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10.0 PROJECT SUSTAINABILITY

10.1 INTRODUCTION

This Chapter responds to Section 10 of the EIS Guidelines which sets out the following information requirement related to Project sustainability:

"An assessment shall be provided of the balance between the environmental/ecological, social, economic, cultural and human health benefits and opportunities and impacts of the Project. Indicators and methodologies used in this assessment shall be explained."

In response, the Project is assessed with regard to its compatibility with *The Sustainable Development Act (Manitoba)*, and in particular, the Manitoba Principles and Guidelines of Sustainable Development. Manitoba is still in the process of establishing provincial sustainability indicators. Manitoba has issued a "Provincial Sustainability Indicators: What You Told Us" report and this document was used as guidance in the following assessment.

10.2 PRINCIPLES AND GUIDELINES OF SUSTAINABLE DEVELOPMENT

Through policy and legislation, Manitoba has adopted seven principles of, and six guidelines for, sustainable development. *The Sustainable Development Act (Manitoba)* defines sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." The report, *Sustainable Development Strategy for Manitoba (1994)*, underlined the need for cooperation and consensus building that brings together all segments of society: business, environmental representatives, labour, educators, citizens and government.

The following lists the seven principles and six guidelines adopted in *The Sustainable Development Act (Manitoba)*. For each principle and guideline, information is provided to explain how the MFEA activities are consistent with the respective principles and guidelines.

10.2.1 Principles of Sustainable Development

1. Integration of Environmental and Economic Decisions

- 1(1) *Economic decisions should adequately reflect environmental, human health and social effects.*
- 1(2) *Environmental and health initiatives should adequately take into account economic, human health and social consequences.*

Application of Principles to the Floodway Expansion Project

- The Floodway Expansion Project, from the outset in its conceptual definition, has balanced economic, environmental and social considerations. It is intended to avoid catastrophic social and economic losses, human health effects and social stress resulting from extreme flood effects events. A flood event in excess of the existing flood protection would be a disaster for Manitoba and Canada.
- The proposed Project was selected for development from a variety of other flood protection options, including other technologies. The selection of the Floodway Expansion Project was based on economic (positive cost-benefit ratios), environmental and social factors.

2. Stewardship

- 2(1) *The economy, the environment, human health and social well-being should be managed for the equal benefit of present and future generations.*
- 2(2) *Manitobans are caretakers of the economy, the environment, human health and social well-being for the benefit of present and future generations.*
- 2(3) *Today's decisions are to be balanced with tomorrow's effects.*

Application of Principles to the Floodway Expansion Project

- The Project is essentially action today to provide benefit for many generations into the future. The added protection provided is against rare flood events (e.g., greater than 200 years), and such events have the possibility of occurring at any time and for any generation.
- The Project will provide direct economic and social benefits for current generations and many generations in the future. These benefits are expected to provide indirect human health benefits. It is a major step now to avoid catastrophic loss to Manitoba in the future.
- Wherever possible, such as drainage drop structures, bridge replacement, consideration has been given to providing capacity for future beneficial development.

3. Shared Responsibility and Understanding

- 3(1) *Manitobans should acknowledge responsibility for sustaining the economy, the environment, human health and social well-being, with each being accountable for decisions and actions in a spirit of partnership and open cooperation.*
- 3(2) *Manitobans share a common economic, physical and social environment.*
- 3(3) *Manitobans should understand and respect differing economic and social views, values, traditions and aspirations.*
- 3(4) *Manitobans should consider the aspirations, needs and views of the people of the various geographical regions and ethnic groups in Manitoba, including aboriginal peoples, to facilitate equitable management of Manitoba's common resources.*

Application of Principles to the Flood Expansion Project

- MFEA is responsible and accountable to the public through public participation review and approval processes.
- An extensive participation program has been undertaken to share information about the Project and to better understand and incorporate the views, values, traditions and aspirations of communities and people upstream and downstream of the Floodway, including aboriginal peoples. This information has contributed to the planning and design of the Project.
- The Project is part of an overall flood protection system that provides protection to various regions/zones in the Red River Valley.
- The project design has considered the various issues and concerns of Manitobans upstream, downstream and in the agricultural/residential areas east of the works.

