES students relative to other jurisdictions — though Manitoba's average PISA mathematics score was slightly below the Canadian average, Manitoba's low-SES students' average score was equal to the Canadian average.

While data show disparities across SES levels in terms of academic performance and graduation in Manitoba, the PISA studies point to relative equity in student performance in Canada and in Manitoba across SES levels.

IMPLICATIONS FOR SUSTAINABILITY

Manitoba's education system is vital to the social, cultural, economic and environmental sustainability of our province. Indicators of education in Manitoba show positive signs.

Children's readiness programs are providing stronger learning foundations during the formative years. Youth literacy in Manitoba is among the best in the world and high school graduation rates are growing in Manitoba. Baseline data suggest that the overall school readiness of Manitoba's children is generally comparable to Canadian norms. Investing in early childhood development provides the best chance for better preparing our youngest children for school and improving the overall quality of Manitoba's future population of youth and adult learners, workers, parents and citizens.

The education of adults, including literacy, adult secondary and post-secondary education, is vital for individual health, social and economic well-being. The post-secondary education and adult learning sector also contribute to labour force development, social equity and economic prosperity in a sustainable society.

To promote future economic growth for Manitoba, efforts are being made to further increase the number of students who complete high school, participate in post-secondary education and ultimately graduate with university and/or college credentials.

FOR MORE INFORMATION

Bright Futures Fund:

- gov.mb.ca/asset_library/en/newslinks/2008/2008may/BrightFuturesFund.EC.AE.doc

Education for Sustainable Development:

- edu.gov.mb.ca/k12/esd/

Provincial assessment programming:

- edu.gov.mb.ca/k12/assess/index.html



CONCLUSION

ECONOMIC DIMENSION

This report has been prepared in the context of challenging, and in some ways unprecedented, national and international economic uncertainty. In the face of this, the Manitoba economy is well positioned and continues to give evidence of the benefits of a focus on balance, diversification, targeted infrastructure investment and ecological sustainability. Based on Gross Domestic Product (GDP), Manitoba has recorded an average of 3.0 per cent real growth over the last four years and, according to Statistics Canada data, is the most stable economy in Canada. Manitoba's ratio between international and inter-provincial exports is also the most balanced among the provinces, all of which adds a welcome degree of stability against economic downturns.

The trend to increasing consolidation continues in Manitoba's agriculture sector. Global forces of change necessitate an ever greater focus on adding value to primary agricultural products to lessen the impact that market forces can have on raw commodity trading. Environmental sustainability and responsibility is becoming an increasing priority for the agricultural sector. Organic production has become the fastest growing area as consumers demand access to a safe and sustainable food supply. Processing for local consumption can reduce reliance on transportation and, as in the example of the Northern Healthy Foods Initiative, 27 northern communities have received support for growing fresh vegetables to increase access to healthy food and to help reduce high transportation costs of food delivered from the south.

Hydroelectricity continues to provide Manitoba with a sustainability advantage and, when integrated with other types of home grown sources of renewable energy such as wind, solar, geo-thermal and biomass, will help form the foundation of Manitoba's future green economy.

Education, including literacy, adult secondary and post-secondary education, is vital for individual health and social and economic well-being. The post-secondary education and adult learning sectors contribute to labour force development, social equity and economic prosperity. The labour market circumstances of Aboriginal people continue to lag behind that of non-Aboriginals. However, significant improvement has occurred in terms of Aboriginal participation rates and employment outcomes, and data suggests the encouraging finding that for skilled Aboriginal people, employment prospects are approaching those of non-Aboriginal people.

Manitobans are embracing and demonstrating their commitment to economic sustainability by looking towards the future. Through innovation and foresight we can develop Manitoba's economy while reducing our ecological footprint through the greening of our activities.

CHAPTER 3

DEMOGRAPHICS

Why is it important?

Manitoba's population trends help us better understand the inter-relationships of our economy, social well-being and environment. These trends play an important role in the province's long-term planning by forecasting potential opportunities and challenges as Manitoba implements its sustainable development strategy.

Indicators and trends

The following key indicators reflect trends in Manitoba's demographics:

- **POPULATION GROWTH which includes the growth of Manitoba's Aboriginal population.**
- **MIGRATION TO MANITOBA FROM OTHER JURISDICTIONS which is measured by the number of people migrating to Manitoba, while accounting for those leaving the province.**

Population Growth

TREND - **POSITIVE**

As of July 1, 2008, Manitoba's total population was estimated at 1,207,959 people. Since July 1, 2007, Manitoba's population growth is estimated at 14,445 people, or 1.21 per cent — the largest increase since 1982/1983. A large portion of the 14,445 people is attributable to Manitoba's immigration strategy (10,741 people). Manitoba's population growth (1.21 per cent) exceeds Canada's (1.17 per cent). According to the Manitoba Bureau of Statistics (MBS) Manitoba's growth rate was the fourth highest (tied with Prince Edward Island) after Alberta's 2.1 per cent, British Columbia's 1.7 per cent and Saskatchewan's 1.6 per cent.

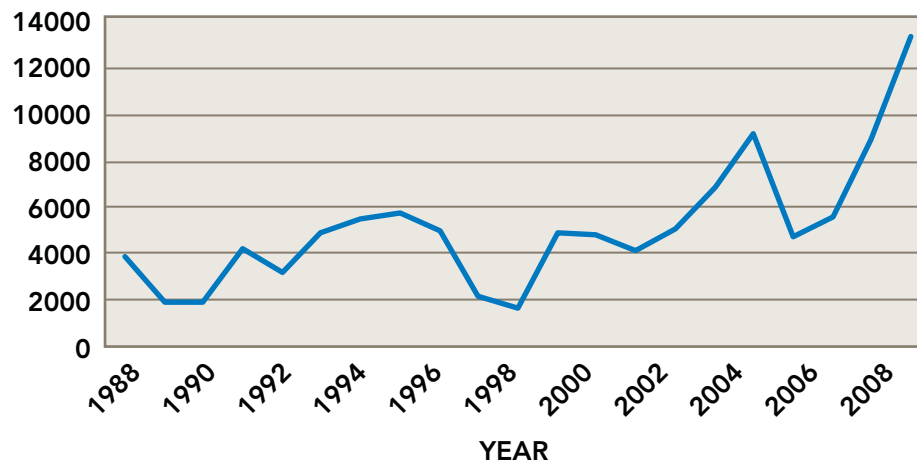
The Aboriginal community is growing faster than the non-Aboriginal population due to higher birth rates and increased life expectancies. According to MBS, 162,000 people identified as Aboriginal in Manitoba as of July 1, 2001. By 2006, this population is estimated to have increased by 17,700 or 10.9 per cent to 179,700 compared to an estimated increase of 2.3 per cent for the total population of Manitoba. Based on current trends, the Aboriginal community could increase by nearly 25.0 per cent from 2006 — 2017 as compared to approximately 5.0 per cent for the non-Aboriginal community.

Regionally, the Winnipeg Aboriginal population is projected to have grown by 8,400 people or 15.5 per cent, from 54,100 in 2001 to 62,500 in 2006. For northern Manitoba, MBS projected an increase of 3,700 persons or 5.8 per cent between 2001 and 2006. As a result, the northern Aboriginal population is estimated at 67,300 in 2006, according to MBS. The southern region is projected to see its Aboriginal community grow from 44,300 in 2001 to 49,900 in 2006, for an increase of 5,600 people or 12.6 per cent.

Data from the 2006 census shows that Manitoba's Aboriginal population is considerably younger than the remainder of the population with a median age of 21 years for First Nations people and 28 years for Métis people as opposed to 40 years in the non-Aboriginal population. More than half of the First Nations population and almost half of the Métis population in Manitoba consist of children and youth aged 24 and under, compared to one third for the non-Aboriginal population. This youthful Aboriginal population is growing faster than the remainder of the Manitoba population.

Figure 3-1: Manitoba Annual Population Growth, July 31, 1988 - July 31, 2008

Source: Manitoba Bureau of Statistics



Migration to Manitoba from Other Jurisdictions

TREND - **POSITIVE**

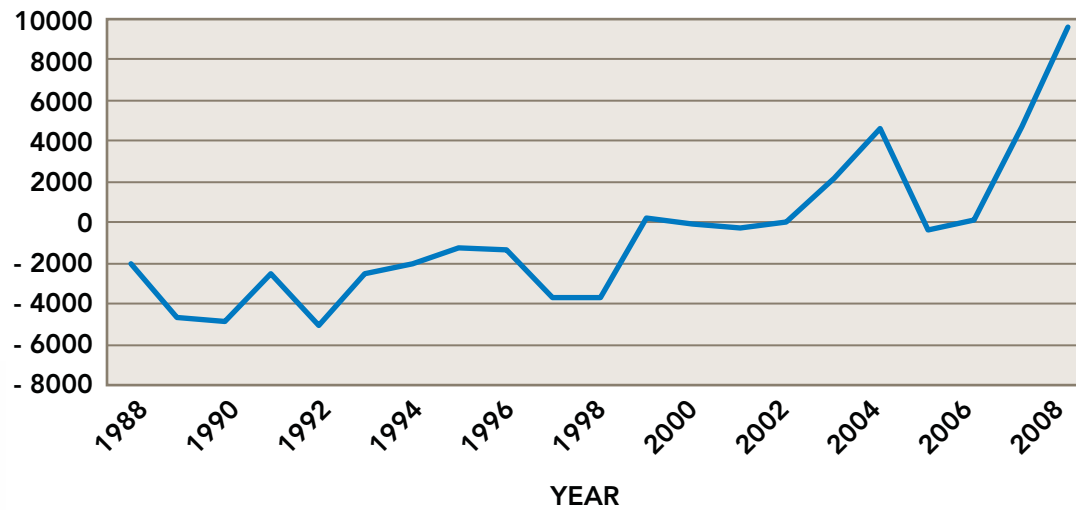
To help offset declining natural population growth and an ageing workforce, Manitoba established the Provincial Nominee Program (PNP) which nominates applicants for permanent residence in Manitoba. As an economic stream, PNP is designed to increase immigration levels in support of Manitoba's demographic and economic development.

Over the last two years, Manitoba achieved the initial PNP target of 10,000 newcomers per year. Manitoba's highest immigration flow was 10,790 people from July 1, 2006 to June 30, 2007 and 10,741 people from July 1, 2007 to June 30, 2008. Overall, the PNP has attracted over 43,000 immigrants during the past five years.

The success of the PNP has increased Manitoba's share of Canadian immigrants to 4.6 per cent last year, above Manitoba's population share for the second consecutive year. Building on the success of the PNP, a new goal was announced in the 2007 Throne Speech to incrementally increase immigration to 20,000 persons annually by 2016.

Figure 3-2: Total Net Migration, June 30, 1988 — June 30, 2008

Source: Manitoba Bureau of Statistics



IMPLICATIONS FOR SUSTAINABILITY

According to MBS, based on current population trends, Manitoba's population is predicted to grow by 112,600 people in 11 years (2006 — 2017), for an average annual growth of eight per cent or 10,200 people per year. A significant portion of this growth will be attributable to attainment of the new PNP goal and our ability to attract immigrants. This, in conjunction with inter-provincial migration and encouraging Manitobans to stay in Manitoba, will help offset declining birth rates and an ageing workforce. Positive population growth is necessary to maintain our labour force and thereby contribute to sustaining and strengthening the provincial economy. A strong economy will positively affect our social well-being and environment as Manitoba's sustainable development strategy moves forward.

In general, the youthfulness of Manitoba's Aboriginal population has strong positive potential. For example, all things being equal, young populations tend to be healthier and young people can look forward to a lifetime of contributing to, and enjoying the benefits of, participating more fully in society. However, many young Aboriginal people are born into situations where they face substantial barriers to fully participate in Manitoba's social and economic life. So, while youthfulness holds the tremendous sense of promise and opportunity, it also brings with it a sense of urgency when that youthfulness is associated with substantial outcome deficits.

FOR MORE INFORMATION

Additional information on Manitoba's population trends is available at:

- statcan.gc.ca

Information on Manitoba's Aboriginal population trends is available at:

- gov.mb.ca/ana/apm2000/1/index.html

Manitoba's "Immigration Facts" is available at:

- immigratemanitoba.com/asset_library/en/resources/pdf/mif07.pdf



EQUITY AND RIGHTS

Why is it important?

The equality of all people is basic to the concept of sustainable development. The level of income available to a person or family directly affects the material standard of living they are able to enjoy. The ability to provide the necessities of life and have access to opportunities offered by society is also vital.

Indicators and trends

The following key indicators reflect trends in the area of equity and rights in Manitoba:

- **LOW INCOME** which is measured by the Market Basket Measure (MBM), which determines low income based on the cost of a “basket of goods and services” that includes food, clothing and footwear, shelter, transportation and a range of things people need, such as personal care, household equipment and supplies, telephone services, educational and recreational items and reading materials.¹
- **INCOME INEQUALITY** which is measured by the Gini index, which ranges in value from zero to 100. A score of zero indicates everyone has the same level of income (complete equality) while a score of 100 indicates that one person has all of the income (complete inequality).
- **INCOME DEPENDENCY** which is measured by the degree of reliance on government transfers for financial support, as a per cent of total income.
- **COMMUNITY SUPPORTED LIVING** which is measured by the number of people with mental disabilities in community supported living residences.

