**Integrated Watershed Management Planning in Manitoba:
A Platform for Social Learning**

By

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A Thesis submitted to the Faculty of Graduate Studies
of the
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in partial fulfilment of the requirements of the degree of
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Abstract

Integrated Watershed Management Planning (IWMP) is a new planning model being implemented through the Manitoban Conservation District program since the mid-2000s. This research examined six watershed plans, including two plans completed outside the IWMP structure. A social learning framework was used to examine process attributes and learning outcomes for participants involved in the planning process. Semi-structured interviews and focus groups with stakeholders provided the data. The research found that there are numerous aspects of the current planning approaches that supported participant learning. Learning outcomes included a better technical understanding of watershed issues, as well as a shared problem definition and the ability to communicate common objectives to distinct stakeholder groups, including how this knowledge can support better policy and regulation. Recommendations to improve the IWMP model for enhanced social learning include building greater demographic diversity through financial assistance for participants, and finding ways to create new forums for local input.

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List of Acronyms

CD	Conservation District
IISD	International Institute for Sustainable Development
IWMP	Integrated Water Management Plan
MAFRI	Manitoba Agriculture, Food and Rural Initiatives
MHHC	Manitoba Habitat Heritage Corporation
MIT	Manitoba Infrastructure and Transportation
MWC	Manitoba Water Council
MWS	Manitoba Water Stewardship (now Manitoba Conservation and Water Stewardship)
NGO	Non-governmental organization
PMT	Project Management Team
WPA	Water Planning Authority
WPAT	Watershed Planning Advisory Team

Definition of Terms

Water Planning Authority: A group of people with responsibility to develop an integrated watershed management plan in accordance with Manitoba's Water Protection Act.

Project Management Team: Small group of key decision makers appointed by the Water Planning Authority to carry out the watershed planning process.

Watershed Planning Advisory Team (also referred to as Watershed Team, Watershed Advisory Team, or Technical Advisory Team): A group of individuals representing stakeholder groups or who can contribute technical information about the watershed during the planning process.

Manitoba Water Council: A senior advisory board that reports to the Manitoba Minister of Conservation and Water Stewardship. In relation to the IWMPs, they are responsible for reviewing and approving the draft IWMPs.

Chapter 1 – Research Context

1.1 Introduction

Seven percent of the world's fresh water flows within Canadian borders, though Canada contributes only 0.5% to total global population (de Loë & Kreutzwiser, 2006). Canadian citizens have reason to believe fresh water is plentiful, but these statistics mask a reality where water distribution and timing is mismatched with patterns of human use. Issues of compromised water quality, lack of accessibility, and supply shortages exist now, and there is the concern that climate change may exacerbate these conditions in the future (Morin & Cantin, 2009). The 'myth of abundance' has encouraged the flagrant use of water resources, and we are now facing limited and compromised water supplies in parts of Canada (Brandes, 2005). This is most apparent in parts of Western Canada such as the South Saskatchewan River Basin in Alberta, where water allocations have exceeded independently reviewed in-stream flow needs (Clipperton, Koning, Locke, Mahoney, & Quazi, 2003). In Manitoba, the challenges have been somewhat different, where the impacts of wetland loss, phosphorus and nitrogen run-off from agriculture, livestock production and municipal sewage, coupled with seasonal flooding in the Red River and Assiniboine River Valleys have made water management a matter of broad public concern.

Both federal and provincial governments have historically manipulated water supply side management to address needs of municipal, agricultural, industrial, and hydro-electric power generation (de Loë & Kreutzwiser, 2007). In recent years, threats to water quality and quantity such as pollution, overuse, urbanization, and climate change have necessitated a greater emphasis on demand-side management and source water

protection. Nowlan and Bakker (2007) describe additional factors contributing to the renewed focus on water governance in Canada, including more stringent drinking water standards in many jurisdictions following the failure of water treatment facilities in 2000 in Walkerton, ON and 2001 in North Battleford, SK, and the introduction of watershed scale planning and greater involvement of public interest groups. Under these conditions, new forms of governance have emerged for water use and water protection in Canada. Ramin (2004) describes the emerging governance strategy as a holistic, systems-based view that has moved water governance to include greater stakeholder involvement.

1.2 Governance of Water Resources

The Global Water Partnership (2002) defines water governance as the range of political, social, economic, and administrative systems that are in place to regulate the development and management of water resources and the provision of water services for society. Worldwide, government agencies are creating space for public participation, and venues to deliberate how to allocate and conserve these resources (de Loë & Kreutzwiser, 2007). In Canada, authority over natural resources such as fresh water has traditionally been held by elected officials, in a top down, command and control fashion, consistent with our historic emphasis on supply-side management of water (Brandes, 2005). Over the last few decades, a number of factors have influenced greater inclusion of citizen input and representation from stakeholder groups (de Loë & Kreutzwiser, 2007). One such pressure has been from citizens themselves and their concern for water supply and quality, with an increased public expectation for transparency and accountability from government agencies, and more inclusive participation in decision-making (Ramin, 2004). Another has been a move to an overall smaller government and a reduction in state

investment in environmental governance (Pahl-Wostl, Craps, Dewulf, Mostert, Tabara, & Taillieu, 2007; Prudham, 2004). We have recognized the limitations of regulatory measures and costly enforcement, and turned to a multi-stakeholder approach to water management as a possible alternative solution (de Loë and Kreutzwiser, 2007). In response to this shift, governments at the provincial level are independently experimenting with new frameworks for water governance. Each province is dealing with issues of representation, the design of decision making processes, scientific and public learning, and adaptation to change and uncertainty (de Loë, 2010).

Environment Canada defines Integrated Water Resources Management (IWRM) as "a multidisciplinary and iterative process that seeks to optimize the contribution of aquatic resources to the social, environmental, and economic welfare of Canadians, while maintaining the integrity of aquatic ecosystems, both now and into the future (Environment Canada, 2010). As proposed in *The Manitoba Water Strategy* in 2003, Manitoba has developed IWRM at basin, aquifer, and watershed levels (Manitoba Water Stewardship, 2003). This style of governance is based on bringing together a much broader slate of non-state actors in the decision-making process for particular water governance issues, emphasizing diverse views, networks, partnerships and adaptation (de Loë, Armitage, Plummer, Davidson, & Moraru, 2009), and integrating land use and water resource planning. Integrated Watershed Management Planning is simply the implementation of Integrated Water Resources Management at the local scale. Manitoba's Conservation Districts have been tasked with the creation of Integrated Water Management Plans (IWMP) for watersheds throughout the province, and many of these plans are recently completed and are now being implemented.

Planning with greater public participation opens the door for non-state actors to engage with the diverse issues affecting the health of a watershed, including scientific research and local knowledge originating in the experiences of other watershed residents. This approach can create conditions for individual and social learning through collective deliberation over complex environmental, social and economic issues, and the need to come to equitable and effective strategies to solve shared problems (Weber et al., 1995). I am interested in understanding the linkages between these new forms of governance and collective decision-making and the potential for learning, as well as the impacts any such learning may have on attitudes and behaviours related to sustainable use and management of water (Sims & Sinclair, 2008; Webler, Kastenholz, &Wendell, 1995). In particular, social learning in natural resource management is closely tied to the idea of learning for sustainability and the capacity to adapt to and manage change and the uncertainty inherent in socio-ecological systems. Ultimately, it can facilitate individuals and groups to decide to take action to address local environmental issues (Tabara & Pahl-Wostl, 2007).

Both Reed et al. (2010), and Muro and Jeffrey (2008), describe the different ways social learning is interpreted in the natural resource literature. They deal with the difficulty the varying interpretations create when attempting to distill a common definition. I relied on their summary and proposed criteria in my work, which posits that social learning involves a change in understanding on the part of the learner, situates this learning in a social network or community of practice, and disseminates the new understanding through social interaction (Reed et al., 2006). This excludes learning that takes place through public campaigns or behavioural change that occurs through

incentive/disincentive programs (Reed et al., 2010). My research is concerned with the conditions for learning and learning outcomes of participants in the IWMP process. These are two separate but interrelated investigations, which go some way towards clarifying the nebulous or vague use of the social learning concept.

This type of learning is supported by building technical and social skills and strengthening relationships among stakeholders (Muro and Jeffrey, 2008). Further to this, individuals involved in collective deliberation are exposed to multiple viewpoints, challenging established views on human-environmental interactions. These interactions and opportunity to critically reflect on problematic assumptions or entrenched social norms provides support for transformational learning, and from this, critical social action (Mezirow, 2008).

1.3 Water Governance in Manitoba

Water quality issues have been a major public concern in Manitoba, most notably the issue of nutrient loading in Lake Winnipeg and frequent overland flooding (Venema Oborne, & Neudoerffer, 2010). The complexity and uncertainty of water resources management is coupled with the heterogeneity of the communities involved, and the divergent interests they represent (Agarawal, 1999). This may be most challenging when interests of local producers contradict provincial water quality objectives, with one example being intensive livestock operations. We have seen increased interest, legislation, and investment in water governance in Manitoba in part due to the growing prominence and magnitude of these issues as they affect citizens across the province.

The provincial government initially created a water management framework in 1990 followed by the policy document *Applying Manitoba's Water Policies* in 1996.

Manitoba was the first province to create a Department of Water Stewardship in November 2003 (The Living Water Policy Project, 2010), although this department has now amalgamated with the Department of Conservation. In this same year, the *Manitoba Water Strategy* outlined the need to integrate water management planning and consolidate water legislation (Manitoba Water Stewardship, 2003). The *Water Protection Act*, passed in January 2006, dealt with watershed protection and restoration, preservation of water quality and efficient use of water resources to meet local and provincial needs, as well as provide financial means to create Water Management Protection Plans (Manitoba Water Stewardship, 2006). The *Manitoba Water Strategy* also indicated that Conservation Districts (CD) would be the preferred Water Planning Authorities (WPAs) to create integrated watershed management plans for their respective regions.

These changes in water governance were based on a framework of involving greater public participation, and divesting authority to local representatives. The new approach has the capacity to address complexity in water management and creates a new venue for collaboration between residents, technical experts, policy makers and other interested parties (Ramin, 2004). New planning initiatives have been focused on the watershed scale, a move already established in Ontario, and a useful approach when dealing with upstream and downstream effects and the interactions of land, air, and water (Mitchell, 2005). At this level of engagement, participants are directly affected by water issues in their region and embody the greatest political accountability due to their proximity and relationship to other citizens in the watershed (Morin & Cantin, 2009). There has been a move to incorporate landowners and other non-governmental agencies in decision- making and implementation given that the activities promoting watershed

protection are carried out on what is primarily private property in southern Manitoba (Roy, Oborne, & Venema, 2009). Manitoba Water Stewardship has promoted its commitment to integrated water resources management, putting forth the following conditions for watershed plans:

- The planning process is inclusive and broadly based, and combines the needs of diverse watershed stakeholders;

- There is a recognition of the balance between ecosystem, community and economic health; and,

- The process respects the integration of activities on the land and their impact on water (Manitoba Water Stewardship, nd).

Manitoba has an extreme climate of both droughts and excess moisture. Seventy-five percent of the population lives in areas with a history for extensive flooding (Manitoba Water Stewardship, 2001, 2003). There are also heavy impacts on water courses through industrial agriculture and hydroelectric dams. Provincial staff members asserted that the stability of Conservation Districts over the past forty years puts Manitoba in a unique position, where locally-based CDs are now situated to facilitate IWMP using watershed boundaries (S. Coughlin, personal communication, November 23, 2010). Conservation Districts have been consistently designated Watershed Planning Authorities, although this role can be filled by any person or entity as chosen by the province (Manitoba Water Stewardship, 2005a). Capacity building and provincial leadership has been identified as essential for the success of IWRM in small jurisdictions (Timmer, de Loë, & Kreutzwiser, 2007), and the local leadership provided by the Conservation District program serves this purpose.

1.4 Research Purpose and Objectives

This research is a part of the *Governance for Source Water Protection in Canada* project*,* a broader multi-year undertaking of the Canadian Water Network. It is a collaborative research initiative led by the Water Policy and Governance Group at the University of Waterloo with support from the Walter and Duncan Gordon Foundation. The work of this group is showing that emerging frameworks of water governance are evolving differently in each province, and in some ways, in each watershed.

The purpose of my research was to examine the new model of watershed management being tested in Manitoba and consider how it is contributing to social learning for sustainable watershed management.

Given this purpose, my research objectives included:

a. To document the new model for integrated watershed management planning (IWMP) in Manitoba;

b. To examine who is participating in the development of the IWMP, how they are selected, and what influence they have in the planning process.

c. To explore process attributes that support social learning and social learning outcomes found in the chosen watershed planning cases.

d. To examine specifically how the IWMP process contributes to social learning outcomes in the non-profit community.

e. To recommend ways to enhance social learning in future IWMP processes as a critical co-benefit and as a means of enhancing the process and its outcomes.

1.5 Research Strategy

I addressed these research objectives using a qualitative research approach to

attain an in-depth understanding of the process by which IWMP has been carried out. I reviewed related literature and documents on water governance, specifically pertaining to stakeholder involvement in planning and decision making, as well as examining existing legislation including Manitoba's *Water Strategy, Water Protection Act*, and the *Conservation Districts Act.* There are a number of Integrated Watershed Management Plans currently being developed, and of these I chose four IWMP case studies to illustrate the new governance strategies underway, as well as two alternative watershed management plans to provide another view of local strategies used to tackle watershed issues. This was done through a review of documentation on the formation of the Water Planning Authorities in Manitoba, and the publications, reports, and websites these Watershed Planning Teams have produced.

I conducted semi-structured interviews with the participants involved in the Water Planning Authority; the Project Management Teams, the Watershed Planning and Advisory Teams, staff of Manitoba Water Stewardship directly involved in managing Conservation Districts and the IWMP processes, as well as those involved in the Manitoba Conservation Districts Association (MCDA). I also interviewed members of the local community including members of industry associations and environmental non-profit organizations. I used open-ended questions from my interview schedule in Appendix A. I recorded each of these interviews and transcribed them using *Express Scribe* software. I then coded the interviews using the *Q NVivo 9* suite of software. Chapter three provides details on the research strategy.

1.6 Research Contribution

Frameworks for water governance are evolving in different ways both provincially and at

the watershed level, providing unique contexts suited to case study research. This case study will be of use to other communities grappling with similar issues, including scholars and policy makers, as it provides an analysis of the approach to watershed governance being applied at the local level in Manitoba and the learning outcomes occurring through the planning process, an issue not yet considered.

1.7 Organization

The thesis is organized into seven chapters. Following the introduction, Chapter 2 provides a review of the related literature covering topics such as water governance, public participation and social learning, as well as learning for sustainability. In Chapter 3, I outline the research methods that I used to obtain my data. Chapter 4 summarizes background information on each of the case study plans. Chapter 5 examines the planning process using interview findings and the data obtained from supporting documents. Chapter 6 looks at learning outcomes and discusses the relationship between my data and relevant literature. I conclude in Chapter 7 with a research summary and recommendations on the future development of Manitoba's water governance model.

Chapter 2 – IWMP for Sustainable Resource Use

2.1 Introduction

Increasing pressure on water resources in Canada has given rise to research on both the governance models for watershed management and the social-ecological interactions necessary to produce greater equity and sustainability. This chapter gives an overview of the literature on social learning and how it has been examined in the context of water resources management. I begin with a discussion of the trend towards greater public involvement and the potential for learning outcomes as well as wider social action stemming from this movement. I also consider Integrated Watershed Management Planning and its application in the Manitoban context.

2.2 Water Governance and Local Decision Making

Failures of governance and management have been implicated in escalating problems of water scarcity worldwide, with numerous repercussions for human and ecological sustainability (Jonch-Clausen & Fugl, 2001). Sustainable water resource management is complicated by its trans-boundary and multi-jurisdictional nature. In Canada, silos of sectorial planning and policy concerning water resources have impeded communication and collaboration between government departments in dealing with water management. Mitchell (2005) refers to this as vertical and horizontal fragmentation, where jurisdiction of water resources is shared between levels of government or departments of government, posing barriers to the ability of these agencies to co-operate, integrate policy and carry out water resources planning that ensures sustainable use and quality.

Despite political divisions of water and land use planning, watershed management

in Canada is relatively decentralized as compared to other nations of the G8 or Commonwealth countries (Hill, Furlong, Bakker, & Cohen, 2008). In Canada's constitutional democracy, the Federal government has deferred to the provinces' jurisdiction over natural resources including water resources (Saunders & Wenig, 2007) and each province has approached their responsibilities for water management in relation to their unique circumstances and social context (Cerzoni et al., 2008). Provinces maintain responsibility to protect water quality, allocate water resources, and regulate drinking water (Muldoon & McClenaghan, 2007), making them ultimately accountable for sustainable water management (Kay & Hendriks, 2009). Recent developments in water governance relate to participative governance, where civil society comprised of non-governmental organizations and citizen groups share a place with government and industry in coming to agreement on resource management issues (Ballet, Sirven, & Requiers-Desjardins, 2007). Where in the past technocratic approaches to water governance were disconnected from social concerns or environmental concerns, the public is now increasingly demanding more transparency in decision-making to address these issues (Tabara & Pahl-Wostl, 2007). This change incorporates the subsidiarity principle, which attempts to match the correct scope of power (local, municipal, provincial, federal) to policy development and implementation, and local agents are regularly implicated as being the most suitable authority to carry out certain resource management duties (Ballet et al., 2007).

Researchers have documented positive effects derived from local stakeholder involvement. These include support for democratic legitimacy and the ability to facilitate collaboration and cooperation in policy creation and action (Pahl-Wostl et al., 2007).

Public deliberation can create more widely acceptable outcomes because the process allows negotiation and resolution of multiple interests including the incorporation of local knowledge (Fitzpatrick, 2007; Loikkanen, Timojoki, & Wallenius, 1999; Nowlan & Bakker, 2010; Pahl-Wostl et al., 2007; Webler et al., 1995). The preservation and rehabilitation of watershed health requires cooperation that is challenging to achieve through exclusively top-down regulation (de Loë, 2009). Conflicts aired early on in the process in a respectful environment can contribute to preventing more entrenched and divisive conflict when environmental planning reaches the stage of implementation (Loikkanen et al., 1999). Incorporating citizen and non-state actors into decision-making puts into practice principles of democratic governance, where groups deliberate on common problems and agree to abide by the collectively chosen course of action (Sabatier et al., 2005; Sinclair, Diduck, & Fitzpatrick, 2008). In the recent past, top-down, expert driven approaches produced water engineering feats of diversion, containment and supply, and set limits on factors such as point-source pollution and aquifer withdrawals, but have been less successful in abating the current threats to water resources in Manitoba, which include illegal drainage and excess nutrients leaching into waterways (Venema et al., 2010). Non-point source pollution in the geographic context of agricultural Manitoba produces enormous transaction costs when attempting to monitor and enforce regulation (Lubell, 2005). These problems instead lend themselves to a combination of top-down and bottom-up approaches, where local goals and actions can inform and feed into better policy design and responsive regulation.