4. Prevention

4(1) *Manitobans should anticipate, and prevent or mitigate, significant adverse economic, environmental, human health and social effects of decisions and actions, having particular careful regard to decisions whose impacts are not entirely certain but which, on reasonable and well-informed grounds, appear to pose serious threats to the economy, the environment, human health and social well-being.*

Application of Principles to the Flood Expansion Project

- Potential significant adverse effects were avoided through the planning and design phases of the Project. For example, the deepening of the Floodway Channel, as initially proposed, was almost completely eliminated to avoid environmental and social effects associated with groundwater use.
- MFEA has committed to ensuring adverse effects of the Project are prevented, mitigated or compensated.
- The Project is the subject of extensive environmental impact studies that, as reported in the environmental impact statements, have determined that no significant residual adverse effects are anticipated. Monitoring programs will be conducted during the construction and operational phases to determine if the predicted effects are as anticipated. Should the monitoring programs identify unacceptable unanticipated effects, appropriate mitigation will be implemented.

5. Conservation and Enhancement

5(1) *Manitobans should:*

- (a) maintain the ecological processes, biological diversity and life-support systems of the environment;*
- (b) harvest renewable resources on a sustainable yield basis;*

- (c) make wise and efficient use of renewable and non-renewable resources; and*
- (d) enhance the long-term productive capability, quality and capacity of natural ecosystems.*

Application of Principles to the Floodway Expansion Project

- The Project is the subject of extensive environmental impact studies that, as reported in the environmental impact statements, have determined that with the project design and mitigation plans, no significant residual adverse effects are expected.
- Rehabilitation of areas temporarily cleared during construction of the Project, e.g., the Floodway Channel and excavation disposal areas, will be restored with native habitats in these areas. Regeneration of sensitive habitat will be monitored and additional mitigation measures will be implemented if required.
- Clearing of the Floodway Channel will be timed to minimize impacts on wildlife.

6. Rehabilitation and Reclamation

6(1) *Manitobans should:*

- (a) endeavour to repair damage to or degradation of the environment; and*
- (b) consider the need for rehabilitation and reclamation in future decisions and actions.*

Application of Principles to the Floodway Expansion Project

- The Project has been designed to avoid adverse effects and thereby reduce damage or degradation of the environment.
- Construction sites, including borrow areas, will be rehabilitated once they are no longer required.
- The original Floodway has caused fish stranding and the creation of poor habitat. The design of the Floodway Expansion includes provision to prevent fish stranding and will include projects to provide better fish habitat.

7. Global Responsibility

7(1) *Manitobans should think globally when acting locally, recognizing that there is economic, ecological and social interdependence among provinces and nations, and working cooperatively, within Canada and internationally, to integrate economic, environmental, human health and social factors in decision-making while developing comprehensive and equitable solutions to problems.*

Application of Principles to the Floodway Expansion Project

- The Project does not have material effects (positive or adverse) on air, land or waters beyond Manitoba.
- The construction phase will result in short-term increases in air emissions but these are local and short-term.
- Extensive preliminary studies and reports have been completed in cooperation with the U.S.A. through the International Joint Commission and International Red River Basin Task Force.

10.2.2 Guidelines for Sustainable Development

1. Efficient Use of Resources – which means:

- (a) encouraging and facilitating development and application of systems for proper resource pricing, demand management and resource allocation together with incentives to encourage efficient use of resources; and*
- (b) employing full-cost accounting to provide better information for decision makers.*

Application of Principles to the Floodway Expansion Project

- The Floodway Expansion Project was selected for development after study of a range of other options.
- Techniques such as life-cycle analysis and, to the extent practical, full-cost accounting were utilized to screen various flood protection options.

