

PRIVATE GROUP IRRIGATION PROJECTS IN MANITOBA  
CENTRAL MANITOBA RESOURCE MANAGEMENT LTD.~ A CASE STUDY

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ABSTRACT

Irrigation projects in Manitoba have historically been developed by individuals, exploiting water sources close to their land base. In the 1990s private *group* irrigation companies have emerged. This paper explores the management issues of one such company, *Central Manitoba Resource Management Ltd.*

Central Manitoba Irrigation Association Inc., acting for its 45 producer members, prepared an irrigation development strategy for South Central Manitoba. An operating company, Central Manitoba Resource Management Ltd. (CMRM Ltd.), was established in 1999 to own and operate the off-farm infrastructure resulting from the strategy. CMRM Ltd. developed seven projects in 1999, involving 15 shareholders and supplying 6,000 acres (2 400 ha) of irrigation.

CMRM Ltd.'s management structure retains local autonomy. The capital, operating, maintenance and administrative costs are prorated to each shareholder at the project level. The single operating company allows for streamlining of administrative requirements while shareholder agreements ensure protection of the individual producer's equity. To protect the share value, the operating company applies for and retains the Water Rights and Environment Act licences. Furthermore, group liability insurance is provided to the company's shareholders.

The operating company provides Government resource managers with a single contact for licencing, environmental monitoring and channel maintenance issues. Environmental licences issued to the operating company increase accountability in resource utilization, monitoring and protection. The irrigated agricultural sector benefits from the enhanced sustainability and increased potential to attract and support further value-added industry.

For the producer, the operating company is not a complicated concept, but does require cooperation. Producers benefit from peer interaction and coordinated environmental initiatives. The operating company structure allows for participation of both irrigating and non-irrigating landowners in joint projects. On the negative side, the cost of licencing, monitoring and maintenance of channels is being downloaded towards the producer. This along with increasingly stringent regulations, makes development times unacceptably long and alternative investments more attractive.

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## INTRODUCTION

This paper describes *Central Manitoba Resource Management Ltd. (CMRM Ltd.)*; a private group irrigation company in South Central Manitoba. The paper documents issues of management structure, benefits and costs and operational issues.

Central Manitoba Resource Management Ltd. is the second private group irrigation company developed in Manitoba within the last decade. The other, *Agassiz Resource Management Ltd. (ARM Ltd.)*, formed in 1995, resulted from a need to share and manage the limited water resources on intermittent streams (PFRA, 1997). ARM Ltd. now owns and operates, or is in the process of transferring in, 14 reservoirs (Fig. 1) and associated pipelines. ARM Ltd.'s projects serve approximately 5,000 acres (2 000 ha) of irrigation, or close to 15,000 acres (6 000 ha) of land base (in rotation) for 21 shareholders.

*Central Manitoba Resource Management Ltd.* was incorporated in 1999. CMRM Ltd. is in the process of finalizing agreements with 16 shareholders for ownership, operation and management of seven irrigation projects (Fig. 1). These projects service up to 6,000 acres (2 400 ha) of irrigation in rotation (1:3 years typically), or a total land base of close to 18,000 acres (7 300 ha). The projects include 6 reservoirs, 60 miles (100 km) of pressurized pipes, and pumps capable of delivering 20,000 USgpm (1 250 l/s) to on-farm distribution systems (e.g., pipes, pivots, traveling guns).

For the year 2000, a third operating company is poised to take hold. *Souris Valley Resource Management Ltd. (SVRM Ltd.)*, will operate in Southwest Manitoba. SVRM Ltd. is currently designing and licencing four projects (Fig. 1), involving about 7 shareholders, and totaling over 2,000 acres (800 ha) of irrigation.

## HISTORICAL IRRIGATION IN MANITOBA ~ 1970s TO EARLY 1990s

The agricultural industry in Manitoba has adopted irrigation in a market-driven fashion, requiring a return on investment equal to or greater than alternative investments (AIM, 1999). As a result irrigation development in Manitoba has largely been associated with higher value crops. For example, in 1997, approximately 75 % of irrigation development involved horticultural crops (Gaia, 1997). Potatoes represent 91% of the horticultural cropping mix with vegetables (e.g., carrots, onions) representing 7%, and nursery and fruit the other 2% by acreage (Gaia, 1997). Figure 1 shows the spatial distribution of existing irrigation in Southern Manitoba.