2.3 Integrated Water Resources Management

Integrated Water Resources Management (IWRM) is an approach that builds

upon coordinated, multi-stakeholder involvement for socially just and ecological sound decision making. It draws on both the designated decision-making authorities with the various interested parties that use the resource (Morin & Cantin, 2009). Mitchell (2005) makes the distinction that IWRM is not a comprehensive process. Instead it focuses on key or selected variables and relationships, but is not limited to single issue consultations (Schusler, Decker, & Pfeffer, 2003). It is goal-oriented, place-based, and context specific (Morin and Cantin, 2009; Pahl-Wostl et al., 2007; Ramin, 2004). An important strength of IWRM is the ability of the public to become involved in the early developmental stages of planning; setting goals and implementation strategies, providing an opportunity for more meaningful input (Sinclair et al., 2008).

Within IWRM, the watershed is seen as the optimal level of organization for water resources management (Morin and Cantin, 2009). A watershed is a "topographically defined area of land where the water within flows to a common point", such as a major river or lake (Manitoba Water Stewardship, nd, p.1). Watershed-scale planning permits upstream and downstream impacts to be assessed as well as land-water interactions and water quality and quantity issues within a bounded system. It also provides the opportunity to look at cumulative impacts of land use practices (Pembina River IWMP, 2010). Watershed-based management avoids the issue of planning on jurisdictions of rural municipalities, where downstream impacts can go unaccounted (Ramin, 2004), and provides a venue for cross-boundary cooperation (Mostert, Craps, & Pahl-Wostl, 2008).

Disadvantages exist in any governance approach. Nowlan and Bakker (2007) articulate some of the potential shortcomings of IWRM including the issue of scale,

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where local issues may supersede environmental concerns of a regional or national level. Scale is challenging in situations like the nutrient loading damaging Lake Winnipeg, where improving the health of the lake requires the cooperation of many smaller watershed communities to prioritize this issue and take concerted action. Other drawbacks include consensus decision-making culminating in politically acceptable solutions, rather than outcomes that are best for ecological health, volunteer burn-out over the long-term, higher costs, and unequal representation of stakeholder groups (Nowlan and Bakker, 2007). Hydrological boundaries can also be less meaningful to administrative and political agencies (de Loë et al., 2009).

In its ideal form, IWRM entails coordinated structures between local, provincial and federal scales (Cervoni, Biro, & Beazley, 2008). Jonch-Clausen and Fugl (2001) describe the integration of natural systems, comprised of the hydrological cycle of a healthy ecosystem, and the human system, made up of the myriad of human demands for water and the policy governing these social and economic decisions. By bringing the social and ecological elements together, it becomes clear that there are significant trade-offs to be made in regards to the needs and desires of the stakeholders involved, and the sustainability of the ecosystem's healthy functioning. IWRM is a process designed to deliberate on these issues.

2.4 Manitoba's Water Governance Approach

Manitoba Water Stewardship was formed in 2006 with staff from a number of other departments. The *Water Protection Act*, adopted in January 2006 provided the framework for this department and the development and financing of Integrated Watershed Management Plans. Manitoba was the only province to have created a stand-

alone Water Stewardship Department in 2006, but in 2012, the Province chose to merge Conservation and Water Stewardship into one department. The original guiding principles of the independent Manitoba Water Stewardship department promoted "watershed-based planning and management that integrates surface and ground water, fisheries, land and other related resources" as well as, "new community-based initiatives with new governance approaches built on citizen engagement" (Manitoba Water Stewardship, 2011a).

Within the *Water Protection Act*, the Watershed Planning Authority is a designation given to existing organizations to undertake a watershed management planning process. It has been primarily granted to Conservation Districts – there are 18 established CDs representing more than half of the agricultural region of the province. The boundaries of each CD are based on the watershed of a major waterway in the area or on the boundaries of rural municipalities, or a combination of the two. CDs may include a portion or the entirety of several municipalities. The Conservation District program accepts the "authority and responsibility from the rural municipality for resource management" (Manitoba Water Stewardship, nd), and their board of directors include representation from rural municipalities in the region including municipal counselors and local ratepayers, as well as a provincial appointee (Manitoba Water Stewardship, 2011b).

In addition to the primary board of directors, the CD is divided into regions by Sub-District, which may follow sub-watershed boundaries or municipal boundaries. Each Sub-District is served by a committee, with each chairperson to the Sub-District representing that region on the CD board. Sub-district membership is defined in the *Conservation District Act,* where,

"there shall be a committee for each sub-district consisting of two ratepayers appointed by each included municipality, only one of whom may be a member of the council of each included municipality."

There are stipulations for those sub-districts which contain rural municipalities with less than 15 square miles of included lands. In the *Act*, ratepayers are landowners within the CD. The issue of membership becomes a challenge where there is a desire to enhance participant diversity, but those represented on the IWMP Project Management Teams (PMT) and Watershed Advisory Teams are of a particular demographic or represent a homogenous point of view. These members tend towards older males, leaving many other demographics underrepresented. In addition to the core group representing the PMT and the Watershed Planning Advisory Teams, a Technical Advisory Team was drawn from provincial and federal government departments that held information on the ecological parameters of the watershed, or outside organizations that also studied these issues such as Ducks Unlimited. These three groups met over the course of the planning process, punctuated by two rounds of public consultation – a forum completed prior to drafting the IWMP, and then an additional meeting to review the draft before it was submitted for provincial approval.

Table 1. Key groups in the Watershed Planning Process

Planning Group	Role in Process
Water Planning Authority (WPA):	This is the group that takes on the responsibility to develop an IWMP in accordance with The Water Protection Act.
Project Management Team (PMT):	The PMT is a small group of key decision makers appointed by the WPA. All include a representative from the WPA and a watershed planner. The PMT normally meets monthly during the development of a plan. The PMT is responsible for coordinating and drafting the plan including public participation, and acting as a liaison with the Watershed Planning Advisory Team.
Watershed Planning Advisory Team (WPAT):	This group is also referred to as the Watershed Team, Watershed Advisory Team, or Technical Advisory Team. The PMT invites people who represent stakeholder groups, or people who can contribute technical information about the watershed to participate. It can include 30 to 50 people, who typically meet 3-4 times throughout a plan's development, though in some cases, as many as 12 meetings were held. (MWS, nd).
Manitoba Water Council (MWC):	The Manitoba Water Council is a senior advisory board that reports to the Minister of Conservation and Water Stewardship. In relation to the IWMPs, they are responsible for reviewing and approving the draft IWMPs. Established in February 2007, the responsibilities of the Water Council are established under the authority of *The Water Protection Act*, *Section 25* (Manitoba Water Council, nd).

There are other organizations that have been working on models of public engagement and watershed planning in Manitoba. Two of these groups are the Deerwood Soil and Water Management Association (DSWMA) working in South Tobacco Creek Watershed, and the Boyne River Watershed Action Group, working in the Stephenfield Lake watershed. Both organizations independently coordinate local conservation planning outside the CD system (DSWMA, 2011).

Under the guidance of these various groups, the watershed planning process is well underway across southern Manitoba. The Minister has approved a number of plans which are now being implemented. There are three parts to the process of developing a

watershed plan:

1. to identify and document current watershed health,

2. to create a drinking source water protection plan, and

3. to provide a management plan for other local water-related issues (MAFRI, 2011).

These steps were not necessarily completed in sequence. For example, in earlier plans the drinking source water protection plan was instead a proposed action in the watershed management plan. All four IWMP case studies reviewed in this research followed similar steps, though they did not occur in the same order. Each began with a Memorandum of Understanding with the Province of Manitoba granting Watershed Planning Authority to the Conservation District and the agreement to a Terms of Reference document describing their responsibilities. They then proceeded to gather information on the State of the Watershed and hold public meetings to gain input from local residents and organizations in the watershed. This sequence varied depending on the IWMP, and the order of events for each case study will be outlined in Chapter 4.

Although the IWMPs reviewed in this research all fulfilled the *Water Protection Act* criteria, they were all somewhat distinct in the issues they addressed and how they presented the information, demonstrating the flexibility of the process to attend to local contexts. For example, in the case of Stephenfield Watershed Management Plan, work began with resolutions from area Municipal Councils to partner with Manitoba Water Stewardship to facilitate a watershed planning process. They then developed a mission statement and Terms of Reference for the Round Table of stakeholders, defining the relationship between this committee, a Technical Advisory Group, and the provincial

Ministry of Water Stewardship. The Tobacco Creek Model Watershed was a community based initiative grounded in the extensive long-term research carried out in the planning area. The plan evolved through initial proposals, and culminated in the creating of the TWMW Community Partnership Committee in 2003, launched the watershed plan in 2004. This plan included support from all three levels of government, and similar elements to the IWMPs – a watershed resource inventory looking at watershed health, a set of priority watershed issues, and preliminary goals for research and project implementation. The TCMW plan differed in that it focused on research outcomes that would benefit both the immediate region and improve watershed management elsewhere.

2.5 Social Learning and Resource Management

Sustainable resource management requires a shift to models and activities that can adapt and respond to changing ecological and political realities (Pahl-Wostl, 2009). Ongoing environmental degradation due to human resource extraction provides "the ultimate challenge to society's ability to learn" (Finger and Verlaan, 1995, p.503). Keen, Brown, & Dyball (2005), also place learning at the centre of environmental problem-solving where sustainability ultimately relies "on our capacity to learn together and respond to changing circumstances" and, "goes beyond existing methodologies and the conventional, and problematic traditions they bring with them" (p.6). One of my research objectives has been to better understand the learning that takes place in the process of negotiating conflicting viewpoints on resource management issues. Integrated Watershed Management Planning provides a venue for learning, with the goal of social action on local environmental concerns.

In their review of social learning, Cundill and Rodela (2012) trace the history of the term through three bodies of natural resource management literature: adaptive management, collaborative management, and most recently, adaptive co-management. They also found that an emerging consensus in the literature describes social learning as a deliberative process through repeated interactions with the "sharing of knowledge and perspectives in a trusting environment" (p.11). These interactions can produce a shared understanding of a common problem, and a platform for collective action (Bouwen and Taillieu, 2004; Das and Koelen, 2002).

Tabara and Pahl-Wostl, (2007) state that learning for sustainability is social learning focused on local and global environmental problems, with the goal to mitigate or end practices that harm ecosystem health. In response to this and other articles on social learning, Reed et al. (2010) attempt to clarify the outcomes of social learning as being demonstrated by change that moves from the individual and becomes embedded in wider organizations and communities of practice, occurring within a social network. Muro and Jeffrey (2008) also offer a review of social learning literature in participatory natural resource management, specifically the work of Schusler et al. (2003) and Webler et al., (1995). They describe the endeavor as;

> "a process of collective and communicative learning...where the generation of new knowledge, the acquisition of technical and social skills as well as the development of trust and relationships may form the basis for a common understanding of the system or problem at hand, agreement and collective action" (p. 330).

As highlighted by Klivington (2010), social learning is discussed as a concept encompassing both process and outcome, noting Webler et al (1995) as using this combined definition. These authors compile both the elements that facilitate social

learning and the potential specific and overarching outcomes, modified from the original

in Figure 1. An important criterion of this model is access to information within the

planning process, where overwhelming technical information can stifle the ability of

individuals without training to fully participate (Fitzpatrick, 2007). Social learning is

enabled through a participatory setting where individual, private interests transform into a

community of social actors with commonly held goals (Muro and Jeffrey, 2008; Webler

et al., 1995).
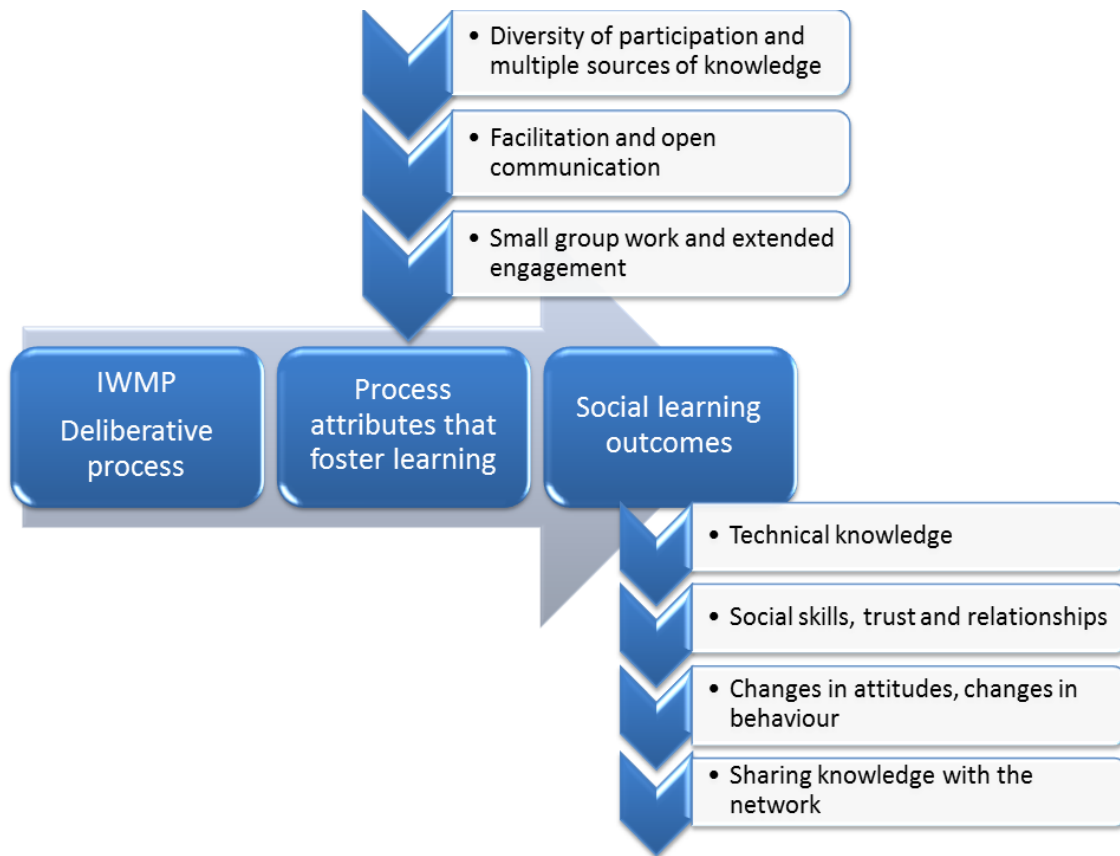
Figure 1. Attributes and Outcomes of Social Learning (Muro and Jeffrey, 2008; Reed et al., 2010; Schusler et al., 2003)

Another relevant theoretical framework that addresses these same outcomes is that of single and double-loop learning as it has been applied to natural resource management. This theory was described by Argyris (1977) in his work on organizational learning, categorizing single-loop learning as problem solving within the status quo, (doing the same things more effectively) and double-loop learning where the underlying norms, values and presuppositions of the given activity or goal are examined. It is the capacity to critically reflect on the status quo, exposing the ways these rules and theories inhibit new approaches and solutions to the problems of natural resource management (Tabara and Pahl-Wostl, 2007). Argyris also addressed the difficulty in creating the

conditions for double-loop learning where questioning deeper, more fundamental purposes is threatening to established hierarchies.

Because IWRM is an iterative process, the capacity exists for double-loop learning as goals and approaches can be evaluated and redefined based on experience over time (Kitchenham, 2008). In my research I looked for evidence that participants' experience included critical reflection on values, norms and goals. Outcomes flow from the quality of the process, both for quantifiable environmental improvements (e.g., improved water quality) and enhanced cooperation and satisfaction of participants (Pahl-Wostl et al., 2007). This relationship between process and outcome is based on "procedural rationality", where the nature of the decision is dependent on how it is facilitated (Pahl-Wostl et al., 2007, p.5). For example, Webler et al., (1995) discuss the barrier of the foregone conclusion, where participants need assurances that their input will have an impact and be valued. When stakeholders perceive that their efforts will have no bearing on the outcome or they suspect a predetermined outcome, it undermines their willingness to spend time and energy on the process (Sinclair and Diduck, 2002). Diduck et al. (2005), also used the double-loop model in studying learning outcomes in public participation processes involving the resource planning of the Winnipeg Floodway expansion. In that case, barriers to double-loop learning were seen to hinder the debate of alternative solutions, where a large engineering project appeared to be a predetermined outcome and non-structural programs were not as widely promoted.

By engaging in the discourse of governance, participants are exposed to alternative points of view that may challenge the assumptions they have of democratic decision-making, consensus, or human-environmental relationships. Participants of

Integrated Watershed Management Planning are in a position to take critical action on what they learn, affecting quality of life in their community and the health of the ecosystem. Schusler et al (2003) conclude that it is possible to design a process that encourages social learning, and based on their findings, I would argue that the IWMP process in Manitoba can be structured to better achieve learning outcomes.

In this research, I used the social learning process attributes adapted from Muro and Jeffrey, (2008), Schusler et al., (2003), and Reed et al., (2010) in Figure 1 to examine the IWMP case studies, and how their leadership teams developed the plans. Figure 1 depicts IWMP as a deliberative process which incorporates specific process attributes to foster positive learning outcomes. I derived these attributes from the common features of Muro and Jeffrey (2008) and Schusler et al (2003). Schusler et al (2003) examined social learning within a resource planning exercise for the Lake Ontario Islands Wildlife Management Area in New York State. This exercise was a deliberative decision-making process, using a search conference model.[1] They employed multiple qualitative methods to determine what aspect of the model supported learning and reported participants' learning outcomes. The authors describe each attribute in some detail, and provide a summary framework. Muro and Jeffrey (2008) used the social learning literature to reproduce a similar compound framework, with nearly identical process attributes. I included six of the process attributes which were common to both frameworks, choosing to exclude *Unrestrained thinking*, which was listed by both authors. Instead I discuss this

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[1] The search conference model brings together diverse interest groups for an extended meeting, typically 2.5 days. It is coordinated by a multi-stakeholder committee and includes facilitated plenary sessions and small group work, with 25-75 people in attendance.

element under the attribute *Facilitation and open communication*, describing how meetings were carried out and how discussion was managed.

I adopted the learning outcomes from Muro and Jeffrey (2008) in my framework. I did this because the work was more current, and offered broad categories based on multiple studies. These more general descriptions offered a less restrictive framework to guide my data analysis. While I considered the social learning outcomes presented by Schusler et al (2003), I was able to provide commentary on these topics within my chosen themes. I added the outcome, *Sharing knowledge with the network,* to incorporate the work of Reed et al (2010), who argued that to evaluate social learning, one must look at how learning outcomes become embedded in the social network. I was interested in exploring this with participants, to see whether they were able to share what they learned through the IWMP with their community and expand the reach of the plans.