Low Income

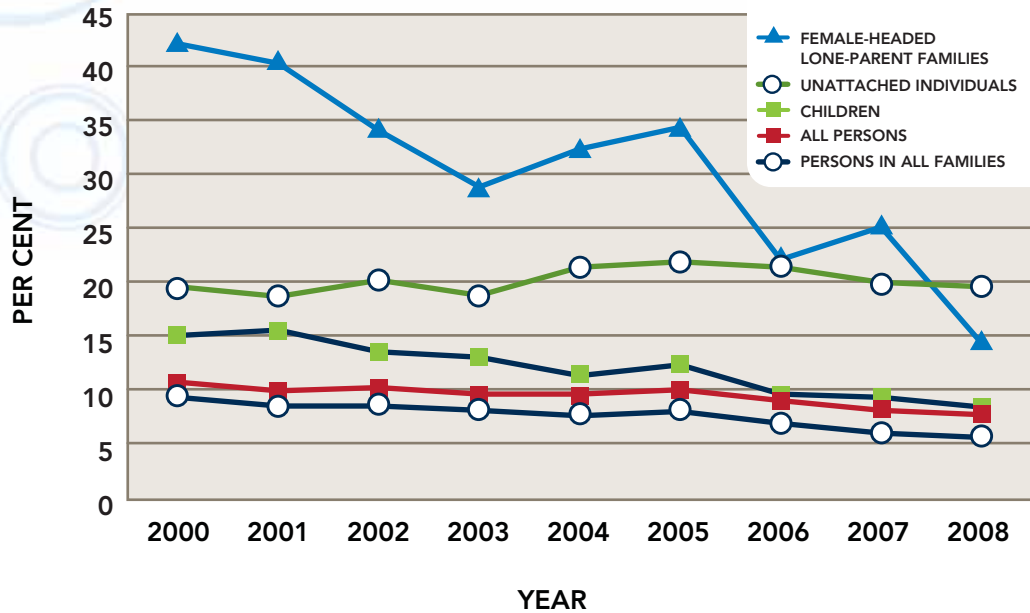
TREND - **POSITIVE**

Figure 3-3 shows trends in Manitoba’s low income rate using the MBM. Between 2000 and 2008, the rate of low income for all persons in Manitoba decreased by 27.8 per cent (from 10.8% in 2000 to 7.8% in 2008). When compared with other provinces, Manitoba had the second lowest incidence of low income for all persons. Manitoba’s rate is 1.7 percentage points lower than the rate for Canada (9.5%). The incidence of low income for all families (with two or more persons) decreased by 39.4 per cent (from 9.4% in 2000 to 5.7% in 2008). Between 2000 and 2008, Manitoba’s incidence of low income for children decreased by 43.7 per cent (from 15.1% in 2000 to 8.5% in 2008). For female-headed lone-parent families, the decrease in the rate of low income was 65.7 per cent (from 42.0% in 2000 to 14.4% in 2008). Low income for unattached individuals was at 19.6 per cent in both 2000 and 2008.

¹ The Government of Manitoba now uses the Market Basket Measure (MBM) as an indicator of low income because it more fully reflects income available to families for spending, and it more accurately reflects the low cost of living in Manitoba.

Figure 3-3: Manitoba's After-Tax Low-Income Cut-Off, Per cent of Persons in Low Income

Source: Statistics Canada



Income Inequality

TREND - **POSITIVE**

As illustrated in Figure 3-4, income inequality in Manitoba has increased slightly since 1989. The after-tax income Gini index was closer to zero in 1990 at 34.2. Since then it rose gradually; from 35.8 in 1999 it increased to 37.9 in 2007, indicating a slight increase in income inequality. However, since 2007, it decreased to 36.9, showing a decrease in inequality in Manitoba. In 2008, the Gini index further shows that Manitoba had the third lowest level of after-tax income inequality among the provinces in Canada; behind only Prince Edward Island and New Brunswick.

ALL Aboard – Manitoba's Poverty Reduction and Social Inclusion Strategy

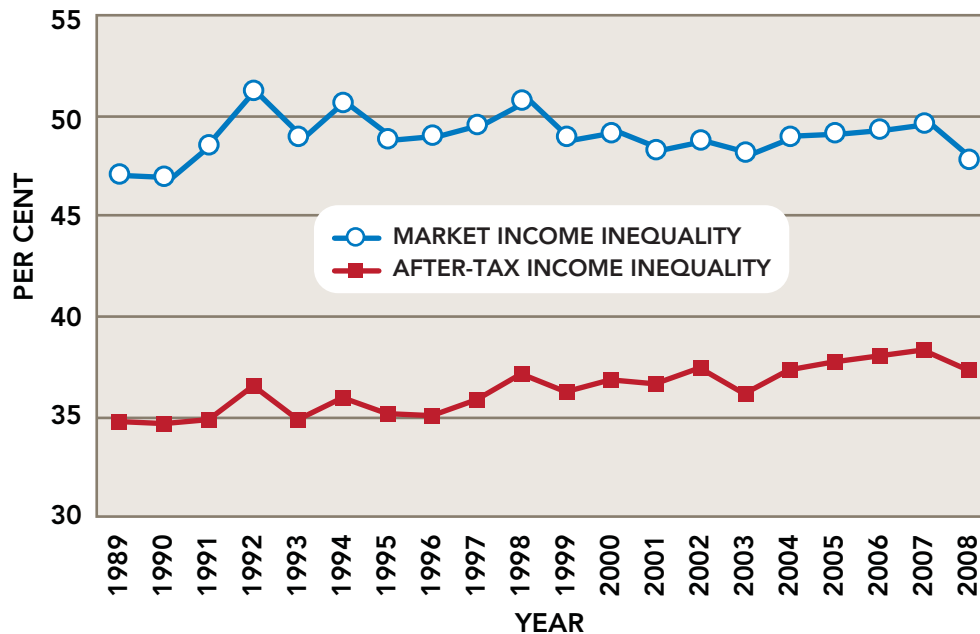
The Government of Manitoba plays a critical role in combating poverty. That is why in 2009, the Province launched ALL Aboard, a co-ordinated poverty reduction and social inclusion strategy.

In 2010/11, approximately \$950 million will be dedicated to fighting poverty and promoting social inclusion in Manitoba, including a number of new investments, most notably in the areas of child care, social and affordable housing, and a variety of other key ALL Aboard initiatives.

The overarching ALL Aboard strategy builds on Manitoba's strong foundation of poverty reduction. New strategic elements include strong co-ordination across government; integrated oversight; annual public reporting; stakeholder engagement; a social inclusion framework; and partnerships to ensure co-ordination and success.

Figure 3-4: Gini Index, Manitoba

Source: Statistics Canada



In consultation with the community, meaningful measures are being finalized to track progress on our four priorities: Safe, affordable housing in supportive communities; Education, jobs and income support; Strong, healthy families; and Accessible, co-ordinated services.

The Premier's Advisory Council on Education, Poverty and Citizenship will co-ordinate efforts of community sectors and advance new ideas. Through ALL Aboard, we will continue to build on successful strategies and initiatives that we know improve the lives of Manitobans.

New initiatives under ALL Aboard are built on previous accomplishments, including:

- launch of the province's HOMEWorks! low-income housing strategy, which includes a homeless and mental health housing component
- enhancing the Rewarding Work strategy, including Rebound to help those affected by the recession, to get more Manitobans off welfare
- increases to minimum wage
- launching the Opening Doors Disability Strategy
- adding help for rent payments
- expanding child care under the Family Choices five-year strategy
- launching Service Link to make existing low-income services more understandable and accessible

Income Dependency

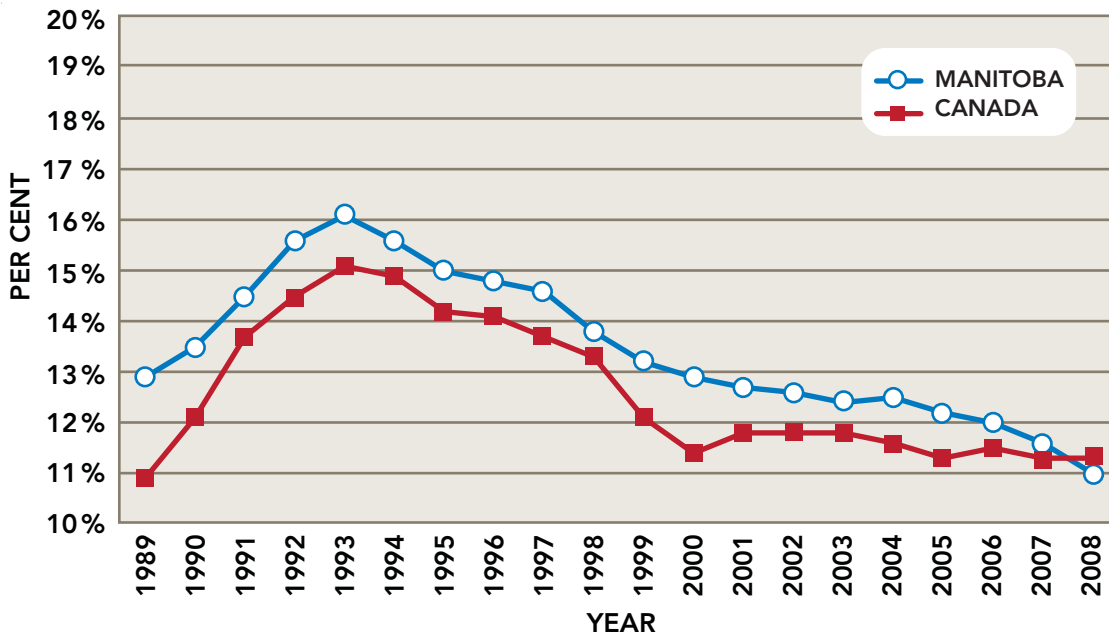
TREND - **POSITIVE**

Government transfers provide support to people in low income. Transfers include all direct payments from federal, provincial, and municipal governments. Figure 3-5 shows the rates of dependency on government transfers for all economic family units in Manitoba between 1989 and 2008. Government transfers, as a percentage of total family income in Manitoba, rose from 13.0 per cent in 1989 to a high of 16.2 per cent in 1993. Since then the rate declined to 11.1 per cent in 2008. The same trend occurred for Canada, with a slightly higher dependency on transfers in 2008 than Manitoba (11.4 per cent in 2008).

Reliance on government transfers and the performance of the economy are related for working-age individuals and families. As income from employment decreases due to economic downturns, transfer payments are provided to the unemployed, mainly through the federal Employment Insurance program and provincial income assistance programs.

Figure 3-5: Government Transfers as a Percentage of Total Income

Source: Statistics Canada



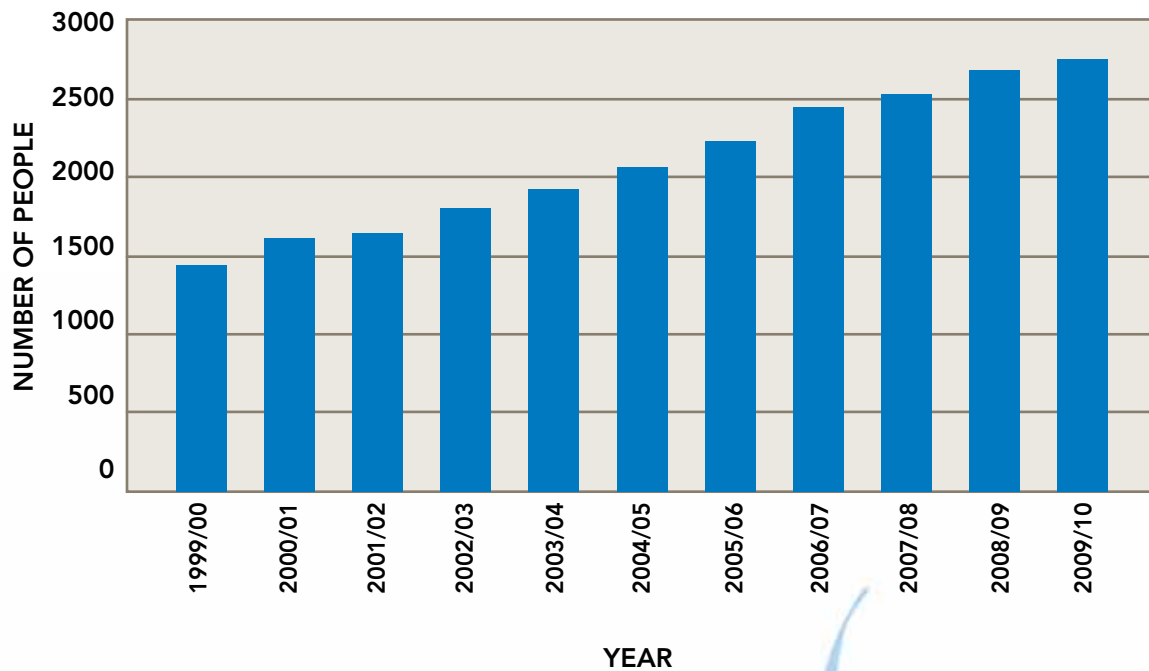
Community Supported Living

TREND - **POSITIVE**

Community living for persons living with a mental disability continues to be a priority for Manitoba. Between 1999/00 and 2008/09 the number of residents in developmental centres declined by 34 per cent, while the number of people in community supported living residences increased by 91 per cent. Figure 3-6 shows the increase in number of people receiving residential services.

Figure 3-6: Number of People Supported in Community Living Residences

Source: Family Services and Housing Annual Reports (1999/00 to 2008/09); Disability Programs, and Employment and Income Assistance (2009/10)



IMPLICATIONS FOR SUSTAINABILITY

Recent trends suggest that Manitoba is maintaining its relative position within Canada in terms of economic well-being. Manitoba is working to reduce the depth, incidence, and effects of low-income through its many strategies and programs that increase the economic, social, and labour market inclusion of Manitobans. Through the ALL Aboard Poverty Reduction and Social Inclusion Strategy, Manitoba is committed to continuing its success in poverty reduction, social inclusion, and promoting sustainable development. The province will build on the strong foundation created, rolling out new programs and improving services and supports for Manitobans to move Manitoba towards greater sustainability.

