

Adaptive policy case study: analysis of Manitoba's conservation district policy

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Adaptive policy case study: analysis of Manitoba's Conservation District policy

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8.1 Introduction

This case study was designed to explore several aspects of adaptive policy design. Chapters 1 and 2 have laid out a framework derived from the experience of the authors and from the literature. This particular case study examines a situation wherein the policy instrument – the conservation district policy of the government of Manitoba – devolves decision-making down from the provincial government to the locally-based boards of directors. It, therefore, allows us to explore the implications of such a decision-making policy on policy adaptability. Obviously, the local board can be closer to changing conditions in its own territory, and, therefore, presumably, better able to recognize and respond to unforeseen circumstances than the more distant officials in Winnipeg would be. Figure 8.1 is the map of the CDs (conservation districts).

The CDs have operated over a number of years, and there are now 17 of them. This allows us to compare the experiences across various CDs.

8.2 Policy description: changes, drivers, and impacts

8.2.1 Historical policy evolution

This section presents a chronology of key issues and events influencing the creation of Manitoba's CDs, their range of programmes over time, and their apparent future direction. Specific attention is paid to changes in the rules and delivery system of the policy instrument, the driving forces for changes that did occur, and the socio-economic and environmental impacts that resulted from policy implementation. This information forms the foundation for an adaptive policy analysis, presented in Section 3, of the policy. Manitoba's Conservation Districts Act received royal assent in 1976, making the provincial policy instrument itself relatively recent at only 30 years. However, the historical evolution of this policy is germane to the analysis of unanticipated conditions.

Much of Manitoba's landscape is inherently wet, including its productive southern agricultural soils. Consequently, water management challenges have existed in Manitoba since the province's

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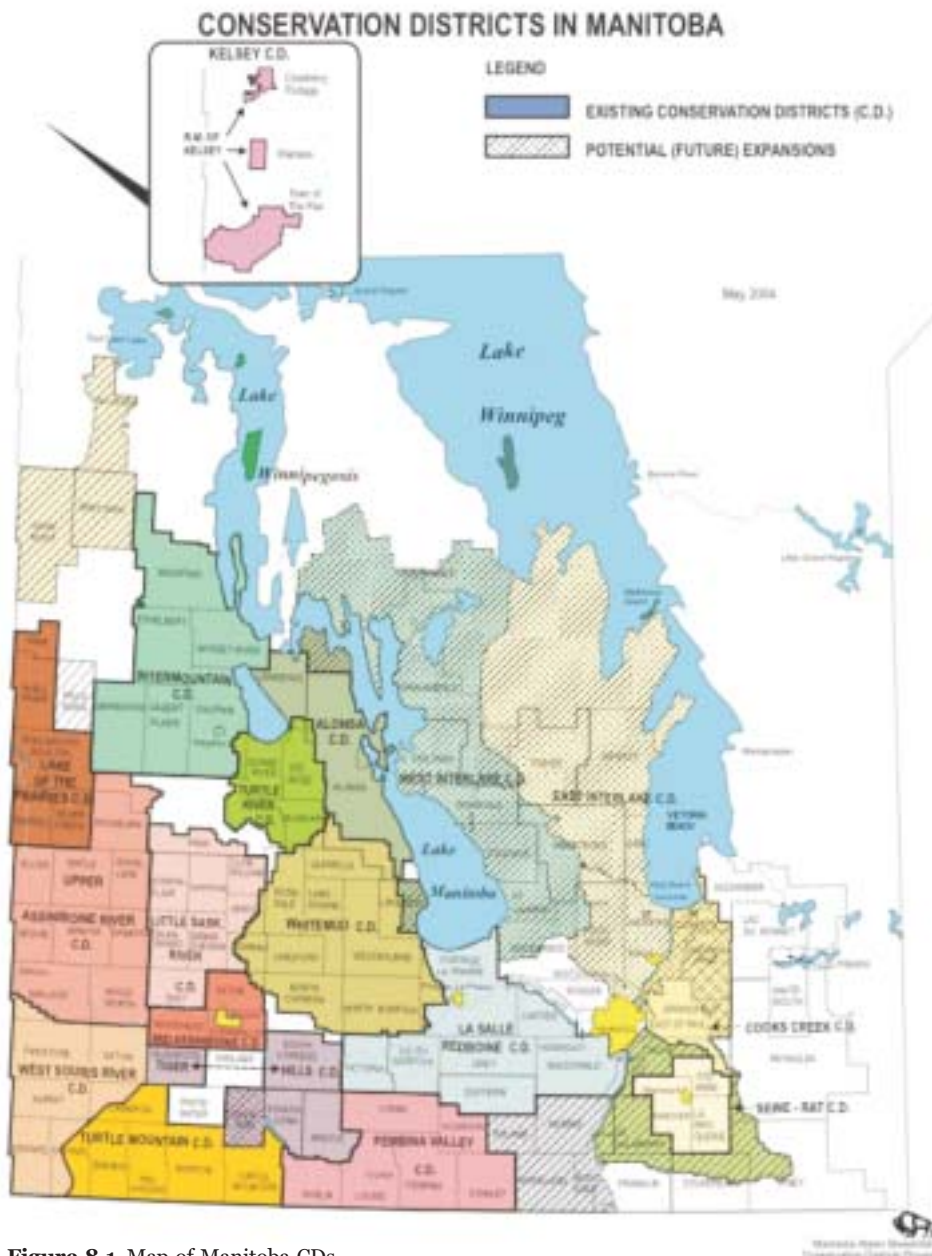


Figure 8.1 Map of Manitoba CDs
Source Manitoba Water Stewardship

agricultural settlement period. In response to the needs and demands of Manitoba's rapidly increasing population of rural agricultural families, provincial and municipal agricultural drainage schemes were a major focus from 1895 to 1935, during which two million acres of prime agricultural land were serviced with drainage infrastructure. Subsequent periods of drainage activity occurred in the 1970s, largely with the support of the federal government. While increased agricultural drainage made more land viable for annual crop production, according to Ogrodnik (1984), a number of long-standing and recurring drainage-related concerns routinely influenced local politics and provincial policy. These remain relevant even today and include the following.

- 'Foreign water' (water flowing into other areas from upstream) has regularly plagued the owners of the lowland agricultural areas and the downstream rural municipalities governing these lands.
- Strong perceptions exist that problems related to foreign water occur, and have become worse, because of upland drainage, land-use changes (including clearing of forested lands), and road construction.
- Suggestions are regularly made that owners of the upstream land (and rural municipalities) pay a portion of lowland water management costs.

Predictably, these concerns are more prevalent during and following periods of relatively wet growing seasons. They are highlighted in current public policy debates, particularly following record rains in Manitoba, and across the Canadian Prairies, during the peak growing period of 2005. Increased technological efficiency has also made it easier to undertake new on-farm drainage, often at a lower cost as compared to earlier methods.

In an attempt to understand and address the emerging 'foreign water' problems associated with increased agricultural drainage, the Province of Manitoba conducted several inquiries, beginning in 1918. As reported by Ogrodnik (1984), these commissions of inquiry gradually assisted in defining and clarifying Manitoba's surface water management challenge—eventually leading to the formulation of Manitoba's Conservation District Policy in 1976. The findings and recommendations of various commissions are described briefly in the following paragraphs.

The Sullivan Commission (1918–21) addressed the physical design of the agricultural drainage system; it was determined that a watershed-based drainage system should have been used by the provincial government, rather than the gridiron approach that was employed. The Commission also suggested that upland contributors of foreign water should be making a payment for the opportunity to drain water from their land to those living downstream.

The Finlayson Commission (1935–36) determined that downstream run-off flows were accelerated because of the associated upstream land clearing, roads, and ditch construction—all of which were elements of the upland drainage process. These factors resulted in rapid and high-volume run-off, causing erosion and silt deposition in the lowland areas downstream. Due to this extra water, downstream maintenance districts were forced to construct more drains, with costs borne by rural municipalities (and ultimately local taxpayers). As the costs of drainage increased, the proportion of provincial contributions to drain maintenance decreased—again increasing the local tax burden.

The Lyons Commission (1947–49) determined that upstream land-use changes and road/ditch work had affected water flow in two ways: by increasing the total run-off volumes and by increasing the rate of flow. These two factors resulted in increased peak flow during the run-off events. However, specific liability for the foreign water problems could not be proven, and it was recommended that the province become responsible for two-thirds of all future maintenance and construction of downstream drains that intercept, collect, and convey foreign water together with local water to points further downstream.

Ogrodnik (1984) also notes that two dominant policy results emerged over time, as the province attempted to address Manitoba's surface water management problems.

- 1 The transfer of most responsibilities for drainage from the local rural municipalities to the provincial government.
- 2 The enactment of legislation that permitted a more holistic approach to land and water management, embodied within the (ultimately repealed) Watershed Conservation Districts Act of 1959, and the current Conservation Districts Act, which received royal assent in 1976.

8.2.2 Initial watershed focus

The Manitoba Watershed Conservation Districts Act of 1959 is particularly interesting and relevant. It appears that this act may have represented the vanguard of public water management policy at the time (recognizing the importance of watershed-based solutions). However, it was repealed in 1976.

In fact, Manitoba's watershed focus for resource management began to dissipate as early as 1970, with the passing of the Resource Conservation Districts Act. Early CDs were formed under both forms of legislation. Whitemud and Turtle River were formed under the 1959 watershed-based legislation, while Turtle Mountain was formed under the 1970 resource legislation. Both early Acts were repealed and merged into the current version, initially passed in 1976.

Ontario's conservation authority legislation (which is watershed-based) was enacted in 1946, enabling the eventual formation of 36 local corporations that today spend CAD (Canadian dollar) 158 million annually on watershed management solutions through a local-provincial cost-shared partnership (Conservation Ontario 2006). Their responsibilities and financial capacity have increased dramatically in response to the Walkerton Inquiry recommendations, as key policy instrument delivery agents for the province.

A decade earlier, the US Flood Control Act was passed by Congress in 1936, signalling clear federal responsibility for water resources management (Allee 1987). Based on the apparent multi-purpose success of the Tennessee Valley Authority, federal support would be provided for the watershed-based projects for which 'the benefits to whomsoever they accrue are in excess of estimated costs', marking the beginning of watershed project evaluation (Galloway 1988).

Allee (1987) points to the early management concepts advanced by White (1957) as the first 'pure doctrine' of integrated watershed planning, management, and development-citing three ideas (multi-purpose storage projects, basin-wide programming, and comprehensive regional development) and two concepts (articulated land and water programmes, and unified administration), which characterize an effective watershed approach.

By the early 1960s, scientists recognized 'the watershed' as a sensible framework within which to address interrelated problems such as water quality and contamination. The approach of 'taking the whole watershed into account' emerged as an efficient and practical means of tackling these issues with the support of science. In tracing this evolution, Heindl (1972) notes two pervasive concepts founding the discipline.

- 1 The watershed is a closed system, which integrates the physical forces that act upon it.
- 2 The knowledge and experience gained through the study of one watershed are transferable and, thus, may be applied extensively elsewhere (and concentrated, small basin study is applicable to the larger ones).

Manitoba's 1959 watershed-based CD legislation was drafted following earlier legislative experiences in Ontario and the United States, at the dawn of the emergence of a new scientific discipline focused on watershed planning and management solutions. Manitoba had a timely opportunity to learn from these leading policy and scientific trends, and lead with new innovations.