The framework in Figure 1 allowed me to organize my findings and respond to my research objectives pertaining to social learning. To address objective c., I explore the process attributes that support social learning and the social learning outcomes found in my case studies. To do this, I developed an Interview Schedule (Appendix B) which contains a set of questions addressing each of the process attributes and outcomes.

Synthesizing a diversity of interests in resource management decision making can increase public support and help establish greater legitimacy (Ramin, 2004). To look at diversity, I formed questions on how participants were invited to be involved, and what demographics were represented. I then asked how multiple sources of knowledge were incorporated, specifically how participants saw the expertise of scientists and government representatives balanced with the knowledge of local participants – a key goal in the

social learning literature (Pahl-Wostl and Hare, 2004, Schusler et al., 2003). This included how technical information was presented. I then covered participants' views on how the meetings were facilitated and whether they thought there was open communication between participants and between groups. A skilled facilitator can help bring out different perspectives (Buck, 2002), also affecting how the issues are framed (Van Bommel, Röling, Aarts, & Turnhout, 2009). Finally, I posed questions on whether there was small group work, and whether there was an extended engagement through multiple meetings. These two process attributes can help participants overcome preconceived notions of their fellow group members as they interact informally, and recurring meetings provide the time to do so. (Schusler et al., 2003; Sims & Sinclair, 2008).

To look at social learning outcomes, I started with the question of technical knowledge. Natural resource management relies on scientific studies to inform decision making, and access to expertise and information in a timely manner is foundational to meaningful participation (Fitzpatrick, 2006). The IWMP process uses *State of the Watershed* reports to describe the current ecological condition of each planning region, and participants benefit from an understanding of these issues to inform their choices of goals and actions. I asked participants to report on their own learning in relation to watershed issues, and their views on how this type of information should be presented. Some examples of technical knowledge that were useful to participants included aspects of source water protection, beneficial management practices, the role of wetlands and research on nutrient loading.

Social skills, trust, and relationship building are positive outcomes of well-designed deliberative processes. I wanted to know more about how participants were able to consider the views and opinions of others, and communicate their own positions during the plans. I asked about communication skills and consensus building to get feedback on how the planning process impacted working relationships between individuals and the groups they represent.

I was interested in the connection between participating in the IWMPs, and changes in attitudes and behaviours. I asked this question directly, and made an effort to focus attention on the IWMP, as opposed to the many other learning opportunities they may have encountered. Finally, I asked how they shared what they learned with their social network.

In answering objective d, how the IWMP process contributes to social learning outcomes in the non-profit community, I focused on the impact of participation in their work, which may include new partnerships or programs, as well as barriers to participation and reaching organizational goals in relation to water resources management. In addition to the framework of social learning, I also discuss the work of Argyris (1977), looking how participants were able to problem solve within the process (single loop learning), and whether participants were able to examine underlying norms, values and presuppositions of their approach to watershed management (double-loop learning).

One important aspect of social learning is the emphasis on creating a shared problem definition (Bouwen and Taillieu, 2004), allowing the group to move forward on designing and implementing action plans that require collective effort. Another key to

setting the stage for shared learning and problem solving is an acknowledgement of mutual interdependency (Mostert et al., 2008), and the ability to understand an issue from the other's point of view (Sol, Beers, & Wals, 2013). In the Manitoban context, watershed management challenges include non-point source pollution and land use practices such as illegal drainage carried out on private property, which are extremely difficult to regulate and enforce (Venema et al., 2010). In all of the Conservation District IWMPs and alternative watershed management plans of this research, private land holdings composed the majority of land tenure, making alternatives to regulation much more attractive. Social learning is relevant to new forms of natural resources management, where the goal is multi-stakeholder buy-in and developing collective goals and actions. The social learning concept provides a way to reflect on the design of collaborative decision making processes like that of the IWMPs, which bring together a broad slate of stakeholders. It attends to the issues of democratic structure and access, by calling attention to diversity and how different sources of information are valued. Social learning promotes a process that brings interdependencies to light (Bouwen and Taillieu, 2004) and encourages a better understanding of multiple points of view (Muro and Jeffrey, 2008). Water resources management is a negotiation of conflicting interests, and social learning presents this process as an opportunity to gain a broader understanding of the issues, underlying values and attitudes, and alternative solutions.

2.6 Social Learning Outcomes in the Community

Public participation in environmental decision-making has been encouraged by various international agreements including the 1992 UN Conference on Environment and Development in Rio de Janeiro which prescribed more open and accessible opportunities

for local participation in environmental planning (Loikkanen et al., 1999). The move towards greater inclusion of interested parties is an essential feature of Integrated Watershed Management Planning (Morin and Cantin, 2009). Through participation in planning and management activities, it is possible to influence behavior, and encourage the adoption of practices that contribute to improved water resources health (Jonch-Clausen and Fugl, 2001).

This brings into question what decision-making powers remain with the upper level provincial government leadership and which are transferred to the local level. In decentralized governance, as responsibility for water resources management is increased at the watershed level, it is necessary to ensure that resources and capacity building are in line with new obligations and increased accountability (Robins, 2007). The process of implementing Integrated Watershed Planning requires those involved to review and incorporate both the technical, scientific knowledge and examine the social and economic factors at play in creating their management plan. They must then decide how recommendations in the management plan will be carried out over a ten year planning cycle (Manitoba Water Stewardship, nd).

Those who lead this process play an important role in helping interested parties develop their ability to participate in the planning and implementation of watershed management. Participating non-governmental groups and associations can act as the "bridging institutions" (Pahl-Wostl et al., 2007, p.2) or "boundary organizations" (de Loë et al., 2009, p.31), strengthening the social linkages, operating with flexibility between the political, economic, and social elements related to resource management. It is possible that these organizations are enhancing the process by providing opportunities for

learning for watershed planners and other participants. Their work is carried out through seminars, workshops, publications, articles, and public debates on issues related to the IWMP process. There are a number of organizations fulfilling this function in Manitoba, including the Red River Basin Commission who represents a diverse set of interests from both Canada and the U.S. at a basin-wide scale (de Loë et al., 2009). I would argue that another such organization is Ducks Unlimited Canada, which acts as a liaison between government agencies, their membership, landowners and the general public to conduct scientific research pertaining to ecological health of wetlands. Through their work in Manitoba, Ducks Unlimited Canada has helped add to the public debate on water management to include ecosystem services such as flood mitigation through the rehabilitation and conservation of wetlands, publicizing somewhat politically sensitive issues from an alternative viewpoint. As well, the Water Caucus of the Manitoba EcoNetwork has been active in bringing together environmental water groups in the province to work on prioritizing issues, sharing information and resources, and encouraging citizen involvement (Manitoba Eco Network, 2011). These groups provide insight on the complex social-ecological relationships that exist in the watershed context, and bring networks, expertise, and challenging perspectives to the table. Their ability to participate is essential to the community dialogue on sustainability and adaptation in the watershed context.

2.7 Chapter Summary

The movement toward decentralized water governance brings with it the opportunity for designing and implementing more open and transparent decision-making processes. The devolution of power to local representatives is widely supported as an

answer to the deficiencies of exclusively expert driven, prescriptive mechanisms for protecting water quality and preserving ecosystem functioning (de Loë and Kreutzwiser, 2007; Mitchell, 2005). Integrated Watershed Management Planning in Manitoba takes advantage of the existing place-based Conservation Districts, redrawing the lines of their work to adhere to hydrological boundaries. As Watershed Planning Authorities, these organizations are responsible for IWMPs, bringing together the multitude of stakeholder groups within the watershed to reach agreement on prioritizing resources and actions within a ten year planning cycle. The literature also indicates the potential for enhanced capacity of groups and individuals to solve local socio-ecological problems through participation in the IWMP, as well as learning for sustainability; the resulting shift in perspective and behaviour as participants interact with peers and experts (Pahl-Wostl and Hare, 2004; Schusler et al., 2008).

Chapter 3 – Research Methods

3.1 Critical Social Science

In choosing the research strategy and methods most appropriate for my thesis topic, it was important for me to consider the nature of the subject matter, as well as the epistemological stance that I bring to the research. My previous work in the environmental non-profit community has shaped my sense of agency, citizenship and responsibility, and contributed to my understanding of political and social advocacy. This personal starting point has led me to explore Critical Social Science (CSS) as a research paradigm. CSS is a more recent theoretical position focusing on broad societal issues with an overarching goal of helping "people change conditions and build a better world for themselves" (Neuman, 2000, p.74). CSS promotes research outcomes that have the potential to transform social relations. It emerged in part as a response to Interpretive Social Science, which deals with more subjective inquiry into human behaviour and beliefs. In opposition to Positivist rigidity or Interpretivist relativity, Critical Social Science takes the view that social structures are variable, but there are real objective relations that shape them (Neuman, 2000). I would argue that my chosen topic of water governance is a complex social and ecological issue, concerning relations of power and influence, and individual and social change. There is an imperative to come to sustainable, equitable solutions regarding our relationship to this essential and violable natural resource, and I see this research topic and goals, as well as my personal worldview, aligning with CSS.

3.2 Qualitative Case Study

Beginning with CSS as a research paradigm, a number of qualitative research approaches are available, including case study, which involves describing and interpreting the context and activities of actors, bounded by time (Denzin, 2005, Creswell, 2009). It is an, "intrinsic study of a valued particular" which seeks to understand experiential knowledge of those who are direct participants and observers of the phenomenon (Denzin, 2005, p. 455). The use of case study is appropriate when the research question involves the 'how' or 'why' of a phenomenon, is current rather than historical, and does not require control of behavioural events (Yin, 2003). My research took place within a current, real-world decision-making process involving participants directly affected by the planning outcomes. This context specific research is suited to case study research as the framework of water governance is unique to iterations of the planning process. A case study of the watershed management planning process in Manitoba will be of use to other communities dealing with similar issues and scholars and policy makers, by providing a detailed analysis of a particular approach to governance being applied at the local level. I also wanted to consider the criteria for "critical case study" put forward by Corocan (2004), where case study involves deep understanding of process and actors. In this approach, one problematizes the issues facing communities or institutions struggling with human-ecological interactions and sustainable outcomes, and in doing so, produce detailed process information, which could be of great use for one's audience.

In order to fulfill the "thick description" inherent in case study research, the practice of triangulation is prominent in the literature, which suggests using multiple data

collection methods *(*Denzin, 2005). These multiple sources are one of the strengths of this research strategy, which can incorporate both quantitative and qualitative research methods (Yin, 2003). Yin (2003) describes six commonly used methods – these are documentation, archival records, interviews, direct observation, participant observation and physical artifacts. Of these methods, I included document review and semi-structured interviews. Although I would have chosen to include direct observation of PMT, WPAT or public forum meetings, there were no opportunities as none of the participating case studies held IWMP meetings over the course of my data collection.

3.3 Case Selection

Because this research is part of a national project on emerging Canadian water governance models, it is already bounded in space and time, and I chose a particular set of cases to contribute to this work. Choosing to examine multiple cases immediately impacts the depth of the case analysis, given the time constraints of graduate level research. Yin (2003) discusses rationales for single-case studies, and of these, I considered criteria for what are exemplary case studies, including significance, 'completeness', consideration of alternative perspectives, and display of sufficient evidence. I chose to work with four Conservation Districts completing IWMPs as well as the Deerwood Soil and Water Management Association working in South Tobacco Creek Watershed. An additional model was brought to my attention during the course of my field work as a successful process outside the IWMP format, so I decided to interview participants of the Stephenfield Watershed Management Plan in addition to my five initial cases. I chose to examine communities that completed their initial public participation events, and had completed a draft IWMP allowing participants to witness

the progression of the plan from start to finish, with multiple opportunities for local participation and interaction between group members. Of these, I deemed it important to look at a range of start dates since the IWMP process has changed over time. Leaders within the process have used the experiences of more advanced watersheds in how they implemented later plans, resulting in some changes to the process.

Finally, I considered the willingness and hospitality of the chosen CDs, and how they responded to my invitation to take part in my research (Denzin, 2005). During my research, a colleague at the Natural Resources Institute was finishing a thesis which evaluated public participation in the IWMP process with the Pembina River and Netley-Grassmere watersheds. Therefore, I chose to exclude these two IWMPs. I also consulted with this student to help guide my case selection. During my research another colleague, Prateep Nayak, was also collecting data on the IWMPs for a research paper, and we collaborated on a focus group with the Turtle Mountain Conservation District.

Based on my criteria and limited case number, I invited those who took part in the following IWMPs to engage in my research: East Souris River (2003), La Salle River (2006), Birdtail-Assiniboine (2006), Willow Creek (2010), along with the Deerwood Soil and Water Management Association working in South Tobacco Creek Watershed, and the Round Table of the Stephenfield Lake Watershed Management Plan (now the Boyne River Watershed Action Group), which deals with the Boyne River watershed. Figure 2 depicts the boundaries of the four Conservation Districts with whom I worked, and all six watersheds that are the subject of this research.
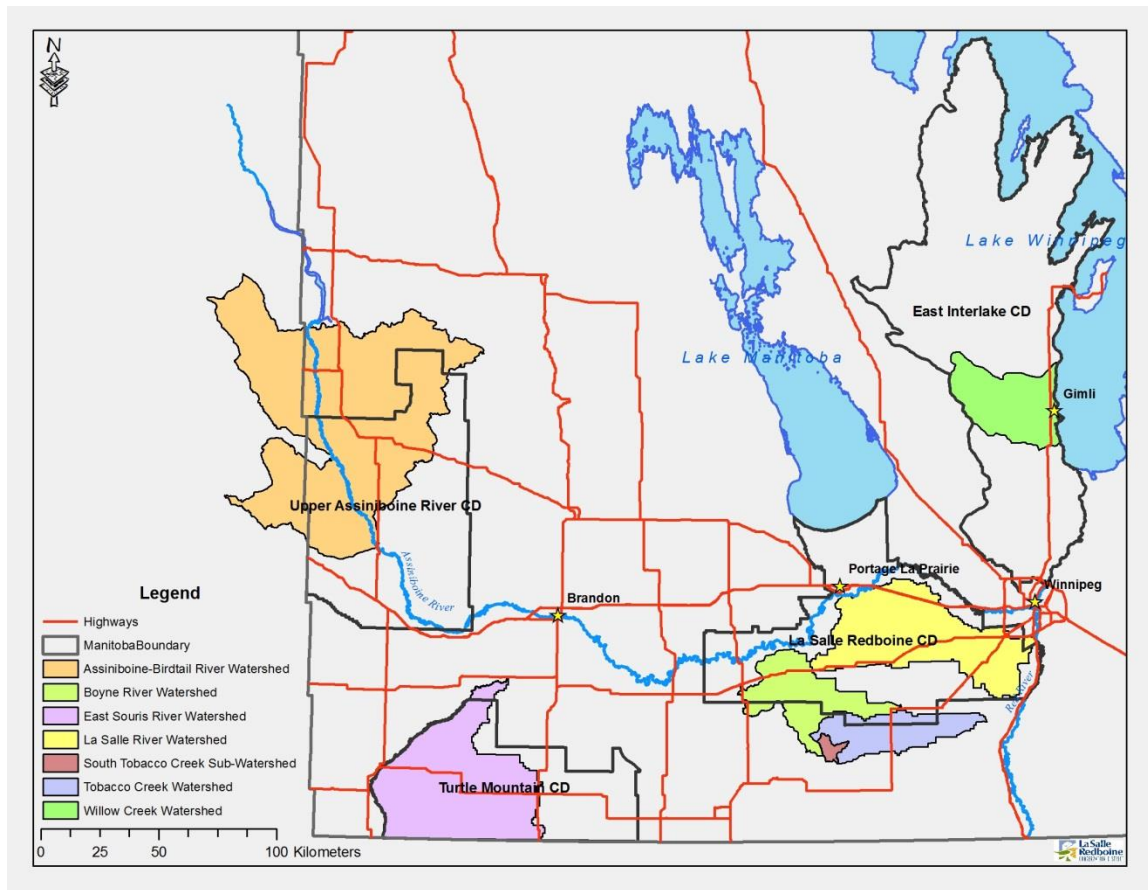
Figure 2. Case Study Conservation District and Watershed Boundaries (unpublished). La Salle Redboine Conservation District. Used with permission.

In Figure 2 , one can see the difference between the watershed and CD borders, and that CDs such as Turtle Mountain use both municipal and watershed boundaries to define their area of authority. The East Interlake CD was established in 2005, uses watershed boundaries and encompasses four distinct watersheds in their region. The South Tobacco Creek Sub-watershed in pink was the original site of much of the work and research carried out by Deerwood Soil and Water Management Association, though their current plans reflect the greater Tobacco Creek Watershed, which continues west in blue.

3.4 Literature and Document Review

One of the methods discussed by both Creswell (2009) and Yin (2003) is in-depth document review. In my research context, document review following these approaches was used relevant legislation and regulation, and the materials created throughout the IWMP process. These documents included newsletters and educational publications, interim reports, and website content which was available on many CD websites. I included the Memorandum of Understanding agreements designating the lead organization as Water Planning Authority (WPA), the Terms of Reference between the WPA and the Province, the final watershed plan and any drafts that were available, minutes and/or summaries of proceedings and comments from public meetings, goals and progress reports, PowerPoint presentations, as well as State of the Watershed reports and report cards. These documents provided a record of how planning took place from the perspective of the planning group, either the CD or an alternative group. I was able to review this information before entering the field and used this data to compare and contrast with interview findings.

When reviewing these documents, I looked for evidence of factors which foster social learning including records of the types of meetings held, how participants were selected, their ideas recorded, and how drafts of documents changed to reflect public input. I sought documents that provided clear, accessible information on the technical and socio-economic issues at the watershed level, which would in turn enhance participants' factual and technical knowledge, and enable more informed debate. I also looked for evidence of double-loop learning, where established hierarchies or conventional practices were challenged and debated in the final plans or records of participant views. This type

of deeper learning can be demonstrated through examples such as plans for non-structural programs dealing with flooding, or plans to continue public education in ways that encourage dialogue and relationship building across sectors – instances where actions and responses to watershed issues were expanded and diversified through the IWMP process.

Some of the benefits of this data collection method are the ability to deal with complexity, the use of theory-guided analysis, and the integration of context and a wide range of materials (Kohlbacher, 2005). These sources are stable; they contain exact details and can be unobtrusively sourced, as many are publically available (Yin, 2003). There are known characteristics of poor document review, including compression and incomplete analysis (Elos and Kyngäs, 2008). To avoid these pitfalls, it was necessary to be as thorough in my source document selection as possible and spend the necessary time with the texts.