The frost free period in the southern agricultural zone of Manitoba, ranges from 100 to 125 days (MB Potato Council, 1994). Growing season precipitation in southern Manitoba averages from 9 to 11 inches (180 to 280 mm) (MB Agriculture, 1998). For southern Manitoba the average water deficit for potatoes is between 2 to 5 inches (50 to 115 mm) and the deficit at 10% risk<sup>3</sup> is between 4 to 9 inches (100 to 180 mm) (MB Agriculture, 1998). Irrigation makes up this small deficit in moisture, increasing on-farm yields and ensuring a consistent quality product demanded by processors.

<sup>3</sup>

10% risk refers to the water deficit for potatoes equaled or exceeded 1 in 10 years

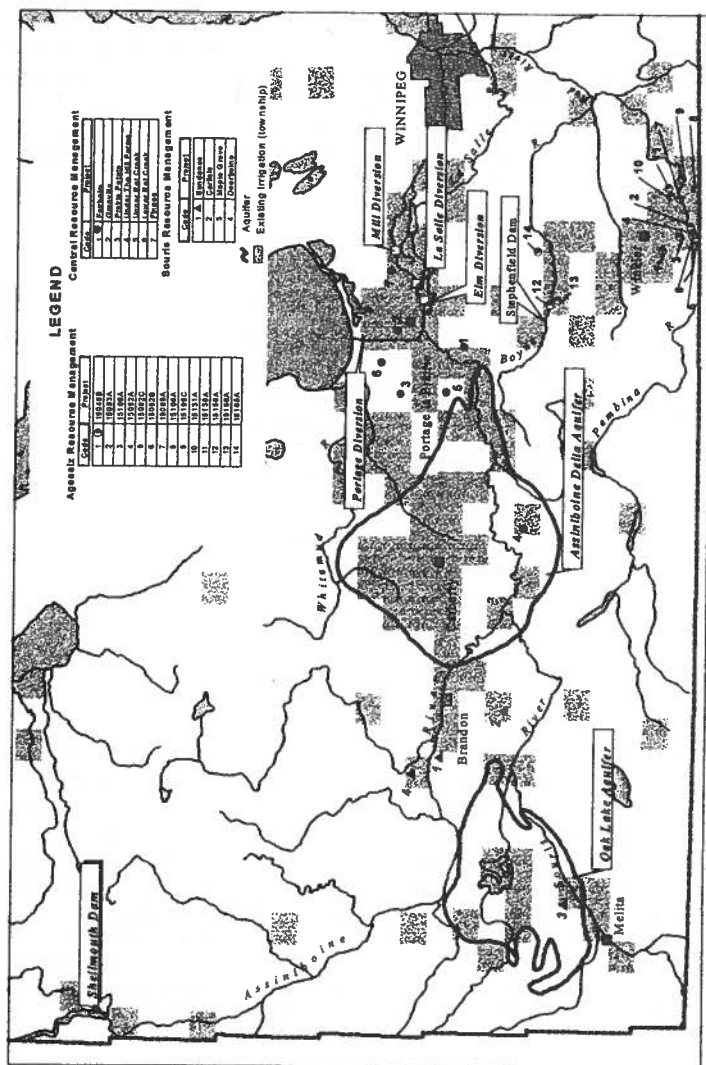


Fig. 1 - Irrigation in Southern Manitoba and Location of CMRM Ltd. Projects

Virtually all irrigation infrastructure in Manitoba is privately owned. Large Government funded group irrigation projects have been proposed for Manitoba in the past. Most recently, the Assiniboine-South Hespler Area Study, completed by the Federal and Provincial Governments in 1987, proposed to deliver water to 300,000 + acres (120 000 ha) at a capital cost of close to \$500 M (1999 \$Cdn.).<sup>4</sup> The project failed to garner public financial support and did not proceed. In contrast in the decade since 1987, private individual and group irrigation development have accounted for an increase of approximately 33,000<sup>5</sup> acres (13 400 ha) (AIM, 1999). The current rate of development is approximately 5,000 acres (2 000 ha) per year (Fig. 2).