8.2.3 Conservation Districts Commission³

It is critical to recognize the central and historical role played by the CDC (Conservation Districts Commission), an inter-departmental advisory body to the minister. The CDC has been in place since the earliest CD-related legislation established it.

The CDC provides guidance on policy and financial matters, including recommending annual provincial budget contributions for each district and the programme as a whole. The key policy-setting/recommending role played by the CDC is very important, as it represents the only real source of long-term planning (as well as documented historical reference regarding many policy decisions) for the CD programme.

The importance of these functions was recognized as early as 1959. The CDC has been strengthened over time and remains in place to this day. In its initial form, the CDC comprised director-level representatives from rural provincial departments such as natural resources, agriculture, and highways. It was initially chaired by the director of water resources.

Today, the CDC is chaired by the deputy minister of Manitoba Water Stewardship and comprises deputy ministers from four additional departments (responsible for agriculture, conservation, inter-governmental affairs, and transportation). It includes representatives from the Association of Manitoba Municipalities, the Manitoba Conservation Districts Association, and a public appointee. Recent legislation has also been enacted to increase this public representation by an additional person.

8.2.4 The current legislation

The CDs programme in Manitoba was originally mandated in the Watershed Conservation District Act of 1959. The rationale behind the Resource Conservation Districts Act of 1970, and the ultimate repealing of both Acts in 1976, is unclear. It may well have been associated with the turbulent nature of Manitoba's legislative assembly during this period. Seven general elections occurred between 1958 and 1977, representing the scope of potential political influence on the two (watershed- and resource-

³ The authors express their gratitude for contributions to this section by W Hildebrand.

focused Acts). General elections occurred in 1958 (June 16), 1959 (May 14), 1962 (December 14), 1966 (June 23), 1969 (June 25), 1973 (June 23), and 1977 (October 11).

The current Manitoba Conservation Districts Act was passed in 1976, and is designed to create partnerships between the provincial government and rural municipalities. The districts are to implement programmes that meet both local and provincial needs - with a focus on soil conservation and water management. The districts receive funding from both provincial and municipal sources, as discussed further along in the chapter.

Under the 1976 Act, the provincial cabinet can create CDs through an Order-in-Council. This may be done following an application from a municipality or municipalities, or it may be initiated by the provincial government. According to Section 7(7) of the current Act (Manitoba Statutes), the Order-in-Council establishing the district must state

- (a) *the boundaries of the district;*
- (b) *where applicable, the boundaries of the sub-districts into which the district may be divided;*
- (c) *the name of the district, which shall be substantially in the words 'The ...Conservation District';*
- (d) *the works to be excluded from the jurisdiction, authority, or control of the board;*
- (e) *the coordinator;*
- (f) *the schedule;*
- (g) *the effective date of the formation of the district; and*
- (h) *such other matters relating to the district as may be appropriate.*

In the legislation, the coordinator is defined as 'a civil servant designated by the minister for the purpose of coordinating all services and administrative assistance to CDs.' This is normally the manager of the province's Conservation Districts Programme.

The legislation defines the schedule as an Order-in-Council, which stipulates

- (i) *the upper and lower limits of the amount of money that a board may annually assess an included municipality and*
- (ii) *the limitations of the borrowing powers of the board.*

By this means, and through the advisory role played by the CDC, the government controls the financial and administrative capacity of the CDs. The CDC also provides policy guidance to all CDs through a series of policy directives approved by the minister of Manitoba Water Stewardship and coordinated by the CD programme secretariat with staff support.

While some of the earliest CDs were established along watershed boundaries, the majority of those existing today are based upon municipal boundaries, and as noted by the Conservation Districts Mandate Study (FT-Ecologistics 1998): 'Comprehensive watershed management planning is not being widely employed as a means of dealing with land and water interrelationships'.

Internally, each CD is divided into various 'sub-districts' that are intended to be as watershed-based as possible, so that planning and programme delivery tends towards implementation at the watershed level. The effectiveness of this approach is debatable.

On the one hand, municipal boundaries make CD formation easier, which is important. However, a lack of watershed focus (even when conscious planning and delivery attempts are made at the sub-district level) raises the question of effectiveness of CDs in their attempts to address water-related challenges.

The formation of the earliest CDs (Whitemud, 1972; Turtle Mountain, 1973; Turtle River, 1974; Alonsa, 1978; and Cooks Creek, 1979) represents a mix of watershed- and municipal-boundary-based corporations that have experienced the greatest range of policy instrument rules and instrument delivery mechanisms associated with Manitoba's Conservation District Policy. In doing so, these five CDs have also forged the path for successive CDs to follow.

In the initial years following the 1976 Act, provincial CD responsibilities were coordinated by the Water Resources Branch of the Provincial Department of Mines and Natural Resources. The Branch was a powerful, well-staffed organization focused on water planning and management, and charged with the delivery of several major federal/provincial projects at any one time. A small annual budget

was allocated by the Branch on behalf of the CDs and their partner municipalities. Drain maintenance and improvement projects were the major focus, while local input and governance were fairly limited. The CD programme budget was increased in 1984, which resulted in significant funding improvements for the initial five districts.

8.2.5 Recent financial history

Over the past 10 years, provincial spending on the CD programme has gradually increased, as shown in Table 8.1. However, the budgets for individual CDs have not increased appreciably, as increases in total programme spending are largely attributed to the formation of new CDs. Municipal grants went up as well, based on the general 3:1 funding arrangement, although these too were due to the addition of new municipalities joining the CD programme in the formation of new districts. Additionally, the CDs were able to access other funding sources, mostly from other federal and provincial programmes. These sources have been somewhat erratic. Most districts have had fairly steady levels of expenditure, with a few major deviations. Figure 8.2 shows the breakdown of expenditure by CDs over the past 10 years.

8.2.6 Emergence of local decision-making⁴

In 1981, a seven-member CDA (Conservation Districts Authority) was established within the Department of Natural Resources, with strong political support and direct reporting authority to the assistant deputy minister. The CDA focused on providing a full range of planning support to the existing CDs, coordinating required government technical expertise, assisting with budget planning and purchasing, and establishing new CDs.

A central element of this new programme delivery system involved the recognition by the key personnel that local control was critical to ultimate CD success, and that this local governance capacity should be fostered with strong support and encouragement.

From 1985 to 1990, the active presence of an assistant deputy minister (Derek Doyle), who strongly supported the potential role of CDs as local solution providers, with decision-making capacity and adequate resources to address local soil and water management problems, was a major evolutionary factor in the programme. Doyle began to instil the concept that CDs should have the latitude and autonomy to focus on local priorities (as determined by the community residents and the local CD boards). Each CD should be free to determine which topics/projects to focus on—targeting CD resources as they see fit. Doyle's vision was to remove CDs from the control of the government planners and engineers—under which it was felt their full potential had been previously limited.

Table 8.1 CD revenue sources

Year	<i>Provincial grant (in CAD)</i>	<i>Municipal grant (in CAD)</i>	<i>Other (in CAD)</i>
1995	1 853 617	894 466	434 762
1996	1 762 301	993 234	577 679
1997	2 426 951	653 039	1 159 260
1998	2 316 355	690 201	1 053 313
1999	2 560 475	1 015 719	2 033 273
2000	2 659 302	830 249	1 837 015
2001	2 893 144	915 833	1 245 984
2002	3 226 186	1 105 096	2 060 977
2003	3 296 786	1 282 895	1 711 467
2004	3 729 085	1 240 945	1 505 009
2005	4 031 482	1 910 221	1 204 480
Total	30 755 684	11 531 898	14 823 219

Source Conservation Districts of Manitoba, Annual Reports

⁴ The authors express their gratitude for contributions to this section by I Dickson and D Doyle.

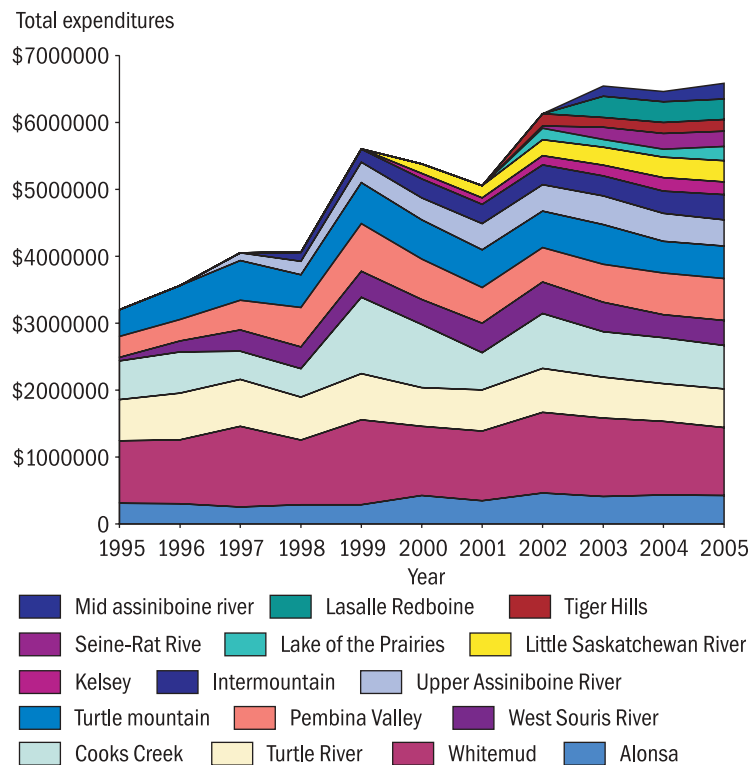


Figure 8.2 District expenditures

Source Conservation Districts of Manitoba, Annual Reports

As a result, local CD boards (who had largely come to view 'planning' as a bureaucratically-imposed barrier to actually completing management solutions on the landscape) began to embrace the opportunity of undertaking community-level CD management planning. Most initial plans were fairly general, although they were very holistic in considering the inter-related importance of conservation issues.

Later iterations became increasingly focused on key local issues such as flooding, subsequently integrating related issues such as soil conservation, water quality, and wildlife habitat. However, these later plans appeared to be less technically rigorous, owing to decreased levels of federal and provincial staff participation in their development. Also, a possible lack of municipal commitment to some later plans has been identified as a problem, perhaps due to a lack of education, awareness, and capacity building

Despite these important and valuable new policy instrument delivery principles, only one new CD (Pembina Valley, 1989) joined the programme during the 1980s. This limited programme expansion progress is attributed largely to the fact that only limited additional funding was available for new CD activities.

8.2.7 Range of programmes

By 1990, a flexible suite of CD programmes had developed, with each CD engaged in several activities in common with other districts in the programme, and, typically, one or two unique programmes. All CD budgets and a detailed list of planned programme activities were reviewed annually - for ministerial recommendation - by the CDC. The review committee comprised deputy ministers representing several government departments with obvious CD linkages.

The older, watershed-based CDs have always devoted a significant portion of their annual budgets to drain maintenance and road-crossing activities, notably those of Whitemud and Turtle River. Low-lying landscape and dominance of agriculture in the area led to the formation of Cooks Creek. Alonsa assumed a degree of drain maintenance and crossing responsibilities through several agreements with the provincial water resources branch. Turtle Mountain does not have provincial drainage responsibilities, given its formation as a resource CD.

Pembina Valley and all subsequent CDs were established without any responsibility or authority associated with the provincial drainage system.

Beyond the complexities of drainage and water management, the range of CD programming by 1990 included the following (not all programmes offered by all CDs).