2. Public Participation – which means:

- (a) establishing forums which encourage and provide opportunity for consultation and meaningful participation in decision making processes by Manitobans;*
- (b) endeavouring to provide due process, prior notification and appropriate and timely redress for those adversely affected by decisions and actions; and*
- (c) striving to achieve consensus amongst citizens with regard to decisions affecting them.*

Application of Guidelines to the Floodway Expansion Project

- An extensive participation program has been undertaken through the EIA process and by MFEA to share information about the Project and to understand the interests and concerns of communities and people, including aboriginal peoples and communities, upstream and downstream of the Floodway. This information has contributed to the planning and design of the Project.

- The regulatory process, including the Participant Assistance Program and Clean Environment Commission hearings, provides the public with an opportunity for review, input and influence.

3. Access to Information – which means:

- (a) *encouraging and facilitating the improvement and refinement of economic, environmental, human health and social information; and*
- (b) *promoting the opportunity for equal and timely access to information by all Manitobans.*

Application of Guidelines to the Floodway Expansion Project

- An extensive participation program using a variety of methods, has been undertaken to share information about the Project and to understand the interests and concerns of communities and people, including aboriginal peoples and communities, upstream and downstream of the Project and those in the vicinity of the Floodway. Methods include workshops, open houses, and electronic communication on web pages. During these events new information was shared or discussed as it became available. This information has contributed to the planning and design of the Project.
- The regulatory process, including the use of public registry for the EIS and related documents, provides a formal process for the review of the comprehensive EIS and for the public to request and receive information in a timely way.

4. Integrated Decision Making and Planning – which means *encouraging and facilitating decision making and planning processes that are efficient, timely, accountable and cross-sectored and which incorporate an inter-generational perspective of future needs and consequences.*

Application of Guidelines to the Floodway Expansion Project

- Through the several major reviews of the adequacy of the flood protection system following the 1997 flood, many perspectives were considered and integrated into a decision to improve the flood protection and then the selection of the Floodway Expansion Project.
- The EIA process has involved a wide range of public interests in the ongoing planning of the Project.

5. Waste Minimization and Substitution – which means:

- (a) *encouraging and promoting the development and use of substitutes for scarce resources where such substitutes are both environmentally sound and economically viable; and*
- (b) *reducing, reusing, recycling and recovering the products of society.*

Application of Guidelines to the Floodway Expansion Project

- The tender documents for construction of the Project will encourage the Contractors to reduce, reuse and regulate products.
6. *Research and Innovation – which means encouraging and assisting the researching, development, application and sharing of knowledge and technologies which further our economic, environmental, human health and social well-being.*

Application of Guidelines to the Floodway Expansion Project

- Information collected for the Floodway environmental studies has increased knowledge of the local environment and may be valuable for other applications as well.
- The pre-design process purposefully encouraged participation of multiple local engineering and environmental consulting firms.

10.3 POLICIES UNDER THE LAND AND WATER STRATEGY

The Manitoba Land and Water Strategy is to be comprised of at least seven individual strategies: Water, Forests, Natural Lands and Special Places, Minerals, Soils, Wildlife, and Fisheries. To date, the first four of these strategies have been completed and adopted by the Government of Manitoba.

Each strategy consists of a series of policies, grouped under different themes. Each policy contains a list of actions that the Government of Manitoba, local governments, industry and others may or should take in order to implement the respective policies. In some cases, a number of policies listed in the strategies are not particularly relevant to the Floodway Expansion Project. For example, the Project largely avoids urban and forested areas, and policies dealing with urban forests and urban protected areas therefore are not directly relevant to the Project. The same could be said for many of the education policies under each of the strategies. More broadly, the Project's application of certain other policies tends to be restricted to specific matters:

- Mineral Policies: The Project's mineral activities are restricted to the development, use and rehabilitation of borrow sites. Such activities are included in the assessment of the Project, including consideration of natural, cultural and heritage resources and other potential uses of these resources.
- Natural Lands and Special Places Policies: Protected areas, heritage sites, and natural, cultural and heritage resources are considered as part of the environmental impact assessments. No significant adverse effects are anticipated in the context of the Natural Lands and Special Places Policies.
- Forest Policies: Forest Policies in the themes related to forest growth and development, agro-forest development, urban forests, and forest public awareness policies are generally not applicable to the Project.