3.5 Semi-structured Interviews

In choosing semi-structured interviews, I considered that I wanted to uncover the personal experiences of those involved in IWMP, and record the impressions, new knowledge and outlooks of these participants. I approached Conservation District staff and board members and provincial employees with Manitoba Water Stewardship as key informants in carrying out my analysis of the new governance model they are implementing. To respond to my questions on learning outcomes and involvement of participating organizations, I gathered information through interviews with participants involved in the Watershed Planning Advisory Team, including members of local organizations. These teams consist of representatives from community groups and local associations, as well as unaffiliated residents of the watershed. I conducted at least four

interviews for each selected Conservation District or alternative model. Starting with staff members of the Conservation District, I requested the contact information for individuals and organizations that played a larger role in the planning process, and put together a list of participants based both on these recommendations as well as drawing from those individuals whose names were indicated in the draft or final IWMP. I also spoke with members of non-government organizations acting in a supporting role during the IWMP process. These organizations were from the case study watersheds, but also those acting in multiple watershed regions.

Key players in the development of the IWMPs were Conservation District managers, Watershed Planners from Manitoba Conservation and Water Stewardship, the Project Management Team members, and individuals from community based organizations and environmental organizations. These participants:

- attended multiple meetings to coordinate the completion of the IWMP;

- attended technical presentations on aspects of watershed health in their region;

- attended and helped facilitate public participation events and reviewed written submissions from the public;

- and drafted, reviewed and commented on the IWMP final report.

As mentioned previously, I based my interview schedule on my literature review (see Appendix B). My questions related to participants' experiential knowledge of the planning process, their learning outcomes and their perceived influence in the emerging governance model. These interviews were recorded electronically using a pocket-sized recording device and transcribed verbatim by the researcher. As in all human subject research, interview questions were assessed and approved by the Ethics Review

Committee at the University of Manitoba, and I made every effort to ensure the anonymity of the interview respondents by coding data and storing all recorded interviews and notes in a secure location. All interviews were carried out with full voluntary and informed consent, and interviewees were advised of how the interview content would be stored and used. Appendix C includes a copy of my Ethics Approval form.

I transcribed each interview verbatim from my recordings, choosing to not include verbal pauses, such as "um" or "ah" to enhance clarity. I identified direct quotes by the name of the watershed region they represent, for example ES for East Souris and a number to indicate separate individuals. Manitoba Water Stewardship staff is represented with MWS, and the representative of the Manitoba Water Council is MWC. This is done to protect the privacy of those interviewed, while indicating to which plan they contributed. Staff members of participating non-governmental organizations are indicated by the letters NGO. I included the Manitoba Habitat and Heritage Corporation in this category, although it is not an NGO, but rather a non-profit crown corporation.

Table 2. Case Study Interviews and Focus Groups

Plan or Stakeholder Group	Participants
East Souris IWMP	Focus group, past CD manager
Assiniboine-Birdtail IWMP	5 PMT members
La Salle River IWMP	4 PMT members
Willow Creek IWMP	Focus group, 2 PMT members
Deerwood Soil and Water Management Association	5 Board members, local CD manager
Stephenfield Lake Watershed Management Plan	Focus group, local CD manager
Non-governmental organization staff members	5 staff members
Manitoba Water Council	1 member
Manitoba Water Stewardship Planners	5 planners

Table 2 lists the 30 interviews and 3 focus groups conducted over the course of four months, January to April, 2012. The focus groups took place in conjunction with Conservation District Boards during regularly scheduled meetings. A number of these Board members were also on the Project Management Teams. I included interviews with non-governmental organizations that contributed to the plans, to gain their perspective on how they were able to participate, how it impacted their work, and what they learned through their involvement. Many of the individuals in this group of research participants held multiple roles in the IWMP process; some were CD managers before working with Manitoba Water Stewardship, and some moved into other provincial or federal government departments, crown corporations, or NGOs. Many of the Project Management Team members were Reeves or Municipal Councillors, and some were retired from these roles. This gave each of the interviewees a unique perspective on the process, and they spoke about their experiences over time, including planning processes that occurred prior to or in addition to those conducted under the Water Protection Act.

Many individuals I interviewed continue to be involved in the implementation of the IWMP or watershed management plan in their communities. Labeling the interviews as non-governmental organization representatives, or Manitoba Water Stewardship staff is therefore simply referencing an individual's current position at the time of the research.

3.6 Data Analysis

Elos and Kyngäs, (2008) describe the incremental process by which researchers engage with the data and elaborate on the characteristics of poor analysis, including compression and incomplete analysis. To achieve more complete analysis, my data were coded then revisited numerous times in an iterative process to achieve "accurate description and subjective, yet disciplined, interpretation" (Denzin, 2005, p. 445). These individual coded observations were examined and interpreted against multiple themes and issues related to social learning as identified in the literature review (Denzin, 2005). I used *Q NVivo 9* qualitative analysis software to organize themes around both the factors of social learning, and the learning and capacity building outcomes substantiated in the transcribed interviews. I found it worked well to use two broad categories, process and outcome, and within these, the sub-themes from Figure 1. Additional themes emerged as participants addressed the urban/rural and government/citizen identities, and common sentiments on the relationship between these social divisions.

3.7 Participant Workshop

Following my data analysis, I helped organize and carry out a participant workshop to provide a venue for further feedback and verification of my preliminary findings. This was done in partnership with the Water Caucus staff of the Manitoba

EcoNetwork, and fellow NRI researchers also examining water governance issues in Manitoba. This workshop consisted of day-long gathering, June 18, 2012 at the Fort Garry Hotel in Winnipeg, MB. There were three speakers on watershed issues from British Columbia, Prince Edward Island, and Manitoba. These speakers were followed by presentations on our research, and I, Dr. John Sinclair, who stood in for David Huck, and Prateep Nayak, Post-doctoral student, all provided presentations. We used the afternoon for small group discussion and reporting back to the larger group. The presentations and discussion summaries were made available on the Manitoba EcoNetwork Water Caucus website. This forum provided a venue for data verification, but also for shared learning. Invitations were sent through multiple channels including the Water Caucus email list, and personal invitations to stakeholder groups from case study watersheds of all researchers.

Chapter 4 – Case Descriptions

4.1 Introduction

In this chapter, I provide background information on each case study. These descriptions are based on publicly available information on the Conservation District websites, Provincial government websites, and a number of supporting documents collected from staff and Project Management Team members. I then related these sources to the information I gathered from my interviews to attain a more nuanced view of the planning processes described. I was interested in comparing older plans with newer plans, as well as with the alternative planning approaches used in the watershed plans of Tobacco Creek and Stephenfield Lake. For each case study I use the following format:

- Watershed map

- Watershed size and main geographic features

- Watershed demographics and conservation issues

- Description of the planning process

Three of the IWMP case studies were part of the first group of watershed plans initiated under the Water Protection Act in 2005; East Souris, Assiniboine-Birdtail, and La Salle River. These early plans represent an approach emphasizing the need for technical input. Here, the first steps in planning involved collecting information from staff in the provincial and federal government departments in order to identify gaps and define the most pressing environmental issues in each watershed region. The challenge of bringing together multiple departmental staff in developing the IWMP created new tasks and expectations of cooperation where none existed in the past. This is a positive outcome of

the initiative and an important contributing factor to social learning within the groups involved in each local plan.

The four provincially approved Integrated Watershed Management Plans have incorporated a similar structure – first creating a Project Management Team, and a Watershed Team (also referred to as a Watershed Planning Advisory Team or Technical Advisory Team), then inviting the watershed residents at large to participate in the plan development through public engagement events and written comments and to review the draft plan before it was submitted for provincial approval. The PMT was composed of the CD manager or managers if Watershed Planning Authority was shared between two Conservation Districts, the MWS Watershed Planner, and additional CD board representatives. In the case of the East Souris IWMP, the PMT included a staff member from Ducks Unlimited. The Terms of Reference for each IWMP normally suggested who should be on the Watershed Planning Team, which could be as many as 30 people. The two alternative model management plans have some organizational differences, which will be discussed in the case summaries.

Each plan involved reaching out to the watershed community for their input on priority watershed issues and proposed solutions. These discussions were informed by the legislative requirements and technical experts as part of the work of the Watershed Planning Advisory Team (WPAT). In later plans like Willow Creek, the sequence was reversed, and initial meetings with the public were conducted before meeting with the Technical Advisory Team. This change was made to reduce the work load for provincial and federal government department staff by targeting information requests (M1 interview), but also served to put greater emphasis on leadership from local residents in

defining issues and priorities. These types of alterations are evidence that the process is changing in response to, in this case, the constraints in the time and resources of the participating provincial government departments.

4.2 East Souris River Watershed

Figure 3. East Souris River IWMP Planning Area. From East Souris River Integrated Watershed Management Plan, Manitoba Watershed Stewardship Division, Province of Manitoba. Retrieved from http://www.gov.mb.ca/waterstewardship/iwmp/east_souris/east_souris.html. Reprinted with permission.

4.2.1 Watershed Size and Main Geographic Features

The East Souris River plan was the first IWMP completed under the Water

Protection Act legislation. The watershed is located in the southwest region of southern Manitoba along the international border, with North Dakota. The watershed contains the Turtle Mountain Provincial Park in the southeast corner. It covers an area of 2,922 km^2, and is composed of farmland and remnant native habitat areas including the Whitewater Lake, and riparian areas along the Souris and Blind Souris rivers (TMCD, 2006). The IWMP reports a 5.6% decrease in wetlands between 1985 and 2003 (TMCD, 2006). The East Souris watershed is part of the larger Souris River watershed, which extends into Saskatchewan and North Dakota (TMCD, 2006). It is normally one of the driest regions in the province though it is also an area that experiences periodic flooding (TMCD, 2006).

4.2.2 Watershed Demographics and Conservation Issues

There were an estimated 4,267 residents living in the East Souris Watershed at the time of the IWMP in 2006, with slightly more than half of the residents living in towns and villages, and the remainder living in rural municipalities (TMCD, 2006). There had been a 14% decline in population in the 15 years leading up to the plan (TMCD, 2006). Agriculture is the primary industry, with farming in the area trending toward larger farms of fewer numbers (TMCD, 2006).

This CD was formed in 1973 as the Turtle Mountain Resource Management District, and re-established as the Turtle Mountain Conservation District in 1978 (TMCD, 2012). Some of their major programs include abandoned well sealing, salinity seed assistance, public education, remote watering systems, small dam construction, and wildlife habitat preservation (TMCD, 2012). The Turtle Mountain CD uses municipal boundaries for the external borders of the District, but re-aligned the west boundary along

the Souris River to reflect a watershed boundary shared with the West Souris Conservation District in 2004. The internal Sub-District boundaries are based on watersheds (TMCD, 2012).

Local risks to water resources and aquatic ecosystems in the watershed include unplanned drainage, insufficient knowledge of surface and ground water quality, chronic flooding and erosion, as well as increasing salinity (TMCD, 2012).

4.2.3 Planning Summary

The TMCD board began to look at watershed planning in 2002, before any Provincial watershed planning legislation or directives were in place (TMCD, 2006). The manager and board of directors identified a need at the time to revisit the mandate and programming of the organization, and bring new ideas to the table (E1 interview; TMCD, 2006). The Project Management Team for the East Souris IWMP was composed of the CD Manager, a staff member from Ducks Unlimited, and a Watershed Planner from the Provincial government. This group was tasked with drafting the plan based on input from the WPAT and the results of public consultation meetings. Invitations were sent out in late 2002 to 73 organizations and government departments, of which 47 chose to participate in some way (TMCD, 2006). The East Souris IWMP WPAT was formed in 2003, and met 12 times during the planning process. Public Open Houses were conducted in November and December of 2004 in seven communities including Boissevain, Medora, Hartney, Melita, Souris, Waskada, and Deloraine, with 99 recorded participants in total (TMCD, 2006). Those attending the meetings were asked to prioritize issues, using "dotocracy", where participants are given a limited number of stickers, in this case five, and asked to place them next to issue topics, providing a visual representation of the

priorities of the group. Where attendance was very low, there was facilitated discussion and attendees were asked to complete a written survey. The Public Meetings Results document provides a record of the types of issues of concern to local residents, as well as some of the possible solutions they proposed. At this point in the IWMP development, the focus of the public consultation was on watershed concerns, rather than the type of "visioning" work done in later IWMP planning processes, where participants were invited to offer aspects of the watershed that they valued, and what they wanted the watershed to become in five, ten, or twenty years in the future (M2 Interview). The East Souris IWMP included a *Resource Summary* document, completed in 2005.

The PMT completed a draft in 2005, and conducted a further seven public open houses to review the document, although no documentation of these meetings was available from the current CD manager and staff. In speaking with two of the three PMT members, they both could not specify the attendance numbers of these meetings. The draft plan was then submitted and approved by the Conservation Minister in January of 2006. All this work was completed before signing a Memorandum of Understanding with the Province of Manitoba, as the Turtle Mountain Conservation District was only designated Watershed Planning Authority for the East Souris watershed in April, 2007. They created the Terms of Reference for the IWMP following its approval. In later plans, a MOU and Terms of Reference documents were produced prior to public consultations or the formation of the Technical Advisory Teams. The East Souris IWMP was approximately three years in planning, and one year for Ministerial review and approval. In a newsletter article promoting the completed IWMP, the TMCD manager cited five benefits to the plan, including demonstrating to the government that local people are in

charge of managing their own resources (Gamache, 2007). This sentiment is restated in other plans, and provides a foundation for strong divestment of responsibility to CDs and their boards for implementation of watershed solutions.

4.3 Assiniboine-Birdtail Watershed
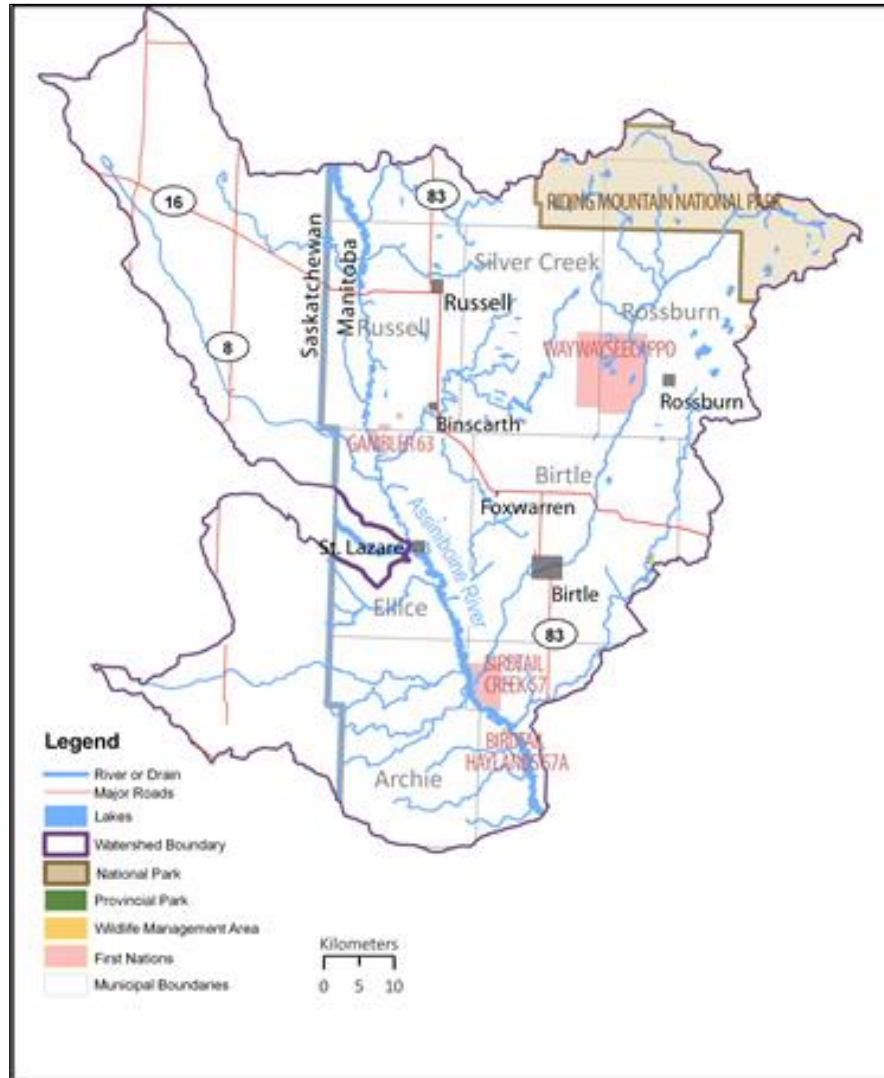
Figure 4. Assiniboine-Birdtail IWMP Planning Area. From The Assiniboine-Birdtail Integrated Watershed Management Plan, Manitoba Watershed Stewardship Division, Province of Manitoba. Retrieved from http://www.gov.mb.ca/watersteward ship/iwmp/birdtail_assiniboine/birdtail_assiniboine.html. Reprinted with permission.

4.3.1 Watershed Size and Main Geographic Features

This watershed is approximately 6,800 km^2. It extends into Saskatchewan, with approximately 1/3 of the total area outside the province of Manitoba. The northern region is composed of a Boreal Forest ecosystem that transitions to Aspen Parkland in the south (BASWR, 2008). The area is less developed than the agricultural regions of southern Manitoba, with just over a third of the watershed in annual cropland, the rest being forage and native grassland, trees, wetlands and water, with 2.2% of the area urban/transportation (BASWR, 2008).

4.3.2 Watershed demographics and conservation issues

The Birdtail-Assiniboine watershed has approximately 8,700 residents. Agriculture in the watershed is primarily cattle and oilseeds, canola and cereals, with larger, specialized operations in the southern part of the region. As in other parts of Manitoba, the number of total farms is declining, while the average size of each farm is increasing (BASWR, 2008). A portion of Riding Mountain National Park is located in the north-east corner of the watershed, composing a large part of the publically owned lands, which include community pastures and wildlife management areas (BASWR, 2008). The Upper Assiniboine CD and Lake of the Prairies CD both offer abandoned well sealing, riparian stewardship and alternate watering systems program support for residents, though each offers additional specialized programs for their respective region.

Local risks to water resources and aquatic ecosystems in the watershed include erosion from increased drainage, levels of phosphorus that exceed Provincial guidelines as well as high total suspended solids in waterways (BASWR, 2008). The plan also identified loss of natural habitat, including wetlands, drinking water quality from surface water, and abandoned wells.