- **Soil and water conservation**
 - Creek/Gully stabilization
 - Creek maintenance
 - Grassed waterway seeding
 - Road allowance seeding
 - Rotational grazing management
 - Stone crossing installation
 - Water quality testing
 - Tree planting/shelterbelts
- **Wildlife and habitat**
 - Conservation corridor
 - Fisheries enhancement
 - Habitat acquisition
 - Land donations
- **Education**
 - Conservation in the classroom
 - Conservation family award
 - Youth speaking competition
 - Agro-forestry

In 1989, Derek Doyle was replaced as assistant deputy minister of The Department of Natural Resources responsible for the CD programme. In 1990, the executive director of the CDC (Dr Ian Dixon) assumed another position in another agency; this leadership position was never filled, and the CDA staff group was gradually dismantled.

Two remaining staff members were transferred to the Department of Municipal Affairs, and in 1998, the budgetary authority for the CD programme was transferred to the re-named Department of Rural Development (later known as Intergovernmental Affairs), under the auspices of the Manitoba Water Services Board—a coordinating body for the federal/provincial funding for water-related municipal projects.

At this point, significant programme funding for the CD programme was provided by the provincial government to the individual district. However, very limited provincial programme staff (two) was in place to support the needs – related to policy, technical support, and capacity building – of the individual districts. The ramifications of this decision are still being felt, although the situation has improved somewhat with the establishment of a dedicated programme support office.

With the availability of additional programme funding for the formation of new districts, several new CDs were created during the 1990s (West Souris River, 1995; Upper Assiniboine, 1996; Intermountain, 1997; Little Saskatchewan, 1999; and Kelsey, 1999). Several of these new CDs were formed at the same time as the termination of a major federal/provincial agreement on agricultural sustainability—which saw ongoing programmes being extended and technical staffing support being provided to local farming associations wishing to demonstrate innovative sustainability options.

During the 1990s, the Manitoba CDA became more formalized, better funded, and more professional—towards playing an increasingly credible role in representing all CDs in a unified manner in discussions with government and other stakeholders. Major improvements in annual conference attendance, sponsorship funding, communications, and policy/initiative negotiations occurred, evidenced by the drafting of favourable conservation agreement legislation and the negotiation of a GIS (geographical information system) programme royalty arrangement with a private software firm and the provincial government.

None of these newer CDs were interested in assuming any significant drainage or road-crossing responsibilities, opting for an agricultural sustainability focus—stemming largely from their origin as

local farm associations. By 2001, various new CD programmes included the following initiatives (many of these were gradually adopted by all other CDs in the programme).

- **Soil and water conservation**
 - Small-scale water storage (small dams)
 - Abandoned well sealing
 - Remote cattle watering systems
- **Salinity seed programme**
 - Wildlife and habitat
 - Conservation agreement
 - Riparian stewardship
 - Ecotourism
- **Education**
 - Interpretive sites
 - Adult education workshops
 - Holistic pasture management
 - Check strip crop demonstrations

Continued strong provincial promotion and support for the CD programme – combined with a lack of substantial funding alternatives for both local farm associations and municipal councils - saw its continued expansion into the new millennium (Lake of the Prairies, 2001; Tiger Hills, 2001; Seine-Rat River, 2001; Mid-Assiniboine, 2002; La Salle Redboine, 2002; and East Interlake, 2005).

However, some of these latest additions to the CD programme (and indeed some CDs created during the late 1990s) appear to be having difficulty focusing on an ideal mix of local programmes of interest to local landowners and municipalities. Some have experienced high staff turnover and few have developed management plans to guide their long-term operations. Also, several of these later generation CDs were established by a relatively small group of rural municipalities (and in two cases, without the participation of logical adjacent municipalities). Merger discussions are being considered in at least one case.

Most of the later generation CDs include many towns and villages among their partners—building important urban/community connections and raising valuable additional operations revenue. An overview of all CDs can be found in the Appendix to this chapter.

Beginning in 2001, provincial policy discussions focused on the need for 'large area and watershed planning'. This was in response to a major consultative effort called the COSDI- consultation on sustainable development implementation. From this process evolved the Manitoba Water Strategy (advanced jointly by Manitoba Conservation and Manitoba Intergovernmental Affairs), which identified CDs as the most logical delivery agent for a renewed focus on watershed planning and management, for a range of water-related sustainability solutions. In 2003, the Department of Manitoba Water Stewardship was created, and the CD programme was transferred to it, under the auspices of the Planning and Coordination Branch, reporting to the assistant deputy minister.

In 2005, a new Water Protection Act identified CDs as logical lead entities to coordinate the functioning of 'local water planning authorities' and development of watershed plans and management implementation priorities.

8.2.8 Drainage, conservation, and performance measurement

In several cases, the Manitoba CD programme is designed to facilitate land drainage in response to local agricultural needs, and/or in place of municipal/provincial drainage responsibility. From a sustainable development viewpoint, drainage can be problematic—allowing rapid run-off rather than a slower pace, which allows for more infiltration of surface water into the ground. In more steeply sloped areas, this can result in a higher risk of flooding and infrastructure losses downstream. It may also lead to increased streambank erosion and sedimentation, increasing downstream drain maintenance costs.

However, agricultural drainage is a fundamental economic reality in much of the province, particularly in its relatively flat Red River Valley, as well as in many other southern areas where highly productive soils are inherently wet.

Unfortunately, substantial wetland drainage and loss have also occurred in Manitoba, and Manitoba CDs have been relatively powerless to stop it – a dichotomous and difficult challenge to reconcile when CDs may have both drainage and conservation responsibilities. In addition to associated wildlife habitat and biodiversity losses, wetland drainage reduces natural water retention/flood control capabilities and eliminates an impressive range of water quality services provided by these ecosystems. Increased rates of drainage (while desirable from an agricultural production perspective) also tend to increase the flow of pollutants and nutrients – mainly from agricultural run-off – into downstream rivers and lakes. This is especially a problem for Lake Winnipeg, which is heavily stressed from agricultural run-off, among other sources.

A slower run-off regime would see many contaminants retained in upstream wetlands and/or retained on the landscape. However, as was described in Section 8.2.1, from the earliest days, drainage was a major goal of farmers and governments in Manitoba. This case study accepts those goals, rather than overlaying a different set.

A second important observation regarding the CD programme is that it does not contain provisions for monitoring and evaluation. This step could occur both at the provincial level (is the programme fulfilling its goals?), and at the individual CD level (is the CD implementing its plans and fulfilling its goals?).

Annual reporting for the overall programme is largely a factual outline of activities occurring within each CD, accompanied by its audited financial statement. While CD boards report both formally (at an annual general meeting) and informally (through regular contact with the local stakeholders, often through the publication of meeting minutes in local newspapers), there is no specific performance measurement framework for the Manitoba CD programme.

Budget-based financial reporting and annual programme review do occur through the CDC and additional pre-budget consultations with several CD programme partners, while the entire programme is subject to annual review by the provincial legislature.

However, there are gaps in linking annual CD programmes to long-term management plan goals based on locally identified needs combined with provincial policy objectives. Using indicators to monitor annual progress would provide an important feedback mechanism for adapting to changing conditions over time.

8.3 Adaptive policy analysis

This section reviews several policy issues that have been addressed by the districts, and then analyses their adaptive characteristics using the conceptual framework described in Chapter 2. Section 2 of the current Manitoba Conservation Districts legislation (Manitoba Statutes), reads

The purposes of the Act are

- (a) *to provide for the conservation, control, and prudent use of resources through the establishment of conservation districts; and*
- (b) *to protect the correlative rights of owners.*

As outlined in Section 21 of the Act

A board may

- (a) *study and investigate, or cause to be studied and investigated such resources of the district as may be necessary to prepare a scheme;*
- (b) *implement a scheme;*
- (c) *transfer, for the purposes of maintenance and operation, to an included municipality or other person, jurisdiction, authority, or control, over any works in the district;*
- (d) *enter into an agreement with the owner of any land for the carrying out of works considered necessary for the implementation and operation of a scheme;*
- (e) *issue, subject to provisions of The Forest Act, permits for cutting of forest from protected areas;*
- (f) *issue, subject to provisions of The Water Rights Act, permits to alter surface water courses;*

- (g) *recommend the acquisition by the Crown, of any real or personal property necessary for a scheme;*
- (g) *sell, subject to the provisions of The Water Rights Act, water from reservoirs constructed or operated by the board; and*
- (h) *require the municipality to furnish to the board information pertinent to a scheme.*

In the legislation, a 'scheme' is defined as 'a programme developed by or for a district in accordance with the purposes of the Act. Also, works include any structure or physical undertaking developed for the purposes of maintaining, conserving, developing, controlling, protecting, rehabilitating, or using the resources available to the district'.

In terms of the Act's purpose, protecting the 'correlative rights' of landowners is significant because it recognizes the reality of private property ownership, a characteristic of agricultural landscapes such as the Canadian Prairies, including Manitoba.

Property owners have many rights regarding the use and management of their land, which are enshrined in the provincial and municipal legislation. In many ways, they are also protected in law from the actions of others, which can be interpreted as a form of responsibility among all landowners in the case of a watershed, where deleterious effects of upstream activities such as wetland drainage, forest clearing, or inappropriate agricultural drainage could result in damages downstream.

It is also important to note that the CD Act does not bestow substantial enforcement powers (or penalties for non-compliance) on individual districts or the provincial governments. The CD programme is specifically designed to be an incentive-based, partnership-building programme instead of a regulatory one.

In terms of policy instrument rules and instrument delivery mechanisms, the Manitoba Conservation District Programme has demonstrated a variety of characteristics, discussed in the following sections.

8.3.1 Surface water management (various CDs: 1972–2006)⁵

The reasons informing the formation and the early evolution of Manitoba's CD programme were largely an attempt to address chronic water management issues, within and between the province's rural municipalities. However, given that the 1959 watershed-based version of the CD Act was never used – in favour of a municipal boundary-based framework – the stage was set for a continued struggle towards a workable provincial-municipal surface water management solution, a struggle that continues even today.

With a few exceptions, many CDs are frustrated that progress has not occurred towards effective surface water management in Manitoba. Even with fairly clear provincial policy regarding on-farm drainage, it has been estimated by several CD managers that approximately 90% of all the new drainage work within many CDs, being undertaken by private landowners, is occurring without required provincial reviews or licenses. As such, rapidly occurring on-farm agricultural drainage in Manitoba (including wetland drainage) is illegal.

This trend has been particularly strong in recent years due to the recurring heavy precipitation events, increased technological efficiency, and the widely-held perception among many farmers that the ability to remove excess water rapidly is the fundamental right of private agricultural landowners—who should not have to wait up to six months for provincial review of their projects. In the estimated 10% of the actual drains being reviewed and approved by the provincial inspectors (within many CDs), it seems that many conditions imposed by the provincial legislation are being ignored by many landowners who are not worried about provincial enforcement.

Many local CD boards and their partner municipalities have repeatedly called on the Province of Manitoba to address this situation—typically through greater provincial enforcement of penalties for illegal drainage. However, a lack of provincial resources, the assignment of clear decision-making authority regarding drainage licensing, in particular, and the absence of a watershed-based planning

⁵ The authors express their gratitude for contributions to this section by J Buhler, D Donachuk, D Nicklin, L Thompson, and P Weiss.

framework to deal with this problem suggest that this situation will continue for some time. In the absence of this framework, several CDs have recently embarked on watershed-planning exercises, the results of which are helping to suggest what a provincial surface water management framework should look like – involving central concepts such as watershed-based planning, drain licensing, enforcement, and the promotion of BMPs (beneficial management practices).

