FIGHT TO THE LAST DROP

A GLIMPSE INTO ALBERTA'S WATER FUTURE

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A Glimpse Into Alberta's Water Future

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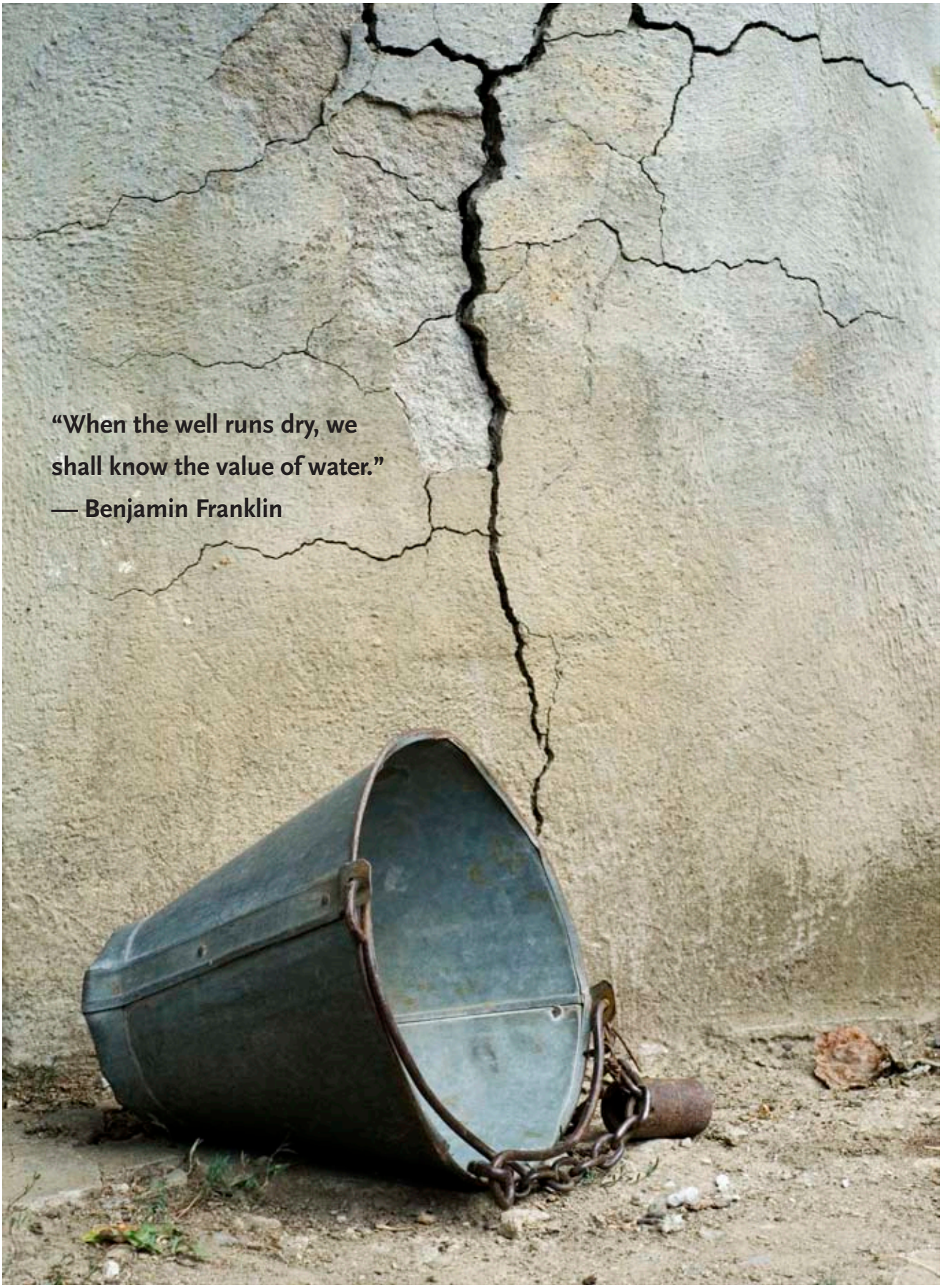

“When the well runs dry, we
shall know the value of water.”
— Benjamin Franklin

Executive Summary

One of the true tests of the adequacy of any water governance regime is its ability to manage water scarcity. By this measure, most water governance regimes in Canada have long remained untested. Until recently, few people worried about this, as the perception was that Canada had vast, if not unlimited, fresh water resources – amounting to one quarter of the world's supply.[1]

Such views are now challenged, however, with water experts estimating that Canada has roughly 7 per cent of world's renewable water supply – which is an amount equal to Canada's percentage of the world's land mass. Concern is rising as water levels in the Great Lakes plummet and trade agreements raise the threat of bulk-water exports. Canadians are increasingly aware of the limits of this vital resource – and the rules governing its use.

Nowhere in the country is this more apparent than in Alberta, where water scarcity is testing the provincial governance regime as never before. In October 2006, Alberta stopped issuing licences for the extraction of water from three major rivers: the Bow, the Oldman, and the South Saskatchewan.[2] In plain terms, southern Alberta has run out of water for any additional water users.

This report reviews Alberta's framework for dealing with water scarcity and examines some recent, highly controversial water supply schemes that may offer a glimpse into Alberta's future. Two case studies of water scarcity from 2007 in southern Alberta illustrate the troubling public policy issues to be addressed.

With population and economic growth continuing to surge in the province, dramatic changes in how water is used and who uses it are inevitable. And, as elsewhere, the reallocation of water could benefit certain people, communities and industries while harming others and the environment.

With population and economic growth continuing to surge in Alberta, dramatic changes in how water is used and who uses it are inevitable.

Dr. David Schindler, a leading authority on the topic has likened an assessment of Alberta's current situation to "the view from the locomotive, 10 seconds before the train crash."[3]

This sense of urgency has not gone unnoticed by the Alberta government. But, by the time the Ministry of Environment (Alberta Environment) decided to take action by prohibiting new water licences in 2006, the waters and fisheries of the three rivers were already threatened or severely degraded by low flows, altered flow patterns and other hydrologic changes. As water becomes increasingly scarce, these problems will only be exacerbated.

To its credit, the Alberta government undertook a review and revision of water legislation implementing a new *Water Act* in 1999, and in 2004 commenced its Water for Life strategy. Both of these initiatives recognized the threat of looming water scarcity and acknowledged the need to protect and restore aquatic ecosystems. Together, these initiatives also identified a range of tools to do so: data gathering and synthesis; regulatory oversight; protective environmental objectives, allocations and holdbacks; increased public consultation; and economic instruments such as water rights trading.

New licence applications in southern Alberta have fuelled plans for long-range water transfers and – for the first time in Canadian history – opened an active water-trading market.

While the aims of Water for Life are laudable, implementation successes have been few and far between. This is partly due to insufficient funding and lack of political commitment.

This is worrisome, especially given the 2006 imposition of the licensing moratorium on new water licence applications in southern Alberta. This moratorium has already fuelled plans for long-range water transfers and – for the first time in Canadian history – opened an active water-trading market. Together, these developments will almost certainly increase the intensity of existing water uses, reducing the flow in rivers and lowering the level of lakes.