FOR MORE INFORMATION

More information on income in Manitoba is available at: www.manitoba.ca/fs/

More information on services for people with disabilities is available at: More information on ALL Aboard is available at: www.manitoba.ca/fs/allaboard/index.html



COMMUNITY AND CULTURE

Why is it important?

There is growing awareness of the links between art, heritage, culture and the economy and the environment. Manitoba's diverse population has created a rich, rewarding fabric of cultural and artistic accomplishments. Numerous heritage sites across the province are evidence of the many people who have contributed to building our province. Our respect for environmental protection is rooted in the values of the First Nations of the province.

Manitobans have a strong community spirit and a long tradition of helping others — our friends and neighbours — as well as other residents of our global village. We have only to look at the assistance Manitobans provided to their fellow citizens in reaction to 2009 spring flooding to see the benefits of such strong community connections.

Creativity is increasingly recognized as an important element for economically successful communities. Manitoba boasts a cultural sector whose capacity and influence is nationally and internationally recognized.

Indicators and trends

The following key indicators reflect trends for community and culture in Manitoba:

- **COMMUNITY ENGAGEMENT** which is measured through a sense of belonging, being involved in community organizations and through charitable donations.
- **HERITAGE CONSERVATION** which is measured by the number of heritage sites.
- **LANGUAGE DIVERSITY** which is measured by the retention of people's original language.



Community Engagement

TREND - **POSITIVE**

Sense of Belonging — A June 2008 Statistics Canada article Community Belonging and Self-perceived Health references the 2005 Canadian Community Health Survey. This survey indicates that **69 per cent** of Manitobans reported a strong or somewhat strong sense of community belonging, an increase from **63 per cent** in 2000/2001 (see Table 3-1). The report suggests that community belonging is strongly related to self-perceived general and mental health, so not only do Manitobans have a high level of connectedness to their communities; they may be accruing health benefits from these experiences.

Table 3-1: Percentage reporting strong or somewhat strong sense of community belonging

Community Belonging and Self-perceived Health by Margot Shields, Statistics Canada, (Catalogue no. 82-003-X Health Reports). Household population aged 12 or older.

	2000/2001	2005
Canada	58	64
Newfoundland and Labrador	78	79
Prince Edward Island	70	75
Nova Scotia	66	73
New Brunswick	62	73
Quebec	47	55
Ontario	60	66
Manitoba	63	69
Saskatchewan	68	72
Alberta	57	65
British Columbia	63	70
Yukon Territory	79	71
North West Territory	77	74
Nunavut	86	83

Volunteer rate, Average annual volunteer hours per person and Involvement in Community Organizations

In 2004, Manitoba had the fourth highest volunteer rate in Canada at 50 per cent, (see Table 3-2) compared with the national average of 45 per cent (see Table 3.2). That same year, Manitoba had the third highest percentage (69 per cent) of the population reporting that they belong to a group or organization. This is a strong indicator of commitment and involvement in local communities. Notably, while a person can belong to an organization and not participate in any activities, Manitobans' frequency of participation in meetings or other organizational activities is also above the national average. The percentage of Manitobans that participate once a week or more in meetings or other organizational activities (32 per cent) is the second highest in the country, with the national average being 25 per cent.

Table 3-2: Volunteer and Group Participation Rate

Statistics Canada, Canada Survey of Giving, Volunteering and Participating, 2004, [Catalogue no.71-542-XIE]. Population aged 15 or older.

	VOLUNTEER RATE %	ANNUAL VOLUNTEER HOURS	PARTICIPATION IN A GROUP OR ORGANIZATION %
Canada	45	168	66
British Columbia	45	199	66
Alberta	48	175	69
Saskatchewan	54	188	72
Manitoba	50	155	69
Ontario	50	162	70
Quebec	34	146	57
New Brunswick	44	185	61
Nova Scotia	48	195	65
Prince Edward Island	47	163	70
Newfoundland and Labrador	42	188	60
Yukon Territory	52	196	64
Northwest Territory	53	153	63
Nunavut	42	132	64

Charitable Donations

Manitoba tax payers continue to donate more than any other province or territory in Canada, donating 1.14 per cent total personal income earned, according to a Fraser Institute press release, December 8, 2008. This is an increase from 1.11 per cent in 2007 and 1.02 per cent in 2006. The generosity of Manitobans is further demonstrated by 27 per cent of its tax filers claiming a donation in 2007; the highest in Canada.

Table 3-3: Donation Rates

*Charles Lammam and Alex Gainer, Fraser Forum, 12/08

** CBC News, November 4, 2008/9:18 AM CT

	2008 PERCENTAGE OF PERSONAL INCOME DONATED TO CHARITY (%)	*2007 TAX FILERS CLAIMING DONATIONS (%)**
Canada	0.76	24
Newfoundland and Labrador	0.49	21
Prince Edward Island	0.76	26
Nova Scotia	0.73	23
New Brunswick	0.76	22
Quebec	0.33	22
Ontario	0.92	26
Manitoba	1.14	27
Saskatchewan	0.91	26
Alberta	0.86	24
British Columbia	0.84	23
Yukon Territory	0.38	21
Northwest Territory	0.29	17
Nunavut	0.25	10

Approximately 84 per cent of Manitobans made a financial donation to at least one charitable organization in 2004, just slightly below the national rate of 85 per cent. In 2004, the average annual donation made by Manitoban donors was \$455.00, which was higher than the national average of \$400.00. This resulted in Manitoba having the fifth highest average annual donation among provinces and territories.

Table 3-4: Charitable Donation Rates and Donations

Canada Survey of Giving, Volunteering and Participating, Statistics Canada, 2004. Population aged 15 and older.

	CHARITABLE DONOR RATE	AVERAGE ANNUAL DONATIONS
Canada	85%	\$400
British Columbia	77%	\$467
Alberta	79%	\$500
Saskatchewan	82%	\$431
Manitoba	84%	\$455
Ontario	90%	\$488
Quebec	83%	\$176
New Brunswick	88%	\$351
Nova Scotia	90%	\$378
Prince Edward Island	93%	\$391
Newfoundland and Labrador	93%	\$287
Yukon Territory	76%	\$436
Northwest Territory	79%	\$458
Nunavut	63%	\$292

Focus on Community Engagement

Community engagement involves people working together through collective action and learning to create and realize a common vision for the community. The community engagement process brings various people and stakeholders together to influence local decisions, define local priorities and develop local solutions to address community needs. Community engagement is a critical component to achieving social sustainability by maximizing opportunities for social interaction and cohesion and enhancing citizen's overall quality of life. Within this context Manitoba is committed to increased dialogue and consultations with First Nations communities.

Community engagement is a central principle of the province's **Neighbourhoods Alive! (NA!)** initiative. NA! is a long-term social and economic strategy to support and encourage community-driven revitalization efforts in designated urban communities. The program recognizes that local residents, and other community stakeholders, are in the best position to identify local revitalization priorities. The role of NA! is to engage and support the community in identifying those priorities and to provide resources to address them.

The program supports and encourages revitalization efforts in designated neighbourhoods in a number of key areas including:

- **community leadership development**
- **housing and physical improvements**
- **employment and training**
- **education and recreation**
- **safety and crime prevention**

In addition to Winnipeg, Brandon and Thompson, the NA! program has recently been expanded to five additional communities including: Dauphin, Flin Flon, The Pas, Portage la Prairie and Selkirk.

Heritage Conservation

TREND - **POSITIVE**

Heritage conservation contributes to the social and cultural sustainability of our communities. It also has a key role to play in environmental sustainability on the level of individual buildings, of neighbourhoods and of communities. Manitoba Culture, Heritage, Tourism and Sport's goal is to promote best practices in heritage resource management and to support communities and individuals in their efforts to identify, protect and celebrate their heritage as part of economic vitality and quality of life.

The number of heritage sites protected by the Province of Manitoba, local governments and The City of Winnipeg has increased from 222 in 1991 to 601 in 2005 and to 676 in 2008.

Table 3-5: Number of Heritage Sites Designated

Source: Manitoba Culture, Heritage, Tourism and Sport

YEAR	DESIGNATED PROVINCIAL HERITAGE SITES	MUNICIPAL HERITAGE SITES	CITY OF WINNIPEG BUILDING CONSERVATION
1990/1991	27	44	151
1992/1993	70	82	161
1994/1995	98	116	173
1996/1997	98	140	173
1998/1999	106	177	193
2000/2001	109	213	201
2002/2003	115	244	210
2004/2005	118	266	217
2005/2006	120	279	221
2006/2007	120	285	222
2007/2008	121	331	224

Culture, Heritage, Tourism and Sport (CHTS) has introduced a number of new initiatives to help municipal governments and individual property owners work towards the sustainability of heritage. Heritage Matters offers support to municipal governments which have done a self assessment of 19 community heritage benchmarks and are working on projects to identify, protect or plan for conservation of historic places. After regional workshops on maintenance were given in 2007, a Heritage Building Maintenance Manual was produced and sent to owners of designated heritage buildings in 2008. To help the owners of designated sites, or sites planned for designation, the CHTS prepared Make It Work: A Sustainability Workbook for Historic Places which helps owners and interest groups identify sustainability issues challenging the long-term viability of historic sites in Manitoba.

The rehabilitation and reuse of heritage buildings reduces waste and generates less carbon. CHTS has participated in the development of Manitoba's Green Building Policy, done research on reusing heritage windows and, in 2009, will complete an assessment of a heritage building upgraded to meet current green building standards.

When a historic building is replaced with new construction, a tremendous amount of energy — called embodied energy — is wasted. Rehabilitation and retention of a building preserves the embodied energy and the energy needed to demolish it and build new. Much less energy is required for the sensitive rehabilitation of an existing building than for new construction of a building of similar size.

Historic buildings up to the 1920s tend to be naturally efficient. They were designed to take advantage of natural light and ventilation, with operable windows, interior transoms, light courts and cross draughts. Thick masonry walls, deep window reveals and awnings helped them to stay cool in summer.

Historic buildings tend to stand in urban centers, where dense development and existing infrastructure contribute to a more sustainable community. Current Smart Growth principles, developed for the design of new, green communities, are based heavily on the patterns of traditional urban development: mixed uses, walkability, compact neighbourhoods, public transportation links and a strong sense of place.

Co-management of Manitoba's heritage resources with First Nations within traditional land use areas or Resource Management Areas (RMA) is another major initiative. While the provincial government is mandated by legislation to protect heritage resources, co-management allows for negotiation with First Nations about shared roles and responsibilities, such as participation in decision-making and monitoring when determining appropriate measures for the disposition and protection of heritage resources within traditional land use areas.

The process was initiated in 2005, when a memorandum of understanding was signed between Manitoba and the Nisichawayasihk Cree Nation (NCN) at Nelson House to develop a heritage resources co-management agreement for the Nelson House RMA. This area's heritage resources had been affected by past hydro-electric development.

In 2006, Manitoba, Manitoba Hydro and NCN negotiated and signed the agreement for a protocol for the Protection of Heritage Resources and Aboriginal Human Remains Related to the Wuskwatim Generating Project (Wuskwatim Protocol) to co-manage any heritage resources discovered during construction of the Wuskwatim Dam. Since construction start-up in 2007, archaeological monitoring of the Wuskwatim Hydro Project has been jointly undertaken by both Manitoba Hydro and NCN archaeologists under heritage permits issued by CHTS and according to the Wuskwatim Protocol.

Language Diversity

TREND - **POSITIVE**

Fostering diversity enables the rich potential of language and cultural diversity for environmental sustainability. The increasing number of Manitobans speaking a non official language at home reflects the evolving ethnic diversity of the province.

Table 3-6: Manitoba total population by language spoken most often at home in 2006

Source: Statistics Canada 2001 and 2006

	2001		2006	
	TOTAL	%	TOTAL	%
TOTAL	1,103,700	100.0	1,133,515	100.0
SINGLE RESPONSES	1,087,410	98.5	1,118,690	98.7
English	823,910	74.6	838,415	74.0
French	44,335	4.0	43,955	3.9
German	63,215	5.7	67,030	5.9
Tagalog	18,385	1.7	22,490	2.0
Ukrainian	26,540	2.4	21,950	1.9
Cree	18,110	1.6	19,105	1.7
Ojibway	8,885	0.8	9,330	0.8
Other	84,030	7.6	96,415	8.5
MULTIPLE RESPONSES	16,290	1.5	14,825	1.3

In addition, there is increasing linguistic diversity due to growing, annual immigration. The following indicates top mother tongue languages over the last three years of international immigration to Manitoba.

Table 3-7: Manitoba Immigration by mother tongue (top ten)

Source: Citizenship and Immigration Canada

	2001 TOTAL	%	2006 TOTAL	%
TOTAL	1,103,700	100.0	1,133,515	100.0
SINGLE RESPONSES	1,087,410	98.5	1,118,690	98.7
English	823,910	74.6	838,415	74.0
French	44,335	4.0	43,955	3.9
German	63,215	5.7	67,030	5.9
Tagalog	18,385	1.7	22,490	2.0
Ukrainian	26,540	2.4	21,950	1.9
Cree	18,110	1.6	19,105	1.7
Ojibway	8,885	0.8	9,330	0.8
Other	84,030	7.6	96,415	8.5
MULTIPLE RESPONSES	16,290	1.5	14,825	1.3

IMPLICATIONS FOR SUSTAINABILITY

Manitoba enjoys a diversified economy, a large, stable service sector and a broad export market. Our population — which is productive, growing, well-educated and multilingual — contributes greatly to a stable economic environment here at home and supports our participation in a rapidly changing global economy.

