

# SIPA

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## A TIME TO IRRIGATE! Benefits of Lake Diefenbaker Irrigation Investments by the Numbers

*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.



### Lake Diefenbaker Irrigation Investments Create Benefits for all of Saskatchewan

#### 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.

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 over 500,000 new acres and create over 600,000 acres of irrigated lands around the lake. 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.

The water supply investments over a 20 year period will lead to on farm investments in irrigation equipment, increased crop yields, agricultural value added investments and forward and backward linkages throughout the economy. Additional indirect and induced economic effects mean the original \$2.9 billion dollar investment could lead to an extra \$12 billion of household incomes, \$33 billion of gross domestic product, \$58 billion of sales and over 288,000 person years of employment. Beyond these measurable benefits lay numerous other gains for the rural economy, community development and water supply, tourism and the environment.



### 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 Mr. 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—An Unrealized Investment in the Future

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. In the thirty years since the opening of the Gardiner Dam in 1967 there has been some progress in developing the benefits that Lake Diefenbaker provides.

Many of the hydro development, recreational, municipal water supply benefits were developed. However, the potential to irrigate over half a million acres of drought vulnerable farmland around the Lake has never been realized.

Today there are a little over 100,000 acres under irrigation in the Lake Diefenbaker area in twelve irrigation districts.

**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.**

### Total Economic Impacts over a 40 Year Period

- Regional Water Investments—\$2.9 Billion
- On Farm Investments—\$339 Million
- Total Project Investments—\$8.9 Billion
- Total Impact on Sales—\$58 Billion
- Total Impact on Gross Domestic Product \$33 Billion
- Total Impact on Household Income—\$12 Billion
- Total Impact on Employment—288,000 Person Years

- Total Population Directly Served by Irrigation Water Systems in 2006 – 217,620
- Potential Increase in Population Served by Irrigation Water Systems 5,670
- Additional average gain in gross farm income from irrigation over dryland farming:
  - in normal years \$485 per acre
  - in drought years \$565 per acre

## Over 600,000 Acres in Five Lake Diefenbaker Irrigation Infill & Expansion Projects

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

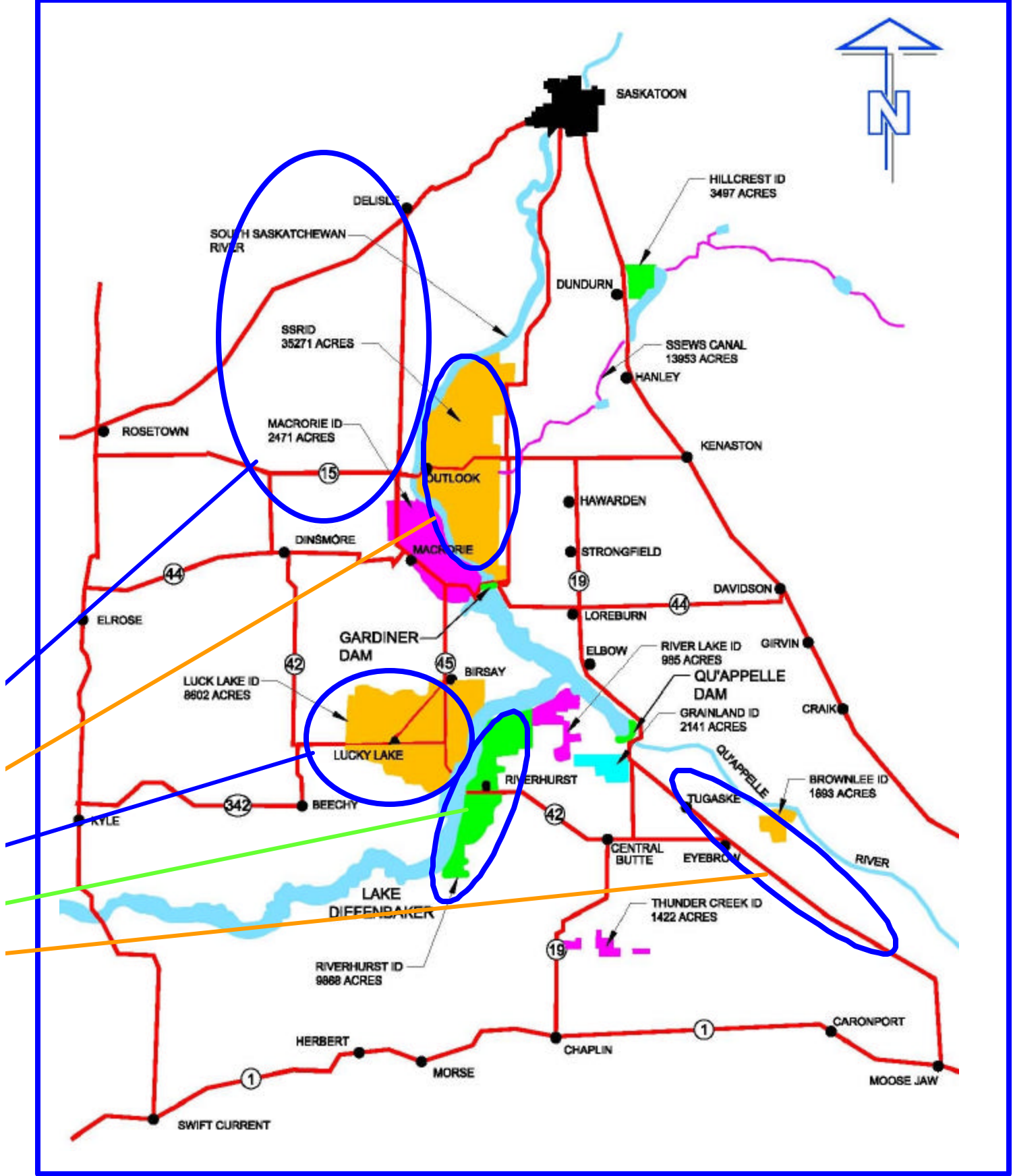
- The Westside Irrigation
- The Qu'Appelle Irrigation



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 Area	New Acres Existing Acres	Cost
	Total Acres	
Westside	374,470 2,500 376,970	\$2,100M
South Saskatchewan River Irrigation District Infill & Expansion	24,840 35,271 60,111	\$52M
Luck Lake Irrigation Infill and Expansion	9,397 8,602 17,999	\$27M
Riverhurst Irrigation Expansion	10,880 9,868 20,748	\$40M
Qu'Appelle South Irrigation Project	122,351 1,893 124,244	\$653M
<b>TOTALS Lake Diefenbaker</b>		
New ID Irrigation	541,938	\$2,872M
Existing Irrigation		
5 ID Projects	58,134	
Other Existing IDs	10,111	
Private	38,378	
Total Existing	106,623	
<b>TOTAL LD IRRIGATION ACRES</b>	<b>648,561</b>	





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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.