The Balzac development located just north of Calgary grabbed headlines in 2007 and is one example of where Alberta's water future could be headed. After the moratorium on new licences, the developers announced plans to pipe water 200 km from the Red Deer River Basin. When local communities rose in opposition, the developers abandoned this plan and struck a deal with an Irrigation District to buy a portion of an existing water allocation.[4] This was the lesser evil – as the transfer was arranged according to established processes – but it nonetheless sparked major public concern and a legal challenge (ultimately rejected).

In this report we argue that the sale of water rights, without robust regulations to protect the public interest and the environment, poses major risks to aquatic ecosystems and public access to sustainable supplies of clean freshwater.

Another trend is more worrying still: Irrigation Districts seeking and obtaining licence amendments to operate as water brokers. Irrigation Districts have long provided water to their members for agriculture and irrigation on registered farmlands. Now, however, some Irrigation Districts are seeking the authority to provide water to any person for virtually any purpose at whatever price they deem appropriate. Not only does this diminish government oversight, but it threatens aquatic ecosystems, disenfranchises irrigators, and eliminates public rights to information. We argue that this trend constitutes an end-run around explicit rules that allow the transfer of water rights. These amendments constitute a fundamental change to water governance in Alberta, and, what is more, have been made without any public debate.

A recent application by the Eastern Irrigation District seeking such an amendment provoked strong public concern. This prompted Alberta Environment to put the application "on hold," while it undertook a review of this type of amendment with the goal of developing a formal policy. Unfortunately, the review is being conducted internally and Alberta Environment has not committed to allow the public to make comments or to respond to the draft policy. This is indefensible given the important public values at stake.

Looking forward, it is hard not to be concerned about Alberta's future water security. Population growth, increasing water use, global warming and droughts will inevitably converge to test it more severely, and measures have yet to be introduced to secure water for basic ecological needs and in sufficient quantities to insure clean water for future generations. Many in government have recognized the gravity of this situation, and an official strategy has articulated the fact that change is needed. However, implementation is uncertain and slow. Additionally, as water trading and water licence amendments continue, the government's current policies are becoming obsolete.

Time is running out for Alberta. The rising spectre of chronic water shortages, frustrated development, further environmental degradation and widespread conflict on the horizon, makes it essential for the province to improve its governance of this vital resource now.

The sale of water rights, without robust regulations to protect the public interest and the environment, poses major risks to aquatic ecosystems and public access to sustainable supplies of clean freshwater.

Introduction and Overview

Compared to some countries Canada seems to have a lot of fresh water, but the truth is more nuanced. Recent estimates put Canada's renewable freshwater supply at 7 per cent of the world's total, but Canada occupies roughly 7 per cent of the world's land mass, which leads us to believe that this perception of water abundance is not well founded.[5] Shortages of water in Canada are becoming more common – a fact of which southern Alberta is sorely aware.

Parts of southern Alberta now face a situation rarely seen in Canada: permanent water shortages. Three of the province's major river basins – the Bow, Oldman and South Saskatchewan – have been closed to further licensing. What this means is that individuals or companies needing water for business or developments can no longer simply apply to the government for a new water licence but must obtain (usually through buying) rights to use water from existing users who give up those rights.

Parts of southern Alberta now face a situation rarely seen in Canada: permanent water shortages. Three of the province's major river basins have been closed to further licensing.

It is not surprising that southern Alberta is the first region in Canada to grapple with prolonged water scarcity. Alberta has only 2.2 per cent of Canada's renewable freshwater and 80 per cent of that water is in the North while 80 per cent of its population in the South.[6] Prior to the imposition of licence restrictions in southern Alberta, water expert David Schindler wrote:

> *To a water expert, looking ahead is like the view from a locomotive, 10 seconds before the train wreck. Sometime in the coming century, the increasing human demand for water, the increasing scarcity of water due to climate warming, and one of the long droughts of past centuries will collide, and Albertans will learn first-hand what water scarcity is all about. Water scarcity will become one of the most important economic and environmental issues of the 21st century in the western prairie provinces.*[7]

Albertans are paying closer attention to water issues, recognizing the need to use water wisely and to reallocate water for environmental needs. There is growing recognition that the current regime for allocating water and protecting environmental needs is no longer sufficient.

The decision to stop issuing licences is environmentally beneficial but, unfortunately, it came too late – well after extensive damage had been done to Alberta rivers and lake environments. As indicated in Figure 1, the total volume of licenced water (represented by the blue line) now surpasses the total annual volume of water (represented by the black vertical bars) typical in lower flow years.

Approaching water limits has profound ramifications, mostly negative, but some positive.

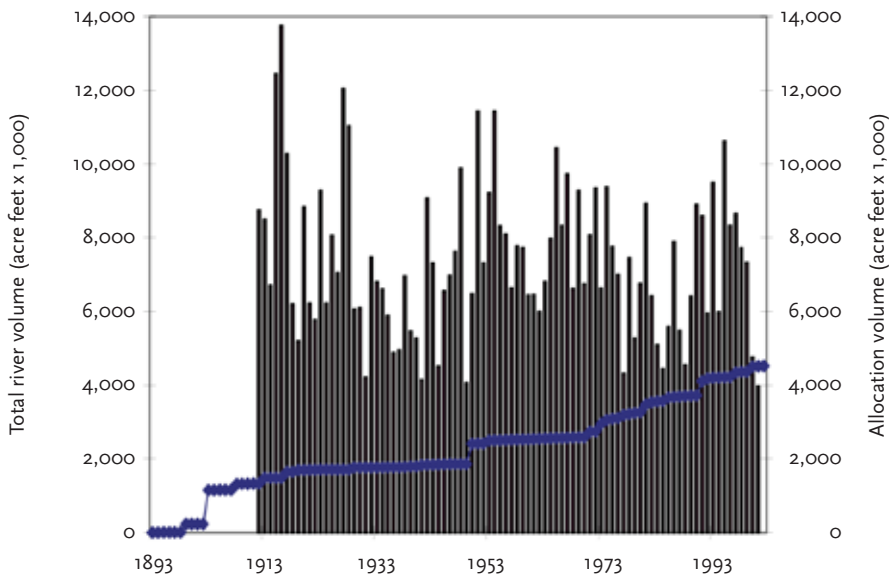
On the negative side, running up against water limits creates a situation where potential water users cannot get access to water, sometimes frustrating economic development. Water shortages can create conflicts among existing users, and between existing users and potential users. Water scarcity drives the development of expensive and environmentally damaging plans to obtain water from far afield to satisfy demands. Perhaps most troubling – in the context of a publicly owned resource like water – is speculators devising ways to create profits from an increasingly scarce public resource.

On the positive side, Albertans are paying closer attention to water issues, recognizing the need to use water wisely and to reallocate water for environmental needs. There is growing recognition that the current regime for allocating water and protecting environmental needs is no longer sufficient.

We are at a critical juncture in Alberta water governance. Robert Sanford, Chair of the United Nation's Rosenberg Forum, recently stated when discussing the Water For Life initiative:

> *Compared to other places in the world, there is not yet a water crisis in Alberta or in the Canadian West. But Alberta in particular has all the makings of one. The elements include heavy agricultural reliance on water, rapidly growing populations, increased water demand from cities and industry, reduced flows in important watercourses, and unpredictable climate variability.*[8]

Figure 1: Historic water volumes (black vertical lines) and allocations (continuous blue line) in South Saskatchewan River Basin



Source: *South Saskatchewan River Basin Water Allocation*. p. 2 Alberta Environment. May 2003 (Revised January 2005). Regional Services Southern Region.