Our creative community is well-supported by the provincial government. Statistics Canada reports that Manitoba's per capital spending on culture was the second-highest in Canada at \$105 in 2005/2006 (the latest year for which data is available). The province also provides substantial support to cultural organizations through tax credits for charitable contributions to these organizations.

A growing Aboriginal population, and successful efforts by Manitoba to attract increasing numbers of immigrants to the province, will continue to expand our rich cultural diversity.

FOR MORE INFORMATION

More information on Manitoba's culture and heritage is available at:

- gov.mb.ca/chc/
- gov.mb.ca/labour/

Neighbourhoods Alive! program:

- gov.mb.ca/ia/programs/neighbourhoods/index.html

Rural community and business development

- gov.mb.ca/agriculture/community

GOVERNANCE

Why is it important?

Under the Constitution, provincial and local governments have sole, or shared, responsibility for governance in these key areas relevant to sustainability:

- **natural resources and the natural environment**
- **agriculture**
- **business**
- **labour and the economy**
- **human health**
- **education**

Accordingly, effective governance can have a positive impact on sustainability at both the local and the international levels. A key component of governance is the ability of the citizens to take part in decision-making through the representative democratic system. Voter turnout is one indicator of the level of participation in our political community.

Indicators and trends

The following key indicators reflect trends in the area of governance in Manitoba:

- **VOTING RATES which is a proxy for opportunities for participation and redress.**
- **PROGRESS TOWARD DEBT REPAYMENT which is a proxy for fiscal accountability.**

Voting Rates

TREND - **POSITIVE**

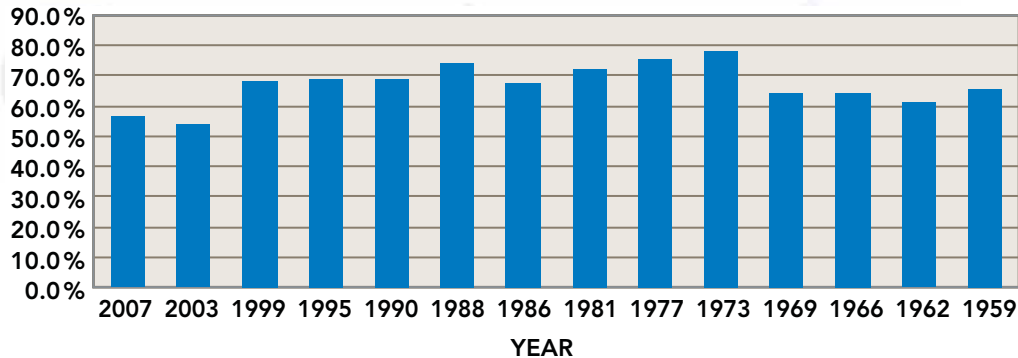
This indicator tracks the percentage of registered voters in the province who vote in regularly scheduled elections. Voter turnout for all electoral divisions in Manitoba since 1959 is shown in Figures 3-7. Voter turnout for the 2007 provincial election was **56.76 per cent**, up almost **Three per cent** from the previous election in 2003. This a moderate improvement compared to previous election years.

Prior to the 2007 provincial election, voter turnout in Manitoba had been declining steadily since 1988, a common trend in most provinces and at the federal level. Over the period, the highest voter turnout in Manitoba was **78 per cent** in the 1973 election. The 2003 voter turnout of **54 per cent** is the lowest turnout since 1962.

By comparison, voter turnout for parliamentary elections in Canada has ranged from a high of 81 per cent in 1958 to the lowest national voter turnout in 2008 of 59.1 per cent (Note: 2008 results are preliminary).

Figure 3-7: Provincial Voter Participation Rate

Source: Elections Manitoba



An Elections Manitoba survey conducted in 2007 suggests reasons for non-voting generally fall into three broad categories:

- those who intended to vote but were distracted by lack of time, illness or travel
- those who did not intend to vote for whatever reasons, including lack of trust in candidates, lack of choices, indifference over the election outcome or the impact of their vote
- those who wanted to vote but technical or administrative issues were a barrier, including the polls were too far away or closed too early

A common primary or secondary factor for not voting was:

- not knowing enough about the parties (32 per cent)
- being too busy (26 per cent)

About three out of ten non-voters cited these reasons. The survey also suggests that the majority of non-voters intended to vote, but as the election progressed, they decided not to. Despite the reasons cited for not voting, six non-voters out of 10 said it is very important or essential to vote.

The complete results of 2007 the survey may be accessed on the Elections Manitoba website at: www.electionsmanitoba.ca/galleries/download/Studies/Voter_NonVoterSurvey_2008.pdf

Progress Toward Debt Repayment

TREND - **POSITIVE**

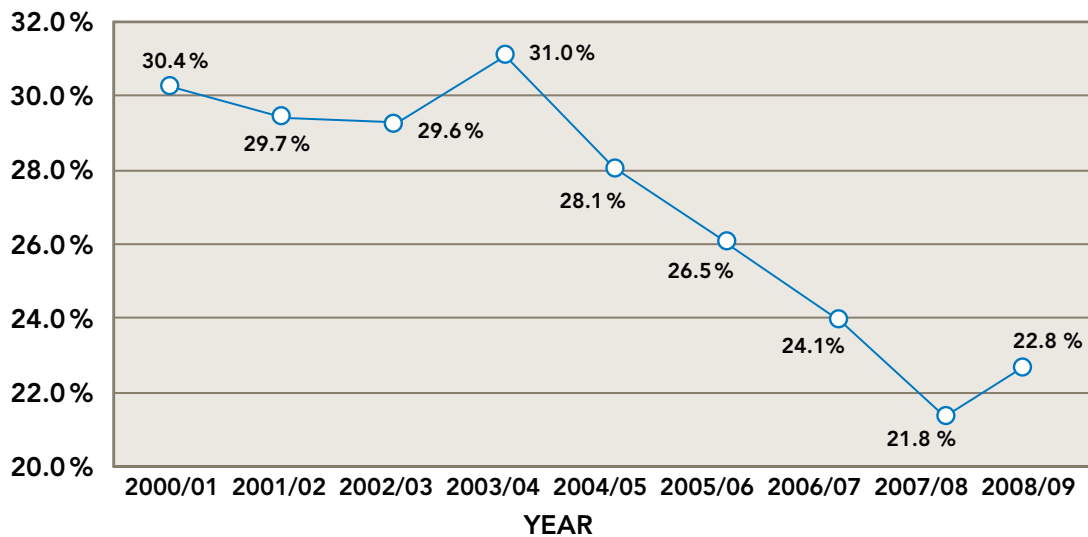
Fiscal sustainability is a key determinant of the government's ability to continue funding programs, including those that have a profound effect on quality of life, environmental protection and health of the population.

Net debt represents the difference between a government's total liabilities and their total financial assets. The net debt to Gross Domestic Product (GDP) ratio is an important indicator of government's financial position, as it highlights the affordability of future government service.

Net debt to GDP ratios are useful in gauging a government's capacity to service debt. Net debt may change in absolute terms from time to time, as needed investments in capital assets — like the Red River Floodway and highway infrastructure — are made. These investments underpin, and support, Manitoba's economic performance. If a province's GDP is increasing, then size of the tax base is increasing and so is its ability to finance its borrowings. Therefore, it is important to measure changes in net debt against growth of the economy, as measured by nominal GDP.

Figure 3-8: Net Debt to Gross Domestic Product Ratio

Source: Manitoba Finance



Between 2000/2001 and 2008/2009 net debt as a percentage of GDP was reduced by 25 per cent.

Since 1999, the government has contributed almost \$1 billion to the debt retirement account to address general purpose debt and pension obligations.

Since 2000, Manitoba has received six credit rating improvements.

IMPLICATIONS FOR SUSTAINABILITY

Public participation in democratic governance, and specifically voting behavior, is an important indicator of sustainability, as elected officials make key decisions that affect the economy, environment and the overall well-being of society. By participating in civic and political processes, citizens can influence these decisions and play a greater role in defining the future of the community.

Despite the 2007 data on voter participation showing a moderate improvement from the previous election year, the data as a whole suggests an overall decline in citizen engagement in the voting process. Increased efforts to improve voter turnout, including addressing the reasons causing this trend as identified by Elections Manitoba, are needed to increase active citizen participation and maximize civic connectivity in Manitoba.

Trends in fiscal responsibility have implications for all aspects of sustainable development. Budget 2007 introduced the first *Financial Management Strategy* (FMS) for the province of Manitoba. The annual FMS sets out:

- **the government's priorities for financial management**
- **one or more measurable outcome for each priority area**
- **objectives for each measurable outcome for the current year and the future**

This demonstrates the government's commitment to enhancing transparency and accountability and provides the public with the opportunity to assess the success of the government's performance by providing the results of measurable outcomes from the original strategy.

FOR MORE INFORMATION

More information on governance in Manitoba is available at:

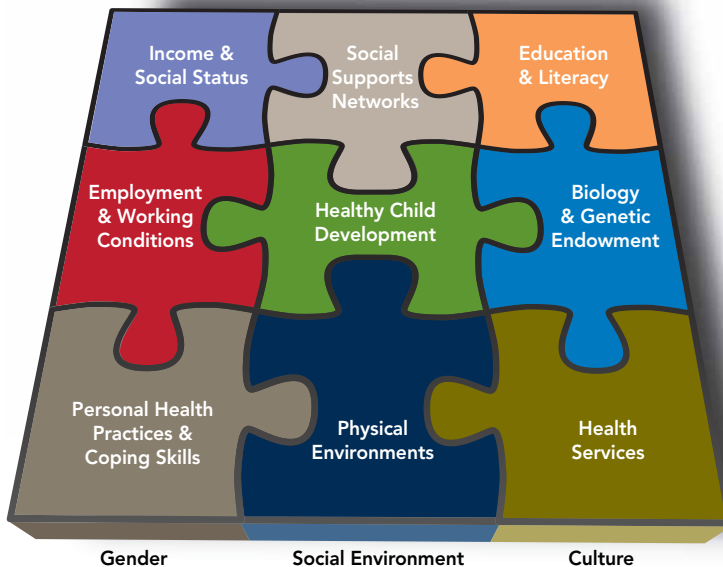
- electionsmanitoba.ca/
- gov.mb.ca/finance/index.html

HEALTH

Why is it important?

The determinants of health are defined as factors that bring about a change in health conditions and affect the health status of a person or population. This includes a range of personal, social, economic and environmental factors. Determinants of health are important because they establish how healthy an individual or population is, and are the building blocks to good overall health.

Figure 3-9: The Determinants of Health



Manitoba is a large province with variable geography. Socio-economic status, coupled with where Manitobans live within the province, is significantly associated with their overall health on many levels. Those living in rural and northern areas often have more difficulty accessing health care and may have to travel significant distances to achieve the care they require. They may also have more difficulties obtaining social support and educational programs as well as an adequate supply of fresh, healthy food essential to good overall health. Certain populations such as Aboriginal people, children, women, seniors, newcomers and people with disabilities may also encounter difficulties in accessing the care and services they require. These populations are important to Manitoba Health and Healthy Living (MHHL) and are considered a priority in the ongoing goal of decreasing health disparities and attaining the optimal health and well-being for all Manitobans.

Indicators and trends

The following key indicators have been selected to reflect trends in the area of health in Manitoba:

- **HEALTH STATUS** which is reflected through **Ability to Function and Potential Years of Life Lost (PYLL)**.
- **ACCESS AND QUALITY OF CARE** which is reflected through the **measurement of perceived quality of care and perceived difficulty in accessing care**.

Health Status

TREND - **STABLE**

Ability to function measures the overall functional health of the population based on nine dimensions of functioning:

- **vision**
- **hearing**
- **speech**
- **mobility**
- **dexterity**
- **feelings**
- **cognition**
- **memory**
- **pain**

The percentage of Manitobans reporting very good or perfect functional health appears to be decreasing from 79 per cent in 2001 to 77 per cent in 2005.

Manitoba is addressing these dimensions of functioning, in part, through a range of strategies to promote healthy living and protect public health. Manitoba in Motion is a provincial strategy to help all Manitobans make physical activity part of their daily lives for health and enjoyment. The provincial government has joined with partners in physical activity, health, healthy living, recreation, sport and education to raise activity levels and reduce barriers to physical activity. The goal is to increase physical activity in Manitoba by 10 per cent by the year 2010 and by 20 per cent by the year 2015.

An active lifestyle and healthy eating are essential to good overall health. To increase understanding of the nutritional patterns of Manitoba's children, MHHL purchased an enhanced data sample from the 2004 Canadian Community Health Survey Nutrition Focus Study which is providing Manitoba with its first, provincial-level data on nutritional status of children and youth.

The CCHS data for Manitoba indicates that the food system is not meeting the needs of a significant percentage of Manitobans. Nine per cent of Manitoban households reported experiencing food insecurity during 2004. This rose to over **30 per cent** in vulnerable sub-populations, including households with low socioeconomic status, low income households (especially social assistance), off-reserve Aboriginal ethnicity, female single parent households, and residents of northern Manitoba and the core areas of Winnipeg.

By identifying nutritional problems of vulnerable groups, and assessing effects of nutrition status on primary health care use and costs, the data will support the province's strategic focus on healthy living, disease prevention and early childhood development.

Programs such as food safety (ex: food inspection and investigating food-borne illness) and immunization (ex: diphtheria, pertussis, tetanus, polio, haemophilus influenza type B, measles, mumps, rubella and influenza) contribute to public health protection.

Along with exercise and healthy eating, the presence or absence of other risk factors such as chronic disease is also an important factor in functional health. The Pre-Diabetes Screening and Intervention Project is a community based pilot project which will implement specific screening strategies and interventions for pre-diabetes within an existing risk factor and complication assessment program.