In the information that follows, policies from the Water and Forest Strategies are grouped according to themes. In the bullets that follow the policies, a number of actions are highlighted that demonstrate how the Project is consistent with the policies.

10.3.1 Manitoba's Water Policies

1. Water Quality Policies

- 1.1. *The "Manitoba Surface Water Quality Objectives" shall be adopted and implemented to protect water uses for Manitobans.*
- 1.2. *Water quality shall be enhanced through the management of water resources.*
- 1.3. *Water quality enhancement programs shall be designed to restore environmental quality, as well as deliver economic, cultural and heritage benefits to Manitobans.*
- 1.4. *The quality of wastewater discharges shall be improved and non-point sources of pollution decreased to achieve water quality objectives.*
- 1.5. *Pollution control programs shall be designed in consultation with affected user groups and, where possible, implemented in such a manner as to cause minimum disruption to established land and water uses.*

Application of the Policies to the Floodway Expansion Project

- The Manitoba Surface Water Quality Objectives and Guidelines were used throughout the EIS to assess the effects of the construction and operation of the Project on water quality.
- Monitoring will be conducted during the construction phase of the Project. This monitoring, in combination with adaptive management techniques (e.g., to control erosion during construction), will be used to assure that unacceptable effects to water quality do not occur. Existing stations will continue to be monitored.
- The environmental impact assessments for the Project have considered economic, cultural and heritage impacts.
- Comprehensive pollution control practices will be incorporated into the environmental protection plans (EPP) to prevent and minimize adverse environmental effects, including adverse effects to water quality. Permits and licenses that include monitoring and inspection programs will also be performed as required.

2. Conservation Policies

- 2.1. *River, lake and shoreland habitat and the general environmental, subsistence and economic values of rivers, lake, and wetlands shall, where possible, be conserved.*
- 2.2. *Soil conservation, wetland retention, and the application of appropriate land use practices shall be promoted primarily by the provision of incentives, but with regulation where required, not only as essential elements of water conservation and protection, but also as key measures to reduce siltation impacts, downstream flooding, and non-point source pollution.*

- 2.3. *Those waterways whose cultural, natural and/or recreation values are of provincial or national significance shall be given special consideration.*
- 2.4. *Water retention and control and timing of runoff shall be promoted as part of watershed management.*

Application of the Policies to the Floodway Expansion Project

- The Floodway Expansion has been planned and designed to minimize effects on the Red River.
- Considerable study has been done on potential erosion effects of the Project and appropriate mitigation steps have been outlined.
- Shoreline protection and habitat compensation are integral components of the project.

3. Use and Allocation Policies

- 3.1. *Economic well being and sustainability shall be the goal in the allocation and utilization of Manitoba's water resources for consumptive and instream uses.*
- 3.2. *Water management priorities shall be determined through a basin planning process that takes into account the protection of potable water supplies, environmental integrity, existing commitments and economic requirements.*
- 3.3. *Groundwater development and utilization shall be managed so that the long term sustainability of aquifers is achieved and existing uses are not negatively impacted.*
- 3.4. *Surface water shall be managed to ensure sustainability of supplies.*
- 3.5. *Transfer of untreated water across the Continental Divide (to or from Hudson Bay draining area) shall be opposed. Transfers with the Hudson Bay drainage area shall be minimized and only considered after a complete assessment of the environmental, social and economic impacts on the donor and receiving basins.*

Application of the Policies to the Floodway Expansion Project

- The sustainability of the Project, in terms of the three pillars of sustainable development (economic, environmental, and social factors), has been assessed in the EIS, with due consideration of environmental integrity.
- The current and future use of groundwater has been carefully considered and modifications made to channel design to avoid negative impacts.
- Project infrastructure has been designed to accommodate surface drainage.
- The Project plans and EIS consider others uses of water, including aquatic life, wildlife, recreation, navigation, and drinking water.