To its credit, in 1991 the Alberta government began a review of its water governance regime. This review resulted in the *Water Act*,[9] which became law in 1999. The *Water Act* replaced the *Water Resources Act*, which, together with its predecessor, the *Northwest Irrigation Act*, had governed water rights in Alberta since 1894.

The *Water Act* retains the core principles of its predecessors, notably the First-in-Time, First-in-Right (FITFIR) principle (described in more detail). Most important, in terms of this report, the *Water Act* now allows for the transfer of rights held under water licences.[10]

In 2003, Alberta undertook an extensive review of its water governance, known as Water For Life. Alberta developed Water For Life recognizing that population growth, drought, and agricultural and industrial development are placing unsustainable demands on the province's water supplies, thereby posing increased risks to the health and well-being of Albertans, as well as its economy and aquatic ecosystems. The government also acknowledged that major shifts in managing water were required.[11]

Water for Life has three major goals: (1) a safe, secure drinking water supply; (2) healthy aquatic ecosystems; and (3) reliable and clean water supplies for a sustainable economy. In late 2006, the Alberta government asked the Rosenberg Forum, a highly respected group, to analyze the design and implementation of Water For Life. In a report published in February 2007, the Forum concluded that the strategy was:

> *...appropriately ambitious, given the urgent need to manage water more effectively in Alberta. Its high objectives are commensurate with the government's desire to proactively ensure that issues related to water availability and quality do not limit economic growth or social development, and do not damage ecosystems in the province now or in the future.*[12]

Despite this praise for the goals of the strategy, the reviewers found lack of public funding and other resources "a major weakness." The Forum also noted that:

> *The importance of equity or fairness is not explicitly acknowledged or specifically addressed in the strategy. Equity will be increasingly important in gaining public compliance should the province be faced with the introduction of rationing programs and other water economizing measures.*

A coalition of Alberta-based non-governmental organizations recently conducted its own analysis and similarly found that there has been insufficient funding, little in the way of actual implementation, and weak political support impeding its potential success.[13]

This is worrisome, especially given the imposition of licensing restrictions which have already fuelled plans for long-range water transfers, kick-started an active water-trading market, and increased the intensity of some existing water uses.

Two recent proposals may well be harbingers of Alberta's future water security, demonstrating that we are at a critical juncture in Alberta's system of water allocation. The inability to obtain new water from the Bow River for the Balzac development proposed in January 2006, resulted in a proposal to pipe water well over 200 km from the Red Deer River, which prompted outrage from residents of that basin.

Despite praise for the goals of the province's water strategy, reviewers found lack of public funding and other resources "a major weakness."

Then, in August 2007, the Eastern Irrigation District (EID) applied to Alberta Ministry of Environment for an amendment to its licence that would expand the purposes of use beyond traditional agricultural and irrigation purposes. The proposal provoked an outcry from a number of organizations, who warned that approving the EID amendment would effectively move Alberta's water market beyond the light of public scrutiny. While the effect of this amendment may appear innocuous or unclear, it constitutes a fundamental change in the management of what is arguably the most important public resource we possess. This is not simply unwise, but may well be illegal under Alberta law.

Licensing water use beyond traditional agricultural and irrigation purposes is not simply unwise, but may well be illegal under Alberta law.

Alberta's System of Water Allocation

History and Framework: Quick Overview

Canada inherited the "riparian rights" system of water regulation from England. Under this system, owners of riparian land (abutting a natural watercourse) were entitled to certain rights, most notably: the right to use the water and the right to have it continue to flow past in an unaltered state. Where the water was used for a domestic purpose there was no extraction limitation. Where the water was used for other purposes (commercial or industrial) the water had to be returned to the watercourse substantially unaltered in quantity and quality.[14]

Some remnants of the riparian system can still be found in Alberta's water regulations: riparian owners still retain a limited right to water for household purposes, which ranks higher in priority than all water licences and registered traditional agricultural users.[15] Otherwise, the rest of Alberta's water governance takes a fundamentally different approach.

To encourage early settlement of the Prairie provinces, the Dominion of Canada adopted a system that displaced riparian rights to encourage agriculture and industry. The "prior appropriation / prior allocation" system (commonly known as First-In-Time, First-In-Right or FITFIR) is also used in parts of Australia and the western United States. Such systems give priority to those who apply first for the right to use the water. In times of a water shortage, therefore, the more senior (older) water licences are given priority over junior (more recent) licences. Thus, the system gives a preferred water right to old licences, most of which were issued in the early 1900s.

FITFIR has been the subject of extensive analysis and criticism. Essentially, the evidence suggests that when rights are vested according to this principle a system emerges that is hard to manage, wasteful, inflexible, and robs future generations of important options.[16]

Today, the fundamental principles of Alberta's water allocation system, meant to encourage the development and use of water, are still the primary organizing principles of its water regulation. Notably absent from Alberta's governance regime are any requirements or standards for water-use efficiency.

Under the riparian rights system Canada inherited from England, water used for a domestic purpose had no extraction limitation and water used for other purposes (commercial or industrial) had to be returned to the watercourse substantially unaltered in quantity and quality.

Before 1962, water drawn from wells (or groundwater) was allocated according to principles of common law. In 1962, these principles were given formal expression in the *Water Resources Act*. From that time on, except for domestic use or other legislatively exempted uses, groundwater use required a licence.[17]

Overview of Water Use in Alberta

There are five major consumptive water users in Alberta: agricultural, thermal power, municipal, industrial and water injection. Hydro power production is also a very significant but non-consumptive use. Instream "uses" other than hydro include fisheries, recreation and effluent dilution.[18]

Three per cent of all the water currently withdrawn in Alberta comes from groundwater. However, thousands of Albertans depend on groundwater for their domestic supply.

A recent report using 2005 information indicates that Alberta has allocated 9,563,218 dam^3 (1 dam^3 = 1,000 cubic metres) of water (96.8 per cent of which is surface water and 3.2 per cent of which is groundwater). According to the report, only 3,297,876 dam^3 (or 34.5 per cent) of it is actually used.[19]

The total amount of surface water withdrawn by major water users in Alberta in 1989 was approximately 4.7 million dam^3. However, water uses like sewage effluent, irrigation return flow and thermal cooling water are returned to the natural drainage system. Consequently, the total amount of water withdrawn by users is not fully consumed. The total volume consumed during that year was 2.6 million dam^3, and the irrigation industry was the largest consumptive user by far.[20]

In Alberta, irrigators are allocated no less than 43 per cent of available water and consume 63 per cent of every litre used. By contrast, industries are allocated 28 per cent of available water, municipalities 11 per cent, petroleum 8 per cent, livestock watering 2 per cent, and commercial users 1 per cent.

Most water allocated by the government comes from the Bow, Oldman, and North Saskatchewan Rivers, where licences account for 2,597,894 dam^3, 2,292,401 dam^3, and 1,996,839 dam^3, respectively.[21] Irrigation Districts on the Bow and Oldman basins are licensed for most of the water in these areas, while thermal power plants are allocated the majority of the water in the North Saskatchewan basin.