Manitoba Health and Healthy Living are also working with primary care providers to reach key risk factors and health issues such as diabetes and hypertension. The Physician Integrated Network (PIN) is a MHHL primary care renewal initiative that focuses on fee for service physician groups. Its goal is to make systemic improvements in the delivery of primary care through practice changes supported by Quality Based Incentive Funding (QBIF). Practice changes include the use of inter-professional and collaborative care teams to help family physicians with different aspects of testing, screening, education, and the follow up of patients, giving physicians more time to focus on patients with more complex medical needs.

Potential Years of Life Lost (PYLL) measures the years of life lost before age 75 in a population, due to premature death. The greatest number of PYLL by specific cause of death for Manitobans in 2007 were:

- **unintentional injuries**
- **heart attack**
- **suicide**
- **lung cancer**
- **female breast cancer**

These causes have remained relatively stable since 2000.

The leading cause of PYLL for females and for males in 2007 was unintentional injuries. For women, breast cancer was the second leading cause, followed closely by lung cancer and heart attacks. For men, heart attack was the second leading cause of death followed by suicide.

Years of life lost to suicide in Manitobans overall, as well as in men and in women peaked in 2005 and began to decrease in 2006 and again in 2007. Years of life lost for First Nations on reserve has decreased by approximately one-third from 2006 to 2007. On reserve First Nations in Manitoba have over three times more years of live lost to suicide when compared to Manitobans not living on a reserve. For males on-reserve, the number of years of life lost is more than double and in females it is over eight times more, than for Manitobans living off reserve. In addition, years of life lost due to unintentional injury, heart attack, stroke and pneumonia and influenza were over three times higher for First Nations living on reserve when compared to Manitobans living off reserve.

PYLL has remained relatively constant over time with small fluctuations from year to year. Challenges remain in addressing the large numbers of years of life lost to unintentional injuries, and the health disparities of groups such as First Nations on reserve.

The factors that affect health and well-being are varied, inter-related and complex. The considerable range of factors that affect health and well-being requires, among other things, that multiple solutions be considered — particularly with respect to front end investments aimed at addressing root causes. For example, access to safe, affordable, appropriate housing is essential to good health because of its influence on individual health and well-being, educational achievement, social interactions, labour market attachment and community identity.

In general, Aboriginal people tend to be more likely to live in crowded homes. First Nations people are six times more likely to live in crowded homes than non-Aboriginal people. This rate is more pronounced on reserve where more than one third of First Nations people lived in crowded homes. Aboriginal people also tend to be far more likely to reside in homes in need of major repair (38 per cent for First Nations people and 17 per cent of Métis people as compared to eight per cent in the non-Aboriginal population).

Closing the significant gap between the health status of Manitoba's Aboriginal people, relative to other Manitobans, is of key importance in enhancing their quality of life. Aboriginal people are less healthy than non-Aboriginal people in Manitoba despite being a relatively more youthful population. Although some limited information is available to describe the health status of the registered First Nations population in Manitoba, data and research on Métis health issues are sparse.

Manitoba is working to address the gaps in health status through a variety of initiatives across socio-economic sectors. These efforts support the goals and the vision of the Closing the Gap Initiative. Lead by Manitoba Aboriginal and Northern Affairs, the initiative aims to fulfill a government commitment to address the gap in well-being — specifically the socio-economic disparities — between Aboriginal and non-Aboriginal people in Manitoba. The implementation plan proposed a ten-year, multi-departmental effort, focusing its work on five priority areas:

- **education and early childhood**
- **housing and infrastructure**
- **health and well-being**
- **economic opportunities**
- **relationships and accountability**

Access and Quality of Care

TREND - **STABLE**

Access to high quality health services is important in the prevention, early detection and treatment of illness. Key dimensions around quality and access include the:

- **appropriateness of the health services available**
- **effectiveness in maintaining/improving health**
- **efficiency with which they are delivered**
- **responsiveness of the health system to adapt to demands including health service availability, accessibility and timeliness**

Patient perceived quality of care reflects the patients' overall perception of the quality of care received. This measure of quality is subjective and differs from objective measures of clinical effectiveness and appropriateness. Results of Statistics Canada's Community Health Survey (Table 3-8) about this indicator shows that the majority of Manitobans report receiving excellent or good quality of care.

Table 3-8: Percentage of Manitobans reporting perceived quality of care as excellent or good by type of care, 2000, 2003, 2005 and 2007

Source: Canadian Community Health Survey

(-) indicates that question was not asked during that time period.

	HEALTH CARE SERVICES	PHYSICIAN CARE	HOSPITAL CARE	COMMUNITY BASED SERVICES	TELE-HEALTH
2000	80.3	90.1	82	78.9	-
2003	85.6	92.4	82.9	73.8	77.4
2005	87	91	85.9	73.7	84.9
2007	86.7	91.9	86.2	-	-

The per cent of population having difficulty obtaining services is a measure of the public's perception of access to health services. Manitobans were asked by Statistics Canada in 2003, 2005 and 2007 whether they experienced any difficulties accessing health services in the preceding 12 months (Table 3-9).

Table 3-9: Percentage of Manitobans reporting no difficulties in access by type of care, 2003, 2005 and 2007

Source: Canadian Community Health Survey

	ROUTINE CARE	HEALTH INFORMATION/ ADVICE	IMMEDIATE CARE
2003	80.9	82.2	74.6
2005	82.4	84.8	77.6
2007	81.9	82.9	69.8

These results suggest that the number of Manitobans finding it difficult to access routine care and health information/advice has remained stable while the number of Manitobans reporting difficulty accessing immediate care seems to be increasing.

A number of strategies have been put in place to improve access to services and quality of care in Manitoba and reduce costs and inefficiencies in the system. In March 2007, MHHL implemented Advanced Access to allow patients to see a physician or other primary care practitioner at a time and date that is convenient for them. At the end of the 18-month process, approximately 100,000 patients will have better access to their primary care providers. Plans are underway to implement Advanced Access at additional clinics.

More improvement in patient access is being achieved through a community access model which provides health and social services within one location. Existing community health centers are enhancing their services by building links with community agencies and social services.

Another initiative to increase access and quality of care, particularly in rural and remote areas, was introducing nurse practitioners in Manitoba in 2005, to work with patients and other health care providers in managing and preventing minor illnesses and chronic conditions. They are now working in emergency rooms, primary care clinics, cancer clinics, personal care homes and hospitals across Manitoba to provide quality care and improve access. MHHL created 30 new nurse practitioner positions in 2008 as an innovation to improve access, prevent illness and reduce costs that result when access to primary care is limited.

MHHL is also working on *Cross Department Co-ordination Initiatives* (CDCI); a partnership with Family Services and Housing. CDCI focuses on creating a range of adequate and affordable housing options with related health and social service supports through the development and co-ordination of programs and service delivery.

MHHL remains committed to improving the health of all Manitobans. Through cross-departmental collaboration with Healthy Child Manitoba, MHHL is working to improve the well-being of Manitoba's children and youth, helping them to reach their full potential and grow into healthy adults.

IMPLICATIONS FOR SUSTAINABILITY

The expenditures on health services in Manitoba account for a large percentage of the provincial budget. The largest proportion of the costs for health services are:

- **hospitalization costs**
- **physician care**
- **pharmaceutical drugs**

Research has shown that while access to key effective services is important to health status, there are many determinants of health, of which health services is just one. In participating in cross-departmental collaborations and projects such as the Closing the Gap initiative, Manitoba in Motion and the pre-diabetes screening program, MHHL is focusing on optimizing the health status of all Manitobans through:

- **illness prevention**
- **health promotion**
- **the reduction of disparities**

MHHL is also addressing the health care needs of Manitobans and improving the quality and accessibility of the health care system through programs such as PIN and Advanced Access. Although many challenges remain, such as the aging population and the health disparities of the rural northern and Aboriginal communities, MHHL is committed to achieving a sustainable health care system by working to decrease disparities, prevent illness and provide quality, accessible care to all Manitobans.

Questions for sustainability are whether the amount and mix of services are appropriate, and how to achieve a better balance between prevention and care to improve health and reduce disparities. Reducing or delaying the onset of illness can affect service delivery costs. With the aging of society and the increasing proportion of the Aboriginal population, increased pressure is anticipated on the health system. Reducing disparities, disability, illness and addressing all the determinants of health through multi-sectoral collaborations, illness prevention and empowering Manitobans to take control of their own health is key to achieving the goal of attaining optimal health and well being for all Manitobans and sustainability in health.

FOR MORE INFORMATION

- Manitoba Health: gov.mb.ca/health/
- Manitoba Centre for Health Policy: <http://umanitoba.ca/medicine/mchp>
- Canadian Institute for Health Information: cihi.ca
- Statistics Canada: <http://www.statcan.gc.ca/>
- Manitoba Healthy Living: gov.mb.ca/healthyliving/index.html
- Healthy Child Manitoba: gov.mb.ca/healthychild/

JUSTICE

Why is it important?

The law and the justice system are important to Manitobans because they provide order in society, a peaceful way to settle disputes and a means of expressing the values and beliefs of our province and country. The justice system deals with a broad range of criminal, constitutional, and administrative laws. It also provides processes to resolve private disputes fairly and without violence in matters such as contracts, property ownership, family rights and obligations, and damages to property.

Despite the importance of the justice system in supporting the social well-being of Manitobans, it is very difficult to adequately measure its effectiveness because of the complexity of our laws, the number of independent stakeholders in the system, the need for fairness and due process, the extremely wide variety of individual matters and personal situations that the system must handle, and the limitations presented by the criminal justice indicators that are currently available for analysis.

Indicators and trends

The following key indicator reflects trends in justice:

- **CRIME RATES** which is measured by the number of crimes recorded by police agencies in Manitoba. The crime rates reflect activity in the criminal justice system. It does not encompass other justice activities and services.

Crime Rate

TREND - **INCONCLUSIVE**

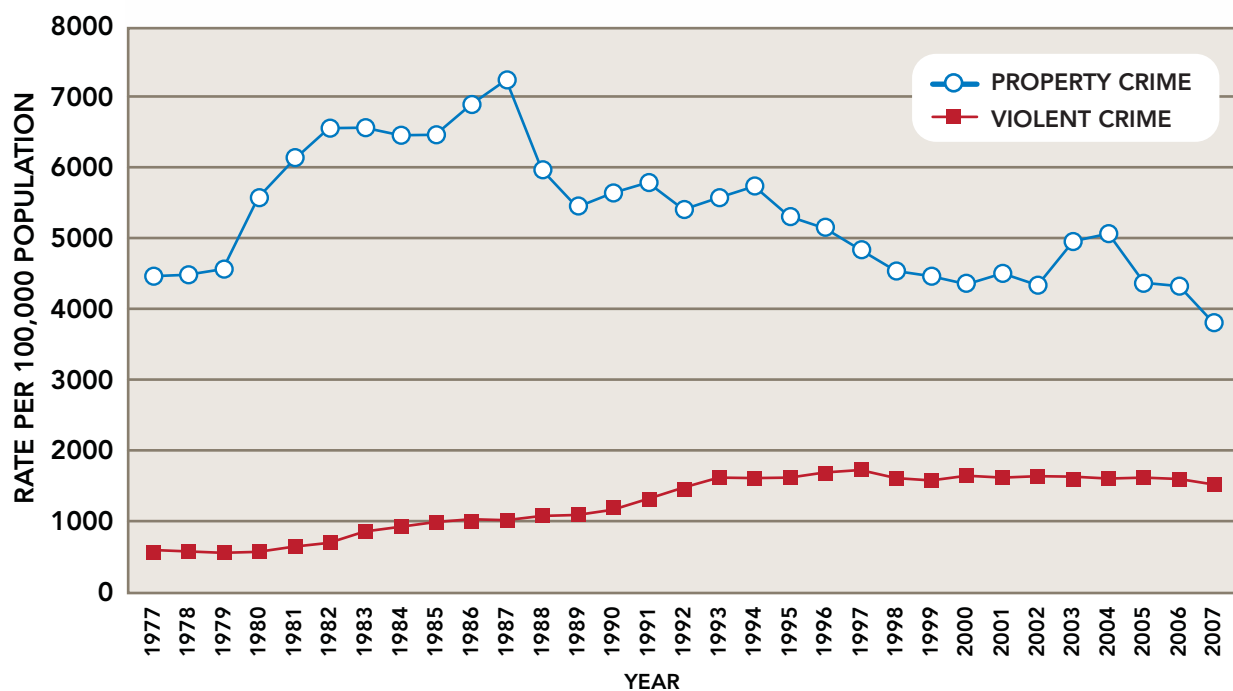
Justice statistics are gathered and published annually by the Canadian Centre for Justice Statistics (CCJS), an agency of Statistics Canada. One of the most common indicators referred to in connection with the justice system is the crime rate, which demonstrates the number and types of criminal incidents that are reported to, and then officially recorded by police forces in various parts of Canada.

It is best to think of the crime rate as only a general indicator of criminal activity as its interpretation at times can be ambiguous. For instance, a higher rate of a certain type of crime may not necessarily mean that type of activity is more common in a certain area. It may indicate that the justice system in that area is doing a better job of identifying, reporting and dealing with those kinds of incidents. Alternatively, it might reflect an increased willingness on the part of victims to report crimes.

Manitoba's violent crime rate (including offences such as homicide, assault, sexual assault and robbery) has remained relatively stable since 1993. Manitoba has, however, experienced a slight downward trend in the violent crime rate since 2005. The rate decreased one per cent between 2005 and 2006 and then five per cent between 2006 and 2007 (Figure 3-10).

Manitoba's property crime rate (including offences such as break-ins and thefts) has demonstrated an overall downward trend since 1993. The rate decreased one per cent between 2005 and 2006, and then 11 per cent between 2006 and 2007. The decrease between 2006 and 2007 was largely due to a 14 per cent decline in Winnipeg.