4.3.3 Planning Summary

The Assiniboine-Birdtail watershed was one of a group of four watersheds initially considered for a joint planning process in 2006 between the Upper Assiniboine, Lake of the Prairies and Little Saskatchewan Conservation Districts. This was a new approach designed to share technical resources and streamline planning. It was later decided that a separate planning process would be conducted for each of the four watersheds, given the differing socio-economic and environmental factors (ABIWMP, 2009).

The Conservation Districts serving the Assiniboine-Birdtail watershed are relatively new to the CD program, with the Upper Assiniboine River Conservation District (UARCD) established in 1996, and the Lake of the Prairies Conservation District formed in 2001. In 2006, these two CDs were given joint Watershed Planning Authority for the Assiniboine-Birdtail watershed (ABIWMP, 2009). The PMT had 9 members, with representation from both the Upper Assiniboine CD and the Lake of the Prairies CD. The PMT included both CD managers, board members, as well as two staff members from Manitoba Water Stewardship. The Watershed Planning Advisory Team was formed soon after, and met 10 times between late 2006 and the end of 2007. The list of invitees is recorded in the final IWMP document, and contains over 260 groups. The number of participating organizations was a much smaller group, and varied from meeting to meeting (U1 interview). In this planning process, the Watershed Planning Advisory Team convened between 2-6 technical presentations from government departments and other agencies at each of their meetings (UARCD, 2012b). All of these presentations were made available on the UARCD website for download. In addition, video recordings were

made of each meeting and website visitors were invited to contact the CD office to obtain DVD copies.

The Assiniboine-Birdtail IWMP followed the original planning sequence proposed by Manitoba Water Stewardship, which involved bringing together individuals from government departments and other technical experts on watershed issues to create a State of the Watershed Report before reaching out to the public for their input. They completed the State of the Watershed Report in early 2008, which contained a summary of the resource and environmental management issues for the region based on available data and expert advice. The two CDs also produced an eight page information sheet for distribution to the public summarizing sections of the Report on soils, habitat, and drinking water protection. Each of these documents invited residents to participate in the planning process.

Following the decision to carry out a separate planning process for each watershed in the region, a Project Management Team for the Assiniboine-Birdtail replaced the original four-watershed PMT in the summer of 2008. It consisted of five local residents, the Conservation District Manager from Lake of the Prairies and Upper Assiniboine CDs and a Watershed Planner from Manitoba Water Stewardship. This group oversaw seven public open houses held in November and December of 2008, which garnered the participation of 30 watershed residents in the communities of Birtle, St. Lazare, Rossburn, Angusville, McAuley, Binscarth, and Russell. This was a disappointing turn-out for the PMT. Those who attended were asked to rank their top three watershed concerns and solutions and to describe the future watershed with these solutions implemented (ABIWMP, 2009). The PMT facilitated small group discussion,

where each group prepared a collective list of these topics. Each meeting was digitally recorded for later review and preparation of the report on public concerns. The results were presented in both individual and group categorization tables and available for download on the UARCD and provincial IWMP website. Information from the public consultation was incorporated into the draft IWMP, though through participant interviews, there was some disagreement on the priorities of the WPAT and those of the public who chose to share their opinions, and will be discussed further in Chapters 5 and 6. Finally, the draft IWMP was shared on-line, and print copies were circulated throughout the watershed region through municipal and CD offices. According to the CD manager, the draft IWMP was presented at meetings with the Sub-District committees to discuss their feedback. No public meetings were held in the second round of public consultation, and no summary report was available recording comments received.

As recorded in the IWMP document, staff turnover in the position of Watershed Planner slowed the planning process in their region. The IWMP plan also mentions delays in the compilation and submission of technical data to support the plan. This latter issue was reiterated when interviewing a participating agency staff person, where Provincial departments appeared reluctant to provide information in a timely manner (N5 interview).

4.4 La Salle River Watershed
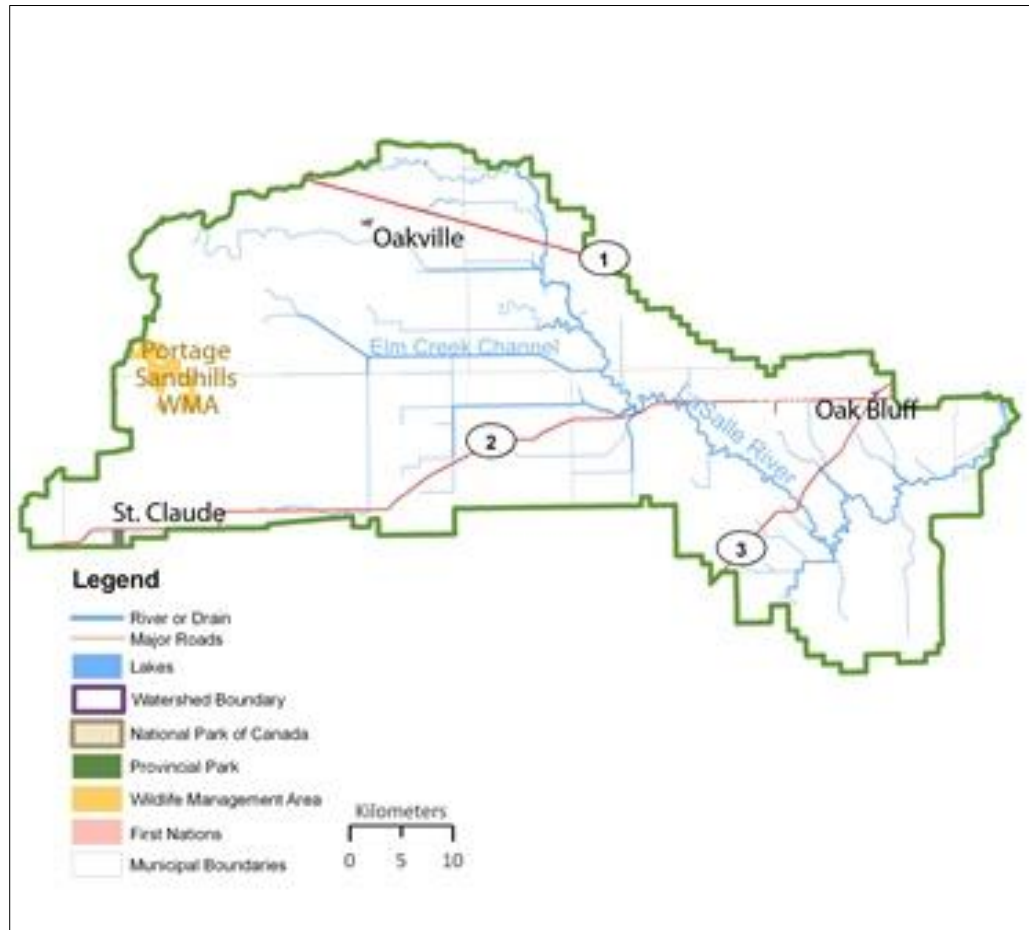
Figure 5. La Salle River IWMP Planning Area. From La Salle River Integrated Watershed Management Plan, Manitoba Watershed Stewardship Division, Province of Manitoba. Retrieved from http://www.gov.mb.ca/waterstewardship/iwmp/la_salle_river/la_salle_river.html. Reprinted with permission.

4.4.1 Watershed Size and Main Geographic Features

The La Salle River watershed is located within the boundaries of the La Salle Redboine Conservation District and is approximately 2400 km^2 (LSRIWMP, 2010). It contains two distinct land features: the Lower Assiniboine Delta region, characterized by higher elevation and sandy soils, and the Red River Valley region, with clayey soils and poor drainage. These two features are separated by the Lake Agassiz Beach Ridge, which

marks the descent to the historic lake bottom, an area of high agricultural productivity (LSRIWMP, 2010). For agricultural purposes, this watershed is one of the most highly drained areas of the province (LSRIWMP, 2010). The aquatic assessment of the La Salle River watershed evaluated the majority of riparian areas as highly to severely damaged by human influence.

4.4.2 Watershed Demographics and Conservation Issues

The La Salle River watershed includes a number of rural communities with a total population of with 14,000 residents (LSRIWMP, 2010). The watershed is also represented by 5 planning districts, and has a number of Hutterite Colonies in the region. The La Salle Redboine Conservation District was established in January 2001, and is divided into eight Sub-Districts and involves 49 Sub-District members (Manitoba Water Stewardship, 2007). The Sub-District boundaries follow both watershed and municipal boundaries. Their program offerings include grassed waterways, off channel watering systems, cover programs, rotational grazing systems and pasture pipelines (LSRCD, 2012).

Local risks to water resources and aquatic ecosystems in the watershed include degraded riparian areas, nutrient loading, and uncoordinated drainage activity. Water quality is also a concern, with local waterways measuring below Water Quality Index standards (LSRCD, 2012).

4.4.3 Planning Summary

The La Salle Redboine Conservation District was designated Watershed Planning Authority for the La Salle River watershed in March of 2006. The Project Management Team was composed of four members; two board members of the La Salle Redboine CD,

who were also Reeves of municipalities in the watershed, the CD manager and the Watershed Planner, of which there were two over the course of the plan. This small group met frequently, and monthly in the final stages of planning (L1 Interview). Invitations were sent out to 62 organizations to contribute to the IWMP as part of the Watershed Planning Advisory Team, and 16 federal and provincial government departments and environmental non-government organizations. These included Ducks Unlimited, the Manitoba Habitat and Heritage Corporation, and the Delta Marsh Field Station, that were invited to participate as science and technical support agencies, or the Technical Advisory Team as it is referred to in other plans (LSRIWMP, 2010). During the first year, from June 2006 to January 2007, the CD staff prepared a State of the Watershed Report with the assistance of twenty-two agencies, including 9 branches of the provincial government (LSRIWMP, 2010). Between 2006 and 2009, the WPAT met at least 8 times, though there was a break in the planning flow in spring 2008 due to staff turnover at both the CD and provincial level, and meetings with the WPAT resumed the following spring.

In March of 2007, the first public consultations were held to identify priority issues and to propose activities. A consulting firm based in Brandon, MB facilitated these meetings and produced a report on the proceedings and outcomes. The public meetings were two hours in length, and held in five communities: Elie, Oakville, Sanford, Elm Creek, and St. Claude, with a total of 99 citizens in attendance. All five meetings started with two presentations, one from a staff member from Manitoba Water Stewardship on Integrated Watershed Management Planning process, and a presentation on the La Salle River Watershed by the CD manager (Bulloch, 2007). Participants then gave their feedback on watershed issues that should be addressed by the IWMP in their region,

followed by small group discussion to select the leading three to five issues of those proposed by the individual members (Bulloch, 2007). The final two activities were to identify solutions for the chosen issues, and respond to a visioning question regarding the future of the watershed (Bulloch, 2007). Outreach was conducted with Hutterite Colonies in the La Salle River watershed, and a separate meeting was arranged November 30, 2006 in Elie. Letters of invitation and reminder phone calls went out to 15 colonies. This meeting was intended to provide information on the IWMP process, the planning timeline, and how their input was needed as well as respond to any questions.

The first draft of the plan was reviewed by the Watershed Planning Advisory Team in fall of 2007, which was then offered for public review in the spring of 2008. Where participants in the first round of public consultation on the IWMP provided their mailing address, letters were sent out to invite them to these gatherings. The second round of public meetings were held in two communities, Starbuck on June 16th, and Elie on June 17th for 1.5 hours. A PMT representative provided a welcome and introductions, and participants broke into assigned table groups and reviewed the proposed goals and actions based on the criteria of "achievability and effectiveness" according to the printed meeting agenda.

Specific meetings were conducted with rural municipalities in October 2008 on drainage infrastructure, and in February of 2009 a second draft was completed. This final draft was submitted for provincial approval in October 2009 (LSRIWMP, 2010). Some of the apparent delays in the planning process can be partially attributed to staff turnover at the provincial level, as there were three Watershed Planners assigned to the watershed over the course of its completion (L1 interview). This caused some frustration with

members of the Project Management Team. They speculated that it may have impacted the public perception of the efficacy of the planning process and reflected poorly on the organization (L1 interview). In the La Salle River IWMP, no committee members or organizational contacts are mentioned by name, unlike the other three IWMP cases. The sequence of events in this plan reflect the original intent of the Manitoba Water Stewardship staff; to gather information from experts within government and non-governmental organizations to inform the WPAT and PMT of important watershed issues and solutions, with subsequent public meetings. It is the only case which used a professional facilitator to conduct the public engagement piece.

4.5 Willow Creek Watershed
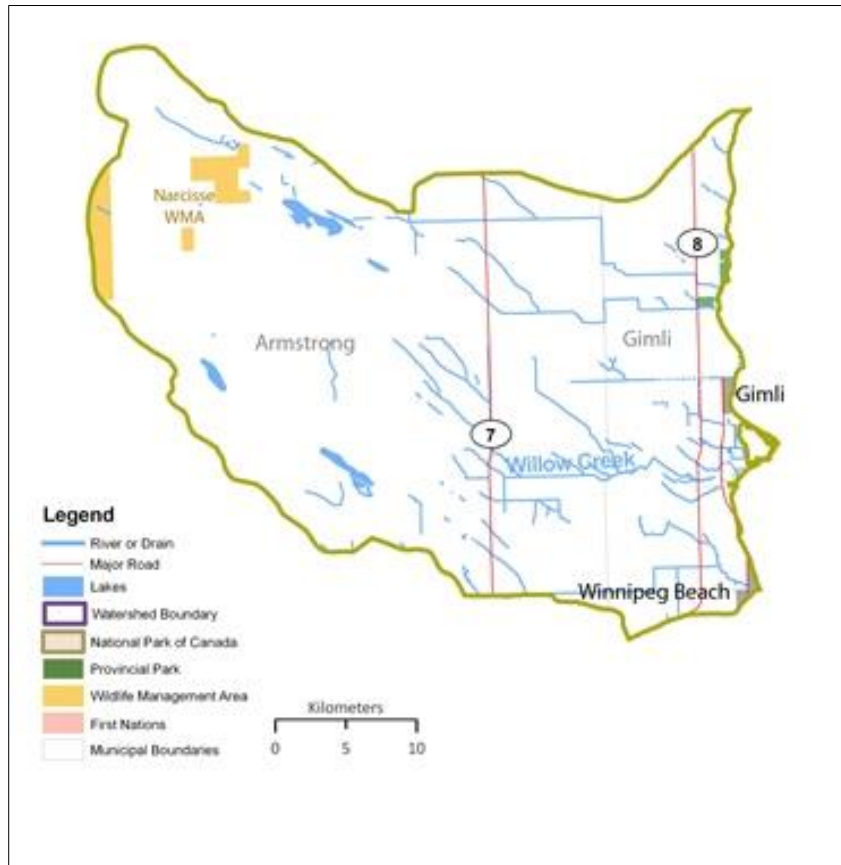
Figure 6. Willow Creek IWMP Planning Area. From Willow Creek Integrated Watershed Management Plan, Manitoba Watershed Stewardship Division, Province of Manitoba. Retrieved from http://www.gov.mb.ca/waterstewardship/iwmp/willow_creek/willow_creek.html Reprinted with permission.

4.5.1 Watershed Size and Main Geographic Features

This watershed is situated in the Interlake region of the province, the area of land north of

the capital region between Lake Winnipeg and Lake Manitoba. It covers 1,210 km^2 and

40 km of Lake Winnipeg shoreline. The Watershed contains areas of poorly drained soil

which help form many small lakes and wetlands, and Fish Lake and Dennis Lake, which

are both large lake complexes (EICD, 2012). The watershed has a ridge and swale

topography with water flowing towards the south east, although water movement has been altered by roads and drainage construction.

4.5.2 Watershed Demographics and Conservation Issues

There are approximately 7000 residents in the watershed, with many cottagers and summer tourists visiting the area to recreate along the waterfront (EICD, 2012). Much of the watershed remains uncultivated, and is instead used for livestock production and forage crops (EICD, 2012). There is some annual crop production, and specialty operations (EICD, 2012). A quarter of the watershed is crown lands totaling 28,000 hectares, of which 15,000 hectares are available for agricultural use, and 5,242 hectares are managed federally as community pasture, although this land tenure is changing due to Federal divestment of pasture lands to the province at the time of this research. There is also a productive commercial and sport fishery, industry, aggregate and peat mining, and residential developments.

The Willow Creek watershed is completely contained within the boundaries of the East Interlake Conservation District, and includes the municipalities of Chatfield, Narcisse, Meleb, Arnes, Fraserwood, Malonton, Sandy Hook, and Gimli, and all or part of the Rural Municipalities of Armstrong, St. Andrews, Rockwood, and Gimli (EICD, 2011). The East Interlake Conservation District is the Watershed Planning Authority for the Willow Creek IWMP, designated in December 2008 (EICD, nd). The EICD covers 7,113 km^2 and has 55,000 residents (CDC, 2011). This is a relatively new CD, incorporated in 2005 and formed along watershed boundaries. There are four major sub-watershed districts within the CD, two which flow into the Red River, and two which flow into the south basin of Lake Winnipeg. Each sub district has a board of

representatives who allocate funding and resources to projects within their region (EICD, 2011). These regions are Fisher/Washow Bay, Grassmere/Parks Creek, Icelandic River/Willow Creek, and Netley/Wavey Creek. The EICD offers a variety of initiatives in five programming areas including water quality, surface water management, watershed planning, soil and riparian health, and conservation education. These specifically include riparian management, a well inventory and sealing abandoned wells, benthic invertebrate monitoring, culvert assessment and inventory, and water quality monitoring (EICD, 2011).

The Willow Creek is the third IWMP developed by the East Interlake Conservation District, and it is highlighted in the Executive Summary of the Willow Creek plan, that "efforts have been made to complement and link actions in this plan to the actions in both of these neighbouring watershed plans for ease of implementation" (EICD, 2012, p. 1).

Local risks to water resources in the watershed include contamination threats to the Carbonate aquifer, a major drinking water source. As well, unmanaged drainage and fluctuating lake levels (of both the lake complexes and Lake Winnipeg) have produced extensive annual flooding during the late 2000s. Nutrient loading has also impacted surface water quality.

4.5.3 Planning Summary

EICD was designated Watershed Planning Authority for the Willow Creek watershed in December, 2008. They then formed an eight member Project Management Team, and began public engagement meetings the following spring (EICD, nd). The Project Management Team conducted a public survey in Gimli July 24, 2009, and a

public open house in Fraserwood August 10, 2009. They collected 63 surveys at this outreach event, and 46 residents participated in the public open house. These two public participation activities were recorded through survey forms, notes, and worksheets, which used to list and rank watershed issues in the creation of the IWMP. The public survey was conducted to engage those members of the public who would not normally choose to engage in a more conventional public open house. The date was strategically chosen to occur at the main post office in Gimli, and coincide with the delivery of the local paper on a week day morning (N5 interview). All the public input is published in a *Public Issue Summary* document on the EICD website, including verbatim comments from each participant.