In 2005, the Bow and the Oldman accounted for 67 per cent of water use in Alberta (2,265,078 dam^3 combined). The Athabasca basin follows with 8 per cent of Alberta's water use, due largely to tar sands processing.[22]

Three per cent of all the water currently withdrawn in Alberta comes from groundwater. However, thousands of Albertans depend on groundwater for their domestic supply. There are approximately 500,000 domestic wells in the province and an additional 7,000 are added each year.[23]

Provincial water use is predicted to increase 21 per cent by 2025, particularly by the petroleum industry, due to increased tar sands production, and irrigation.

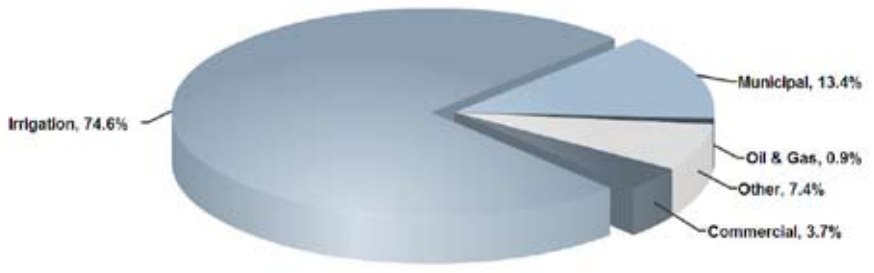
Irrigation Districts in Southern Alberta

Irrigation accounts for not only the greatest volume of water used but, by and large, the most senior rights. As discussed, the FITFIR water allocation system gives seniority to older water licences. In most cases, therefore, to supply new or expanding water needs in southern Alberta means reallocating from irrigators to supply other users.

The history of southern Alberta is closely linked to the development of agricultural irrigation, which now holds a dominant share of the water allocation in this part of the province. While 20,000 licences to use water have been issued since 1894, 74 per cent of the water allocated in Alberta's southern river systems is tied up in less than 20 licences for irrigation.[24]

It is important to note that very little of the water used for irrigation returns to the water body from which it came. Due to the volume and nature of use, therefore, Irrigation Districts can be a significant cause of low instream flows. For example, the Eastern Irrigation District's licences effectively allow it to divert between 50 to 90 per cent of the flow of the Bow River.[25]

Figure 2: South Saskatchewan Basin Water Use by Sector



Source: *South Saskatchewan River Basin Water Allocation*. Alberta Environment. May 2003 (Revised January 2005).

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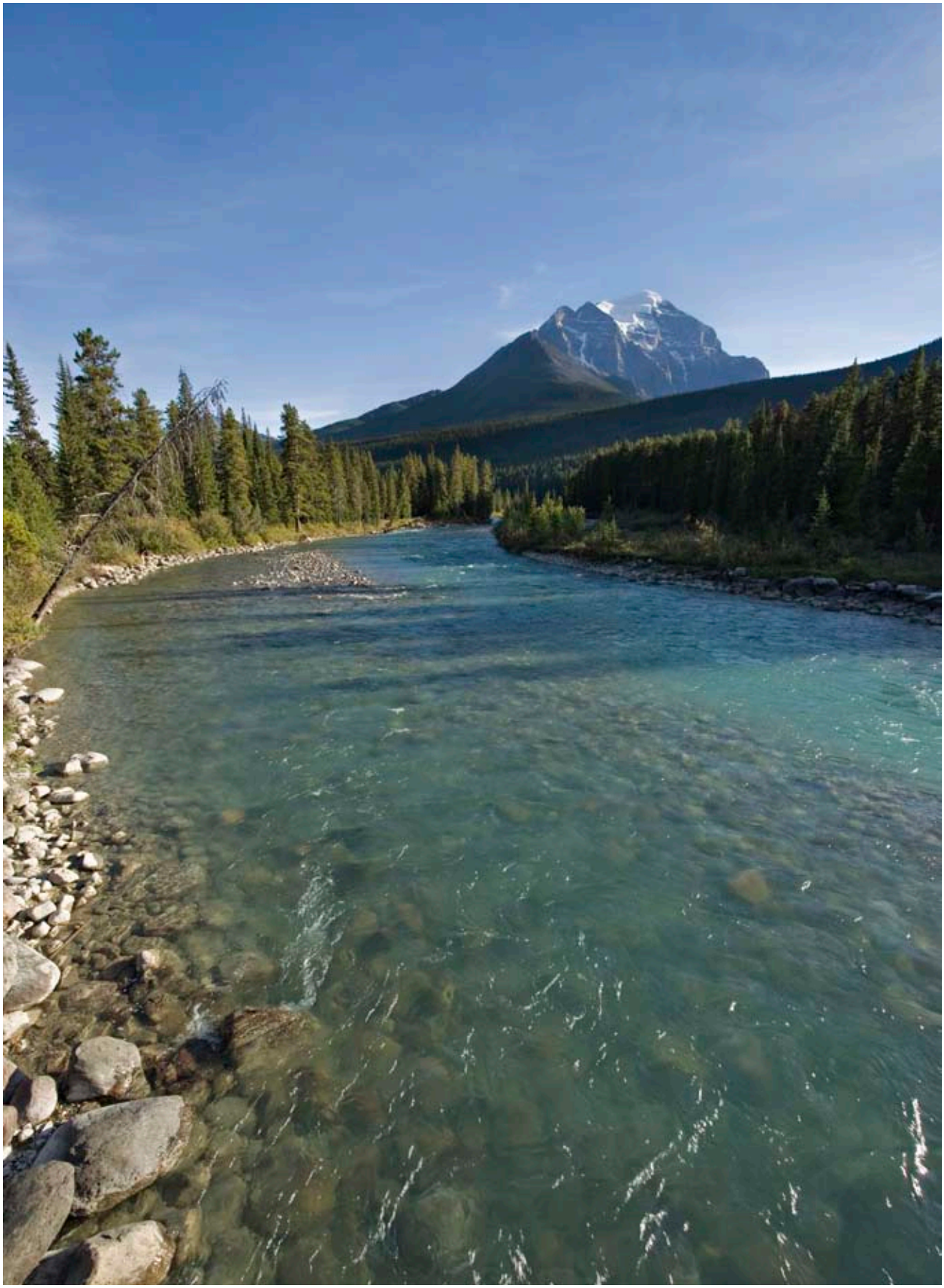
Oil and Gas Royalties

While the debate over oil and gas royalty rates in Alberta rages – attracting national attention – there is virtually no public discussion concerning the government's failure to collect any royalties from the granting or subsequent sale of water rights. The property right in water is vested in the Crown under the *Water Act*, but Alberta treats it as something that ought to be given away.

And, although the government has the power to claw back water for the public or environmental benefits when approvals for water rights transfers are sought, it has only exercised this power intermittently.



In Times of Shortage: Two Case Studies

As Alberta's population has grown and its economy diversified itself to include new industries such as oil and gas, there has been a growing pressure on irrigators to hand over some of their water rights.