Additionally, there is a high degree of frustration among several CDs and a good many more rural municipalities (within CDs or not) regarding a lack of provincial maintenance on provincial (larger capacity) agricultural drains, many of which are channelized former natural waterways. In most cases, rural municipalities are responsible for local municipal drains (which, in terms of size and drainage capacity, lie between on-farm and provincial drains). This creates an uneven patchwork of responsibilities and authorities for water management across the province, both within CDs and beyond them.

Three inter-related issues have thwarted the progress towards effective surface water management since agricultural settlement began in Manitoba.

The first is the absence of a clear decision-making process. As outlined above, the approach taken has varied significantly over time. Early responsibility for drainage was transferred from the province to rural municipalities and back, as the search for an effective model continued. The passing of the Watershed Conservation Districts Act (1959), the Resource Conservation Districts Act (1972), and ultimately the Conservation Districts Act (1976) reflect these approaches.

While the current CD Act enables and encourages local decision-making in support of soil and water conservation, the ultimate authority for surface water drainage largely lies with the Province of Manitoba. The two CDs (Whitemud, Turtle River) created under the 1959 watershed-based legislation are responsible for maintaining both municipal and provincial drains and stream crossings. Cooks Creek is responsible for all drainage works within its boundaries (there are no provincial drains); Alonsa is responsible for some municipal and some provincial drains. No other CDs have direct responsibilities for provincial drainage works.

While the CD Act (Section 21) articulates an implied responsibility and authority to CDs for many aspects of resource management, their ability to coordinate surface water management is limited in most cases.

Throughout the province, responsibility for most waterways lies with the Province of Manitoba (including most provincial drains). However, municipalities that have constructed their own drains are generally responsible for these drains.

Manitoba's waterways are classified according to a 'drain order' system, represented by numerous 'designation of drain' maps that define the scale of each waterway according to the area of land it drains and the relative size of its contributing watershed (Table 8.2). Generally, municipal drains operate within Order 1 and Order 2, while provincial drains are level 3 and above. On-farm drainage generally occurs on land contributing to an Order 1 drain.

CDs respond to local drainage issues by consulting with the provincial government, their partner municipalities, and landowners within the CD. However, without the clear assignment of drainage authority or resources in many cases, the success of these consultations depends entirely on the quality of these inter-organizational and inter-personal relationships.

Table 8.2 Manitoba drain order

Drain order	Description
Order 1	Drains an area less than 1 mile ²
Order 2	Drains an area greater than 1 mile ²
Order 3	Confluence of two Order 2 drains
Order 4	Confluence of two Order 3 drains
Order 5	Confluence of two Order 4 drains
Order 6	Confluence of two Order 5 drains
Order 7	Confluence of two Order 6 drains

Source Manitoba Water Stewardship

The province has limited financial and staffing resources available to undertake this programme. However, the debate between Manitoba's farmers, rural municipalities, and the provincial government is still raging. Annual policy conventions organized by KAP (Keystone Agricultural Producers) and AMM (Association of Manitoba Municipalities) routinely call for better and permanent solutions to addressing the challenge of agricultural drainage, as noted below.

In a letter to the provincial government, dated 2 September 2005, the Keystone Agricultural Producers said, 'As the impacts of flooding and moisture damage continue to mount in fields, on the farm, and in rural communities, we believe it is now the time for the province to take a leadership role to implement programmes that will assist in recovery. To that end, we recommend instituting a drainage maintenance programme to clean up drains and remove silt deposited by overland flooding. Though much of the affected fields and pastures have dried this fall, the subsoil remains saturated. We are concerned that even normal spring melts and rainfall could create a second year of flooding across the province, particularly if the drainage system is left in its current conditions.' (KAP 2005)

The CD programme has provided yet another forum for this debate – one that the programme itself had originally intended to address. The ongoing debate over agricultural drainage (both on-farm and in provincial drains) is indicative of serious problems with the decision-making framework for surface water management.

As a result, many Manitoba's CDs are caught in the drainage struggle among farmers, rural municipalities, and the province. In responding to the surface water management dilemma, some CDs are attempting to find workable approaches to managing surface water by outlining clear plans and relative responsibilities for all drainage stakeholders. However, due to the lack of resources and clear decision-making responsibilities (among all stakeholders), a viable solution still does not seem to be in sight.



Figure 8.3 Manitoba CDs and watersheds (2006)

In addition, the fact that most CDs are not defined on watershed boundaries leads to other management problems (Figure 8.3). The 'functional area' on which most CDs are administratively designed is not consistent with the natural systems the CDs are trying to manage effectively. Most CDs do not have authority over all the contributing headwater areas – or all the collecting waterways downstream – of their existing administrative boundaries. As a result, many more stakeholders than necessary, must be engaged for any effective surface water management plan to be effective.

The inter-related issues of illegal on-farm drainage and a perceived lack of provincial maintenance on larger downstream drains suggest that Manitoba's CD policy has not dealt well with the anticipated conditions with respect to its instrument design. The problem of inter-municipal surface water management was identified as early as 1918, and it may be argued that Manitoba CDs based on municipal boundaries (rather than watersheds) have merely created an additional layer of administration, but have failed to deal effectively with the challenge of surface water management.

By creating another forum for debate, and indeed another layer of local decision-making and assessment-based funding requirements (albeit with limited authority, enforcement power, or technical capacity), it could be argued that, indeed, the policy has been mal-adaptive in terms of surface water management. Manitoba is no closer to addressing its surface water management challenge today, after 30 years of the existence of the CD programme. In fact, problem resolution may now be more difficult, given this growing and additional institutional layer covering the Manitoba landscape.

Manitoba's CDs are expected to play a central role in addressing the challenge of declining water quality in Lake Winnipeg. This challenge was not foreseen as a CD responsibility during initial programme design. At this point, Manitoba's CDs are not prepared to meet this challenge. They have not been adaptive in terms of instrument rules or instrument delivery.

While dealing with Lake Winnipeg's water quality, stakeholders will have to face the same challenges as surface water management: a lack of clear decision-making authority among several stakeholders; a lack of resources at all levels; and the fact that most CDs do not function within complete watershed boundaries. In terms of the challenges of Lake Winnipeg, a lack of coordinated planning and management throughout its huge watershed is also recognized as a critical influencing and limiting factor.

8.3.2 Surface water management – first CD is the best existing model⁶

Whitemud Watershed CD, the first district established in Manitoba (1972), was formed on actual watershed boundaries, involving parts or all of 15 rural municipalities. Its formation was based on the 1959 watershed version of the CD Act. Additional information on Whitemud is available in the Appendix to this chapter.

Whitemud is responsible for the management of all large-order provincial drains and is now coordinating the review of all on-farm drainage proposals (for those private landowners who choose to develop drains in a legal manner) on behalf of the province.

The Whitemud River Watershed has a complex drainage pattern—due to significant and rapid elevation changes (east to west). In the west, a major landform (Manitoba Escarpment) contains many natural headwater areas, which combine to create very substantial flows downstream—where productive agricultural lands are located. Intensive drainage in the lower elevation lands supports agricultural production in the east (through channelization of natural streams and the construction of additional engineered drains - visible as straight drainage lines in Figure 8.4). Light soils in the west are very sensitive to erosion, particularly when natural vegetation is removed. High spring run-off and summer stormwater combined with erosive soils can lead to major and costly downstream flooding, sedimentation, and water quality problems.

Due largely to its original formation in 1972 on watershed boundaries, combined with its responsibility for provincial drains (and solid relationships with its member municipalities which manage their own drains) - the Whitemud Drain Licensing Pilot Project offers real hope for clues in developing a workable surface water management framework - which many CDs and their member municipalities would like to see.

⁶ The authors express their gratitude for contributions to this section by R Baker.

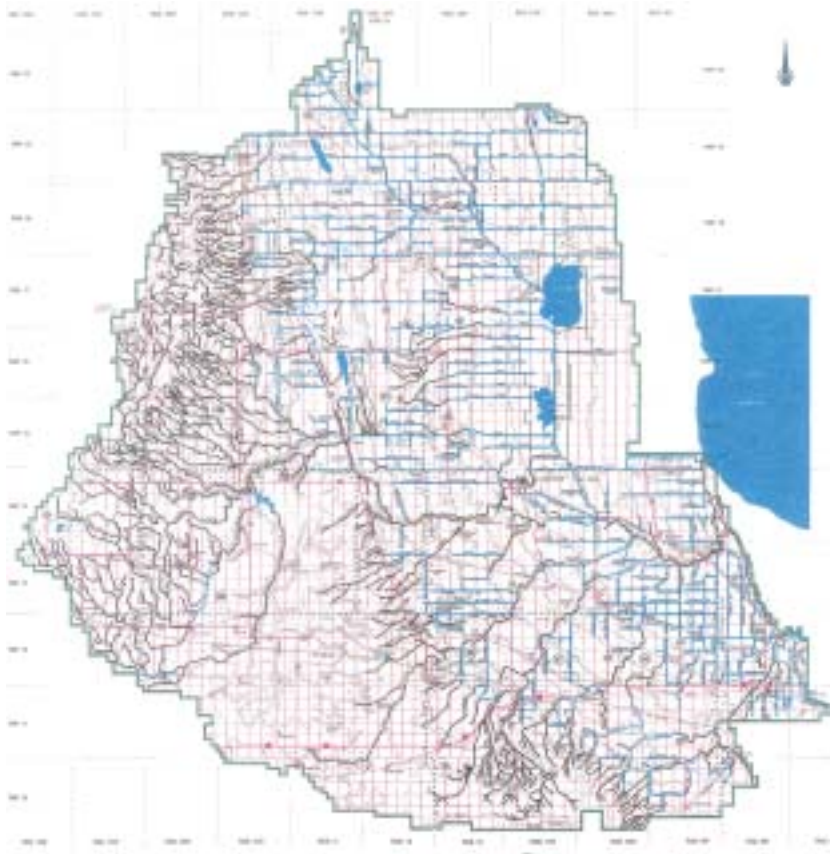


Figure 8.4 Whitemud CD drainage

Source Whitemud Conservation District

The Drain Licensing Pilot Project developed by Whitemud and the Manitoba Water Stewardship Department in 2001 has resulted in a marked increase in the percentage of on-farm drains actually being reviewed by Whitemud, and licensed by the Province.

Now called the Drain Management Programme, the Whitemud review process centres on the concept of building and maintaining solid local partnerships between neighbouring farmers, rural municipalities, provincial regulators, and other community stakeholders. Only one project review meeting occurs – in the field, at the actual site of the proposed drain work. The proponent explains the rationale for the project and demonstrates exactly what drainage work is planned. Questions and concerns from all stakeholders present are considered. Whitemud staff invites any participant (including stakeholders who may not have attended the review meeting) to provide additional comments within two weeks, after which a draft licence is drawn up with conditions (if required) for final approval by provincial staff.

The result has been a dramatic reduction in the time required for licence review (from six months to six weeks) (Table 8.3) This progress has been combined with a general reduction in process complaints,

Table 8.3 Drainage licences processed by Whitemud CD

Year	<i>Applications processed</i>
All 14 years prior to 2001	24 licenses issued
2001	100
2002	90
2003	50
2004	66
2005	50

Source Whitemud Conservation District

better consideration of stakeholder concerns, and improved drainage coordination throughout the CD. Individual rural municipalities are responsible for their own drains, which must go through the review process – as does Whitemud itself (being responsible for the larger order provincial drains).