Figure 3-10: Manitoba violent and property crime rates 1977-2007



IMPLICATIONS FOR SUSTAINABILITY

Manitoba Justice supports a variety of crime prevention and community justice programs and helps fund police forces in the province (although policing in larger centres is a municipal responsibility). Consultation and special supports are provided to victims of more serious crimes.

To help reduce future re-involvement in criminal activity, Manitoba's correctional system provides sentenced offenders with:

- **counselling**
- **education**
- **vocational training**
- **appropriate remedial programs**

While all these efforts are important, they cannot on their own prevent a crime from happening.

It is generally accepted that a wide range of individual, family, community and social factors influence potential criminal behaviour. Simple indicators, such as crime rates, may point to problems, but not solutions. Policy makers examining a fluctuation in a particular crime rate alone don't have enough information to make policy or decisions. Examining fluctuations do, however, establish awareness of an area where more intensive investigation may be needed.

Because a wide range of factors in individuals' backgrounds and life experiences may influence one's risk of offending, policy makers examining fluctuations in crime rates are left with difficult questions about where best to intervene. Despite these challenges, a variety of individual and family factors that have been shown to correlate with crime have been addressed on a variety of fronts by the Manitoba government in recent years.

These factors include:

- **education**
- **literacy**
- **substance abuse**
- **learning disabilities**
- **Fetal Alcohol Spectrum Disorder**
- **mental illness**
- **routine activities**
- **parenting**
- **family violence**

In addition to individual and family factors, the following also correlated with crime rates:

- **age**
- **gender**
- **community profiles**
- **rates of poverty**
- **income and labour force participation**
- **urbanization**
- **rates of family breakdown**
- **community cohesion**

Knowledge of such correlations do not, however, provide adequate information to generate a clear path toward systemic interventions.

In recognition of significant data interpretation challenges when considering justice statistics, in June of 2003 the Justice Information Council (a committee made up of federal/provincial/territorial deputy ministers responsible for the administration of justice in Canada and the chief statistician of Canada) agreed on the need to move in a significant new direction.

The council supports the gathering and analyzing of a variety of national information on individual, family and community/societal factors, and justice and partner system interventions, to determine their effect on:

- **offending and reoffending**
- **quality of life**
- **skill development/employment**
- **parenting skills**
- **economic growth**

Such an approach could improve the national capacity to address key policy questions and could support research-based policy development in the future.

FOR MORE INFORMATION

More information on the justice system in Manitoba is available at:

- gov.mb.ca/justice/index.html

Crime rate statistics are published yearly by Statistics Canada and can be accessed at:

- www.statcan.gc.ca/



CONCLUSION

SOCIAL WELL-BEING DIMENSION

Manitoba continues to benefit from a growing population, which as of July 2008 was estimated to be 1,207,959 people, having increased by 14,445 since July 1, 2007. A large portion of the increase can be attributed to Manitoba's immigration strategy which saw the arrival of 10,741 new Manitobans during that period. Manitoba's Aboriginal population is growing faster than the general population and by 2006 was estimated to have increased to 179,700.

Health indicators have both individual and community aspects and the factors affecting health are varied and complex. Socio-economic status, and where Manitobans live within the province, is related to their overall health. Manitoba is addressing the dimensions of functional health through a range of strategies aimed at protecting public health and promoting healthy living. Despite being a relatively more youthful population, Aboriginal people in Manitoba tend to be less healthy relative to the general population. Manitoba is working to address gaps in health outcomes and reduce disparities.

The ability to provide the necessities of life and have access to opportunities offered by society is a basic principle of equality. Manitoba is committed to reducing the incidence and effects of poverty and low-income through strategies and programs that increase the social and economic inclusion of all Manitobans. Recent trends suggest that Manitoba is maintaining its relative position in Canada in terms of economic well-being.

Public participation in democratic governance is an important indicator of sustainability, and increased efforts are needed to encourage citizen participation in decisions affecting the economy, environment and overall social well-being.

There is growing awareness of the importance of sustainability for community and culture, and of the links between art, heritage, cultural diversity, the economy and the environment. Our respect for environmental protection can be said to be rooted in the values of the first peoples of our province. Creativity is now recognized as an important element of successful communities and Manitoba's well-educated, multi-lingual and culturally diverse population positions it well for participation in the global economy.



CHAPTER 4

FOCUS ON SUSTAINABLE LAND USE PLANNING IN MANITOBA

What is Sustainable Land-use Planning?

Land-use planning is a community-based process that helps communities make decisions about how land will be used, developed and protected. The way in which land is used and developed has a direct impact on the preservation of agricultural lands, natural habitats and species, as well as on water and air quality, energy use and the overall health of the environment.

A sustainable approach to land use and development means viewing the goals of economic development, social equity and environmental protection as interrelated. Sustainable development also recognizes, and places value on the important functions of the ecosystem and ensures these can be protected from, or incorporated into, development to provide the best results for both the built and natural environment, both now and into the future.

Current State of Municipal Land-use Planning in Manitoba

Land-use planning in Manitoba municipalities is done as a partnership between the provincial and local governments and their citizens. Each plays a key role in ensuring the planning process is a success.

The province, through *The Planning Act* and *The City of Winnipeg Charter*, sets the legislative framework for land-use planning in Manitoba. Under this framework, the Provincial Land Use Policies (PLUPs) serve as a guide to local and provincial authorities in preparing land use plans and making sustainable land use and development decisions. There are nine policy areas of PLUPs which together recognize that planning must address a number of elements simultaneously:

- **general development**
- **agriculture**
- **renewable resources**
- **water and shore land**
- **recreational resources**
- **natural features and heritage resources**
- **flooding and erosion**
- **provincial highways**
- **mineral resources**

At the local level, development plans provide a framework to direct sustainable land use and development in a municipality or planning district through maps, policies and statement of physical, social and environmental and economic objectives. As of January 1, 2009, 183 of 198 municipalities have an approved development plan.

In January 2008, local governments were also required to include a Livestock Operation Policy (LOP) in all development plans to protect existing operations and provide future food production and agricultural diversification opportunities. As of January 1, 2009, approximately 30 per cent of development plans include an approved LOP.

Next Steps in Land-use Planning in Manitoba

To move forward with sustainable development in Manitoba, the province is building on the existing framework for planning under *The Planning Act*, to develop a community sustainability planning framework.

A community sustainability framework recognizes that community participation is fundamental to identifying a shared community vision for the future and the co-ordinated actions necessary for achieving this vision. Within this framework, decisions about land-use development are considered within a broader and more integrated context that considers related priorities such as:

- **addressing climate change issues**
- **infrastructure planning**
- **protecting water resources**

To respond to emerging issues and priorities, the province is reviewing and rewriting the PLUPs. Specifically, the policies propose to strengthen an integrative approach to land use planning. The draft PLUPs includes the following policy areas:

- **general development**
- **settlement areas**
- **agriculture**
- **natural lands**
- **renewable resources, recreation and heritage**
- **water resources**
- **infrastructure**
- **transportation**
- **mineral resources**
- **capital region**

The draft PLUPs emphasizes the province's commitment to supporting regional approaches to land-use planning. Regional planning allows municipalities to address cross-jurisdictional issues, such as transportation or public servicing, and to achieve greater economic efficiency through the co-ordination of services.

Planning for Traditional Use Areas

In 2007, the Manitoba Government made a commitment to traditional area land-use planning through the Wabanong Nakaygum Okimawin (WNO) Accord. In December 2008, the government introduced Bill 6, *The East Side Traditional Lands Planning and Special Protected Areas Act*, which is a new and innovative approach to provide for land-use planning and protection on the east side of Lake Winnipeg. Originating as one of the recommendations of the report (*Promises to Keep — Towards a Broad Area Plan for the East Side of Lake Winnipeg*) First Nations in the WNO planning area had requested a mechanism for traditional area planning that allowed for protection of their way of life and of the boreal forest (Wabanong Nakaygum Okimawin means east side of the lake governance).

The proposed legislation is designed to provide a framework for development and approval of land-use plans that reflect the interests of First Nations and Aboriginal communities on the east side, in defined planning areas that reflect their traditional use areas. The legislation would become operative when an East Side First Nation approaches the Manitoba Government to request the lands they have traditionally used be designated as a traditional use planning area. Planning councils, consisting of First Nations and provincial representatives, will develop management plans to guide decisions about land use and resource management in the planning area.

Planning councils will consider the following when developing land use plans for a given area:

- **natural resources**
- **environmental considerations**
- **traditional uses of land by members of First Nations, Metis and Inuit communities**
- **cultural and social factors and priorities, including the protection and preservation of sites with religious, spiritual or archaeological significance**
- **the exercise of Aboriginal rights and treaty rights**
- **the economic development needs of First Nations and Aboriginal communities that have traditionally used land, residents of the surrounding regions, and the province as a whole**
- **existing and approved land and resource use and development**
- **provincial land use policies established under *The Planning Act***

“Traditional Knowledge” is an important element in the development of traditional area land-use plans. “Traditional Knowledge” refers to the knowledge base acquired by Indigenous peoples over many hundreds of years through their direct contact with the environment. It would include:

- **an intimate and detailed knowledge of plants, animals and natural phenomena**
- **the development and use of appropriate technologies for hunting, fishing, trapping, agriculture and forestry**
- **a holistic knowledge, or world view, which parallels the scientific discipline of ecology**

When used in an appropriate and complementary fashion with western scientific knowledge, the two knowledge systems can provide a powerful tool for managing natural resources and achieving sustainable development.

Once a management plan for a traditional use area is approved, regulations will be passed to implement the management plan. The plan will deal with matters in the planning area such as the allocation or disposition of land and resources, restrictions on development and the process for making decisions on land-use, resource management and development issues. Enabling First Nations to have their land-use plans legally recognized will ensure sustainable use for many generations. Bill 6 also allows for areas of Crown land on the east side of Lake Winnipeg to be designated as special protected areas. Regulations may be made to protect the land and resources in such special protected areas and may restrict or prohibit development and other specified activities.

CONCLUSION

The sustainable planning and management of Manitoba's landscapes is a complex task. Effective and integrated land-use policies play an important role in managing growth and development in ways that build communities, promote a healthy environment and sustain a sound economy. Municipal planning is moving toward a community sustainability planning framework which is a more integrated approach to ensure sustainability. First Nations have always used the land in a sustainable manner and a mechanism which enables them to have their traditional use areas legally recognized by the province will ensure sustainability of these areas into the future.

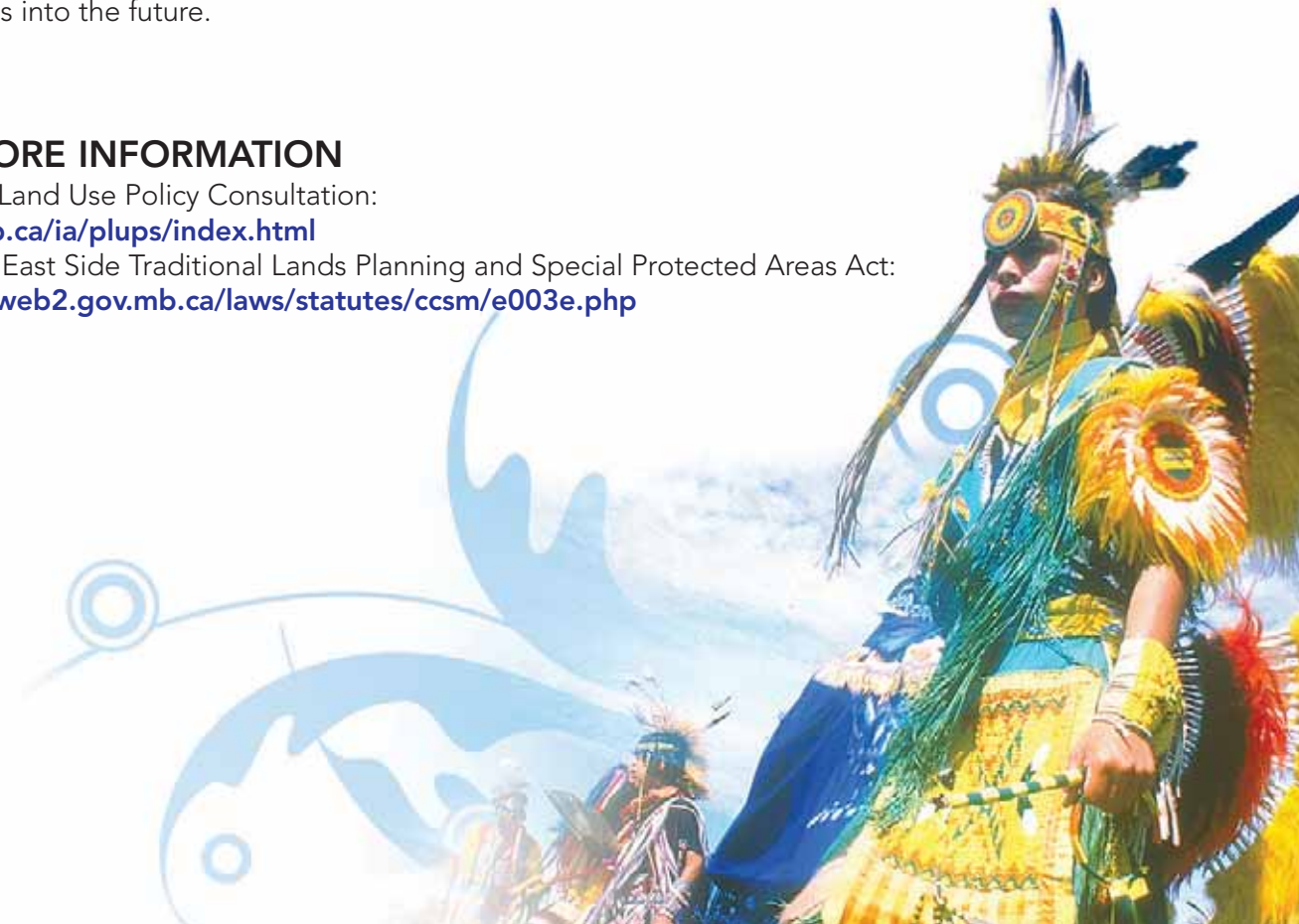
FOR MORE INFORMATION

Provincial Land Use Policy Consultation:

- gov.mb.ca/ia/plups/index.html

Bill 6, The East Side Traditional Lands Planning and Special Protected Areas Act:

- <http://web2.gov.mb.ca/laws/statutes/ccsm/e003e.php>



CHAPTER 5

PROGRESS REPORT ON SUSTAINABLE DEVELOPMENT PROCUREMENT

Manitoba is embracing and demonstrating commitment to economic sustainability through innovative programming and legislation and also through purchasing practices and policies shaped by its sustainable development procurement goals. *The Sustainable Development Act* (1998) required the establishment of sustainable development procurement guidelines and goals.