Two case studies from 2007 illustrate the growing conflict over water holdings within the irrigation sector, and the threats to the public interest. First, the government's decision to stop issuing water licences for the Bow River led to a proposal to pipe water over 200 km from a northern river basin. Public outcry over this proposal resulted in the developer formulating an alternate proposal that involved the purchase of water rights from an Irrigation District. Second, Alberta's Eastern Irrigation District made a bid in late 2007 to become a major water broker in southern Alberta. The resulting public concern caused the Alberta government to put the proposal on hold.

While the facts of each case study differ, both involve the important role that irrigation plays in southern Alberta with respect to water availability and allocation. Furthermore, both serve as case studies of the different but fundamental public policy issues linked to the protection of the public interest in the allocation and re-allocation of water – a key driver of Alberta's future water security.

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CASE STUDY

Water for a Race Track, Mall and Casino

Background

In 2007, a proposal for a commercial development, including a horse racing track, shopping mall and casino near Balzac, north of Calgary, was at the centre of southern Alberta's most contentious water controversy. The massive construction project ran up against the moratorium on new water licences on the Bow River.

Scientific evidence has demonstrated that large amounts of water diverted away from a source river can seriously deplete water supplies and harm riverine environments.

One of the several plans devised by the developers for securing water was to take water from the Red Deer River, over 200 km away from the development. In Alberta, this is known as an "intrabasin" water transfer.[26]

Public concerns over this proposal stemmed from the fact that available water in the Red Deer River for municipal and industrial purposes is increasingly limited. Pressures on this river will only increase as the population in the Red Deer River Basin increases and global warming continues to influence water availability. Moreover, the community was concerned that the proposal would be just the first of many in which the basin's water went to serve the demands of the booming Calgary region, hence importing environmental degradation while foreclosing future domestic and commercial water use in the Red Deer basin. Some also questioned the wisdom of a proposal requiring significant energy to transport the water.

Over the past decade, a growing body of scientific evidence has demonstrated that large amounts of water diverted away from a source river can seriously deplete water supplies and harm riverine environments. It is now known, for example, that water transfers can negatively affect aquatic habitats on river systems when as little as 2 per cent of river flow is diverted from the source watershed.[27]

Due in large part to public outcry over this intrabasin transfer, the developer arranged to secure water from the Western Irrigation District located in the Bow River Basin. In return for the rights to water, the Western Irrigation District received $15 million to implement water saving measures. Similar deals in the future may not be as easy. [28,29]

Transferring Water Rights: Pros and Cons

Water rights transfers have always been controversial and, in many jurisdictions, are prohibited. Prior to the enactment of the current *Water Act*, it was virtually impossible to transfer provincially licenced water rights in Alberta.[30] However, as the shortcomings of current water management regimes have become more apparent, water rights transfers are being promoted as one of the solutions.

According to supporters, the ability to transfer water rights gives holders an incentive to use water efficiently because they are permitted to sell or lease any water they do not use. Transfers also make possible the reallocation of water rights from economically low value uses to higher value uses. Theoretically, water rights transfers may help avoid conflict as existing

rights holders are not forced to give up or share water rights and, in fact, will only do so when motivated by a sufficiently attractive financial offer. Water rights transfers may also increase the water supply available to new users as water purchasers would have an increased pool of potential sellers. New users could gain access to water without incurring the expense (and environmental impacts) of a new water supply. Other jurisdictions have been successful in ensuring environmental flows through the purchase of water rights.

Critics, however, point out that water serves social and environmental needs that are too important to be left to the whims of market forces. Most would agree that the preservation of a commercially valuable fish population, or an endangered one, is more socially useful than the profligate watering of a golf course; however, market forces may favour the watering of fairways and greens. In other words, environmental interests are not able to compete in the market as it is now structured. The benefits of environmental integrity accrue to society (and non-human interests) collectively, and it is naive to expect individuals in search of profits to volunteer to pay for public benefits at the level required.

Transferring water from one use to another is potentially complex. The potential environmental impacts and management challenges of transfers include:

- reduced return flows (or an increase in consumption by the transferee leaves less water in the stream for other users);
- transfers of seasonal rights (may change the timing of diversions to a high demand period and may also change the total amount diverted);
- stream conveyance losses (a change in the point of diversion may increase channel losses);
- changes in the point of diversion (a downstream transfer of a senior right may have an impact on a junior right located between the original diversion point and the new diversion point);
- temporary storage problems (noting that, while most uses provide return flows, the timing of these flows may be an important asset since delays in returns may produce benefits by potentially providing storage and therefore deliveries in later, low-flow periods);
- changes in water quality; and
- harm to those not taking water from the river (social and economic impacts on communities).[31]

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One of the major concerns about Alberta's system is its willingness to allow the transfer of "sleeper rights" – water rights that were set out in a licence but were not actually used. Many jurisdictions limit transfers to quantities of water actually used.[32] As Nigel Bankes has pointed out, specific problems arise with the transfer of water rights that have not been fully utilized before the transfer:

> *Environmental concerns with water transfers frequently emphasize the problem of so-called sleeper and dozer rights. These are rights that are not used up to the full level of the licenced amount. The creation of a market provides an incentive for the licencee to transfer its entitlement with the transferee inevitably making more intensive use of the water right with the necessary implication that there will be less water left for the aquatic*

environment. But even where existing rights are fully utilized (i.e., the right is not a sleeper right), there will still be an incentive to conserve and intensify the use of water. While this may be socially desirable and lead to the adoption of more efficient irrigation systems, it may also lead to the loss of wetland and riparian habitat as water users seek to reduce canal losses, etc. Greater efficiency may also reduce return flows on which other users depend. Intensification of use and reduced return flows may also have a detrimental impact on water quality.

The literature identifies various mitigative strategies that may be used to overcome some of the social, economic, and environmental concerns associated with transfers. These include prohibitions (or serious restrictions) on inter-basin transfers, requirements for prior approval of transfers, no-harm analyses prior to approval, prescribed limits on the proportion of water that may be transferred, restricting transfers to amounts actually used or consumed, the prescription of appropriate ground rules (such as instream flow and lake level requirements) to protect important public values, and allowing conservation organizations and others to use the transfer system to acquire instream flow rights to protect the aquatic environment.[33]

One of the major concerns about Alberta's system is its willingness to allow the transfer of "sleeper rights" – water rights that were set out in a licence but were not actually used.

Alberta Environment does have the discretionary authority to consider whether water was actually used when approving or denying a transfer application.[34] Figure 3 shows the difference between the allocation and average use of water by Irrigation Districts in Alberta, from 1985 to 2006.

Figure 3 illustrates that Alberta's largest Irrigation Districts are not utilizing the full amount of their annual allocations. The Saint Mary's Irrigation District (SMRID) uses 57 per cent of its annual allocation on average and the Eastern Irrigation District (EID) uses 74 per cent of its annual allocation on average.

Figure 3: Allocation and Average Use of Water by Irrigation Districts, 1985 – 2006

Alberta's system for water transfers

With the passage of the *Water Act* in 1999, Alberta now allows transfers, but recognizes that those transactions need to be carefully regulated. For example, section 81(6) of the *Act* requires that "the Director must conduct a public review of a proposed transfer of an allocation of water under a licence." Allowing the amendment sought by the Eastern Irrigation District deprives ability to provide advice and participate in planning with regard to specific water allocation decisions, and contravenes a fundamental purpose of the *Act*.