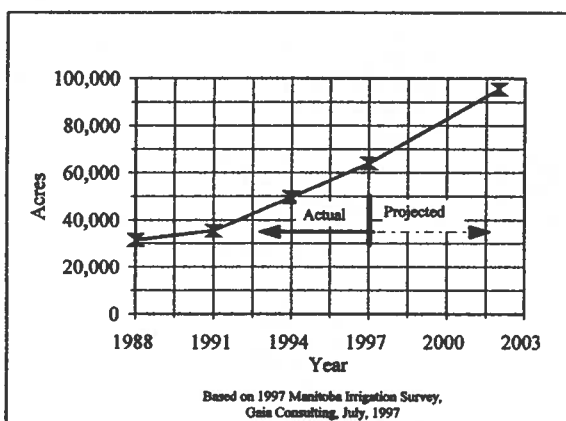


Fig. 2 - Irrigated Acres in Manitoba - Actual/Projected

Prior to the late 1980s, a perception of unlimited water resources prevailed in the irrigation industry in Manitoba. The major *water* infrastructure projects had been largely built and operated by the Government, and were a significant "hidden" reason for the success of individual irrigation developments in Manitoba. The Shellmouth Dam, the Elm, Mill and La Salle River Diversions, the Portage Diversion and Stephenfield Reservoir (Boyne River), were all put in place with Government financing decades ago (Fig. 1). The Shellmouth Dam and Portage Diversion were developed as flood control projects, but generate firm flows and water distribution required for irrigation developments. The Elm, Mill and La Salle River Diversions and the Stephenfield Reservoir augment intermittent streams for municipal water supply, providing irrigation water as a side benefit at no cost to the producer. Similarly, the costs of resource monitoring programs on the Assiniboine Delta and Oak Lake Aquifers and the Assiniboine River (Fig. 1) are a Government responsibility, but benefit irrigators.

<sup>4</sup> Capital cost escalated at a factor of 1.34 from 1987\$ to 1999\$; also approximately \$350 M (1999 \$US).

<sup>5</sup> The land base would be a minimum of double to triple this due to the nature of irrigating the horticultural crops in rotation.

As a result of the existing water infrastructure, local irrigation water supplies were readily available and cheap at the farm gate. Firm base flows on the Assiniboine River and on the augmented intermittent streams and channels allowed for irrigation development on land directly bordering the waterways. On the Assiniboine Delta Aquifer and other smaller aquifers, water was developed from under the owner's land base.

Accordingly, prior to 1992 the concept of *group* irrigation projects was given little consideration in Manitoba. Projects tended to service only a single sprinkler system. Small developments were consistent with the desire of traditional Prairie farm operations to keep the production infrastructure under family ownership. This kept the complicating factors of dealing with others to a minimum and allowed focus to remain on primary production, or the "bottom" line.

The criteria for environmental impact assessment also made smaller projects more desirable. Individual developments diverting less than 160 ac-ft (e.g., adequate for 1-2 pivots) do not require an environmental licence and neither do water impoundments of less than 40 ac-ft. These Provincial Environment Act triggers were rarely exceeded, especially for storage. This allowed development to proceed with little consideration of more complex factors such as soil, water and habitat protection, and cumulative impact assessment. Producers with small projects avoided the complications of the Environment Act process and the \$2,500 application fee.

#### GROUP IRRIGATION DEVELOPMENTS IN THE 1990s

The concept of private group irrigation projects in Manitoba was spearheaded by the Agassiz Irrigation Association Inc. (AIA Inc.). In 1992, producers in the Winkler area (Fig. 1) proposed to develop group irrigation projects, and formed Agassiz Irrigation Association Inc. to promote their ideas (AIA, 1992). In contrast to the individual developments, the Agassiz Irrigation Association (AIA Inc.) faced issues that made group projects desirable. The intermittent streams in the Agassiz area presented a finite water source with an associated risk of drought. AIA Inc. was seen as vehicle for producers to share the risk and for joint resource management with the Government (PFRA, 1997).

AIA Inc. also recognized the importance of addressing environmental impact issues. Environmental licencing was required for storage in excess of 40 ac-ft (50 dam<sup>3</sup>), whereas Agassiz was planning to develop more than 2,000 ac-ft (2 400 dam<sup>3</sup>) of water storage. The Association provided an economy of scale in planning and licencing of projects, addressed cumulative impacts and coordinated resource monitoring and mitigation efforts (PFRA, 1997).