Between August 2009 and July 2012, the Project Management Team consulted the Watershed Advisory Team, made up of representatives from a variety of government departments, both Federal and Provincial, as well as producer groups, non-profit organizations, and environmental non-profit organizations. The PMT coordinated a watershed tour on October 27th, 2009 with invite only participating. This event included a discussion of the issues identified by the public. The Project Management Team met regularly to guide the drafting of the plan, and at the time of writing, is completing the final steps of the public review of the draft plan. They will be mailing out postcards to all watershed residents to request that they review the plan and send in their comments, and there are no plans to hold open houses. They do intend to hold public meetings following Ministerial approval, of which the date is uncertain given the lengthy approval periods of previous IWMPs.

4.6 Tobacco Creek Model Watershed
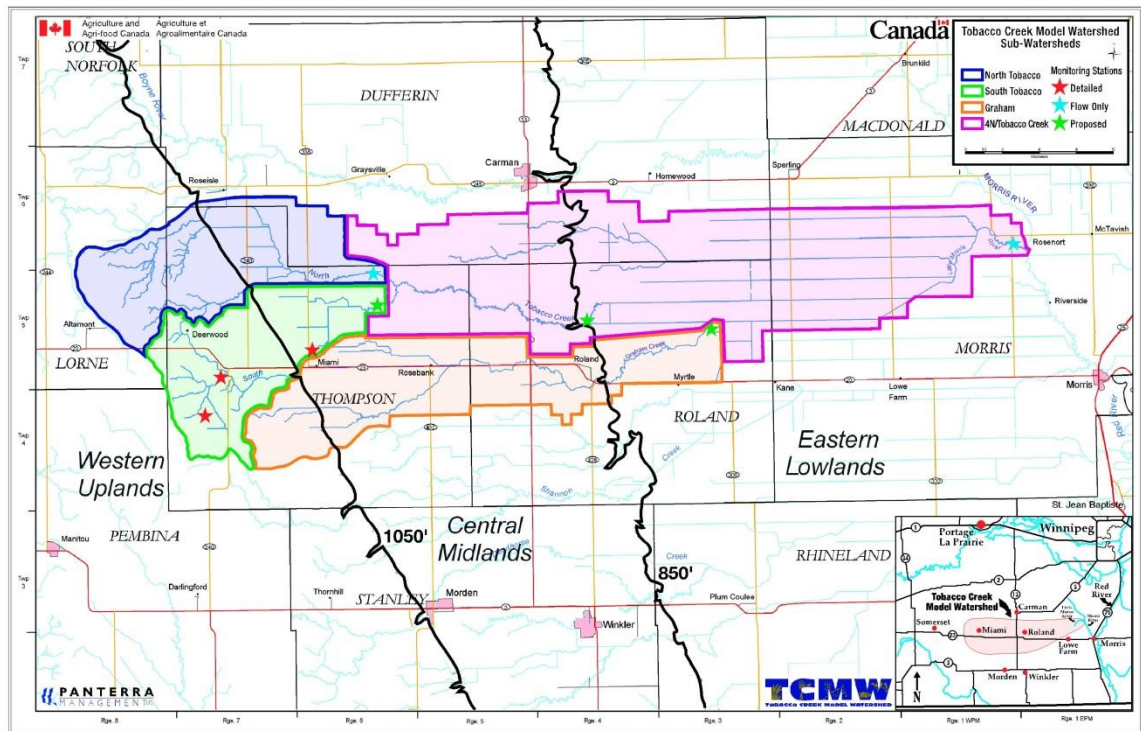
Figure 7. Tobacco Creek Planning Area. Tobacco Creek Model Watershed, 2013.
Retrieved from http://tobaccocreek.files.wordpress.com/2011/06/3-
tcmwsubshedsfinal.jpg. Reprinted with permission.

4.6.1 Watershed Size and Main Geographic Features

The Deerwood Soil and Water Management Association (DSWMA) was formed

as an informal farmer's group in the early 1980's focused on gaining new information on

production techniques (Neudoerffer, 2007). The organization currently serves an area of

980 km^2, of which 75 km^2 (7,638 ha) makes up the South Tobacco Creek watershed

(Hope, Harker, & Townley-Smith, 2002). The watershed spans the Manitoba

Escarpment, Aspen Parkland, and Lake Manitoba Plain ecoregions. Most of the land

(83%) is in annual crops, with very little grasslands and forage cover and tree cover is

limited (TCMW, 2004). Natural drainage patterns have been replaced by artificial drains

to increase agricultural lands (TCMW, 2004).

4.6.2 Watershed Demographics and Conservation Issues

This watershed is 100 km southwest of Winnipeg, and falls within the Rural Municipalities of Lorne, Dufferin, Morris, Roland and Thompson. The total population is approximately 3500, with the main rural centres being Miami and Roland. The local economy is primarily agriculture and agricultural industry (TCMW, 2004). Farms within the watershed range between 30 hectares to several thousand hectares and include land ownership by private, corporate entities and Hutterite colonies (Hope et al., 2002).

Local risks to water resources and aquatic ecosystems in the watershed include erosion and sedimentation due to the dramatic topographical descent from the Manitoba Escarpment in the west, to the lower plains in the east of the watershed. Flooding events have impacted agricultural production and municipal infrastructure. There is the perception that these problems are due to water from upland drainage practices (TCMW, 2004).

4.6.3 Planning Summary

In 1984, DSWMA began by holding information sessions with agricultural researchers, and between 1985 and 1994, they were awarded two five year agreements of combined federal and provincial funding to carry out soil and water management activities. Part of this funding was used to construct 50 small headwater retention structures on the upper Graham and Tobacco Creeks. Of these small dams, 26 are located in South Tobacco Creek, and have been monitored, recording their efficacy in reducing peak flows during storms and spring snow melt (TCMW, 2004). The DSWMA has involved all 42 landowners within South Tobacco Creek, who submit detailed annual records of their farm operations to contribute to long-term data collection supporting

research in the watershed. This accumulation of data is a valuable research base for future projects, and a number of studies have been conducted in partnership with Canadian universities. Between 1993 and 1998, the DSWMA worked on six major studies, including Hydrology, Pesticide, Nutrient and Sediment, the DFO Nutrient and Sediment Study, the Manured Watershed Runoff Study and the Farm Fly project (Neudoeffer, 2002).

Following ten years of stable funding, the federal-provincial program support for local organizations like DSWMA ended, and they were invited into negotiations to be involved in the growing Conservation District program (Neudoerffer, 2007). In 2002, meetings were held between DSWMA and the provincial department of Intergovernmental Affairs, who at the time administered the Conservation Districts program, but the two parties were unable to come to an agreement for the transition of DSWMA into a CD, as they wished to retain their "present status and independence" in relation to scientific research assets and research partnerships (DSWMA, 2002).

In 2002, DSWMA hired a communications professional who launched a website and created promotional materials to help inform the public and elected officials of the work they had accomplished (Neudoerffer, 2007). That year, DSWMA was successful in attracting private foundation funding as well as becoming a national demonstration site for an Agriculture Canada project called WEBS: Watershed Evaluation of Beneficial Management Practices (Neudoerffer, 2007). They also used part of the foundation grants to work on the Tobacco Creek Model Watershed (TCMW), representing a new phase of community involvement and research for DSWMA. They were able to draw on the relationships built over time with government departments, local municipalities,

universities, and non-governmental organizations. The new boundaries extend the original study area of South Tobacco Creek westward, to include parts of five Rural Municipalities; Morris, Dufferin, Roland, Thompson, and Lorne (TCMW, 2004). The TCMW "Community Partnership Committee" had two representatives from DSWMA and each of these five municipalities, and a representative from the Pembina Valley Conservation District and the La Salle Redboine Conservation District (Neudoerffer, 2007). This expanded region has 3,500 residents and contains three sub-regions of the Prairie Ecozone, the Manitoba escarpment, Aspen Parkland, and the Lake Manitoba Plain (TCMW, 2004). The TCMW launched in early 2003, Deerwood received the SDIF Open Category funding in 2003-2004 for $25,000 to assist the organization to develop the Tobacco Creek model watershed as a living watershed laboratory to address interrelated agricultural and environmental issues (TCMW, 2004).

The steering committee carried out community consultation meetings in Lowe Farm, Miami, and Roland, to gather local views and concerns on watershed management issues (Neudoerffer, 2007). The watershed plan was published December, 2004 as the "Tobacco Creek Model Watershed: Water Strategy Blueprint". Since its completion, the WEBS project was finalized and published, and funding for the TCMW was secured from the Canadian Water Network (CWN). In 2011, a call for research proposals went out from the CWN, with $600,000 of support available for successful candidates. The role of the DSWMA has changed from lead organization to one supporting the work of research partners, which is seen by the TCMW leadership as impacting the dynamic of the organization, and potentially affecting the utility of the research being conducted for the local agricultural community (D3 interview).

DSWMA has been sustained by the continued involvement and support of local leadership, including a volunteer board of directors, and long-term staff members, who remained committed to the organization despite periods of unemployment between grants (D1 interview). The four founding members of the organization continue to be involved, and up until recently, they had retained their original technician. Unlike CDs, the DSWMA was not a designated Watershed Planning Authority for the South Tobacco Creek region, or the expanded Tobacco Creek Model Watershed. Their initiative focused on research to support agricultural production, as well as agricultural policy and included the explicit goal of improving net farm income, in addition to conservation actions (TCMW, 2004). None-the-less, their work is directly related to watershed planning.

4.7 Stephenfield Lake Watershed
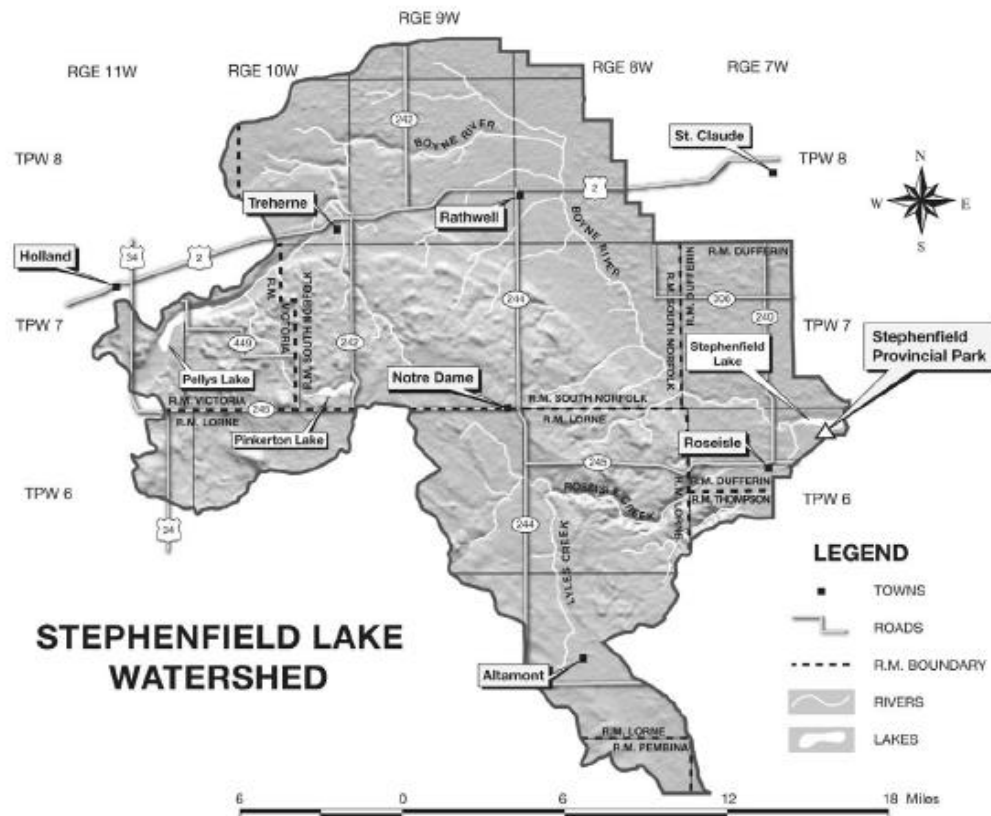
Figure 8. Stephenfield Lake Planning Area. From Reports, Studies, Plans and Publications, Water Stewardship Division, Province of Manitoba. Retrieved from http://www.gov.mb.ca/waterstewardship/reports/watershed/stephenfield_wmp_2005-06.pdf. Reprinted with permission.

4.7.1 Watershed Size and Main Geographic Features

The Stephenfield Lake watershed is 960 km^2, 100 km southwest of Winnipeg, the provincial capital. Stephenfield Provincial Park and public campground is located in the watershed. Its main feature is the man-made reservoir built in 1963, damming the Boyne River. It is used primary as a water supply source and for irrigation, as well as recreational activities. The topography includes the Manitoba Escarpment in the west, and lacustrine plains (lake plains) in the eastern region (SLWMP, 2005). Soils range from

loamy sands to clay loam with high agricultural capability (SLWMP, 2005).

4.7.2 Watershed Demographics and Conservation Issues

The watershed region was home to 3885 residents at the time of publication of the watershed plan in 2005. It contains the communities of Treherne, Rathwell and Notre Dame de Lourdes, though most of the population lives in the rural area (SLWMP, 2005). The majority of the land is in agricultural production, at 81% of the land cover (SLWMP, 2005). Other industries include manufacturing and construction, as well as services, tourism and recreation.

Local risks to water resources and aquatic ecosystems in the watershed include an upward trend in total phosphorus (TP) concentrations and a marginal increase in total nitrogen (TN) from agricultural and urban runoff. Another concern has been winter fish kills in Stephenfield Lake, due to nutrient loading.

4.7.3 Planning Summary

Planning for the Stephenfield watershed began in late 2001 initiated by Manitoba Water Stewardship, in "response to concerns regarding water quantity and quality" (LSRCD, 2012). In the spring of 2002, local municipal leadership agreed to support the creation of a Round Table to bring together local stakeholders to address these issues (SLWMP, 2005). A 20 member group was formed, and drafted the plan through a series of meetings, approximately once per month from April 2003 to November 2004. That same spring, a 17 member Technical Advisory Group was formed, representing provincial and federal government departments. This group produced a technical background report on a watershed inventory and concerns in support of the planning process (SLWMP, 2005). The Project Management Team in this case included two

Planning Coordinators from Manitoba Water Stewardship. Since the Water Protection Act was not yet legislated, the Round Table Terms of Reference include their intention to apply the Manitoba Water Policies in their planning work.

An initial public discussion of the draft Stephenfield Lake Watershed Management Plan was held at the Rathwell Memorial Hall on the evening of February 7, 2003. An informational open house took place earlier in the afternoon at Treherne Collegiate (Carmen Valley Leader, 2003). From these meetings, along with written submissions, over 200 comments were collected, and reviewed by the Round Table (L3 interview). The draft plan was completed in January 2005 and distributed to local residents through libraries, schools, and municipal and provincial offices (SLWMP, 2005). A postage paid survey was included in the draft plan approximately 1800 copies were made available to area residents. Local citizens were encouraged to contact a Round Table member with their input, attend a public meeting held Februrary 2005 in Rathwell, MB, or send comments through the La Salle Redboine Conservation District website, although the majority of the comments were gathered prior to the draft plan.

In June of the following year, 2005, the watershed plan was completed and submitted to Manitoba Water Stewardship for approval. The 20 member Round Table group remained active, renaming the working group as the Boyne River Watershed Action Group. They have been meeting quarterly and continue to work on implementing the actions of the management plan through their member organizations and the local Conservation Districts of La Salle Redboine and Pembina Valley (LSRCD, 2012).

4.8 Comparing Case Study Features

These case descriptions demonstrate the similarities and the unique features of each planning process. Some of the details also reveal how IWMP has changed in Manitoba, and how successes or challenges of earlier plans informed the approach in subsequent iterations. CDs have experimented with elements of the process from the size and constitution of the planning teams, to the type of public outreach tools they created, to the sequence of planning. In Assiniboine-Birdtail and La Salle River IWMPs, the PMT consisted of board members representing the sub-districts, while Willow Creek also brought in a citizen Chairperson in addition to those on the board. In the case of Stephenfield Lake, the Round Table of 20 members included a mix of industry groups, CD representatives, and those who officially represented municipalities. In the Deerwood Soil and Water Management Association, the group existed for many years prior to the latest iteration of the watershed plan for the area, and many local producers have been members and directly contributed to the work of the organization including long term data collection from their own farming practices. The leadership of DSWMA has been a core group of dedicated members, and their involvement dates back to the early 1990s (Neudoerffer, 2007). Each of the planning processes required a certain level of commitment from those in leadership roles, on the PMT or those heavily involved in the WPAT. In the case of the alternative plans examined here, commitment over time was even more apparent, with members attending organizational meetings over the course of a number of years without compensation. This lack of financial compensation was explicitly written into the Stephenfield Lake plan. Where the two alternative plans were based on local interest, an overt need in the watershed and available resources, they

succeeded in securing this long-term involvement.. In the realm of IWMP, although they were CD-led, they had to bring the local community and WPAT members on-side as the process unfolded.

The four IWMPs reviewed here concentrated their efforts to engage the pubic with the first round of consultations, with less of an emphasis on reviewing the draft plan. Each IWMP provided a report of the outcome of community consultation meetings which was made available for download from the Manitoba Conservation and Water Stewardship website. Only one round of consultation is required in the legislation governing watershed planning, and this may have contributed to how the groups allocated their resources. When discussing how the PMT managed public input on the draft plan, it was difficult to find this information where no records were filed. Given that the planning took place over five years ago for three of the four IWMPs, it was also hard for participants to recall the details of how draft comments were gathered. The WPAT teams of government staff, municipal contributors and in some cases, producer groups or NGO staff, attended meetings designed to both gather input and provide a foundation for decision making. The number of meetings of the WPAT, and the public consultations varies with each case, and has also changed over the course of IWMP creation. As discussed in Chapter 5, the number of WPAT meetings ranged from ten in the case of East Souris and Birdtail-Assiniboine, 8 recorded meetings for La Salle River, and 2 meetings in the Willow Creek IWMP. Staff members at Manitoba Water Stewardship refer to these as 1st generation plans, started between 2006 and 2008, and 2nd generation plans, which were carried out thereafter. Because the WPAT teams are composed of the same technical staff from the provincial and federal governments, multiple demands were

placed on their time as more and more IWMP processes began across the province. For this reason, WPAT meetings have been reduced to 2 or fewer (E. Shay, personal communication, April 10, 2013). Only one in-person WPAT meeting is held when it is decided by MWS staff and the PMT that further input on the draft IWMP can be made in writing without a face-to-face meeting. This is a distinctive change between earlier and later processes, and may have an impact on how the WPAT as a whole learns about other factors affecting the localized watershed. This would be especially true for local residents invited to participate on the WPAT.