Five goals were subsequently established to be integrated into procurement procedures to ensure that the purchase of all goods or services is consistent with the principles and guidelines of sustainable development. Through innovation and foresight we can develop Manitoba's economy while reducing our ecological footprint through the greening of our activities. New tools such as a green procurement website are being developed to help achieve more sustainable purchasing practices and Community Economic Development (CED) is becoming an important purchasing consideration.

COMMUNITY ECONOMIC DEVELOPMENT – ABORIGINAL PROCUREMENT INITIATIVE

The Province of Manitoba is committed to contributing to the economic and social well being of all Manitobans. CED, as a key component of Manitoba's economic strategy, is intended to develop a provincial economy that is more inclusive, equitable and sustainable.

Procurement practices are one strategy that can have an important role in promoting and implementing sustainable community economic development. To that end, and in support of the Manitoba's Community Economic Development (CED) Initiative, Manitoba introduced the Aboriginal Procurement Initiative (API), designed to increase opportunities for Aboriginal business to provide goods and services to government.

For more information see:

http://www.gov.mb.ca/mit/psb/api/ab_proc.html

The first tools of the *Aboriginal Procurement Initiative* (API) — the Aboriginal Business Sourcing and the Aboriginal Business Directory, were implemented in 2004/2005. Additional supporting tools such as Aboriginal Set-Asides and Aboriginal Participation have been developed for government-wide formal implementation of the API effective April 1, 2009. Manitoba has been promoting awareness and opportunity for partnerships with Aboriginal business through the Aboriginal Business Directory. By 2007, the directory membership had expanded to 270 companies, primarily from Manitoba, and the number of purchases/transactions from Aboriginal business had increased to approximately \$26 million for 2007/2008 (see Table 5-1 and Figure 5-1 below).

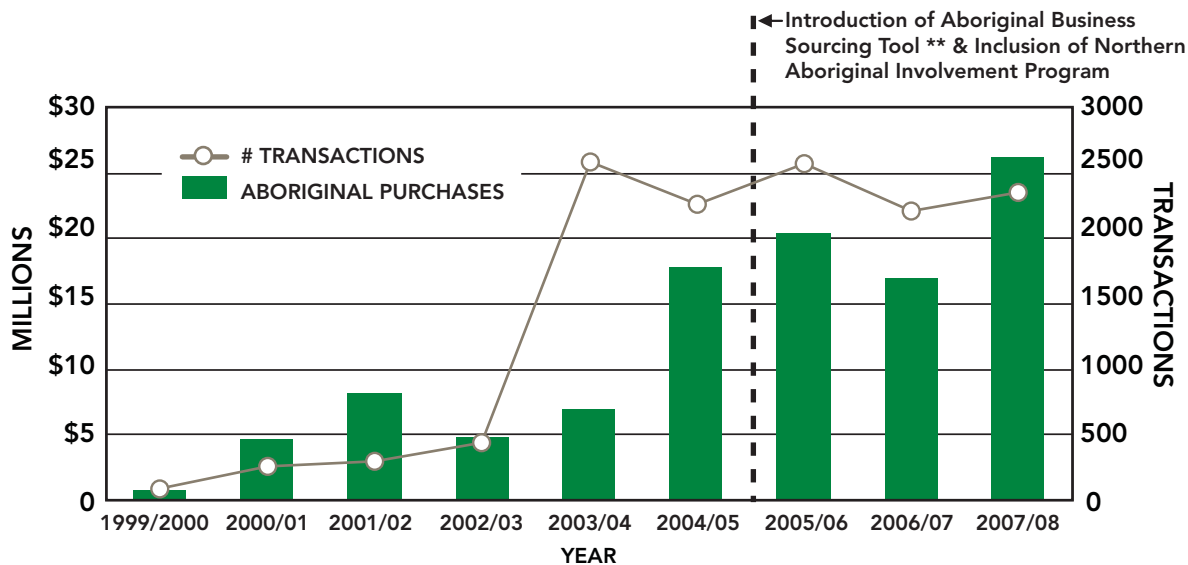
Table 5-1: Aboriginal Business Awarded

Source: Manitoba Government Services

ACTIVITY	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
ABORIGINAL PURCHASE	\$759,761	\$4,608,158	\$8,188,713	\$4,789,738	\$6,951,317	\$17,875,676	\$20,376,361	\$26,210,985
TRANSACTIONS	89	257	292	436	2583	2579	2213	2352

Figure 5-1: Aboriginal Procurement Initiative

Source: Manitoba Government Services SAP and Smart Data on Line



RESPONSIBLE MANUFACTURING INITIATIVE

The *Responsible Manufacturers Initiative* is a combination of policy, legislation and regulation that seeks to strengthen the social responsibility commitment of government and raise the level of awareness of government buyers and suppliers. Clothing purchased with public funds must be produced under humane working conditions. The initiative supports the principle of *The Sustainable Development Act* to think globally when acting locally, recognizing there is economic, ecological and social interdependence among provinces and nations.

Manitoba's Purchase of Clothing from Responsible Manufacturers policy came into effect for all new clothing contracts January 1, 2007. The province purchases on average about \$1.1 million of clothing a year.

The Government Purchases Amendment Act (Responsible Manufacturing) came into force on April 1, 2009. The amendment reinforces, in law, the principle of purchasing from responsible manufacturers. A corresponding regulation provides supporting detail to the amendment including a description of the minimum fair labour practices that vendors must certify are being followed in the manufacture of the clothing supplied. Responsible manufacturing is defined as complying with a minimum set of fair labour practices (eg: no forced labour; freedom of association and adherence to applicable local labour laws).

Manitoba is in the forefront among federal and provincial jurisdictions in Canada in the development of such policies and legislation; no others have done so. For more information see: gov.mb.ca/mit/psb/rm.html

SOCIAL PURCHASING PORTAL

Manitoba has entered into an agreement with the Winnipeg Social Purchasing Portal as a supporting partner. The Social Purchasing Portal is managed by Supporting Employment and Economic Development (SEED) Winnipeg. The portal is a web based information resource that lists companies, and their products, to help supplier/purchaser relationships committed to strengthening Winnipeg's inner city. Suppliers listed on the portal provide the added social benefit of creating employment for individuals, vulnerable groups and inner-city communities. Many of the suppliers on the portal are small businesses or CED businesses located in Winnipeg's inner city and are listed in Manitoba's Social Purchasing Portal Directory. This initiative was implemented government wide in April 2009.

THE ENCOURAGING GREEN AND SUSTAINABLE PROCUREMENT WEB SITE

Public sector organizations in Manitoba, including provincial government departments, Crown Corporations, local governments, school divisions, universities, colleges and regional health authorities, worked together to create a forum for the exchange of best practices. Participants of this forum recognized that through co-ordination of their resources they could help public sector procurement professionals in the buying process. Participants supported the development of a website as a way of accomplishing this. The website will provide sustainable procurement information on products and services, policies and best practices.

The website benefits Manitoba in two main ways:

- **by working collectively, the time and resources of individual organizations are maximized**
- **by making the information widely available to these organizations, Manitoba can use its considerable influence as a significant purchaser of goods and services to advance environmental sustainability**

In early 2009, the forum launched a prototype of the Manitoba Going Green Procurement website, which is undergoing further enhancements before it becomes fully operational.

MATERIALS DISTRIBUTION AGENCY (MDA)

MDA has played an active role in sustainable development and green procurement for a number of years. Initiatives currently in place include the Toner Cartridge Recycling Program, Used Furniture Program and the Medical Equipment Program. For each of these programs, MDA collects the used items and determines if they should be reused, recycled or disposed of in an appropriate manner.

The agency also carries over **240 products** that are considered green and this number is steadily increasing. To ensure that products are green, MDA's future tendering process will request that certain items include green certifications such as Eco Logo and Green Seal.

MDA, in consultation with Manitoba Corrections and Manitoba Conservation, is in the process of tendering for an additional **22 green certified** items to satisfy the needs of these departments. The items being tendered for consist of paper products, garbage bags and food service disposables. To encourage a government-wide shift to these products, and other environmentally friendly products, MDA is planning a marketing and promotional campaign to raise awareness and solicit new product ideas.

FLEET VEHICLES AGENCY

One of Manitoba's sustainable development procurement goals is the reduction of fossil fuels and emissions. The intent of this goal is to reduce fossil fuel emissions of government operations and activities by:

- **reducing both consumption and emissions of vehicle fuels**
- **increasing the use of ethanol-blended fuels and alternative energy sources as a substitute for regular fuels**

There are two fleets in Manitoba Infrastructure and Transportation — one with Fleet Vehicles Agency and the other with the Mechanical Equipment Services Branch.

Fleet Vehicles Agency owns and manages the majority of the light duty vehicles in the provincial fleet. It also owns and manages vehicles that are leased to Crown corporations and other entities in the broader public sector (see Figure 5-2 and Table 5-2 below).

Figure 5-2: Number of Vehicles in Fleet

Source: Manitoba Government Services

Note: The total number of units and all Fleet Vehicles Agency owned and managed vehicles, including ambulances and some heavy duty units (includes customers in the broader public sector).

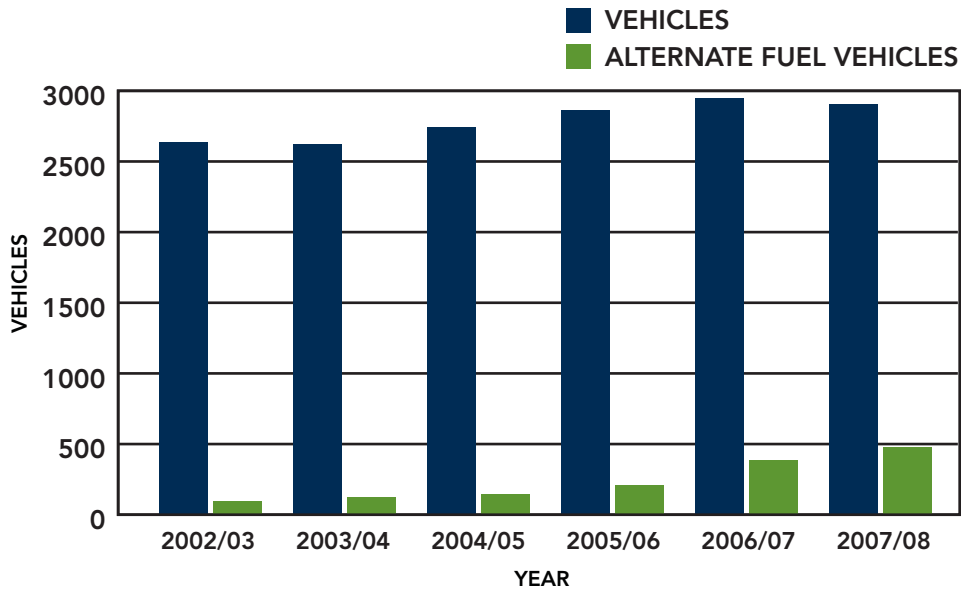


Table 5-2: Alternate and Flexible Fuel Vehicles (March 31, 2008)

Source: Manitoba Government Services

Note: By March 31, 2008, alternate and flexible fuel vehicles comprised 14% of the total fleet.

VEHICLE TYPE	NUMBER OF VEHICLES
E85 cars	37
E85 mini vans	162
E85 Trucks and SUVs	241
Hybrid cars	21
Hybrid compact SUV	16
Total	477



ETHANOL

Ethanol is an alternative fuel produced from grains which can be blended with gasoline to reduce greenhouse gas emissions. Ethanol produced by Husky Energy's Minnedosa plant has as much as **25 per cent** fewer greenhouse gas emissions than an equivalent amount of gasoline. Manitoba has mandated that **85 per cent** of gasoline sold in Manitoba must be formulated with **8.5 per cent** ethanol as soon as local production grows to meet demand. This initiative is expected to reduce green house gas emissions by **340,000 tonnes** annually.

Husky Energy's Minnedosa plant has been producing **10 million** litres of ethanol annually since the 1980s. The Ethanol mandate and tax incentives led to Husky's decision to build a new plant on the site, which will increase capacity to **130 million** litres. An amount equivalent to nearly one million barrels of imported oil.

By March 31, 2008, Manitoba's ethanol purchases for it's **2907** fleet units represented **16 per cent** of the total fuel purchases.