However, most CDs were not initially established on watershed boundaries and most do not have responsibility for provincial drains. It would appear that innovations such as Whitemud's Drain Management Programme (and the inter-related trend toward improved surface water management coordination) will only happen when the conditions of watershed-based management and responsibility for provincial drains are in place. Another key element involves the full and coordinated participation of a CD's partner municipalities (which may or may not manage their own drains) - a condition, which could alternatively be fulfilled where a CD is also responsible for municipal drains.

The Whitemud case has responded well to anticipated conditions in that this CD is actually coordinating most drainage activity within its entire watershed-based boundaries. Whitemud is demonstrating an ability to legally fulfil the on-farm drainage needs of many farmers, while its member municipalities work cooperatively with the CD in planning municipal-level drainage works. Whitemud's original mandate included responsibility for provincial drainage works and stream crossings, necessitating its preparation of a detailed surface water management plan, the only such plan that currently exists for any CD (Figure 8.5).

Whitemud also demonstrates adaptability, evidenced by the Drain Management Programme. It was never foreseen that a CD would manage the drain licensing process, and Whitemud is now doing this effectively. In most other CDs, drain licensing is managed by the province and remains the focus of many complaints and much frustration. A key innovation is the 'open consultation' involving all stakeholders at one meeting, at the actual proposed drainage project site - with a reasonable comment period, before the proposal proceeds to the provincial government for final approval.

Whitemud's surface water management progress could most easily be replicated in Turtle River Watershed (watershed-based with full drainage responsibilities except for portions of two natural waterways); Cooks Creek (full drainage responsibilities); and Alonsa (significant municipal and provincial drainage responsibilities). Cooks Creek has also been developing a drain licence pilot project based on the Whitemud experience.

Spending any effort in finding solutions to Manitoba's surface water management challenge only make sense within the context of watersheds, where decision-making authority and capacity to assist are in place. Most CDs do not have either and only one has both of these criteria in place – Whitemud.



Figure 8.5 Map of Whitemud CD, showing municipal boundaries

8.3.3 Abandoned well capping – Pembina Valley: 1997–2006⁷

Concerns regarding the protection of groundwater supplies were raised during the late 1990s by local residents in PVCD (Pembina Valley CD). Historically, groundwater had not been a major focus of attention within Manitoba CDs.

At that time, CMASS (Canada-Manitoba Agreement on Agricultural Sustainability) was in operation, one of a series of five-year federal-provincial agriculture funding agreements, which have been in place (in one form or another) since the 1960s, continuing to this day in the form of the Agricultural Policy Framework Agreement and the joint funding of Environmental Farm Plans.

CMASS offered flexible funding for local agri-environment projects, including those focused on groundwater protection. Problems were arising as a result of the sale by individual farm families of their holdings, which resulted in the smaller farms being merged into larger operations. Yard sites and other water well locations were being lost, as these lands were integrated into larger farm operations across the landscape. Abandoned wells represent a substantial risk to groundwater quality, as they can act as a direct conduit for the introduction of contaminants such as nutrients and pesticides. Abandoned wellheads may also pose safety hazards for farm operators. These wells can be easily capped by filling them with bentonite clay, which is impervious.

In 1995, PVCD applied for and received funding to cap four abandoned wells in the district. In addition, four independent, local soil conservation committees of farmers created under the previous five-year federal-provincial agricultural sustainability agreement (Farming for Tomorrow) also capped a similar number of wells that year. In 1997, PVCD began cooperating with LOs (local organizations) to identify and cap many more abandoned wells, the beginning of an effective working relationship with these groups (representing farming districts known as Deerwood, Stanley, Pembina, and St Alphonse-Bruxelles).

A total of CAD 224 000 has been spent on the programme to date (Table 8.4). This includes substantial external funding through 2005, which is no longer available. These sources included general agricultural sustainability programmes from both the federal and provincial governments. Private landowners also provided significant contributions. As of 2006, the number of wells requiring capping has trailed off, although Pembina Valley is prepared to fund any project with its own budget.

The provincial CD programme readily supported Pembina Valley's well capping programme, and a significant amount of external programme funding was also accessed. Based on Pembina Valley's example, all CDs have now incorporated this valuable programme into their range of activities, which had not been envisioned in their original mandates.

Table 8.4 Well filling in the PVCD

PVCD well filling statistics	Number of wells	Costs	CD Funds	External	Landowner
			CAD	CAD	CAD
1995/96	4	1 003	0	1 003	–
1997/96	12	3 266	0	3 266	–
1998/97	20	10 216	7 051	–	3 165
1998/99	66	32 346	22 211	4 611	5 524
1999/2000	60	31 575	1 400	21 139	9 036
2000/01	50	26 375	13 344	5 881	7 150
2001/02	50	31 752	14 127	10 950	6 675
2002/03	35	18 387	3 637	10 200	4 550
2003/04	62	25 882	7 915	9 867	8 100
2004/05	43	24 390	7 105	11 285	6 000
2005/06	39	18 370	12 370	–	6 000
	441	223 562	89 160	78 202	56 200

Source Pembina Valley Conservation District

⁷ The authors express their gratitude for contributions to this section by C. Greenfield.

Water quality protection was always identified as an important goal for the CD programme, although the means by which to encourage it were not fully outlined. Groundwater, while an important water supply resource, did not tend to attract the same level of attention as surface water. This reflected the fact that natural groundwater processes were not well understood, and contamination issues were isolated.

As a result, surface water management needs, historically, tended to dominate CD programme activities. With the growth of public concern and scientific knowledge regarding groundwater, the CD programme adapted to emerging needs – redirecting required resources to focus on a specific groundwater issues. Local CD boards were responding to growing public awareness of groundwater contamination issues. While not a comprehensive solution, the CD programme's abandoned well capping efforts were a logical first step to address an obvious problem, one which was the result of direct human impact on the environment. Furthermore, groundwater contamination risks are well documented, while the solutions are both proven and straightforward.

The availability of applicable federal and provincial funding programmes, which could provide funding to address the issue of groundwater contamination, was timely. Local initiative, combined with federal-provincial funding has resulted in the widespread adoption of a proven technique - which is now largely funded through the CD programme alone.

The combination of increasing knowledge of groundwater contamination issues, increasing community concern, sources providing timely funding, and the availability of a low-cost and straightforward solution presented Manitoba's CD boards with an opportunity. The fact that they were able to recognize the emerging importance of groundwater quality – and take advantage of it – is indicative of the programme's adaptability in terms of instrument delivery.

This initiative also illustrates the ability to deal with a range of anticipated conditions in policy in terms of policy implementation. Virtually every other CD in the province developed its own abandoned well programmes based on this model, and most continue to offer the programme today, even as external funding sources have declined.

It is however, important to note that due to a lack of CD programme evaluation, the true impact of this widely adopted (and seemingly successful) initiative cannot be measured. Also, its implementation has not been targeted according to a prioritized plan, so the full effect of its possible contribution to protecting groundwater quality is not known.

8.3.4 Conservation agreements – Turtle Mountain: 2003–05⁸

The Turtle Mountain region centres on a large escarpmental landform located largely within South-west Manitoba, and situated on the Canada–US border. Both provincial and state parks protect large tracts of natural tree cover, and thus shield the region's sensitive soils from erosion. At lower elevations, agricultural development and associated tree clearing has been a historical concern, in terms of downstream flooding/water quality.

Also, logging of private lands has been a growing concern in recent years, as new markets for aspen wood products developed in Ontario and the United States. Burgeoning aspen markets in central Manitoba have created increased logging infrastructure and capacity, with new contractors looking for new opportunities.

In response to local concerns related to an apparent increase in aspen, logging of private lands below Turtle Mountain Provincial Park, the CD formed an advisory committee. The mandate of this committee is to explore the situation and raise awareness regarding the loss of sensitive woodlands—with potentially negative downstream impacts.

Discussions with MHHC (Manitoba Habitat Heritage Corporation) – a provincial Crown corporation with the mandate to facilitate the preservation of private natural lands – led in 2004 to the first CA (Conservation Agreement) in TMCAPTA (Turtle Mountain CA Programme Target Area)

CAs are voluntary legal agreements facilitated by provincial legislation, which enable private landowners and eligible conservation organizations like CDs, MHHC, and others to work together in

⁸ The authors express their gratitude for contributions to this section by S Kowalchuk.

preserving important natural lands. Landowners continue to own and use their land for agricultural purposes, while a CA is filed with the land title. The conservation organization, which signs the CA with the landowner, does not purchase the land, but negotiates an agreement that maintains the natural values of the land resulting in either the sale or donation of the rights to clear or drain natural landscapes.

While other eligible conservation organizations had negotiated CAs with agricultural landowners further downstream to protect important wetlands, prior to the joint TMCD (Turtle Mountain CD) effort with MHHC, no CAs had been developed to protect forested areas with little or no wetlands present near the park (TMCAPTA).

In total, 8.8% of forest and wetlands on private land identified by TMCD in TMCAPTA has now been permanently protected through CAs held by MHHC. Additional protected areas also exist in the form of municipal and CD reserves, provincial wildlife management areas and parks, and a federal community pasture (Figure 8.6).

The provincial CD programme responded to locally identified needs regarding the loss of upland forests – first by exploring the concerns of local residents, and then by working with another Provincial agency in search of an effective solution. The result is permanent protection of wetlands and forest cover on sensitive lands. At the same time, some payment is being made to farmers for their participation, while they maintain land ownership.