Part of the AIA Inc. strategic plan was to form an operating company which would manage the group assets of the irrigators. This operating company was incorporated in 1995 as Agassiz Resource Management Ltd. (ARM Ltd.). AIA Inc. and ARM Ltd. formalized their water management and business plan in 1998 (AIA, 1998). Securing Government technical and financial support was easier with a management plan that dealt collectively with development and environmental issues.

In 1997, the Surplus Water Irrigation Initiative was developed jointly with industry and the Provincial and Federal Governments, to help release constraints to privately owned *group* irrigation development in Manitoba. The rate of irrigation development and the lack of organizational structure was a concern to prospective industries looking at locating in Manitoba. An incentive to form group investments, similar to the Agassiz model, seemed desirable from the point of view of industry expansion. It also became clear there would be a need for emphasis on environmental sustainability that could be addressed more effectively within the framework of group development. The Surplus Water Irrigation Initiative promoted the development of organizations similar to AIA Inc. and ARM Ltd.

As part of the Surplus Water Irrigation Initiative, Central Manitoba Irrigation Association Inc. (CMIA Inc.) prepared an irrigation development strategy for South Central Manitoba and solicited projects from its 45 producer members (CMIA, 1997). The plan promoted group projects along the Portage Diversion and Assiniboine River, as well as supplementing the Rat Creek with water from the Assiniboine River. Storage reservoirs were promoted on other tributaries to the Whitemud and Assiniboine River. The plan also highlighted public issues in the areas of inter-basin transfer of water, cumulative environmental impacts, best management approaches to protection of ground and surface water and soil resources, and maintenance of channels used to convey water.

The CMIA Inc. vision took hold in 1999. CMIA Inc. established an operating company, Central Manitoba Resource Management Ltd. (CMRM Ltd.) to own and operate the off-farm infrastructure resulting from the strategy. CMRM Ltd. provided management and operational structure for group developments, and negotiated with other agencies to use natural and man-made channels to convey irrigation waters. Seven projects were developed in 1999 (Fig. 1), all requiring Environment Act licences, which CMRM Ltd. obtained on behalf of the shareholders. The formation of CMRM Ltd. signaled a significant shift away from smaller individual developments towards larger privately owned group irrigation developments.

#### OPERATING COMPANIES~MANAGEMENT STRUCTURE

ARM Ltd. and CMRM Ltd. retain a similar management structure. The companies are run by a board of directors, elected from the shareholders in the company. Shares are issued for projects on the basis of acre-feet developed, and percentage of the individual assets owned. The assets are limited to the off-farm infrastructure required to deliver the water to the farm gate. In Manitoba, irrigation projects are designed to service multiple locations since the on-farm irrigation systems are often rotated with the horticultural crops<sup>6</sup>, which are typically grown in a 1:3 year rotation.

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<sup>6</sup> The CMRM Ltd. projects largely involve irrigated potato production in rotation with dryland production of oilseeds (canola, sunflowers, flax), grain (wheat, corn) and pulse (beans). There is a small acreage of irrigated special crops including carrots, horseradish, garlic and hybrid seed production.

A shareholders agreement is issued defining:

- ▶ shareholder's company name;
- ▶ asset location and nature (i.e., pipelines, pumps, reservoirs);
- ▶ % ownership of the asset in question;
- ▶ acre-feet developed and therefore shares (e.g., 1 share per ac-ft);
- ▶ responsibilities of the shareholder and CMRM Ltd., namely:
  - ▶ liability insurance to be obtained by CMRM Ltd.;
  - ▶ shareholders loan (if any);
  - ▶ default conditions;
  - ▶ maintenance agreement; and
  - ▶ user privileges and responsibilities.

The shareholder companies often have multiple business partners. In addition, shareholders can be irrigators or dryland producers. This is important since the land base for the irrigation systems often includes rented or leased land. Some potato producers rent their own land for dryland production in turn for access to an expanded land base. This allows them to concentrate capital and management on the higher value potato crop. The dryland farmer can capture an increased land value (i.e., rent) in return for becoming a shareholder in the operating company.