4. Water Supply Policies

- 4.1. *Demand management programs shall be implemented to conserve water and reduce the requirements for new water supply infrastructure.*

- 4.2. *Irrigation, industrial and other development proposals involving direct or indirect water use shall consider impacts on existing and potential water uses as well as impacts on the environment.*
- 4.3. *The cost of developing, operating, and maintaining the water resource infrastructure shall be apportioned among the beneficiaries in accordance with their share of the benefits.*
- 4.4. *Pristine and potable water sources shall be afforded special protection*

Application of the Policies to the Floodway Expansion Project

- The studies have considered impacts on existing and potential water uses.
- Canada and Manitoba have been sharing the costs of the Project and anticipate sharing the costs of the remainder of the Project. This sharing is designed around the sharing of benefits from reduced Flood Assistance programs.

5. Flooding Policies

- 5.1. *Development on land subject to flooding or other water related hazards shall occur only under planning guidelines which prevent human suffering and property damage, limit public costs and liabilities, and address environmental impacts*
- 5.2. *Economically viable measures to alleviate personal and property damage to existing development in flood prone areas shall be fostered.*
- 5.3. *The negative impacts of changes to water level and flow regimes caused by hydro-electric development Projects shall be mitigated to the extent possible.*

Application of the Policies to the Floodway Expansion Project

- The Project is expressly intended to prevent human suffering and property damage from flooding. The degree of protection was selected based on economic considerations.

6. Drainage Policies

- 6.1. *Drainage works shall be designed to remove excess rainfall from cropland during the growing season.*
- 6.2. *The standard of drainage shall be based on the production capability of the soil and on technical, economic, and environmental criteria, recognizing watershed, community, and farm impacts.*
- 6.3. *Maintenance of existing drainage systems shall be of higher priority than reconstruction.*
- 6.4. *Reconstruction of drainage systems to improve productivity and to reduce erosion and deposition shall be given a higher priority than expansion into new agricultural lands.*
- 6.5. *Drainage Projects shall be planned and executed so that Projects in one area do not adversely affect another area.*
- 6.6. *The protection of wetlands shall be a consideration in planning and developing drainage Projects.*

- 6.7. Water retention, and control and timing of runoff, shall be promoted as part of watershed management.*

Application to the Floodway Expansion Project

- Effects on existing drainage systems will be minimal. Where the existing surface drainage inlets to the Floodway will be affected by the Project, these inlets capacities will be increased to allow the opportunity for future upgrades of local drainage by the Municipalities.

7. Education Policies

- 7.1. Schools – Students of all ages shall be provided with information on the significance of Manitoba's water resources.*
- 7.2. General Public – Education on water matters shall be achieved in part through the sharing of information, demonstration Projects, and the involvement of the general public.*
- 7.3. Forum for Scientific and Technical Input – A forum shall be developed to obtain input from the scientific, technical, and professional communities on water management issues.*
- 7.4. Community Leaders and Elected Representatives – Community leaders and elected representatives shall be provided with the information they need to make sound water management decisions.*

Application of the Policies to the Floodway Expansion Project

- Through the consultation programs, information about the Project has been provided to community leaders, elected representatives, and other community members, including students.

10.3.2 Manitoba Forest Policies

These policies are not relevant to the Project.

10.4 CONCLUSION

The Floodway Expansion Project is an excellent example of sustainable development; a project that balances social and environmental benefits while protecting the welfare of future generations of Manitobans.