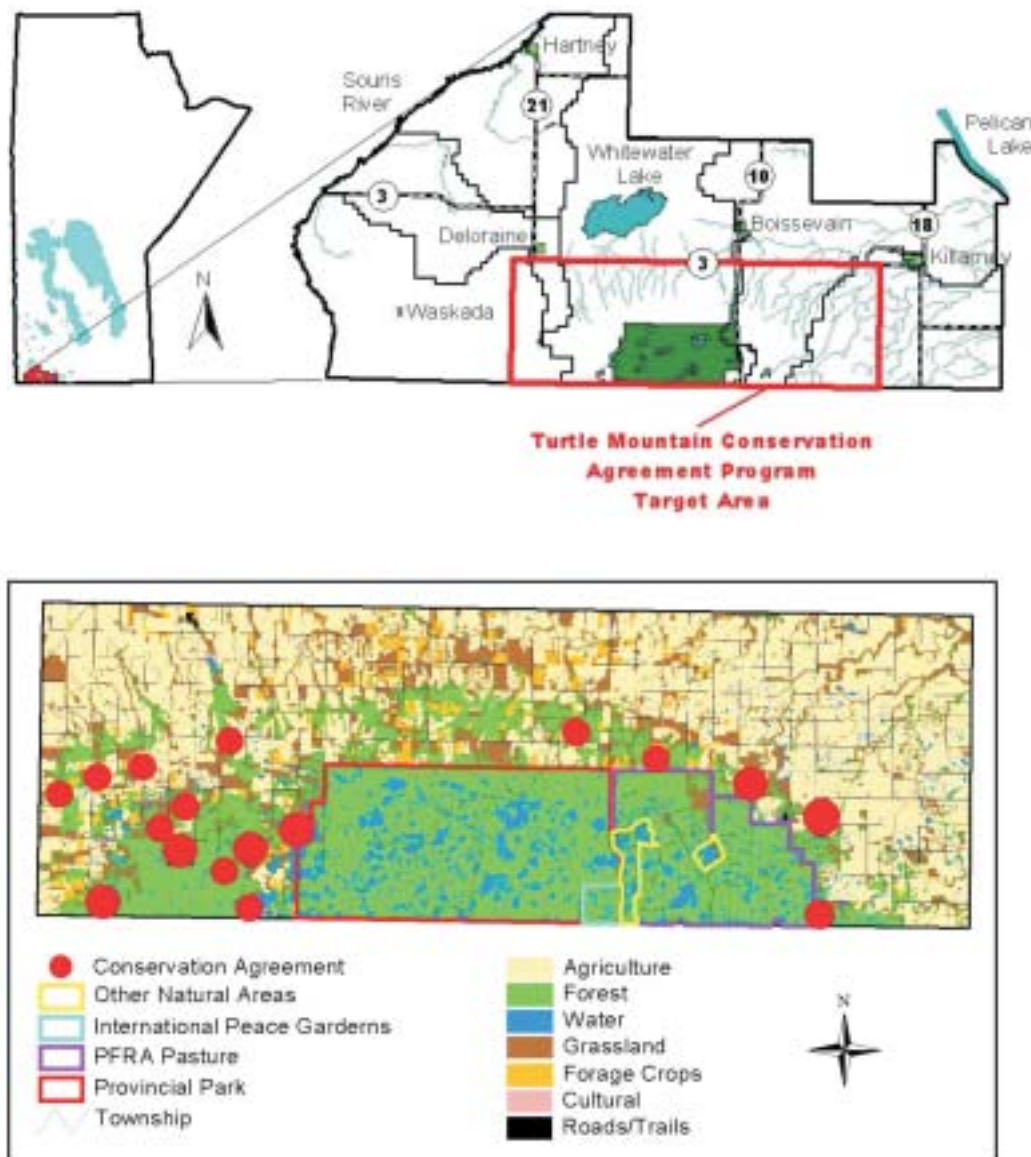


Figure 8.6 Protected lands in TMCD

Source Turtle Mountain Conservation District

This initiative represents the adaptive nature of the Manitoba CD policy in terms of instrument delivery. Landscape protection was always identified as an important goal for the CD programme, although the concept of working with many partners, beyond the CD itself has evolved over time and most CDs today work with other landscape preservation partners. The Turtle Mountain example is representative of how these relationships evolve, toward significant results.

8.3.5 Trans-boundary partnerships – West Souris: 2001–05⁹

Since 1976, the CD programme has not mandated watershed-based administrative boundaries. By 2001, it became clear to many local ratepayers that two separate rural municipalities in two separate CDs, Cameron (in the WSRCD [West Souris River CD]), and Arthur (in the TMCD), were each partially located within a CD, which was not ideal. Separately, the two CDs were unable to implement good soil and water management solutions to the same extent as when they were together.

After reviewing the situation, and recognizing that the Provincial programme objectives would (likely), one day, return to being watershed-focused, the boards for both, West Souris River and Turtle Mountain, decided to proceed with an innovative boundary re-alignment. The process began with initial meetings between both the affected rural municipalities.

In 2003, the re-alignment occurred based on river boundaries – with each affected municipality being bisected by the Souris River – and half of each municipality joining the CD in operation on each side of the river (Figure 8.7). Some minor administrative adjustments were required, specifically in relation to slight differences in terms of relative taxation rates. However, local ratepayers were pleased with the result.

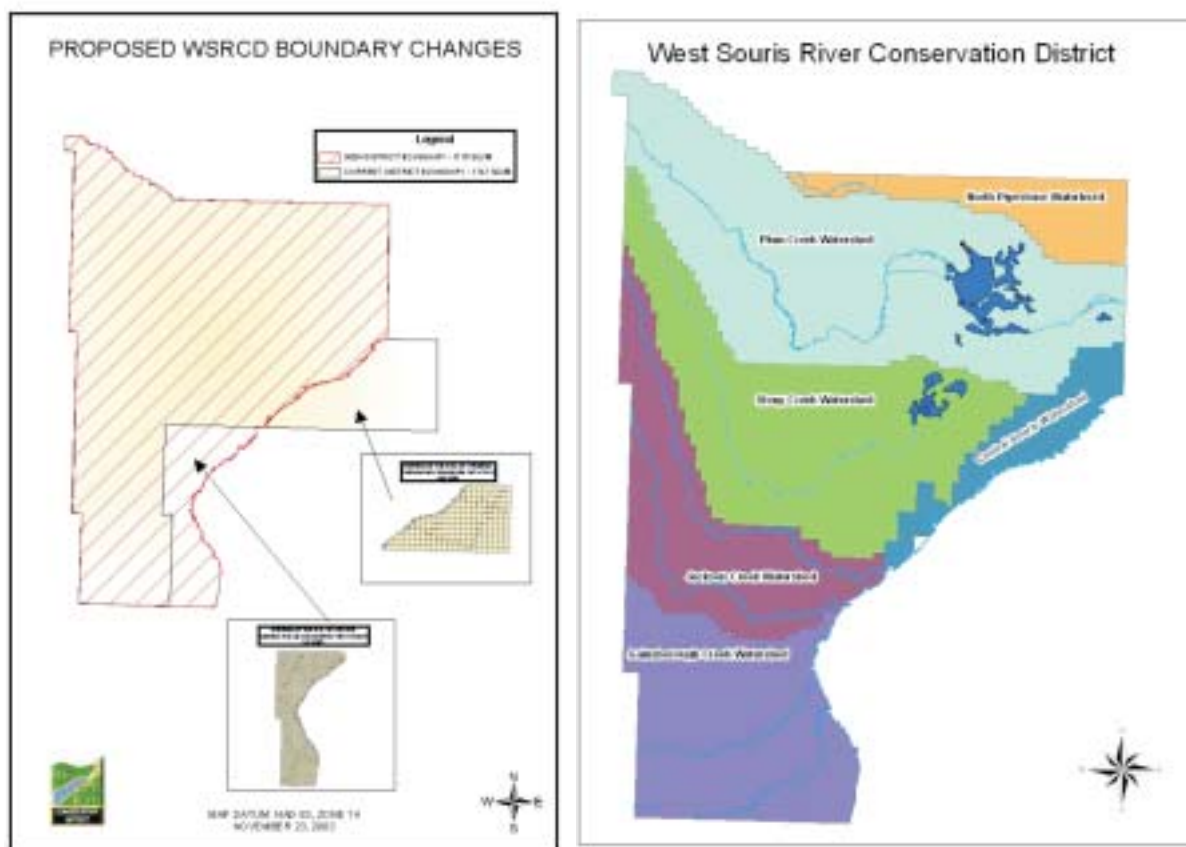


Figure 8.7 WSRCD boundaries

Source West Souris River Conservation District

⁹ The authors express their gratitude for contributions to this section by G Campbell.

In a related development, the following year (2004), WSRC D initiated a watershed planning process within three sub-watersheds in its district, and invited upstream residents and other stakeholders in Saskatchewan to participate. In 2005, as watershed planning efforts began in Saskatchewan, those same upstream partners invited WSRC D stakeholders to participate in the process. This evolving trans-boundary watershed partnership is now going to include the sharing of water quality test results and other data.

While not truly watershed-based (in that it uses the river as the boundary), the boundary re-alignment efforts of the WSRC D are indicative of the Manitoba CD programme's ability to adapt to anticipated conditions in terms of instrument design. The CD Act specifically provides for boundary amendment. Two neighbouring CDs recognized the logic of redrawing their boundaries and requested that the provincial government make the change.

The trans-boundary partnerships between West Souris and Saskatchewan stakeholders are an example of adaptability in terms of instrument delivery. The CD Act did not envision inter-provincial planning partnerships. However, the reality of watershed function suggests that all areas of a watershed be included within the planning framework. The fact that this watershed-based relationship has been built across a provincial boundary is significant, particularly when such partnerships across municipal boundaries are often quite difficult in Manitoba.

8.3.6 Alternative Land Use Services pilot project – Little Saskatchewan: 2004-06¹⁰

Of growing interest in public policy is the use of economic incentives and instruments as a complement or substitute for regulatory and voluntary instruments. This innovation involves measures such as environmental taxes, tax incentives, and tax shifting; and non-tax measures such as tradable permits, subsidies, user charges, and resource pricing. Incentives have proven to be more flexible than 'command and control' approaches. They can promote technological innovation and reduce costs of pollution control, as compared to certain regulations (Environment Canada 2006).



Figure 8.8 Alternative Land Use Services pilot project location

Source Little Saskatchewan Conservation District

¹⁰The authors express their gratitude for contributions to this section by M Kopytko.

This concept of using tax or income incentives presents significant opportunity and framework for expanding conservation programming with a focus on sustainable land management. This approach is particularly relevant within the agriculture sector, where new income (and cost reduction) opportunities are constantly desired.

In 2004, the Little Saskatchewan River CD was approached by the Delta Waterfowl Foundation (Delta, a charitable wildlife conservation organization) and KAP (Keystone Agricultural Producers, Manitoba's general farm lobby organization), to participate in a pilot project. They wished to test the potential for applying EGS (Ecological Goods and Service) incentive payments to private agricultural landowners, as a means of promoting sustainable land management decisions (Figure 8.8).

The CD appointed a committee to explore the concept and assist with the development of a proposal to the federal and provincial departments of agriculture. The pilot project has now evolved into a significant federal-provincial initiative, with substantial private sector support via Delta, in addition to funding of CAD 120 000 from one of the CD's municipal partners - the rural municipality of Blanshard, where the actual project is taking place.

The CD is also providing valuable GIS and local project management support. It is also likely that it will play a key role in administering the programme, in partnership with a Provincial crown corporation, the Manitoba Agricultural Services Corporation.

This initiative represents the adaptive nature of the Manitoba CD policy in terms of instrument delivery. The concept of using economic incentives was never considered as one of the means by which CD programmes would be implemented. Little Saskatchewan played a key role in developing the ALUS (Alternative Land Use Services) concept and establishing a pilot project. The CD also helped convince one of its municipal partners to make a substantial financial contribution to the initiative.

The adaptive capacity of Manitoba's CD programme was apparent to the two external organizations, which saw the potential for using its flexible delivery structure to provide local conservation programming using economic incentives. This is an innovative approach among all CDs, which may become a model for future application throughout the CD programme. This may contribute to federal and provincial policy changes.

8.3.7 Aboriginal participation – Alonsa: 1991–2001⁹

Given Manitoba's CD policy focus on municipal partnerships, the participation of Aboriginal communities has historically not been a major priority. There are very few examples of CDs working in close partnership with First Nations or Métis Settlements, even when these are located within or adjacent to an existing CD. Growing recognition of the importance of Aboriginal communities in terms of resource management, co-management, and self-determination suggests that CD partnerships with First Nations and Métis Settlements are a logical and appropriate development.

In 1991, a board member of the Alonsa CD identified what he thought might be an ancient Aboriginal rock formation on his farm near the Lake Manitoba Narrows. This rock formation was later determined to represent a ceremonial Thunder Bird Nest, a mythical creature of Ojibwe culture. The Alonsa CD then developed interpretive signage and a walking trail at the site, funded through the CD's education budget.

Initially, provincial programme reviewers were surprised by Alonsa's attention on communicating Aboriginal culture. Also, a nearby First Nation community (Ebb and Flow) soon expressed their gratitude for the project, but noted several factual errors in Alonsa's interpretation signage at the site.

Despite some initial communication problems, this experience represents the first meaningful contact, toward the establishment of a collaborative relationship, between a CD and an Aboriginal community in Manitoba. This relationship continues to flourish (Figure 8.9).