Land control and regulatory licences secure the asset for CMRM Ltd. Reservoir ownership is transferred to the operating company (e.g., CMRM Ltd.), which involves legal subdivisions. For pipelines and wells, the operating company (e.g., CMRM Ltd.) takes an easement or lease on the property the asset is located on. In the case of public property (e.g., road allowances) a municipal approval for the utility location and maintenance is required. Any other utility crossings, such as highways or railways, are covered in separate agreements with the regulating agencies. Water Rights and Environmental Act licences are held by the operating company (CMRM Ltd.), in order to secure the share value. CMRM Ltd. may also obtain financing for individual projects, on the basis of the shareholders agreements, the asset value and licences held.

Day to day project management and maintenance is done by the shareholders in the specific project. Maintenance can be paid directly by the managing shareholder, or hired out to a contractor. Where the project assets are jointly owned and operated, specific agreements on sharing of maintenance, operating and capital costs are required. Typically these are based on delivery capacity (e.g., gpm for pipelines and pumps) or volumetric requirements (e.g., ac-ft for storage), or at agreed to hourly rates.

Administration of the operating company is the responsibility of the Manager of CMRM Ltd. The CMRM Ltd. administrative functions include: posting of asset valuations, accounting of expenditures and depreciation, annual financial reports, arranging easements and land transfers, submitting documentation for water rights licences, liaising with Government and the public on issues of the environment, arranging for monitoring equipment and sampling, reporting on water use and environmental monitoring, and applications for Government assistance.

### THE ROLE OF THE IRRIGATION ASSOCIATIONS

Agassiz and Central Manitoba Irrigation Associations continue to hold a broader membership base than their sister operating companies (i.e. CMRM Ltd., ARM Ltd.). This provides for discussion of issues relevant to all producers, including individuals not part of the operating company. The managers of the Associations (AIA Inc., CMIA Inc.) also manage the operating companies (ARM Ltd., CMRM Ltd.). Producer memberships are collected to cover operating costs of the Associations.

Broad based planning and pre-feasibility studies can be carried out by the Associations on behalf of all members; often resulting in specific projects which are thereafter turned over to the operating company for development. CMIA Inc. is currently involved with planning, research, monitoring and consultation in the following areas either directly or through the provincial irrigators association (Association of Irrigators in Manitoba Inc.):

- ▶ groundwater table reservoir sustainability (North Portage);
- ▶ EM38 mapping of selected irrigated soils (i.e. salinity);
- ▶ Portage Diversion operation study;
- ▶ healthy river discussions (e.g., instream flow needs);
- ▶ infrastructure planning studies; and
- ▶ development of Best Management Plans for irrigators.

### RETURN FROM IRRIGATED PRODUCTION

The benefits of irrigated crop production accrue at several levels, including the producer, the industry and the Government. This section attempts to list these benefits, albeit in a qualitative manner. The Surplus Water Irrigation Initiative recently approved a study by the Association of Irrigators in Manitoba Inc. into the "Economic Impact of Irrigation in Manitoba". This study, to be completed in the year 2000, will attempt to quantify the benefits of irrigation in Manitoba and to whom they accrue.

In the years since the drought of the late 1980s, the potato processing industry in Manitoba has made irrigation a requirement for existing and new producers. Of the 6,000 acres (2 400 ha) to be developed by CMRM Ltd., about 50% was in potatoes prior to irrigation and 50% is 'new' potato growers who obtained contracts on the basis of developing irrigation projects to secure production. Thus, net benefits to the irrigation crop accrue from either the conversion of dryland potato production to irrigated potato production or from conversion from dryland grain and oilseed production to irrigated horticultural crops.

To estimate the net benefits of the irrigation projects to the producer, a couple of methods are available. Firstly, irrigated production allows for contracting a higher net yield with the processing company, requiring fewer acres to deliver the contract. As a result, the net unit cost of production has been estimated to be approximately \$1.11 per hundredweight (cwt) (1991 \$ Cdn.) less for irrigated production than dryland production (AIM, 1999). Using a net yield of 220 cwt/ acre (Manitoba Agriculture, 1999) the net return of converting from dryland potatoes to irrigated potato production can be estimated to be



\$250 per acre (\$620 per ha) per year.<sup>7</sup> Depending on producer's specifics this increment could be larger than that associated with conversion from dryland grain and oilseed production to irrigated potato production. AIM (1999) estimated net return for conversion from dryland canola and wheat to irrigated potato production at about \$200 per acre (\$500 per ha) per year.