Under section 82(5) of the *Act*, the following factors may be considered by the Director with respect to any transfer:

- effects on the aquatic environment and any applicable water conservation objective;
- hydraulic, hydrological and hydrogeological effects;
- the allocation of water that the licencee has historically diverted under the licence; and
- any other matters applicable to the transfer of the allocation that the Director considers relevant.

Under section 83 of the *Act*, Alberta Environment may hold back up to 10 per cent of the water being transferred under licences.

The increasing number of transfers of rights from licenced water users to others is evidence of the emerging water market in Alberta. Since 1999, there have been 26 permanent water rights transfers. In only six of these transfers has the government exercised the right to prevent the transfer. Moreover, there are now commercial operations and websites dedicated to brokering water transfers.[35]

The increasing number of transfers of rights from licenced water users to others is evidence of the emerging water market in Alberta.

CASE STUDY

Towards Water Brokers and Unregulated Markets

Background: Eastern Irrigation District Proposal to Amend its Licence

On August 21, 2007, a public notice appeared on the Alberta Environment website that the Eastern Irrigation District (EID), the largest consumer of water on the Bow River, was proposing to amend two of its water licences allowing the District to provide water for purposes in addition to irrigation.

In effect, amending a licence is another way of reallocating water. Left unchecked, such reallocation can have detrimental impacts. An issue as critical as this should be subjected to public scrutiny and comment.

The proposed amendment would affect 762,000 acre feet diverted at the Bassano Dam in Bassano, Alberta and would permit the EID to expand its water licence from being restricted to "irrigation and agriculture (stockwatering) purposes" to additional uses for "municipal, agricultural, commercial, industrial, management of fish, management of wildlife, habitat enhancement, and recreation."[36]

Historically, the EID has only used a portion of its licenced allocation – on average, 74 per cent. In the past three years, it has used only 48 per cent of its licence allocation.[37] Given the size of the EID allocation, the "unused" portion of its water (available for delivery to other users if the amendment is granted) would be considered fairly sizeable, even during years of short supply.

Studies prepared by Alberta Environment show that the health of the aquatic environment on the Bow River has been in decline for years.[38] The lowest reach of the Bow River (from the Bassano Dam to Grand Forks – the stretch immediately below the EID diversion point) is warm in summer, nutrient-rich, and shallow due to upstream extractions. Such degraded ecology puts this part of the Bow among the worst of all river reaches in the South Saskatchewan River Basin.[39]

Concerns about the specific health of the Bow River and about the policy ramifications of the amendments prompted Alberta Environment to put the EID application on hold on October 26, 2007 and not to accept any further amendment requests of this nature in the interim.[40] Alberta Environment has now announced that it is undertaking a review of the suitability of this type of amendment. Currently, the review is strictly an internal review. We believe that an issue as critical as this should be subjected to public scrutiny and comment.

Broader Ramifications of Water Licence Amendments

The amendment sought by the EID is not the first of its kind, but there are serious ramifications associated with the reallocation of water.[41] In effect, amending a licence is another way of reallocating water. Left unchecked, such reallocation can have detrimental impacts. Many commentators have serious concerns about amendments such as the one proposed by the Eastern Irrigation District as they permit reallocation with little or no oversight to protect the environment, other water users or the general public.

Major concerns regarding licence amendments include:

Amendments do not outline how water will be reallocated, who will benefit from it, and the resulting impacts on others and the environment.

Hydrologists and biologists recognize that changing the time, place and manner of water use can have significant impacts, even if the total amount of water diverted does not change.

Hydrologists and biologists recognize that changing the time, place and manner of water use can have significant impacts, even if the total amount of water diverted does not change. Changes in return flows, groundwater recharge and water quality can seriously affect other users and the environment. For these reasons, among others, Alberta Environment may only approve a licence amendment application where:

> *[The] Director is of the opinion that there is no or will be no adverse effect on the rights of a household user, other licencee or traditional agriculture user and that the proposed change will not adversely affect the ability to conserve or manage a water body.*

The application for the EID proposed amendment was light on detail, with a single sentence requesting a full change to 762,000 acre feet. No other information was provided by the applicant outlining what the water would be used for, what parties would receive the water, how much, and for how long. Given the nature of the amendment sought, it would be virtually impossible to provide such information.

Since it is not specifically known how water would be used under an amended licence, it is not possible to determine whether a proposed amendment will have an adverse effect on the rights of household users, on other licencees or traditional agriculture users, and on the ability to conserve or manage the water bodies that would be affected.

The state of Colorado has a water allocation system similar to Alberta's. In 2005, the issue of changing the purposes of a water licence was considered by the Colorado Supreme Court in High Plains A & M, LLC v. Southeastern Water Conservancy District.[42] There, a licence holder sought to change water rights held by the Fort Lyon Canal Company and historically used for irrigation to be used for any one of over 50 proposed new uses in any of 28 Colorado counties. The Supreme Court upheld the water court's finding that the change of application was "so expansive and nebulous" that there was no way to determine whether vested water rights would be injured by the changes or to determine whether there would actually be a new beneficial use made of the water.

The public has no opportunity to engage in the reallocation of scarce water supplies

The *Water Act* emphasizes "the shared responsibility of all residents of Alberta for the conservation *and wise use of water and their role in providing advice with respect to water management planning and decision-making*" [emphasis added].[43]

Amendments to water licences such as those proposed by the Eastern Irrigation District undermine openness, transparency and public accountability. Currently, the public can learn of the existence of licences, the identity of the holders and the purpose to which water (a public resource) is applied. This transparency would be eliminated where a licencee is allowed to reallocate water in the manner contemplated under the amendments.

In addition to bypassing the public review component of the *Water Act*, the amendment of an irrigation licence disenfranchises irrigators, as the *Irrigation Districts Act* specifically provides for approval by a plebiscite to effectuate water transfers.[44]

Other concerns

Applications for licence amendments such as the EID's stand at odds with the process for transferring water rights established under the *Water Act*. In that process, the quantity, location and purpose of water use and the parties to the transfer are all known to the Director. The transfer application must be refused if it will unduly harm other users or the environment.

Water transfers also have the additional benefit of allowing for up to 10 per cent of water transferred to be returned to the river (see section 83 of the *Water Act*). The Director has discretion to require a conservation holdback of up to 10 per cent of the transferred allocation. This opportunity is missed when a licencee is allowed to transfer water allocations by way of an amendment.