In 1995, Alonsa worked in partnership with Ebb and Flow First Nation on another interpretive site known as Medicine Rock, for which Ebb and Flow did the interpretation and Alonsa developed a walking trail and picnic tables.

In 2001, this partnership grew to include another First Nation (Sandy Bay), Manitoba Hydro, Agriculture and Agri-Food Canada, and the Province of Manitoba for the development of a ceremonial site, based largely on Aboriginal oral traditions and various interpretations of life, land, and resources in the area.

⁹ The authors express their gratitude for contributions to this section by H Harris.



Figure 8.9 Alonsa CD boundaries, First Nations

Discussions regarding future expansion of Alonsa CD are now being explored, with the hope for formalized relationships with the aforementioned First Nations and one more, Crane River. Inclusion of these Aboriginal communities as formal CD partners would greatly contribute to Alonsa's boundaries being representative of several area watersheds.

Other CDs have now also begun to build similar relationships with First Nations within or adjacent to their districts, notably Whitemud, Lake of the Prairies, Little Saskatchewan, Upper Assiniboine, and Pembina Valley. The move by some CDs toward building long-term relationships with Aboriginal communities was initiated by one district and was supported by the provincial CD programme/policy.

Alonsa's experience is an example of the Manitoba CD programme's *ability to deal with anticipated conditions in terms of instrument implementation*. The programme, as designed, certainly anticipated various forms of education programmes, although interpretation of Aboriginal culture was probably not envisioned. This is well beyond conventional perceptions of soil and water conservation.

More importantly, Alonsa is clearly demonstrating the potential for *adaptability*, in terms of *instrument rules*. Any discussions regarding the inclusion of First Nation communities within the Manitoba CD programme would be revolutionary. Implementation of this step would require a change in the CD Act.

Today, in at least one CD, the possibility now exists that three First Nations may eventually join the existing Alonsa partners in an expanded, watershed-based CD. The Aboriginal partnership possibility was never envisioned by the programme. The fact that these Aboriginal communities would help complete Alonsa's watershed boundaries is also significant and once again demonstrates the logic of watershed-based administration, planning, and management. There is additional potential to formalize partnerships with other jurisdictions—toward more complete watershed boundary CD administration in the Turtle River Watershed CD, where Riding Mountain National Park (federal control) comprises much of this area.

8.4 Analysis and results

A summary of the results of the examples from section 8.3, in terms of the adaptive policy framework described in Chapter 2 is presented in Table 8.5. This section outlines some broader implications based on these findings.

Table 8.5 Case study results

Case Study	<i>Ability to perform under a range of anticipated conditions</i>		<i>Ability to perform under unanticipated conditions</i>		<i>Findings</i>
	<i>Design</i>	<i>Implementation</i>	<i>Design</i>	<i>Implementation</i>	
Surface water management - various CDs	–	–	–	–	Lacking financial capacity, lacking decision-making structure, and inappropriate boundaries
Surface water management - Whitemud	Yes	Yes	Yes	Yes	Reasonable financial capacity, clear decision-making structure, and watershed-based boundaries
Abandoned wells- Pembina Valley	–	Yes	–	Yes	Boards took advantage of existing conditions to adapt to new issues. Programme evaluation inadequate.
Conservation agreements - Turtle Mountain	–	–	–	Yes	Demonstrated the value of external partners in meeting CD goals over a diverse landscape
Boundary alignment - West Souris	Yes	–	–	Yes	The CD Act allowed boundary changes; local boards took initiative. Trans-boundary partnerships formed based on logic of watershed function
ALUS pilot project- Little Saskatchewan River	–	–	–	Yes	The CD Act allowed for substantial investment in a new concept of importance to agricultural producers
Aboriginal participation - Alonsa	–	Yes	Yes	–	Education programme includes significant interpretation of the Aboriginal culture. Potential for future changes to the CD Act to recognize First Nations as full CD partners, toward complete watershed boundaries

The CD programme in Manitoba is an example of what might be called devolved decision-making. The provincial government has created a set of institutions – the CD Boards – and given them well-regulated structures. However, they do have fairly wide decision-making latitude, as our seven examples show. So, the instrument itself is inherently adaptive, in that the CD Boards, made up of local stakeholders, are able to make spending decisions based on their locally grounded view of the needs and changing circumstances. Obviously, this is the goal of the instrument, a goal that is captured by

the term *subsidiarity*. An earlier IISD (International Institute for Sustainable Development) finding was: *Subsidiarity recognizes that action will occur at different levels of jurisdiction, depending on the nature of the issue. It assigns priority to the lowest jurisdictional level of action consistent with effectiveness* (IISD 1994). This also connects to Holling's concept of nested hierarchies, or holarchy (Holling and Gunderson 2002). There are many examples of such instruments, so it is useful to analyse the Manitoba CDs for their adaptability.

The inclusion of seven examples of the implementation of the CD policy instrument in this case study allows us to compare various aspects of the implementation of the instrument. We see, for example, that in many CDs, the basic goals of the programme are not being met adequately. On the other hand, there are many examples of the creative use of latitude that the CD programme offers.

The first example, surface water management, shows that the rules that create the policy instrument must be considered in detail. In this case, the legislation defining the CD is quite permissive. However, in the case of most CDs, the boundary is defined in the governing Order-in-Council and this can hamper decision-making. At the same time, the various decision-makers involved in overseeing drainage (which is governed by different legislation), must coordinate, and if they do not, the entire system operates sub-optimally. The contrast between the surface water management example and the Whitemud example is clear – where the boundaries are aligned with the natural water management unit of the watershed, and where all drainage decisions are integrated, the instrument is much more effective.

The abandoned wells example raises another insight with respect to the adaptive policy discussion. PVCD led the way in filling abandoned wells. This was definitely an example of adaptive behaviour. Once they had highlighted the problem and its solution, other CDs followed suit. However, the later CDs' activities were less innovative and, as time went on, may be said to take on the ability to deal with a range of anticipated conditions, as discussed in Chapter 2.

With respect to the rest of the examples, they all show adaptive characteristics. The CD board used its capacity, to a certain degree, to spend money or make decisions to address issues that were not dealt with in the legislation or the Orders-in-Council. In this sense, it is clear that the devolution of authority model works well.

Figure 8.10 provides an overview of how the examples relate to adaptive policies. The first example, on surface water management, seems incapable of responding to conditions, anticipated or unanticipated. The policy design, as applied through various pieces of legislation did not allow the CDs to meet their basic goals of water management.

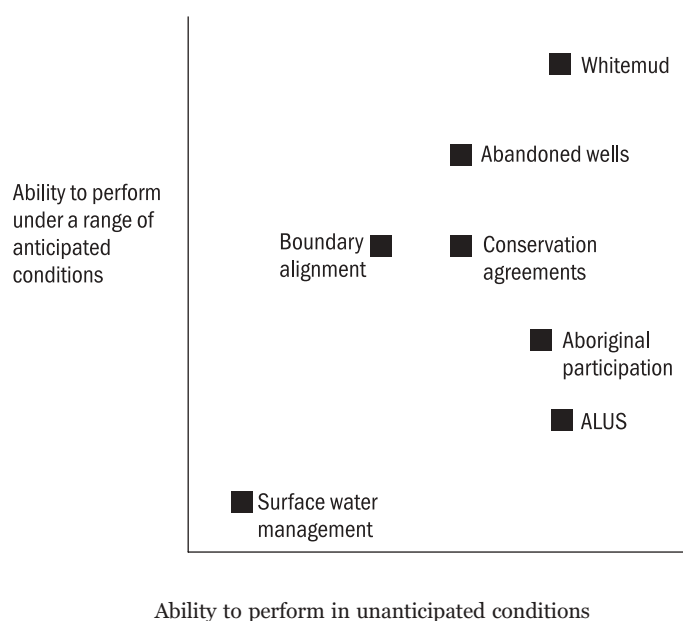


Figure 8.10 Illustrating the adaptability of the CD programme case studies

From Table 2.1 in Chapter 2, we obtain a list of some of the characteristics that various authors have suggested as being important for adaptive policy design. Many of the specific points are also observed in our seven examples. For instance, the set of points on understanding the issue are as follows.

- Understand local conditions, strengths, and assets
- Respect history
- Understand interactions with the natural, built, and social environment

All of these are inherent in the devolved decision making approach that CDs exemplify. We also see examples of self-organization, variation, and redundancy and copying. On the other hand, the principle of effective neighbourhoods might be said to be demonstrated in examples where the CD boards, the municipal governments, and the provincial decision makers are unable to work closely enough together to maintain an effective drainage system.

Our examples also suggest the addition of another principle to our list – that of place-based management. This is commonly mentioned as an attribute of good natural resource management, but was not included in our earlier list.

From the analysis of the CD policy history, current implementation, and the seven specific examples of how it is working, we can identify some issues that future case studies should clarify.

The surface water management example demonstrates that it may be the conjunction of several policy instruments that lead to a poor result. Conversely, in the well capping example; it was, in part, the availability of other funding programmes that facilitated the adaptive response. Future case studies will be based on an analysis of actual community experience, and thus will have the opportunity to try to sort out the impacts of various instruments. In a world where there are almost always several public policies, often based on decisions from several levels of government, impacting any particular activity, such analysis will be very important.

In this case study, the adaptive capacity largely was rooted in the initiative of the individual CD boards. They were given some money and a fairly broad decision-making mandate, within a specified institutional structure. Thus they were able to develop new ideas or make use of good ideas developed by others, in meeting what they felt to be the local priorities. On the other hand, the adaptive capacity was not based on formal monitoring and feedback mechanisms, which literature suggests will be important (Walker, Rahman, and Cave 2001). Future case studies should explore this.

This case study does confirm that devolved decision-making (or subsidiarity) does have significant adaptive qualities. Future case studies should investigate this further. We saw three major characteristics that seem to be important, if not critical, in the success of devolved decision making in adapting to unforeseen circumstances.

- Decision-making capacity that includes most or all of the major variables. Where this did not exist, as in the surface water management example above, the local process did not work.
- In this case, one major variable was the use of watershed as the relevant area, which was available in some examples and not others. For a locally based decision-making process to work, the definition of relevant territory is important.
- Availability of ongoing financial and human resources in amounts relevant to the mandate.

Future case studies should explore whether these findings are duplicated elsewhere.

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Appendix

Manitoba conservation districts

This section is adapted from the websites of the various CDs (conservation districts) listed below.

Alonsa conservation district

Alonsa CD was formed in 1978 and covers approximately 4450 km² of land. The district is located along the west shore of Lake Manitoba and consists of the RMs (regional municipalities) of Alonsa and Lawrence. The beef cattle industry dominates the local economy along with a considerable involvement in commercial fishing in the winter months. The district has been involved in soil and water management since its inception. Some of the major projects include channel construction, improvements, and maintenance; water level and flood control; land drainage/waterfowl habitat enhancement, forage seed assistance; and school conservation education programmes.

Cooks Creek conservation district

Cooks Creek CD was incorporated in 1979 and covers approximately 862 km². It is situated east of Winnipeg and includes most of the Cooks Creek Watershed and parts of the Cooks Creek and lower Seine River basins. The RMs of Springfield, Tache, Ste. Anne, Brokenhead, and Reynolds are included in the district. Water management is the most important issue in the district. However, another significant concern is poor soil drainage. As a result, the district places emphasis on the maintenance and upgrading of agricultural drainage channels. Other initiatives include sealing abandoned wells, crossing replacements and repairs, and public education.