Another method to estimate the value of irrigation to the producer is to look at the net incremental yield per acre resulting from irrigation. Shaykewich et al. (1997) indicate an return of about 16 cwt per acre per inch of total precipitation.<sup>8</sup> Manitoba Agriculture (1998) presented average water deficit maps to maturity for potatoes in Manitoba; the deficit varied from 2" to 3" (50 to 75 mm) in the CMRM and ARM areas to 4" to 5" (100 to 125 mm) in the Assiniboine Delta Aquifer and South West Manitoba areas (Fig. 1). At a contract price of \$7.00 /cwt this amounts to a potential increased income of from \$280 per acre (\$690 per ha) to over \$500 per acre (\$1200 per ha).<sup>9</sup>

The additional potato production associated with the CMRM Ltd. projects is contracted to the two french fry processing plants in Manitoba. Recent expansion of these plants has resulted in a continued need to expand the irrigated potato production. The processing plants benefit from the security of supply which allows them to remain competitive for contracts.

The Governments of Manitoba and Canada benefit from irrigated production through reduced unemployment and through sales, business and income tax revenues. In 1997, the two processing plants in Manitoba spent approximately \$300 M with suppliers, of which \$240 M was spent in Manitoba. The plants employ between 1,500 and 2,000 people in Manitoba. Approximately 90% of the product is exported out-of-province bringing net trade surplus to Manitoba and Canada (AIM, 1999). The construction and operation of the irrigation projects also creates jobs and tax revenue. While the majority of the irrigation equipment (sprinklers, pipe and pumps) are purchased from United States manufacturers, local construction companies and equipment suppliers have installed the systems and constructed the major works (e.g., reservoirs). The 1999 CMRM Ltd. project works will cost close to \$3 M (\$500 per acre, \$1200 per ha), not including on-farm sprinklers, pumps and pipes. On the farm, the increased employment from conversion of 3,000 acres (2 400 ha) from dryland cereal production to irrigated potato production amounts to about 17 person years of employment.<sup>10</sup> Assuming an additional 100 acres of vegetables associated with the projects adds another 12 person years.<sup>11</sup> The net value of these benefits to the Government has not been quantified.

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<sup>7</sup> The incremental return from premiums paid for quality resulting from irrigation was not included in the study (AIM, 1999).

<sup>8</sup> Total precipitation is the sum of irrigation and rainfall.

<sup>9</sup> \$7.00 per cwt x 16 cwt per inch x number of inches average moisture deficit.

<sup>10</sup> Cereals @ 1000 acres (400 ha) per person year and potatoes at 150 acres per person year (60 ha), vegetables at 8 acres (3 ha) per person year (AIM, 1999).

## BENEFITS AND COSTS OF GROUP PROJECTS

*Group* irrigation projects have incremental benefits over and above the direct measurable monetary return to irrigation. At the Government level, the following benefits accrue:

- ▶ group projects require environmental impact assessment, which ensures monitoring and implementation of Best Management Practices for soil and water resource protection;
- ▶ water use data collected by the operating company aids the Government in operation of their water structures (e.g., Shellmouth Dam, Portage Diversion);
- ▶ environmental mitigation measures can be negotiated on an industry-wide basis;
- ▶ empowering local agencies to deliver environmental mitigation leads to better producer understanding and reduced environmental impacts (Shady, 1997)<sup>11</sup>;
- ▶ large producer organizations make it increasingly feasible for Government agencies (e.g., PFRA), to educate producers in resource management issues (e.g., soil, water and habitat conservation); and
- ▶ Water Rights licencing will become more streamlined with knowledgeable advocates filing the applications. The number of resulting licences will be reduced. Turnaround time should improve.