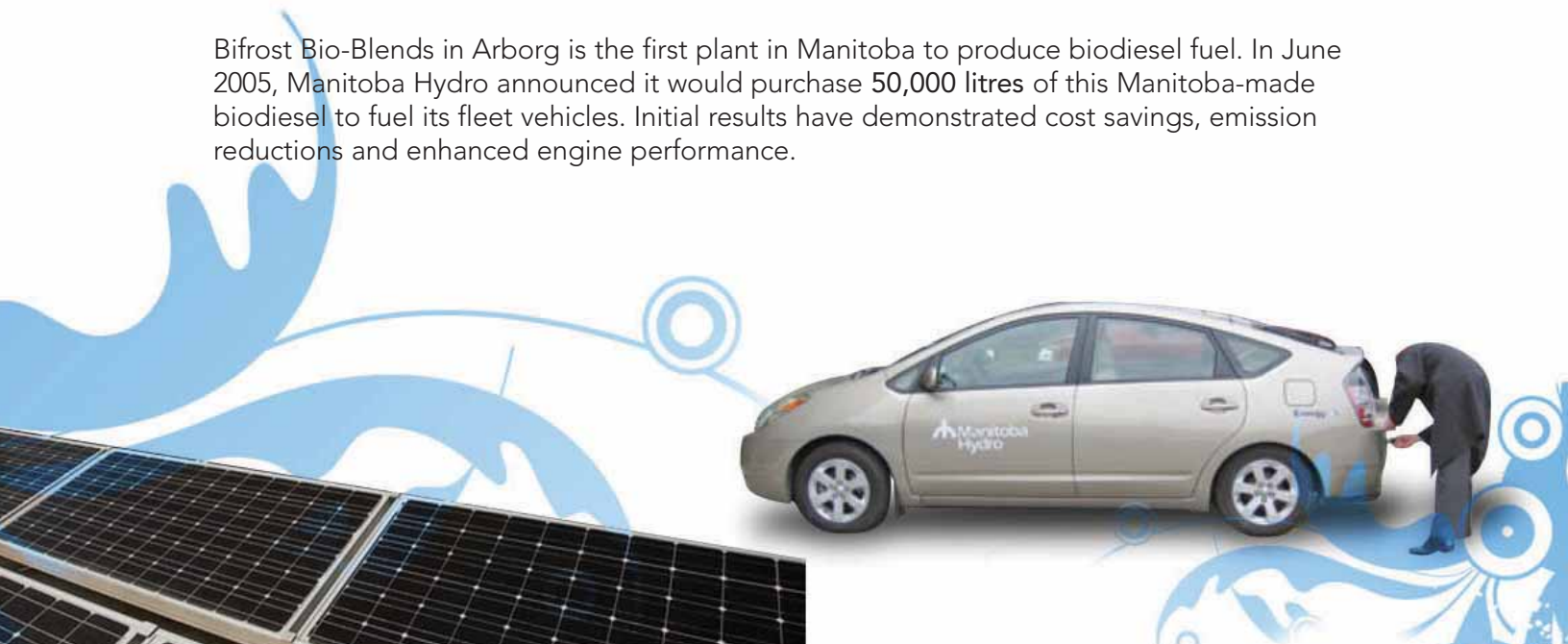
BIODIESEL

Biodiesel is a cleaner-burning diesel replacement fuel made from natural, renewable sources such as vegetable oils, animal fats or recycled cooking greases. In Manitoba, off-grade canola may become the primary feedstock.

Biodiesel is safe, biodegradable, and reduces serious air pollutants such as particulates, carbon monoxide, hydrocarbons and other air toxins. Blends of up to **20 per cent** biodiesel mixed with petroleum diesel fuels can be used in nearly all diesel engines.

In 2005, Manitoba eliminated the **11.5 cent per litre** road tax on pure biodiesel (B100). Combined with the removal of the four cent per litre federal excise tax, this results in a **15.5 cent per litre** saving over regular diesel fuel. In 2006, Manitoba also removed all taxes on the biodiesel portion of blends with diesel fuel.

Bifrost Bio-Blends in Arborg is the first plant in Manitoba to produce biodiesel fuel. In June 2005, Manitoba Hydro announced it would purchase **50,000 litres** of this Manitoba-made biodiesel to fuel its fleet vehicles. Initial results have demonstrated cost savings, emission reductions and enhanced engine performance.



ACCOMMODATION SERVICES

The *Sustainable Development Act* required the establishment and reporting of sustainable development procurement guidelines and goals. Goals were established to be integrated into procurement procedures to ensure that the purchase of all goods or services is consistent with the principles and guidelines of sustainable development. A progress and activity report for Accommodation Services is provided below:

Education, Training and Awareness

A significant policy to further the principles of *The Sustainable Development Act* is the April 1, 2007 creation of the Green Building Policy for Manitoba Funded Projects. The vision of this policy is to create a significant improvement in how new, and significantly renovated, buildings funded by Manitoba perform over their entire life cycle from an environmental, energy and economic perspective.

Pollution Prevention and Human Health Protection

The activities in support of pollution prevention and human health protection are intended to achieve a healthy, energy efficient and sustainable environment while enabling the health and well being of building occupants. From complete removal of phosphorous from fertilizer products being used on grounds, to a central program to remove any building products that are considered contaminants (asbestos, for example) are underway across government.

Reduction of Fossil Fuel Emissions and Resource Conservation

Fossil fuels and electricity are used to provide heating and cooling to buildings. The Manitoba government is committed to operate our owned facilities in as efficient a manner as practicable. Wherever possible, decisions are made to provide the energy requirements with the most efficient energy sources and ideally with the lowest emission producing fuels available in the geographic areas served.

The greenhouse gases produced by all energy sources used to operate buildings is detailed as follows:

Government facilities, represented in Tables 5-3 and 5-4 comprise the most significant portion of owned accommodations, but are by no means the entire portfolio of all government buildings. As the owner of these various properties, government controls their construction and operation and is responsible for the resource efficiency of these facilities.

The fuel, energy and water provided by service utilities are listed for two consecutive fiscal years in Table 5-3. The GHG emissions of the fuels used in these properties is presented in Table 5-4. The year over year (YOY) change in consumption of all utilities has been relatively flat over the past several years. The building portfolio is under constant review and where major building maintenance and renovations are required, efforts are made to improve energy efficiency and upgrade compliance to current regulations and building standards.

When the owned portfolio experiences growth, the utility use will necessarily rise. However, with improvements in energy efficiency, the change to total utility use will be more moderate than would have been the case even a few years ago.

Water consumption decreased YOY by 3.7 per cent to 649,841 cubic meters. The reduction of water use is an initiative that will continue with the implementation of retrofits of low volume fixtures in building renovations and new construction. Some sustainability programs, such as cycling to work, dictate the installation of showers in facilities where there were none. This will potentially demonstrate an increase in water consumption that is hopefully offset by the benefits of the initiative it supports.

Fuel oil is used as a back-up fuel in some major facilities and as a safeguard to the temporary loss of a natural gas or propane supply. Diesel fuel is sometimes needed for emergency generator use. The use of fuel oil and diesel fuel in buildings is generally a small overall quantity and because the GHG impact is significantly greater than that of other hydrocarbons, their use is minimized whenever possible.

Table 5-3: MIT/ASD (Owned) Buildings Utilities Consumption – 2006/07 and 2007/08

Source: Manitoba Infrastructure and Transportation, Accommodation Services Division

	2006/07	2007/08	2006/07	2007/08	2006/07	2007/08	2006/07	2007/08	2006/07	2007/08	2006/07	2007/08
BUILDING TYPE	AREA M2	AREA M2	ELECT. MWH	ELECT. MWH	NATURAL GAS 1000 M3	NATURAL GAS 1000 M3	PROPANE 1000 L	PROPANE 1000 L	FUEL OIL 1000 L3	FUEL OIL 1000 L3	WATER M3	WATER M3
Corrections	66,097	66,097	14,412	14,660	1,968	1,956	474	468	3.2	25.3	168,835	152,941
Courts	56,338	56,338	6,010	5,740	364	380	81	49	0.0	0.0	27,934	23,994
Owned Colleges	144,270	144,270	23,043	24,549	4,072	4,416	472	618	32.9	48.2	125,161	125,357
SMHC/MDC	75,082	75,082	8,938	9,609	4,416	4,159	0	0	36.4	13.0	163,213	155,906
Office	147,760	147,760	25,278	25,729	1,417	1,433	0	0	0.0	34.3	90,221	86,318
Special	84,472	84,379	16,084	15,058	4,549	4,708	0	0	0.0	0.0	91,093	94,908
Vacant	47,817	47,817	0	0	921	1,056	0	0	0.0	0.0	6,713	8,392
Warehouse	12,970	12,970	2,010	1,910	252	289	0	0	0.0	0.0	1,918	2,023
Grand Total	634,808	634,714	95,774	97,255	17,959	18,398	1,027	1,134	72.5	120.8	675,087	649,841

Referring to Table 5-4, the increase to **38,964** tonnes of CO₂ equivalents emitted between (2006/2007 to 2007/2008) in global warming potential, was the result of minor increases within each building type, and can be largely attributed to weather and some building changes. Fuel oil has a significantly greater impact to GHG production than other fuels, and its use as a standby boiler fuel is minimized where practical, except where the natural gas supply is curtailed, or where needed for emergency generator use. Its impact in this period is relatively insignificant.

Table 5-4: MIT/ASD owned buildings - global warming potential (equivalent tonnes of CO₂e) 1990/1991, 2006/2007 and 2007/2008

Source: Manitoba Infrastructure & Transportation, Accommodation Services Division

	GLOBAL WARMING POTENTIAL (TONNES OF CO ₂ E) 1990/1991	GLOBAL WARMING POTENTIAL (TONNES OF CO ₂ E) 2006/07	GLOBAL WARMING POTENTIAL (TONNES OF CO ₂ E) 2007/08
GHG	40,131	37,805	38,964
Area (m²)	677,645	634,808	634,714
Area	0.059	0.059	0.061

Recycling Program

Table 5-5: Recycling – Materials Collected* 2003/04 – 2007/08

*Winnipeg contracts only

Source: Manitoba Infrastructure and Transportation, Accommodation Services Division

YEAR	MONTHLY AVERAGES	ANNUAL TOTALS
2003/2004	12.8 (tonnes)	127.7 (tonnes)
2004/2005	17.6	210.8
2005/2006	25.9	310.6
2006/2007	32.4	388.7
2007/2008	32.5	390.5

A recycling program is available to all government employees working in buildings owned, operated and leased by government throughout the province. This environmental program began as a provincial paper recycling initiative in 1992 and over the years has been expanded and refined to take advantage of the growth of the recycling industry, development of environmental policies at various government levels and best industry practices. The latest enhancements were initiated in 2003, with new recycling collection centers, expanded acceptance of recyclable materials, and refinement of recyclable material collection processes across the province. The recycling program is meeting its intended mandate and recycling in all facilities has become a stable process. It is now seen as standard practice for all government employees working in these facilities, and has become an expected service in the workplace.

Manitoba Green Building Policy

In April of 2007, the Government of Manitoba adopted its Manitoba Green Building Policy. Buildings are a significant contributor to depletion of natural resources and are a major cause of greenhouse gas emissions, air and water pollution, solid waste, toxic waste, health hazards and other negative consequences.

The general definition of a green building means building design and construction practices that significantly reduce or eliminate the negative impact of buildings on the environment and occupants in five broad areas:

- **sustainable site planning**
- **safeguarding water and water efficiency**
- **energy efficiency and renewable energy**
- **conservation of materials and resources**
- **indoor environmental quality**

The Green Building Policy helps to mitigate these adverse effects by requiring new buildings, additions and major renovations to existing buildings owned and operated by province, or funded wholly or in-part by the province, to meet sustainability requirements. These requirements include:

- **incorporating an integrated design process**
- **meeting minimum levels of energy efficiency**
- **using life-cycle costing of the building or building systems**
- **achieving a minimum LEED® (Leadership in Energy and Environmental Design) Green Building Rating System - Silver certification**
- **exercising a preference for low or zero carbon renewable energy sources**

In the initial implementation, The Green Building Policy includes any new, non-residential project over 600 square meters with the exception of industrial occupancies and farm buildings. The next stage of implementation will include existing buildings and leased accommodations.

Table 5-6: Green Building Policy

GREEN BUILDING POLICY	LEED® REGISTERED PROJECTS IN MANITOBA - FUNDED BY PROVINCE OF MANITOBA	TOTAL LEED® REGISTERED PROJECTS IN MANITOBA	PERCENTAGE POLICY PARTICIPATION
Prior to Policy introduction	3	10	30%
Voluntary Compliance April 2006 – April 2007	10	20	50%
Mandatory Compliance April 2007 – April 2008	20	36	56%
April 2008 – December 2008	33	56	59%

Since the initial introduction of the Green Building Policy on the basis of voluntary compliance in April of 2006, government funded project registrations in the LEED® System has increased from only three, prior to April 2006, to over 30 in 2008. In total, provincially funded projects comprise over half of the projects currently registered in Manitoba for LEED® certification (see Table 5-6).

Green buildings have demonstrated that they significantly reduce negative impacts and achieve many other benefits when compared to conventional building practices. From a broader societal perspective, the benefits of green buildings include:

- **health and productivity (reduced absenteeism, improved worker productivity, improved learning in schools, faster recovery from illness in health care facilities)**
- **community and social (reduced demand on municipal services, reduced traffic congestion and sprawl, support of local businesses)**
- **environmental (reduced greenhouse gas emissions, less use of nonrenewable energy sources, minimized ozone depletion, reduced toxic emissions, reduced resource extraction impacts, protection of biodiversity, less local and regional air and water pollution and fewer negative environmental impacts associated with building site selection)**
- **economic (opportunities for Manitoba businesses by stimulating the demand for green building products and services, reduced exposure to the price volatility and long-term supply concerns associated with the use of non-renewable fossil fuels imported from outside the province)**

In the application of the Green Building Policy, government has also reinforced and participated in the application of the numerous Manitoba Hydro Power Smart Programs.



Manitoba 