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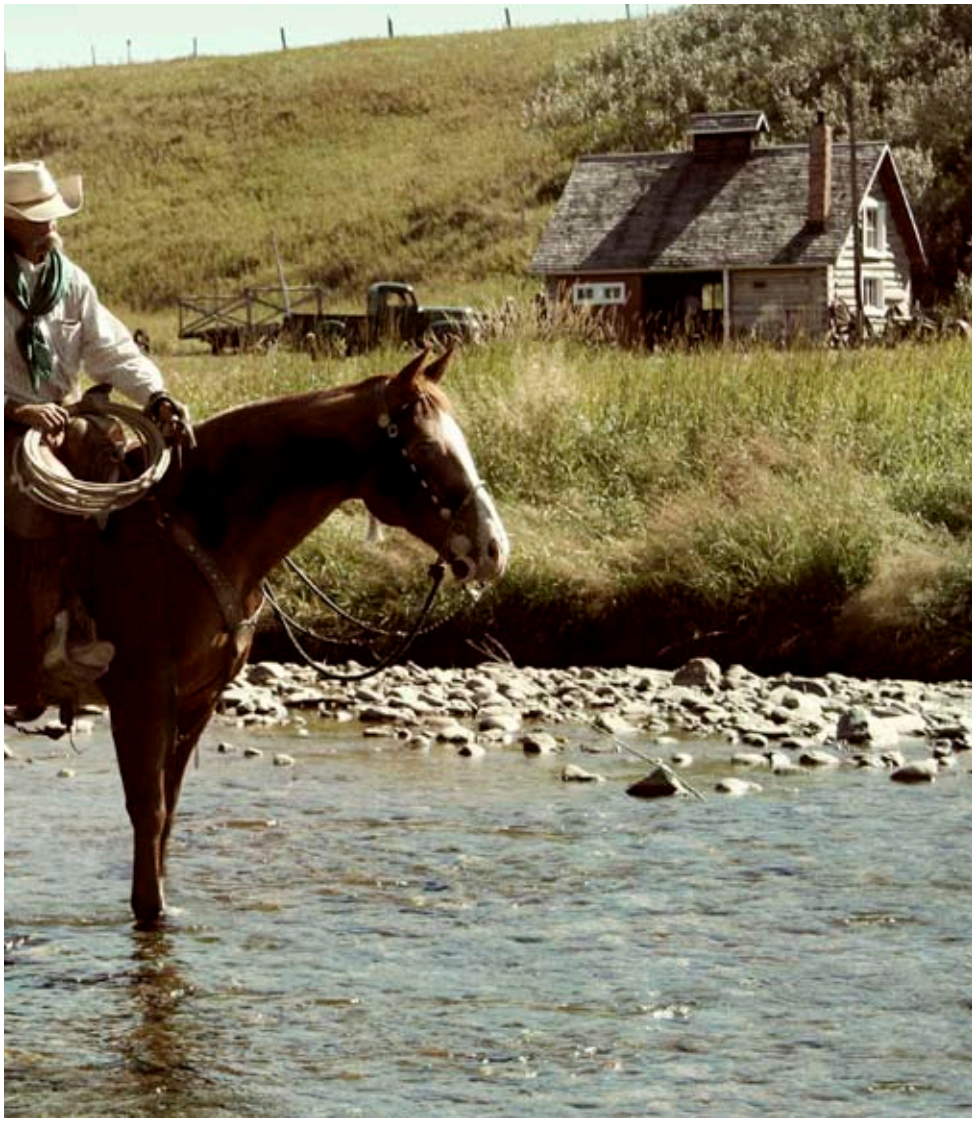

In the short term, it is imperative that Alberta Environment open its review of Irrigation District amendments to public input.

Conclusion

The controversial studies described above highlight the challenges facing southern Alberta for water allocation, transfer, and use. They also demonstrate the need for a more progressive policy framework to ensure the long-term protection of water resources for people and the environment.

In the short term, it is imperative that Alberta Environment open its review of Irrigation District amendments to public input.

In the long term, how the Alberta government approaches the seemingly arcane issues of water transfers and amendments will likely determine in large part the future water security of Alberta's rivers and its citizens. There is no single path toward securing the future of the province's water supplies, but it is clear that the current one is pointed in the wrong direction. Change is necessary. A robust regulatory framework with a solid system of governance, accountability and assurance that the public interest and the environment are protected should guide future water allocation decisions in Alberta. The approaches chosen, however, must be consistent with Alberta's overall strategies for managing water and promote a range of long-term options, environmental sustainability, social equity, and economic prosperity.

There is no single path toward securing the future of the province's water supplies, but it is clear that the current one is pointed in the wrong direction. Change is necessary.

Notes

1 John Sprague, "Great Wet North? Canada's Myth of Water Abundance" in Karen Bakker ed. *Eau Canada* (Vancouver: UBC Press, 2007) at 23 [*Sprague*].

2 This report uses conventional Canadian English spellings: hence licence, rather than license, and so on.

3 David Schindler, "The Myth of Canadian Water Abundance" *Innovation Canada* Issue #21 (March-April 2006), online: InnovationCanada.ca <www.innovationcanada.com/21/en/pdf/myth.pdf>.

4 See Section B of this report for a discussion of Irrigation Districts and their role in Alberta water allocation.

5 *Sprague, supra* note 1.

6 Alberta Environment, "Water for Life: Facts and Information on Water in Alberta" (December, 2002), online: Alberta Government <environment.gov.ab.ca/info/posting.asp?assetid=6364&subcategoryid=83>; Alberta Water Smart, "Alberta Water Facts" (2006) online: Alberta Society for Sustainable Water Management and Related Technologies <www.albertawatersmart.com/altafacts.html>.

7 *Ibid*.

8 R. W. Sanford, "The Rosenberg Forum" *Corporate Knights* Vol. 6.2 (2007) 44.

9 R.S.A., c. W-3.

10 Ibid., Part 5, Division 2, ss. 81-83.

11 Alberta Environment, "Water for life: Alberta's strategy for sustainability" (November, 2003), online: Alberta Government <www.waterforlife.gov.ab.ca/docs/strategyNov03.pdf>.

12 Rosenberg International Forum on Water Policy, "Report Of The Rosenberg International Forum On Water Policy To The Ministry Of Environment, Province Of Alberta" (February 2007), online: Alberta Government <www.waterforlife.gov.ab.ca/docs/Rosenberg_Report.pdf> [Rosenberg Report].

13 Alberta Wilderness Association *et al*., "Recommendations for Renewal of Water For Life: Alberta's Strategy for Sustainability" (November 2007), online: Bow Riverkeeper <www.bowriverkeeper.org/water-for-life>.

14 For a detailed discussion of common law water rights and legislative alteration throughout Canada, see David Percy, *The Framework of Water Rights Legislation in Canada* (Calgary: The Canadian Institute of Resources Law, 1988) [Percy].

15 *Supra* note 9, ss. 21 and 27.

16 Rosenberg Report, *supra* note 12.

17 *Water Resources Amendment Act*, S.A. 1962, c. 99, s. 2. For a pre *Water Act* discussion of groundwater rights in Alberta see Percy, *supra* note 15.

18 Alberta Environment, "Alberta's water resource" (28 April 2003), online: Alberta Government <www3.gov.ab.ca/env/water/reports/water_overview.html>.

19 AMEC Earth & Environmental for Alberta Environment "Current and Future Water Use in Alberta" (November 2007), online: Alberta Government <www.waterforlife.gov.ab.ca/watershed/current-future_water_use.html> [AMEC, "Current and Future"].

20 Alberta Environment. 2003.

21 AMEC, "Current and Future," supra note 19.

22 Alberta Environment. 2003

23 Alberta Environment. 2003.

24 Specific irrigation usage is as follows: 20 per cent from Red Deer; 76 per cent for Bow; 87 per cent from Oldman River. See Alberta Environment, *South Saskatchewan River Basin Water Allocation* (May 2003, revised January 2005) at 5 and 11 [Alberta Environment, *Water Allocation*].

