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A TIME TO IRRIGATE! Benefits of Lake Diefenbaker Irrigation Investments for the Environment

*Saskatchewan
Irrigation Projects
Association*

The Benefits of Irrigation in Saskatchewan Project has been completed with funding and support from Agriculture & Agri-Food Canada and the Saskatchewan Ministry of Agriculture under the National Water Supply Expansion Program.



Special points of interest:

- Today some 40% of the World's Food Production is produced with irrigation on 17% of the agricultural lands.
- Five irrigation projects in the Lake Diefenbaker area of Saskatchewan could irrigate over one half a million acres.
- Irrigation provides an agricultural return of between \$8 and \$10 for every dollar invested in irrigation supply and equipment.

Lake Diefenbaker Irrigation Investments Create Benefits for all of Saskatchewan

When the concept of Lake Diefenbaker irrigation development was first considered the costs were estimated at less than \$100 million. Today it would cost \$2.9 billion to complete the regional water supply schemes to irrigate 500,000 new acres and create an irrigated area around the lake of nearly 600,000 acres. The benefits that arise from these investments, however, are even larger and transformational for the economy, society and environment of central Saskatchewan and all of the people of the province.

Irrigation water storage and regional water distribution systems have become reliable water supplies for not only the agricultural economy around Lake Diefenbaker, but also for the natural environment. The Lake is the home of pelican colonies, fish and diverse flocks of birds, other fauna and flora. In periods of drought the water supplies from the irrigation systems help to maintain and expand wetlands and provide safe nesting and breeding grounds along the North American bird migration routes.



Lake Diefenbaker Irrigation Benefits Study

The Saskatchewan Irrigation Projects Association completed a major socio economic evaluation of the costs and benefits of irrigating 800,000 acres of agricultural lands, mainly around Lake Diefenbaker and also in other regions of Saskatchewan. The study was undertaken by Clifton Associates Ltd. of Regina, Saskatchewan working with specialists from across Western Canada*.

The study found large benefits for agriculture, value added processing, municipal water supplies, tourism, drought proofing and the natural environment. Together these were estimated to provide the opportunity to increase employment in many Saskatchewan cities and smaller towns.



* The Project team for the work consisted of Dr. Graham F. Parsons, Vice President, Clifton Associates Ltd. and Project Manager; Dr. Surendra Kulshreshtha, President of KAEI and Professor of Agricultural Economics at the University of Saskatchewan; Mr. Ray Pentland, President of Water Resource Consultants Inc. and specialist in hydrology and the management of Lake Diefenbaker waters; Mr. David Hill, formerly of the Alberta Irrigation Projects Association, Mr. Darrell Toma, Partner with Toma, Bouma Management Consultants and specialist in Alberta irrigation development and related value chains and rural economic development needs; Mr. Rodger McDonald, President of MR2 Consulting and specialist in municipal and industrial water systems; Mr. Greg Vogelsang, Senior Vice President, Clifton Associates Ltd. and specialist in environmental impact assessments; Mr. David Kent, Chief Engineer, Clifton Associates Ltd. and specialist in rural agri-processing and environmental licensing; Mr. Keith Schneider and Mathew Kreke, specialists in municipal financing, regional development and tourism and, Mr. Toby Thorp, Environmental Scientist, Clifton Associates Ltd.



Lake Diefenbaker Construction in the 1960s

Lake Diefenbaker—A Little Known Investment in the Environment

Lake Diefenbaker was created by the construction of the Gardiner Dam on the South Saskatchewan River by the Prairie Farm Rehabilitation Administration as a response to the decade of drought and rural agricultural and municipal collapse in the 1930s.

Less remembered in the 21st Century was the environmental disaster of tonnes of fertile topsoil being blown away.

The two hundred kilometer lake was intended to provide the foundation for a sustainable irrigated agriculture economy that would be less vulnerable to the recurring droughts of the region.

The Lake also created a new natural habitat for fish, birds and other wildlife at the centre of one of the driest parts of the Prairies. The dry natural grasslands were supplemented with wetlands and around the regional water supply systems built for the irrigation economy.



These reliable supplies of water, helped build an interface between a vibrant natural environment and a growing irrigation economy.

The Five Lake Diefenbaker Irrigation Projects, with the existing irrigation in the area would together form one of the larger irrigated areas in North America.

Five irrigation expansion and irrigation projects have been identified on both sides of Lake Diefenbaker. The projects are both to infill within existing irrigation developments and to expand beyond them, particularly on the west side of the lake. The regional water supply costs associated with these projects are anticipated to cost some \$2.9 billion over twenty years.

Infill & Expansion Projects

- The South Saskatchewan River Irrigation District Expansion and Infill Project
- The Luck Lake Irrigation Infill and Expansion Project
- The Riverhurst Irrigation Infill and Expansion Project

New Expansion Projects

- The Westside Irrigation
- The Qu'Appelle Irrigation

Together these projects would add between 435 to 542 thousand acres to the existing 107 thousand district and private irrigated acres in the region to create one of the larger irrigation areas in North America with an irrigation potential of nearly 650 thousand acres.



Irrigation Districts and Wetlands— Agriculture & the Environment

Thunder Creek Marshes are supplemented with water pumped from Lake Diefenbaker. The Riverhurst Irrigation Project delivers water to the headwaters of Thunder Creek where it flows through a series of marshes, control structures and conveyance ditches. The 6,000 acre Luck Lake Heritage Marsh is provided with a secure water supply from the Luck Lake Irrigation Project and becomes the home of large numbers of waterfowl during the annual migration. Such wetlands provide not only critical wildlife habitat, but also essential water storage reservoirs for the hydrological cycle, fauna, flora and a healthy natural environment.