East Interlake conservation district

EICD (East Interlake conservation district) is Manitoba's 17th CD, formed on 24 August 2005. EICD is located on the west side of Lake Winnipeg's south basin and includes the RMs of Fisher, Bifrost, Armstrong, Gimli, Rockwood, and Rosser; as well as the towns and villages of Arborg, Stonewall, Winnipeg Beach, Teulon, Riverton, and Dunnottar. EICD is working towards extending its boundaries to include all members of the watershed over the next few years.

In EICD, water flows into Lake Winnipeg directly through six drainage networks and indirectly, by way of the Red River, through two drainage networks. Much of the land area comprising this District is agricultural, with cottage communities boarding the shores of Lake Winnipeg.

One of the first tasks for EICD is to begin the IWMP (Integrated Watershed Management Planning) process. The IWMP process will provide valuable information about EICD's natural resources and the issues of concern for residents of the district. Results of this process will help guide the CD board when setting priorities and creating programmes for the District. EICD currently operates an abandoned well sealing programme, and through the IWMP process, will develop a broader suite of relevant and effective programmes for residents of the district.

Intermountain conservation district

Intermountain CD was formed in 1997 and covers approximately 7200 km² (720 000 ha), making it the largest CD in Manitoba. Riding Mountain National Park, Duck Mountain Provincial Forest, Crown Territory, and Lakes Dauphin and Winnipegosis surround the district. RMs included in this district are Dauphin, Ethelbert, Gilbert Plains, Grandview, Mossey River, and Mountain South. The villages of Winnipegosis and Ethelbert, the towns of Grandview and Gilbert Plains, and the city of Dauphin are also included. Water management is the highest priority with soil conservation and public education as ongoing priorities. Some programmes include stream bank stabilization, abandoned well capping and sealing, forage seed assistance, grassed waterway development, fish and wildlife habitat enhancement, riparian pasture management, and recreation and education initiatives.

Kelsey conservation district

Kelsey CD was established in 1999 and covers approximately 900 km² (90 000 ha). It is located in the west-central portion of Manitoba. The RM of Kelsey, which includes the Pasquia and Carrot River drainage basins, encompasses the District. Priorities for the District include developing programmes that educate the public about prudent resource management, soil and water conservation practices, and local decision-making, as a means to maintain a healthy rural landscape. Some projects include off-site watering, exclusion fencing, forage assistance, abandoned well capping, well disinfecting, tree planting, and wildlife habitat enhancement.

La Salle Redboine conservation district

The District covers over 7003.4 km² of central Manitoba. It is home to over 37 000 residents making it the most populated CD in Manitoba. It is also home to several major river systems including the Assiniboine, Boyne, Cypress, and La Salle, all of which empty into the Red River at the District's eastern extent. The District consists of 68% agricultural lands, 12.5% grasslands, 9% deciduous forests, 1.5% water, and 1.5% marshland.

Lake of the Prairies conservation district

Lake of the Prairies CD was established as Manitoba's 12th CD 1 January 2001. The District includes approximately 2050 km², extending from the Saskatchewan border west to Riding Mountain National Park and from the Lake of the Prairies south to the village of Binscarth. This CD has a diverse landscape, ranging from rolling topography in the north to low-lying wetland areas in the south. Its principal landscape feature is the Assiniboine River, which runs along the western border of the district.

The area serves approximately 4262 residents and consists of the municipalities of Russell, Shellmouth-Boulton, and Silver Creek; the town of Russell; and the village of Binscarth. The District is divided into four sub-districts based on the drainage basins of the major rivers and creeks within the area. 22 sub-district members act in an advisory capacity to the main Board with each sub-district committee chairperson sitting on the Board. In addition, the Board has invited representation from those member councils not represented at the board-level to attend meetings as non-voting members. The Board and representatives meet on a monthly basis to discuss district business.

Little Saskatchewan River conservation district

Little Saskatchewan River CD was established in 1999. The District covers approximately 6080 km² and is located in south-western Manitoba. Although currently expanding, the district occupies the RMs of Daly, Blanchard, Saskatchewan; and parts of Minto, Odanah, and Clanwilliam. It also includes the towns of Minnedosa and Rivers. Holistic resource management is the overall objective of the District with the primary focus being soil and water conservation. There is also significant emphasis placed on educational initiatives in schools and throughout the district. Some programmes include

constructing headwater dams, abandoned well capping, grassed runways construction, forage seed assistance, riparian pasture management, tree planting projects, and sustainable beaver management.

Mid Assiniboine River conservation district

One of 17 municipal provincial CD partnerships in Manitoba, the Mid Assiniboine River CD was formed in 2002, as a way for all parties to work together in managing natural resources on a sustainable long term, integrated basis. Located in south-western Manitoba, the district was formed by three local municipal governments in response to a need for local practical watershed-based management solutions. The RMs of Cornwallis, Whitehead, and part of Elton, which cover an area of over 600 square miles, define the political boundaries of the MARCD (Mid Assiniboine River conservation district). MARCD was formed by an Order-in-Council of the provincial legislature and is governed by the Manitoba Conservation Districts Act and Regulations.

Pembina Valley conservation district

PVCD (Pembina Valley conservation district) was formed in October 1989. It covers an area of approximately 4270 km² and is situated along the international boundary. This area includes the Pembina Valley, the Tiger Hills, the Red River Valley, and the Pembina Escarpment. RMs included in the district are Lorne, Thompson, Roblin, Louise, and Pembina. Towns included in the district are Pilot Mound and Manitou, in addition to the village of Crystal City. The district's focus is on conservation farming, and water management. Some projects include small water retention structure development, forage seed assistance, grassed runway construction, bank stabilization, public education, and wildlife habitat preservation.

Seine-Rat River conservation district

SRRCD (Seine-Rat River conservation district) was established in January 2002. Each year since it was established, SRRCD has expanded to include more partners. As of April 2006, SRRCD includes the RMs of La Broquerie, Ste. Anne, Hanover, De Salaberry, Ritchot, City of Steinbach, Town of Ste. Anne, and the Village of St. Pierre-Jolys. The District is located south-east of Winnipeg and is home to over 39 000 people. SRRCD offers a full line of soil and water management programmes with a particular focus on surface and groundwater management initiatives.

SRRCD has started an IWMP for the Seine River Watershed with plans to complete work by March 2008. SRRCD has also recently completed Aquatic Inventory and Riparian Assessment studies for the Seine and the Rat Rivers.

Tiger Hills conservation district

On 1 January 2001 the THCD (Tiger Hills conservation district) became Manitoba's 13th CD. Formed as the southern shore of glacial Lake Agassiz during the retreat of the last ice age, the Tiger Hills are underlain by erodible sand and sandy loam soils and covered with mixed forest and grasslands. The distinct characteristics of the area's topography present unique challenges for local landowners and producers in terms of protecting the fragile nature of the Tiger Hills, while maintaining a sustainable and diverse rural economy.

Divided into five sub-districts, each responsible for a distinctive watershed drainage area, THCD was formed through partnership among the RMs of Argyle, Glenwood, Strathcona, and South Cypress; the village of Glenboro; and the province of Manitoba. THCD, along with its many external partners, is committed to natural resource management and sustainable rural development.

Turtle Mountain conservation district

The District was established in the 1970s to support local resource conservation efforts in the Turtle Mountain area of south-western Manitoba. Today, the District's support is demonstrated in a number of ways such as: implementing the East Souris River Watershed Management Plan, improving land

use practices, implementing water conservation projects, offering conservation education, and implementing programmes such as 'Abandoned well sealing' and 'Riparian management'.

Turtle River Watershed conservation district

TRWCD (Turtle River Watershed conservation district) consists of all or parts of seven rural municipalities (Alonsa, Dauphin, Lawrence, McCreary, Ochre River, Rosedale, and Ste. Rose). The district encompasses 2330.40 km².

To facilitate local input and address resource issues on a smaller scale the district is divided into three sub-districts. Approximately 25% of TRWCD exists within Riding Mountain National Park boundaries.

Upper Assiniboine River conservation district

UARCD (Upper Assiniboine River conservation district) is characterized by a diverse landscape. From the Newdale Plain to the border of Riding Mountain National Park the undulating topography can vary over 200 metres. The dominant feature of the landscape is the Assiniboine River meandering gently through the area. The Assiniboine River has carved an impressive valley. At times the valley is over 75 metres deep with steep slopes. The Assiniboine River Valley represents one of the most scenic aspects of this CD, but also represents a major resource management issue.

The surface drainage flows generally to the south-east through a number of minor rivers and streams. Potholes are abundant in the prairie grassland region of UARCD. UARCD consists of the municipalities of Archie, Ellice, Rossburn, Birtle, Hamiota, Miniota, Shoal Lake, Wallace, and Woodworth covering over 2200 square miles. To put size into perspective, this CD is larger than the Province of Prince Edward Island. UARCD can be divided into three distinct landscapes: uplands, plains, and river valleys.

Once again, UARCD expanded. When the district was originally established in 1996, it was made up of the RMs of Birtle, Ellice, Hamiota, Miniota, and Rossburn; joined by Shoal Lake (1998), Woodworth (2000), Archie (2001), and part of Wallace (2002). On top of this rapid expansion, this CD has also undertaken its first management plan with much assistance from the Gladstone office. The District learned a lot from the information provided during public consultations; feedback, which has gone a long way towards forming district policy for the future.

West Souris River conservation district

WSRCD (West Souris River conservation district) was officially incorporated as Manitoba's seventh CD on 1 January 1995, upon request to the provincial government from the municipalities of Sifton, Pipestone, Albert, and Edward. The RMs of Cameron and a portion of Wallace joined the District on 1 April 1999 and 2002, respectively. Effective 1 April 2004, the Souris River became the new boundary between West Souris River and TMCD. The RMs of Arthur and Cameron will have land in both CDs.

WSRCD lies on the second prairie steppe in the Saskatchewan Plain Division of the Great Plains region. The underlying geology and the overlay of soil materials strongly influence the land use patterns that have developed over time. Natural drainage is generally from west to east. The major streams in the district, listed from north to south are: Pipestone, Gopher, Stony Jackson, Graham, Gainsborough, Souris, and Antler Creeks. Oak and Plums Lakes are the major water bodies in the District.

Whitemud Watershed conservation district

The first CD formed in Manitoba was WWCD (Whitemud Watershed conservation district) in 1972. The district covers approximately 7115 km² of land. WWCD includes the complete area of some municipalities and portions of others. In total 15 rural municipalities and three towns are involved. The CD and is situated in south-central Manitoba from Minnedosa to Portage la Prairie and Carberry to Kelwood. The headwaters originate from the Riding Mountain Escarpment and Assiniboine Delta

Aquifer and drain via the Whitemud River into Lake Manitoba. The District's goal is to promote soil and water stewardship and facilitate agricultural land drainage on a watershed basis. It provides conservation programming and infrastructure management within its watershed. The District is responsible for over 1760 km of drainage infrastructure and 1265 crossings. Major activities include maintenance and replacement of infrastructure as well as proactive soil and water conservation projects such as forage assistance, shelterbelts, grassed runways, water retention, shale traps, wild lands and habitat preservation, conservation corridors stream bank stabilization, and riparian management. The District has also been facilitating drainage licensing within the Watershed in association with Manitoba Conservation for the past two years. This partnership has dramatically increased the effectiveness and efficiency of water management in the District and is being considered by numerous other CDs.