25 *Ibid*. at 7, showing allocation diverts approximately 68.1 per cent of the median flow. Diversions from the EID is often 75 per cent below average annual stream flow. Additional supporting data available from the Alberta Environment Evaluation and Reporting Section, Environmental Monitoring and Evaluation Branch. 2007.

26 Alberta distinguishes between "interbasin" and "intrabasin" transfers. Interbasin refers to transfers between two of seven defined major river basins, see the *Water Act*, s. 1(1)(ff), definition of "major river basins"). Intrabasin transfers refer to transfers between distinct rivers within one of the seven major basins. Under the *Water Act* transfers between major river basins may only occur if authorized by a special act of the Legislature. Intrabasin transfers are not subject to specific approval requirements, but they are subject to the same approval requirements as an application for obtaining a new water licence or the transfer of existing rights.

27 Frederic Lasserre, "Drawers of water: water diversions in Canada and beyond" in Karen Bakker ed. *Eau Canada* (Vancouver: UBC Press, 2007). The issue of transferring water between watersheds is not just limited to surface water. Inadequately regulated groundwater may easily be subject to piping proposals between watersheds.

28 The Balzac water rights transfer required the approval of the members of the Western Irrigation District. Even though the District received $15 million for much needed water-efficiency measures, which will save more water than the Balzac development will receive (thus the deal will actually increase water available to District members), the deal only received 57 per cent approval. See Renata D'Aliesio "Balzac track gets its water: Western Irrigation Members OK deal" *Calgary Herald* (3 August 2007).

29 The arrangement also attracted a legal challenge from Westridge Utilities Inc., although that challenge was dismissed on the basis that Westridge was not "directly affected." See Karen Lazaruk "Water transfer appeal is quashed: M.D. of Rocky View, Western Irrigation District breathe sigh of relief" *Airdrie Echo* (9 January 2008).

30 Nigel Bankes & Arlene Kwasniak, "The St. Mary's Irrigation District Licence Amendment Decision: Irrigation Districts as a Law unto Themselves" (2005) 16:1 *Journal of Environmental Law and Practice* 1.

31 Nigel Bankes, "The Legal Framework for Acquiring Water Entitlements from Existing Users" (2006) 44 *Alberta Law Review* 323, p. 27 [Bankes, "The Legal Framework"].

32 For example, most US prior appropriation states limit the maximum amount transferable to "historical use", an amount often defined as "an average of recent years' use." See Joseph L. Sax *et al*., *Legal Control of Water Resources*, 2nd ed. (St. Paul, Minn.: West Publishing, 1991) at 230.

33 Bankes, "The Legal Framework", supra note 31, pp. 25-26.

34 *Water Act*, supra note 9, s. 82(5)(c)(iii).

35 See Alberta Water Transfers, "Home Page" (2007), online: Alberta Water Transfers <albertawatertransfers.com/>.

36 The EID proposal sought to amend two licences with priority numbers 1903-09-04-002 and 1998-07-13-002. Amendment proposals are on file with authors. While the proposed amendment related to the entire sum of the EID licence, 762,000 acre feet, the EID stated publicly that it only intended to apply three per cent of this water to other purposes. Despite these public pronouncements, however, the amendment application stands at 762,000 acre feet. For purposes of this report, we discuss the potential hydrological implications for what is currently proposed. The legal and policy implications of this amendment outlined in this report, however, would apply regardless of the amount of water subjected to an amendment of this type for any licencee. The January 4, 1963 licence (with a priority date of August 1, 1903) provided for diversion rates at low water, high water, and flood stages based on irrigation use only. The associated 1998 licence (1998-07-13-002) was amended only to allow for a change in diversion rate in the first licence, and it also retained the original purpose for irrigation and agriculture.

37 The average amount of water used by the EID over a period of 1970 to 2006 has been 582,802 acre feet or 76 per cent of its total licence. The average amount of water used during the period of 2004-2006 was 365,162 acre feet or 48 per cent of its total licence of 762,000 acre feet. In 1990, the EID diverted the largest amount of water over the period of record: 689,178 acre feet. In 2005, the EID diverted the least amount of water over the period of record: 323,417 acre feet. See Alberta Agriculture, Food, and Rural Development, Irrigation Branch, "Alberta Irrigation Districts Annual Irrigation Diversions" (17 September 2007), online: Alberta Government <www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/irr8782>. An acre foot is the volume of water required to cover one acre of land to a depth of one foot (43,560 cubic feet or 325,851 gallons). See Colorado State University Extension – Agriculture, "Glossary of Water Terminology" (October 2004), online: Colorado State University <www.ext.colostate.edu/PUBS/crops/04717.html>.

38 Alberta Environment, "South Saskatchewan River Basin Water Management Plan, Phase Two: Background Studies" (June 2003), online: Alberta Government <www3.gov.ab.ca/env/water/regions/ssrb/pdf_phase2/SSRB%20Backgroud%20Studies%20Web%20FINAL.pdf>.

39 *Ibid*.

40 Government of Alberta. News Release, "Application to amend water licence in South Saskatchewan River Basin on hold" (26 October 2007), online: Alberta Government <www.alberta.ca/home/NewsFrame.cfm?ReleaseID=/acn/200710/22388D93C1A15-A010-72B5-65A2CB00AE90DAA6.html>.

41 Other Irrigation Districts have sought and received amendments making their licences open ended.

Taber Irrigation District, 00045441-00-01 (approved October 25, 2006, signed by Dave McGee); Raymond Irrigation District, 00044959-00-01 (approved April 3, 2006, signed by Dave McGee, maximum of 4,500 acre feet annually); St.Mary Irrigation District, 00044590-00-01 (approved October 30, 2003, signed by Alan Pentney, maximum of 12,000 acre feet annually); and Lethbridge Northern Irrigation District, 00045409-00-02 (approved August 31, 2007, maximum of 39,068 acre feet).

42 Online: Colorado Supreme Court <www.courts.state.co.us/supct/opinions/2004/ 04SA26604 SA267.pdf >.

43 *Water Act*, *supra* note 9, s. 2(d).

44 The granting of the amendment sought by the EID would result in the disenfranchisement of the members of the EID, to whom the Alberta Legislature granted oversight responsibilities in section 11 of the *Irrigation Districts Act*. Section 11 states:

> *No district may make an application for a transfer of an allocation of water under a licence pursuant to section 81 of the Water Act unless the board (see bottom of next page)*
>
> *(a) holds a meeting with the public, and*
>
> *(b) by resolution authorizes the holding of a plebiscite to obtain the approval of the irrigators.*
>
> *As the amendment sought by the EID allows the transfer of water allocations without resort to section 81, the Director should not facilitate the circumvention of an oversight mechanism prescribed in the Irrigation Districts Act.*

ECO AUDIT FOR THE PRINTING OF THIS REPORT

0.19 trees preserved for the future

0.54 lbs water-borne waste not created

80 gallons wastewater flow saved

9 lbs solid waste not generated

17 lbs net greenhouse gases prevented

133,280 BTUs energy not consumed

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Bow Riverkeeper is a not-for-profit regional organization concerned with protecting and restoring the Bow River watershed. Our mission is to protect and restore the Bow River watershed in order to ensure a clean and sustainable water supply for all living communities that depend on the river now and in the future.

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