According to participant interviews and documentation, La Salle River IWMP included meetings with specific constituencies such as local Hutterite colonies. This was a way to reach out to groups in the community that may not have attended public meetings, and an important task in informing local groups that the process was taking place and their involvement was invited. The drawback to having separate meetings is that it does not foster cross-group learning and dialogue between divergent perspectives. Not all case IWMPs had attendance records available for all meetings held during the process. Each case study IWMP published the names or simply the departments or organizations that contributed to the plan. As part of each IWMP, goals and actions were developed, and groups or government departments were also named here, providing a measure of accountability to how the plan would be implemented. This represents another level of involvement and investment in the plans. Interview participants spoke about how these goals and intended outcomes had become more concrete and specific between older and newer plans.

Overall, there have been changes in how the IWMPs are carried out, although it was clear from speaking with MWS staff that each WPA has flexibility within the legislated requirements of the IWMP and the Terms of Reference they adopt to make decisions about the organizations they invite to participate and the public consultations they hold.

4.9 Manitoba's Watershed Planning Process in the Canadian Context

The approach taken by these CDs and resource management groups has similarities to the way watershed governance is handled in other parts of Canada. There are a number of resources that look at the role of IWRM initiatives across Canada which are useful to compare the current planning model in Manitoba. Nowlan and Bakker (2010), discuss four examples of watershed management from British Columbia, Quebec, Alberta and Ontario that incorporate shared decision making. Like Manitoba, all watershed plans created in these provinces are given final approval by a Provincial Minister, and all have an enhanced role for local residents to participate.

In Ontario, Conservation Authorities have been responsible for leading Integrated Watershed Management planning, and have taken on new planning responsibilities in creating Source Water Protection Plans (SWPP) in recent years to protect municipal drinking water. Simms, Lightman, and de Loë (2010) look at case study examples from across Canada, and describes the work done in Ontario. Conservation Authorities manage the SWPP Committees which include local, municipal and regional government, as well as members of non-profit and industry groups (Simms et al., 2010). As in Manitoba, there are a number of components to the plan, including Terms of Reference, creating or accessing supporting reports and the plan itself. In both Manitoba and Ontario, where

there is no Conservation District or Conservation Authority to carry out the planning process, plans are not completed, leaving many regions without watershed planning capacity.

In Alberta, Watershed Management Plans are similar to those done in Manitoba in that they are created through multi-stakeholder committees with planning authority designated by the provincial government. There are eleven Watershed Planning and Advisory Councils in Alberta currently in place, and their role is to address watershed issues through assessment and planning. Their membership is also like that in Manitoba, with all levels of government, industry groups and non-profit committee members participating. In looking at examples of their public outreach strategy, the WPAC in northern Alberta, the Mighty Peace Watershed Alliance, conducted similar open houses to gather input and develop watershed priorities in 21 communities. These meetings garnered similar levels of participation as those held in Manitoba, with attendance ranging from 0 to 50 participants with an average of 9 (Norris, 2013). The provincial government approves their Terms of Reference and the final watershed plan upon completion. It will be valuable to see how these types of multi-stakeholder committees are able to carry out the implementation of the goals and activities outlined in the watershed plans, and whether the groundwork of public engagement has a positive impact on their success. One difference in Alberta is that they have formed new organizational structures, rather than relying on an existing platform, as is being done in Manitoba and Ontario through their Conservation Districts/Authorities.

The province of Quebec has also adopted watershed planning, using Master Plans for Water and Watershed Agreements (Simms et al., 2010). Watershed Agreements are

completed by Watershed agencies with membership consisting of local government and non-government organizations (Simms et al., 2010). These Agreements can be legally binding, and include detailed implementation plans including budgets and responsible parties, whereas Manitoban plans are tied to provincial funding, but rely on voluntary commitments from partnering organizations named in the IWMP (Simms et al., 2010).

In Ontario and Quebec, the membership of the above watershed agencies is laid out in the enabling legislation. In Ontario this means that one third represent municipalities, one third are commercial interests, and the remaining members are to include environmental, health, and interests of the general public (Nowlan & Bakker, 2010). They also are required to involve Indian Band Council members if their reserve territories are within the watershed in question (Nowlan & Bakker, 2010). In Quebec, membership is to be "balanced" with representation from government, Native, municipal, economic, environmental, agricultural and community sectors (Nowlan & Bakker, 2010). For the Manitoban IWMP process, the legislation gives the provincial government the authority to prescribe the Terms of Reference for the creation of the IWMP. The Terms of Reference for the IWMP case studies included stipulating membership by listing the positions from the CD board and Municipalities that would make up the PMT, and suggesting the types of provincial staff departments who should be involved in the WPAT.

The Manitoban IWMP is not atypical of the evolving watershed planning model in Canada, and follows Ontario in using existing Conservation organizations to complete the work. This may be an advantage over creating new organizations, given the successful history of completed projects of the CD program (Roy et al., 2009).

Chapter 5 - Social learning and the Planning Process

5.1 Introduction

Berkes (2009, p.1699), in his consideration of social learning and its role in natural resource management, describes it as both essential "for the cooperation of partners and an outcome of the co-operation of partners". My research examines both the process and outcomes of watershed planning in Manitoba at the current juncture of an evolving practice. In this Chapter I look at process factors that support social learning using the framework presented in Chapter 2. This framework is based on research by Schusler et al. (2003), Muro and Jeffrey (2008) and Reed et al (2010), and is used to examine process conditions that foster social learning in multi-stakeholder decision making and explore how they are reflected in Manitoba's IWMPs. These include: facilitated dialogue and open communication, working in small groups, extended engagement, diversity in those who participate, and drawing on multiple sources of knowledge. I consider each of these interrelated process conditions in the following sections.

5.2 Facilitation and Open Communication

For the cases I examined in this research, the organizing parties relied on internal leadership to facilitate meetings between stakeholder groups; the PMT, the CD board, provincial and federal departments. While one case IWMP chose to use professional consultants to facilitate public forums, most used members of the PMT to present information and lead discussion during these public meetings. Interviewees outside the staff of Manitoba Water Stewardship shared their views on the role of facilitation in the

planning process, and how a skilled facilitator could benefit the tone and direction of group decision-making.

> "The meetings, the processes that I have been a part of, the facilitator seems to be key. If you have a good facilitator, you end up with a good product at the end. To be able to keep a meeting on time, on target, on topic, while still letting some comments go, but for some of these topics you get into ranting, and to some extent it is good to let them get a few things off your chest, but if you get too far down the rant, then it's not helping, it's not helping the overall goal of the meeting. (LS, Interview 3)".

> "We seemed to have a good agenda for each get together, and people kept coming, so that was very important (SL, Focus group)".

> "Because it was a controlled discussion, we weren't at each other's throats, and we didn't lose our tempers too much, or swear at anybody, such as because of that control, you probably heard a little more than you might otherwise have done if you were on full on attack. But at the end the day, it still didn't move me to a point where I was cheerleading for the drainers, they didn't make the case nearly strong enough (AB, Interview 3)."

When asked what type of training or preparation an interviewee in the role of Conservation District manager had received for facilitating meetings, one individual responded with a wish for more support in this regard, and reiterated the importance of this work.

> "I've got some, but yes, not a lot I guess. Probably all Watershed Planners could use more of that. I've seen processes where you have a professional facilitator. I've seen other public meetings where, you know it's gone really bad. I was asked to be a moderator for a big public meeting out in Whitewater, where there was a bit of a controversial situation out there with flooding and you know they thought, they really had to bring somebody from outside (DW, Interview 6)."

The importance of having a moderated discussion was something that came through in many interviews, and no participants mentioned any conflict situations that became uncontrolled. For those in leadership positions; the chair of the PMT, the CD manager, and the Watershed Planner, their role was to facilitate discussion to support other important process features including open communication, and the ability of all

participants to offer their ideas, ask questions, and provide substantial input to the

deliberations taking place.

> *"Did you feel like there was an egalitarian atmosphere at these meetings? Do you feel like everyone had a chance to talk?*
> "The ones that I have been a part of – definitely. The opportunities were there, not everyone takes the opportunity. There were plenty of opportunities at the meetings, they will say, you've got any questions? Any questions, comments, concerns? This is up on the screen, what do you think, what do you think? There's ample opportunity for someone who has something to say, to actually get up and say it, and be recorded as having said this, or this concern or this comment. So it's very well done that way. There's not a lot of opportunity to come out and for someone to go through it, and say why are we doing this? I didn't get a chance to comment on this (LS, Interview 3)."

What is interesting about the comment above is the theme of due diligence found in a

number of responses across cases, where by providing participation opportunities for

individuals and organizations, they minimized the likelihood they would be accused of

being closed to input or undemocratic in their approach after the plan was finalized.

> "I think as long as you can prove that you invited a particular group to participate, if they refuse to and they don't like the results, hey, it's not on us. I mean, we bent over backwards to make you part of the process, of where and what is going on, and what we're coming up with, then we can't really be blamed for, you know, the outcome that you are not happy with, right? (DW, Interview 6)

> *"So, are you starting to realize the benefits of involving the larger stakeholder groups into the process?*
> "I think when you do that people realize they have an opportunity to have your voice heard, and if they don't take that opportunity, I think there is, people don't have that sense of righteous indignation, because they had the opportunity. Maybe that is fairly recent history, so maybe after 20 years, then they're going to go back to having the righteous indignation even if they didn't take the opportunity (ES, Focus group)."

This view of creating open communication to prevent negative responses provided an

additional argument for IWMP leadership to work towards greater inclusion and

accountability. It also drew attention to the threat of communication breakdown between

parties, especially those whose cooperation was integral to the successful implementation

of watershed management plans.

> "I know, you shouldn't complain if you don't vote. Fisheries, they came out to ours, the Federal Department of Fisheries and Oceans lately has sort of refused to take part in these IWMPs, because they feel they weren't - they went to them and they invested in them and they weren't getting what they wanted out of it, they sort of felt that they were being ignored and so, they said there was no point in participating. Maybe that's something to think about. When you go, it could be a charade, you get invited all your comments are there but at the end of the day in the report there's nothing that you want in there so, it's gotta hurt (DW, Interview 6)."

This last quote may point to the issue of foregone conclusion, where their

contribution was encouraged and facilitated, but participants perceived they had little

influence over the actions and goals in the final plans. This perception can be a serious

barrier to sustaining involvement (Sinclair and Diduck, 2002), and counter to open

communication, where the process by which decisions are made is transparent to all

parties. The "due diligence" attitude described above may also impede future

participation, whereby assuming the type of meetings they facilitated and their invitation

to participate were adequate, it could IWMP leaders from addressing the needs of certain

groups like aboriginal communities or Hutterite colonies who may require additional

outreach or alternative participation methods to enable access. This may also be the case

with individuals or groups who wished to, but did not have the resources to attend

meetings.

From the perspective of Manitoba Water Stewardship, when asked how meetings

were facilitated, staff members emphasized the value they placed on facilitation training

within their department in support of the IWMPs. They referred to on-going professional

development for their staff, discussing how they experimented with different tools, and

changed their approach based on their perceived successes and failures. Some of the MWS staff had years of prior experience in working with multi-stakeholder groups and representing stakeholder groups, so they had witnessed dialogue during meetings that was confrontational and unproductive. The MWS staff participated as members of the Project Management Team for each IWMP, contributing to meetings and representing the interests of the provincial government. With sensitivity to the contentious nature of the issues, MWS staff described how they attempted to guide discussions to dispel potential conflict. There was the concern that the meetings with the larger groups of the Watershed Planning Advisory Team and the public forums in the community be non-confrontational and that their staff members be prepared for conflict situations.

> "We have whole agendas that we go through before meetings to make sure we have a
> well-run meeting that addresses all the different things that come up. So it takes a bit of planning, some shrewd thinking I guess, but usually it results in fairly successful meetings (MWS, Interview 2).

> "As you know water can be a pretty delicate subject for people, it's a place where people have argued about issues for years so we use maps as a device for curtailing arguments in a lot of cases. We give people pens and what we ask them rather than show us where your issues are, we ask them what do you value in the watershed, what's important to you? And we use these facilitation techniques to draw out of them as much as we can – well what about this river is important to you, what about this landscape is important to you? Can you name it, can you point to it on a map, and draw it on there. What are threats to that value? So we have these tips and tricks that we use during these meetings to draw this information out of people (MWS, Interview 1)."

The participatory mapping technique was affirmed by an interviewee from a non-governmental organization.

> "I thought the discussion, the maps were actually really valuable, because we had farmers around the table where I was that really knew the land quite intimately and there was a staff member at our table as well that was able to talk about how much of their budget goes to this drain in particular, and so having that real, local

expertise and being able to see how some of those issues translate on the ground (NGO, Interview 1)."

Facilitation continues to be a major feature of the planning process for the drafting of the IWMP, based on material from the public comments, the Watershed Advisory Team, both technical and lay persons, and the PMT itself, including advice from the Watershed Planner representing the *Water Protection Act* requirements. Interviewees talked about consensus building as a goal of the process, and specific behaviors supporting this goal were included in the *Participants Code of Conduct* listed in the Memorandum of Understanding and Terms of Reference documents, common to the East Souris IWMP, the Assiniboine-Birdtail IWMP, and the La Salle River IWMP. The Willow Creek IWMP included *Principles of Integrated Watershed Management*, and not the original *Code of Conduct* item (see Appendix B for these two texts). These lists of planning attributes provide a mutually agreed upon reference of how parties should approach the process. Willow Creek, a more recent plan, demonstrates some evolution in the level of detail in the *Principles* document, where they reference "meaningful participation in decision making" and "sustainability is a journey that requires constant feedback, learning and adjustment". It also states that, "There must be recognition of all existing rights, treaties, agreements and obligations in all decision making". Where aboriginal communities have been less involved or not involved in watershed planning in the past, the reference indicates a desire to improve this shortcoming. These statements originate with Manitoba Water Stewardship, and establish a more nuanced view of how interested parties can participate, acknowledging the complexity of the planning environment and the commitment required from all watershed residents to work together to solve watershed issues over the longer term. I would argue that it represents an improvement to the

process by making explicit a vision that includes many of the principles and practices shown to support learning, collaboration, and collective action.

5.3 Small Group Work and Extended Engagement

The structure of the Project Management Team, the Watershed Planning Advisory Team, and the Conservation District Board of Directors and Sub-district volunteer boards embody a small group environment that allows for dialogue and direct contact between members. Each IWMP and alternative watershed management plan had small group work both in the leadership team, and used small groups for discussion during public consultation meetings. These groups demonstrated a commitment of time in their attendance over months and years as the IWMP planning process unfolded. The meetings were opportunities to get to know one another over an extended period of time, and included shared meals and time to socialize. This aspect of sustained commitment to the planning process has been underscored in the literature as a particular challenge to social learning (Schusler et al., 2003, Kilvington, 2010). In the case of the Stephenfield Lake Watershed Management Plan, the group met frequently over two years.

> "You would have 22 or 23 people at an evening, and I think we met 24 times, I think over a period of a year and half to 2 years (SL, Focus group)."

A similar format was also described for one of the four IWMPs led by the Upper Assiniboine Conservation district, and the Lake of the Prairies Conservation District. The particular plan referenced here was the Little Saskatchewan River IWMP.

> "It was a public forum, the meetings I went to, they had an agenda, basically it was the topic of the month, you know, here is a presentation about this aspect of the watershed, some background material and at the beginning, you know there was some breakout groups, they wanted to sort of put together principles for the plan, that sort of thing. So I would break out into smaller groups, but usually the monthly meetings, or every two months, I don't remember, it was a major topic and a major guest speaker there too, talking about this aspect - it was like water

school, so that everyone understands the terminology, and you know, knows how the watershed works (NGO, Interview 4)."

There seemed to be a limit to the success of extended engagement where people lost motivation, especially for those whose attendance was not tied to their paid employment or compensated based on their group affiliation. Manitoba Water Stewardship staff members talked about the limitations of having eight or more WPAT meetings, and in the more recent Willow Creek plan, they reduced these to three in total. This may not be the ideal number, and it is far fewer than the meetings held in the two alternative watershed planning processes of this research, but through communication and experimentation with the WPAT groups, a sufficient time commitment can emerge that balances the need for dialogue and social contact with time pressures on participants. The following quotes refer to the number of WPAT meetings and participant's thoughts on the frequency and efficacy of these gatherings.

> "Now I'm not saying there is a anything wrong with that style, it's just that if you have the time and the resources that's fine, but after two years of sitting through meetings and everyone got sort of meeting fatigue, and less people would show up and it ended up that it was, most of the people that attended the meetings were just the government people presenting to each other (MWS, Interview 1)."

> "Well, if I'm thinking of the meetings your referring to, yes there were a lot of people invited. There were two female representatives from Louisiana-Pacific out at Swan River, they were at two meetings that…they never came back. There were two gentlemen from the cottage development along Lake of the Prairies, they never came back. I'm not totally sure why, I think some people just thought, what's this all about anyway? But out of that, it was narrowed down into a few of us, who took it a step further, but…it just sort of died by its own lack of momentum.
> *And the timeframe?*
> And a lot of these people are volunteers, like I got paid for this, sitting with these guys, I got paid a small stipend. Those initial meetings, no, we weren't paid for them (AB, Interview 4)."

In the following quote, the Watershed Advisory Team is held in contrast to the public consultation meetings, where because of the limited time at meetings, there was less of an opportunity for learning and discussion.

> "Our Watershed Planning Advisory Team, as we called it, we met on a fairly regular basis, so those are the people that really got exposed to the various aspects of the watershed. When it came down to public consultation on the plan, and kind of near the end, a lot of the public didn't really get that, well they didn't get the same level of information just because the Watershed Planning Advisory Team was at a meeting maybe every two months, and because of that, and we would meet all day, and the opportunity to provide a lot of information was there. Where you have a public meeting for 2 hours, you don't have that same opportunity (ES, Interview 1)."

The repeated meetings of the WPAT and the PMT provided the opportunity for participants to get to know one another as individuals, in addition to their roles as organizational representatives. This helps challenge stereotypes and misconceptions, and though not a silver bullet, it is another aspect that encourages deeper dialogue and problem solving and reveals interdependencies of stakeholders (Sims & Sinclair, 2008, Schusler et al., 2003).

5.4 Diversity of Participation

Watershed governance provides a platform for bringing together a diversity of interests into one deliberative process, and the potential for greater public support and establishing greater legitimacy (Ramin, 2004). This aspect of planning was highlighted by a number of the participants as a positive outcome of IWMP, where new groups had been brought together that had not communicated in the past. On the other hand, participants cited diversity as an area where improvements also could be made. Diversity of stakeholders and participating organizations requires outreach, resources, and special effort where barriers may exist to prevent participation. The MWS staff members talked

about how they tried different techniques to bring people to public forums. This included things like child care and refreshments.