Some Environmental Benefits from an Irrigation Economy

Municipal Water Quality has been Improved with Irrigation Investment

Irrigation storage reservoirs have improved the security and quality of water supplies for many people in Saskatchewan in both the larger cities, the small towns, the rural country-

side and on the farm. Groundwater and shallow lakes have been replaced with the higher quality Lake Diefenbaker water source. Irrigation distribution systems like the large Saska-

toon Southeast Water Supply System and the small Outlook East Rural Pipeline have improved water quality for both people and the natural environment.



Irrigation storage and distribution systems provide secure, clean drinking water for about a quarter of Saskatchewan's population and an alternative to groundwater.

Tourism Expands on Growing Interest in Waterscapes and a Natural Environment

Lake Diefenbaker has become a major destination tourism resort in southern Saskatchewan based on golf, sailing and an appreciation of its natural environment and abundance of fish, wildlife and flora. The harbor at Elbow has become a major water sports location

with harbours, sailing and power boat activity throughout the summer. Cottage and cabin development provides a growing population who increasingly appreciate the subtle beauties of the lake, its bird and wildlife populations and vistas across marshes and

waterfronts. Golf courses have sprung up throughout the drylands.



Adapting to Global Warming-Protection from Drought-Preserving the Environment

Global Warming is a reality. Scientists tell us Prairie temperatures will rise and that droughts may become longer and more frequent.

Drought losses are not only felt in the economy, but also in the environment when rivers and wetlands dry and natural habitats are lost.



Blaine Lake During Drought

Irrigation storage and water supply systems have become reliable supplies to marshes, rivers and wetlands during the frequently recurring droughts. The South East Saskatoon Water Supply System supplies water for some 28 Ducks Unlimited Canada project segments enhancing about 3,600 wetland acres and securing critical natural habitat during drought

*In 2006
217,620 people in
Saskatchewan are
directly supplied
from irrigation
storage and water
supply distribution
systems.*

*With efficient water
management, Lake
Diefenbaker can supply
the water supply needs
of expanded irrigation
and the multipurpose
environmental, human
and industrial uses of
the Lake.*

Secure Water Supplies, An Urban Playground and Irrigation Supported Wetlands

The cities of Saskatoon, Regina and Moose Jaw and many towns and villages rely on irrigation water storage and distribution systems. In total in 2006 some 218,000 people obtained their municipal water supplies from irrigated agriculture water systems, including Buffalo Pound, the Qu'Appelle and Saskatoon South East Water Supply systems. Many campgrounds and golf courses near Lake Diefenbaker, the South Saskatchewan River and the Qu'Appelle Rivers use these same systems. Lake Diefenbaker itself has become a major provincial destination tourism resort with thousands coming from the major cities to play on and in the Lake and to participate in the wetland wildlife as hunters, fishermen or simply wildlife observers.

A Foundation for Sustainable Rural Futures and Natural Environments

For many years, Saskatchewan's rural population has declined as farmers left the land. Developing a diversified irrigation economy provides a stable foundation for long term and sustainable rural futures. The regional water supply investments required for the irrigation expansion can be transformative for both the economy and a natural environment adapting to global warming.



Wildlife Benefits in Wetlands



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Create a Legacy! Become Involved!

Realising the benefits from Lake Diefenbaker Irrigation requires leaders to change the direction of development. For over half a century the potential of the Gardiner Dam and Lake Diefenbaker remains unfulfilled, while Prairie waters are developed in the neighbouring provinces of Alberta and Manitoba.

The Saskatchewan Irrigation Projects Association is committed to fully developing Saskatchewan's irrigation development potential both around Lake Diefenbaker and in other areas of the province. Contact us soon for either a copy of the study or for more information.

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Lake Diefenbaker's Unrealized Potential

Time to Irrigate!

The 2nd Recommendation of the 1952 Royal Commission of Inquiry into the South Saskatchewan River Project recommended that *"when the time comes that the Project represents the then best use of water for irrigation, the present finding (to reject the project) should be reviewed in the light of changing conditions.*

That time has come! The world food shortage, the reduction in North American irrigated acreage in California alone, the prospect of global warming in the Prairies, more frequent and longer droughts and positive economic returns to the project suggest it is now ***Time to Irrigate!***

Today, water allocated to irrigation shows positive benefits throughout the society, the economy and the environment. Benefits are identified for producers, city dwellers and for the sustainable rural diversification of a large part of the Saskatchewan economy. Irrigation has already transformed the agricultural economies of the irrigation districts of southern Alberta and Manitoba.



The future of rural Saskatchewan has been a dilemma for many. Rural folk have left as economic options were reduced. Irrigation offers a real prospect to transform the long term future of central Saskatchewan and create the diversified legacy for which the Gardiner Dam was originally built.

Planning a Growing Future Now with Irrigation

Lake Diefenbaker irrigation development requires a long term regional development and early funding to commence the transformational change that is possible. There will be barriers to development of the resource including an aging population and the need for targeted immigration and investment capital into the region, power and transportation infrastructure, irrigation research and demonstration for new cultural and water conservation practices will be required and a Lake Diefenbaker Irrigation Development Agency will be required to manage the process over many years.

Further study and waiting for better conditions can be costly. Cost benefit ratios for the project all increase when the work is completed over a twenty year period rather than a 40 year period. The cost inflation of the project from less than \$100 million in 1952 to \$2.9 billion today is further evidence of the costs of delay. The stop and start policy framework practiced by both federal and provincial governments has itself been a barrier to sustained development of and investment in the opportunity.

Long term commitments by federal, provincial and municipal governments and the many agricultural, local and environmental stakeholders will be required to plan for, and invest in a sustainable, long term and transformative future for the Lake Diefenbaker region of central Saskatchewan.