In a similar fashion, group projects benefit the producer in certain "intangible" ways, accruing the following benefits:

- ▶ project planning experience is available to new growers (e.g., licencing, engineering design, tendering, installation standards); resulting in higher standard projects with better longevity and safety<sup>12</sup>;
- ▶ group project operation and management experience is available to new growers and landowners;
- ▶ Environment Act and Water Rights licences have a value to the producer with respect to securing financing and protecting their investment value;
- ▶ larger and more complex projects (delivering water further from the source) are identified for study and can be considered for implementation (e.g., KGS, 1999); and

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<sup>11</sup> Under the Hill Farms (PFRA, 2000) have implemented Best Management Plans and provide peer leadership within CMRM Ltd. ARM Ltd. monitors stream flows on three streams below the escarpment and has a soil resource project which documents groundwater fluctuations and salinity flux (PFRA, 1997).

<sup>12</sup> ARM Ltd. is currently renovating several reservoirs to current design standards.

- ▶ resource monitoring projects provide real data to producers making management decisions (e.g., nutrient and water scheduling, drainage improvements (e.g., tile), soil monitoring) (PFRA, 2000).

The trade-off for group projects is the increased cost to the Government and the producer, neither of which have been accurately measured. The change to group projects has triggered an increase in Environment Act Proposals (i.e., five in 1999). Although no additional staff has been hired by the Government as a result of this workload, there has been a noticeable delay in the review period. At this point, the Surplus Water Irrigation Initiative has financed the environmental assessments which are costing in the order of \$50 to \$100 per acre (\$125-\$250 per ha). In addition the cost of filing Water Rights licencing applications has been funded by the Government. Producers must pay an additional \$2 per acre (\$5 per ha) environmental application fee and the operating costs for CMRM Ltd. of \$1 to \$3 per acre (\$2.5 to \$7.5 per ha) per year (e.g., insurance, management, accounting). The cost of the environmental monitoring programs has yet to be determined, as they are still under negotiation with the Government.

In addition to the monetary costs, the environmental approval process has a potential opportunity cost. The environmental review process is open-ended, reacting to public involvement and is not yet well defined relative to some issues (e.g., fisheries requirements). As a result the process is data intensive (e.g., detailed soils surveys; well and creek water qualities; production issues) and has lead to increasing consulting costs. Overlapping of jurisdictions result in duplication of applications and increase the cost of licencing (e.g., Provincial water licences, municipal permits, Provincial and Federal environment impact analysis). Relative to the time frame for licencing small individual projects, the licencing process for larger group projects can be lengthy (e.g., 1 year) due to time to undertake the required studies. The net result is to make alternative investments more attractive.

#### FUTURE OF CENTRAL MANITOBA RESOURCE MANAGEMENT LTD.

The future of CMRM Ltd. appears promising. Currently planning and licencing is underway for another 2,000 acres (800 ha) in the year 2000. Furthermore, CMRM Ltd. will be busy in partnership with CMIA Inc., with issues of importance to all irrigators, including:

- ▶ planning and promotion of group infrastructure developments;
- ▶ industry leadership in sustainable development;
- ▶ streamlining licence applications to reduce cost;
- ▶ monitoring and reporting on water and soil resources;
- ▶ cultivating stronger partnerships with regulatory and municipal agencies;
- ▶ producer education, setting operational guidelines, and negotiating policies (e.g., BMPs, fuel handling guidelines, fish screens policies).

## CONCLUSIONS

The formation of the CMRM Ltd. has signaled a shift in irrigation development in Manitoba towards group developments. The change, relative to smaller individual projects, has potential to accelerate development by delivering water to land further away from the available sources. CMRM Ltd. provides structure and management expertise required for group projects which involve the development and maintenance of conveyance systems and intense consideration of environmental sustainability.

The benefits to group irrigation development in Manitoba are substantial. Producers increase their net returns. Industry secures the supply of quality produce. Governments accrue monetary benefits from increased taxes and employment, both on and off-farm, and benefit from industry responsibility for environmental monitoring. The magnitude of these benefits need to be quantified in order to rationalize support to CMRM Ltd.'s licencing, operating and monitoring costs.

The future of the company will require that producers see value in CMRM Ltd. They are challenged to look beyond the farm gate to the industry and public benefits of this approach. Government, producers and prospective new industries will have a focal point to discuss expansion possibilities. New producers won't have to relearn the wisdom in irrigation development acquired by CMRM Ltd. Empowerment, education and training of CMRM Ltd.'s personnel and producers should lead to better water management and more environmentally sustainable projects.

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