> "We use all sorts of techniques, we have run the gamut, and when we started this new way of doing it that we really open the door to, we tried road signs, we'd say there's prizes, that would go on the radio, that's put in print ads, we now usually send a brochure to everybody's home in the entire watershed. We focus a lot of effort on bringing people to the table and we're pretty proud of our results, some of these very unpopulated watersheds, they will get 50 people out at a public consultation, which is very high for consultation events (MWS, Interview 1)"

These techniques were successful in some areas, while in other case studies, public meeting garnered much lower participation. The WPAT were different in that they represented a far greater time commitment. Earlier IWMP plans included lists of the organizations they invited to participate on the WPAT, and who contribute to the plan.

> "That was a list of every single organization we could think of, 90% of those people did not engage (AB, Interview1)."

I found that these lists were not indicative of who chose to participate, but provided a sense of the local actors in the region. The CD managers and PMT members were able to share more information on who actually provided comments or attended meetings. I was interested in how and why people became actively involved over an extended period – the representatives that were expected to bring the interests of the community together and shape the final plan. I spent time asking interviewees how these committees were formed. In the Willow Creek IWMP, the focus group discussion made mention of the select group of the PMT, and how this reduced conflict.

> "See everybody who had a thing was there for the conservation district, the big thing that I found when we all started, you've got the other side, but conservation, you go, drainage. Well you had to get away from that.
> *To frame it differently?*
> Because if you had any of those guys on that committee, you are going to be fighting all the time. We never had any of that.

No, I was very surprised how well the whole group worked together, and they had a variety of...
Perspectives?
And it was fun, it was a lot of fun.
It's amazing how you can, all these things that you hear, you think that they are in opposition with one another, but they're more than willing to work together, and I'm just talking about the urbanites, rural people, farmers (WC, Focus group)."

Intentionally promoting a diversity of interests and backgrounds helps overcome the tendency to construct a group for ease and expediency in decision-making, where those who would present contrary or challenging views are not encouraged to participate or denied access (Swanson et al., 2010). Those individuals in the IWMP leadership and their interests, knowledge, and attitudes can have a large impact on the final goals and actions of a plan. In the IWMP cases studied here, the individuals represented on the Project Management Teams came from elected representatives from rural municipal politics, employees of the Provincial government, and employees and board members of the Conservation District. There were a smaller number of PMT members that were not from these three groups, and rather were invited to participate as citizen representatives, but on the whole, the PMT represented the membership of rural politics and the CD boards. Some of the techniques employed in forming the groups and running the meetings seemed to be designed to overcome the existing distrust between government representatives and rural citizens.

"I remember...I think it's going to make a huge impact, obviously who the PMT is, and their willingness to adopt, and their perspectives – where they make their money. I know the chairman, in selecting the chairman's for the PMTs, we tried to not pick the big people in the CD or the Reeves, for that kind of thing. We try to get a citizen to do it, and that worked. It was a citizen for the Netley Grassmere and for the Willow Creek. Both involved in the Conservation District but not elected officials, and neither of them on the main CD Board, meeting every week or every month rather, on the sub districts, so they're a little more removed, which I think was a good thing. And I think that goes to sort of the makeup of the PMT was positive in that way, there should have been more women, there should've

been more younger people, but that's not the nature of the CD itself, it's not the nature of RM politics, which gets you to the makeup of the CD largely. Most of it is counselors (NGO, Interview 6)."

"Right, because you know we've been to enough meetings where there's threats made about issues so, so one of the first things we do is that we make sure we have is a well engaged Project Management Team, and a well-balanced Project Management Team. The members of the Project Management Team, that's the core group of people that make the decisions in creating these plans, that they're not just all of one ilk. They're not just all people who live in the city and have nothing to do with land. They're well represented from all different factions of the watershed, if that's the right word. And then that group sits with different tables during these consultations, so that they can answer questions themselves rather than have government technical people like myself you know, answering questions (MWS, Interview 1)."

You know, if you get a bunch of mostly stakeholders in agro-Manitoba who are fearful that their livelihoods are going to disappear somehow, there's a threat to their livelihood, they're not going to ask for any information, obviously, they don't want to know what's happening. So that's an issue too, I mean, these councilors and Reeves are also part of the CD boards and they're also mostly farmers and their livelihood is made off the land (NGO, Interview 4)."

Interviewees also discussed their experiences with planning processes outside the IWMP plans, and how the dynamic of the group affected their ability to contribute and have their views reflected in the final document. The following quote refers to a groundwater planning process in southeastern Manitoba.

"Yes, so you could see that they thought they were 'doing diversity', so we're going to let that girl talk now. So that wasn't a problem, but, everything was kind of done not by consensus, because I was always not in consensus with the majority of the group, so my opinion was always overridden in terms of the final plan. So I was given the floor space to talk, but it was ignored when it came to actually putting it down on paper (NGO, Interview 3)."

There was an absence of female representation on PMT teams and the CD boards in general, and when participants were questioned about this a variety of responses were given. This obvious absence was seen in both the IWMP and alternative watershed plans,

outside of the female Watershed Planners, very few women held leadership positions in the planning process.

> *"So was it all farmers, their demographic? Were there women in the mix?*
> No there weren't. I have to think about that. Not usually. I know obviously a lot of the women would have input through their husbands, some of the women would voice their opinion through their husband about what they are doing. So, we never had any, I know Pembina Valley has at least one or two women (DW, Interview 1)."

Some interviewees described how their groups were working to attain greater diversity, including women, on the CD boards. Other individuals provided information on the types of solutions they were implementing to deal with the issue of more diverse representation.

> "Yes, there's more and more discussion, like our organization has done lots of that, not lots of that but the navel gazing and re-evaluating, and there's lots more talk about being inclusive, like the boards have the ability to bring on basically anybody, so if you are, even an Indian reservation say, it's a Federal jurisdiction not provincial but you could be on a CD Board if that worked out, or Louisiana-Pacific, or partly they're looking at bringing in more revenue and partners. But if you are the Eco-network, it's possible, if you're an active group in an area, you could be eligible, which makes sense – if it's just the old boys club making the decisions like the RM counselors, the same guys are on the CD Board, that's probably not progress (DW, Interview 6)."

> "Going back to the demographic thing, whose local knowledge, right? So I mean, we know for sure that First Nations have been really, widely underrepresented for a whole bunch of reasons, like some of them have chosen not to be part of it because they don't see themselves as being under the Provincial jurisdiction, so you lose a lot there (MWC, Interview 1)."

> "There were a few women that have attended the meetings. Women have not traditionally been involved in this type of stuff. They have their own thing that they're doing. We're tackling the youth, and we also go into schools. Our CD manager goes into schools and makes presentations. That part, I think the youth thing is covered off not too bad, and may be out of that there would be more women down the road that will get involved because they have an idea of what we are talking about (LS, Interview 1)."

As with many participatory decision-making processes, attracting community involvement at a high level is challenging, given the demands of time and commitment required at the level of the WPAT or PMT level.

> "I think most of the participation was from landowners and farmers, it wasn't really from, like someone from a town or residents.
> *Do you see that being a problem?*
> I think it was the landowner that was most affected by the flooding, whereas the towns are all protected. Again because I think this is the first one, it was mostly the landowner coming in. And the landowner's wife is probably taking the kids to a hockey game. But like I say, in 10 or 20 years is it might be a lot different out there (LS, Interview 2)."

Other groups represented in the case studies felt that they had achieved balanced representation in the PMT or their board and sub-district. They explained that the people who participated were directly affected landowners and agriculturalists.

> "Well, like the boys here said, we have representation from all the different commodity groups, and the people, or the membership, for lack of a better word, how did we come up with that? Each sub district...?
> I think anybody, any organization at all, was invited.
> I guess, I don't know, that came together slick as anything, there was no concerns around it so I guess you don't remember (SL, Focus Group)."

> "*If you could expand the representation, could you expand the breadth of what you consider in your decision-making?*
> That's a million dollar question. I think in our sub-district we have a very good cross section of representation. There's a couple of people there who aren't landowners, so they have no personal, nothing personal to gain. I think there's three of us for sure, one fellow ranches in the valley, so he's on the recipient end of all the upstream action. But he can look at it subjectively and objectively, I know him. No, I think we have a good section. It's just that, what do you do? (AB, Interview 4)."

The question of diversity directly links with the inclusion of multiple sources of knowledge, and how well different perspectives on the issues in each watershed are represented around the table.

An important factor in creating space for people to participate is financial support for the time spent in meetings. Members of the PMT and in some cases the Watershed Advisory Group or Technical Advisory groups attended multiple meetings, each lasting a few hours to a full day. The ability to take time off from personal commitments and employment is difficult for most members of the public, limiting their participation to public meetings and written comments. This shortcoming was recognized by an MWS staff member. They stated that an invitation to participate was typically sent through the Manitoba EcoNetwork, who would share it with their member groups.

> "And unfortunately ENGOs aren't staffed well enough to attend all of these types of events, they're out in the middle of Manitoba, you have to drive there, you have to spend staff time, of the resources are short. So are always happy when we can have representation from some of those groups (MWS, Interview 1)".

The demographics of the participants I interviewed included many individuals who were retired or close to retirement, which afforded them more time to attend meetings. Those working in agriculture sometimes had more time during the winter months when farm tasks were reduced.

> "If when you ask about, were people compensated, I can look down that list there and see quite a few people who certainly did not get compensated.
> *That is a real gift of time.*
> Well, compensated from the point of view may be that we got something accomplished (SL, Focus group)." L4 – reference 8 – Diverse Participation.

> "I mean there are some poor farmers out there, but those aren't the ones that are coming to these events. The farm community is really well organized, they have an organization called Keystone Agricultural Producers, they have the Pork Council, they have the Cattlemen's Association. They are organizations that organize and strategize for these types of things.
> *Like sending representatives to these types of... Making sure that…*
> But it's not like, I'm the Pork Council person - I am a small farmer that belongs to the Pork Council and I am just a mouthpiece protecting the industry. I mean that is how sophisticated these groups are.
> *So they all pay fees to have a person that has the resources to go to these meetings.*

But stipend, for them it is stipend too, all these organizations pay out stipends to their board members to attend this stuff (NGO, Interview 4)."

"*Were you compensated for being a part of this?* (In reference to the Southwest Groundwater Plan).
Nope, not at all. And it was always in rural areas, and we didn't have travel allowance, we would carpool. Which is why the other environmental groups and a lot of First Nations just didn't want to be there.
It's a big commitment.
It's a very big commitment (NGO, Interview 3)."

"Of course, lots of volunteer organizations have the time to provide a person for a whole day, to drive hundreds of kilometres and kill a day off, yeah.
…
"Well, then from the NGO sector, you would get the professionals, or as part of their work, like for myself, for ducks unlimited, a biologist, for conservation district coordinator, that's part of your job and you go to it. For counselors and Reeves it's a stipend, but for anyone else like citizens, like you know, good luck (NGO, Interview 4)."

According to the documents I reviewed, the members of the Conservation District board were paid $75 for half day meetings, and $150 for full day meetings, while municipalities provided similar compensation. Other participants attended as part of their paid work, or donated their time. Project researcher Dave Huck also stressed the importance of participant funding to support the input of a broad cross-section of the community in the IWMPs (Huck, 2012, unpublished thesis), and how this lack of financial support impacted anyone outside of organizations who were able to allocate staff hours to participation.

The question of diversity is clearly a work in progress. The current membership of CD boards is determined by the *Conservation Districts Act*, which specifies the participation of landowners and municipal representatives, which in turn are predominantly older males. Whether the province is interested in opening the *Act* to

change CD membership is not known, but may be of interest in respect to attain broader representation on boards and future planning teams.

5.5 Multiple Sources of Knowledge

The integration of scientific and local knowledge is an important theme in current natural resource management scholarship. Schusler et al. (2003) offer the view that scientific knowledge of natural resource issues is a necessary component of informed decision making and public deliberation, but that it is not sufficient to adequately address current multi-stakeholder resource issues. Pahl-Wostl and Hare (2004) emphasize synergy between generating social capital and collaborative capacity, and managing and communicating technical information. In my research, I looked at this aspect in relation to the goals stated by the leadership of Manitoba Water Stewardship to use both expert and local knowledge in the development of IWMPs. In both the final documents and in interview conversations, the inclusion of opinions and experiences of watershed residents were deemed essential to a successful IWMP or watershed management plan. Interviewees described their efforts in achieving a compromise or balance between these two forms of input, and the challenge this posed. Leadership from Manitoba Water Stewardship planners emphasized the importance of drawing from both. This attitude supports social learning by creating a space for respective dialogue that works to reduce perceived inequalities between experts and lay persons.

> "So we thought, what really needs to happen is the local information, local knowledge needs to be valued to just as highly as technical knowledge, and there needs to be more of conversation rather than a presentation style (MWS, Interview 1)."

> "Like the IWMP, the process itself is a back and forth conversation between experience, local experience of water issues, and technical, so the technical guys could come in and say well that's not right, and the local guys could say, well this

is how it is, I know it doesn't fit your science, but this is how it is. And I think that interaction is really good, that you have some more realistic input into the science, and also some more science input into the local level (MWS, Interview 4)."

Interviewees also described how they came to include issues that were listed in the *Water Protection Act*, but were not addressed at the local level, in this example, the health of aquatic ecosystems.

> "Especially because in La Salle, Sanford gets their water from the La Salle river, so we might not get a lot of comments from folks on this particular aspect of the watershed but we'd included nonetheless, and we would turn to whatever published literature there is - the CD had done a fisheries study by North-South Consultants a few years back, so we wrapped up comments and information from the fishery studies that was done and from DFO maps like this, and then whatever the regional fisheries manager had. So we take those three things and sort of mash it with whatever public comments there are that relate to aquatic ecosystems (MWS, Interview 2)."

The problem of reflecting local priorities and provincial priorities in the final plan was experienced in more than one of the research cases. In the Assiniboine-Birdtail plan, technical input from provincial government employees influenced the final drafting of certain priority issues and activities.

> *"Did you find that it was difficulty in reaching consensus?*
> Oh yes, there's a lot of resistance, will we found was that about 50% of the people that gave input were for more drainage and 50% were against drainage. And the tipping point was all the technical people that came in and said we need to curtail this unmanaged drainage, so we used that as the tipping point to gain 50% or more, and the fallout to this day…there are lots of producers in here that don't put any value in the plan because it wasn't what they said. So the big guys that want to see more drainage: "it's not my plan, it's somebody else's plan". And you're never going to get away from that because there is a percentage of the population that sees the damage that drainage does and there's a percentage of the population that feel that...sees the benefit (AB, Interview 1)."

Where a diversity of perspectives is presented, the real work of crafting a common problem definition and action plan begins. Balancing local perspectives on watershed issues with that of researchers was also challenging in the Willow Creek plan.

"Yes, I think so. And even among the local people, there's difference of opinions, when you have a group of ten people around the table that know their area really, really well, so it's not even a difference of opinion of local versus technical, but just even locally around the table, people have different ideas on how to address different issues. So I think just balancing everyone's opinion, local and technical, and all the local people around the table, is a big challenge (MWS, Interview 3)."

"I think we had some good discussion on some things and I thought we put some good things forward, and consensus came relatively easily. I can't think of one on the Willow that we really had an issue with. It was tough for getting consensus building as to where the management team wanted to go, and where the Province wanted to go on that, I think that was a bigger issue (WC, Focus group)."

This was echoed by other participants in the Interlake region, where there were very divergent starting points including whether climate change was a real issue.

"I would say that one of the key factors in public participation would be everyone having a basic level of understanding of some kind of ecological concerns, and that was missing. That was also missing completely in the groundwater management plan I worked on. For instance, some people in the room did not believe in climate change. So I think when you're asking a diverse group of people to sit down and make a plan, you need to provide speakers beforehand to just give an overall view of some ecological concerns in the area. So everybody is starting with a basic understanding (NGO, Interview 3)."

These examples of compromise represent the reality of watershed issues broadly, where the desire to reverse ecological damages meets the need to maintain livelihoods and develop resources. What exists in the IWMP model is the ambition to come to consensus through dialogue and sharing evidence from multiple perspectives, specifically the goal of valuing and including local knowledge. This issue was brought up in correspondence between WPAT representatives and the leadership of the Manitoba Conservation Districts Association, for inclusion as discussion points in on-going CD manager meetings. The emails were obtained through the La Salle River IWMP process files, and provided encouragement for CD managers to take on the task of representing local knowledge more fully in the IWMPs.

"The thing is, local knowledge presented during our data review sessions was essentially zip/nothing. And I don't think that reflects the knowledge that's out there. I think there are too many people coasting in this process, and obtaining local knowledge/assembling and presenting it has got to be a task for CD managers to take on. This has failed miserably in this process, not because it wasn't a good process, but due to lack of effort and commitment. TMCD proved beyond a shadow of a doubt, that when talking about drainage and specifics associated with it, a properly motivated CD board can absolutely blow the technical data submitted away with effective and focused presentations of what they know in the watershed. It all hinges on manager and board support and commitment, and to date, that has been severely lacking (Correspondence, January 25, 2008).

This call for better integration of local knowledge may be addressed in current IWMPs, given the examples of the West Lake IWMP and the Fisher River IWMP, where local stories may compose the greater part of the draft plan or new consultation processes are being developed.

In a number of interviews, people described how bringing together conflicting interests resulted in "watering down" initial proposals for goals and actions. Nowlan and Bakker (2010), discuss the outcomes of consensus decision making processes resulting in politically acceptable solutions, which may be an unavoidable outcome of compromise between different interests. For some, they were satisfied with the level of cooperation between PMT and WPAT members, and others wished they had been able to maintain stronger statements in the final draft.

"Yes, I've seen both ways, where maybe it didn't work and they've just sort of left it, but still I think their comments and their position was somehow reflected in the plan, and then, it's supposedly a consensus process, so really, it doesn't get in the plan unless everyone agrees on it. So somehow, you've got to keep bashing heads until you've got something down, and it's probably not what these guys want, it's probably somewhere in between so it's watered down a bit maybe, but you know… (DW, Interview 6)."

"It's hard to get a consensus, to get a consensus you water everything down to almost nothing. That was the biggest problem I saw with the actual

recommendations of putting together... It was all platitudes by the time we got... (pause)

Rather than direct?

Rather than direct and forceful. And that's what we, the next time we do this, I think they have five years or something...

It's been five years and in five more years it's renewed?

We've got to get more...we've got to get less bashful, and a little more, you know we want to be the lion, we don't want to be the bashful rabbit, you know... (AB, Interview 2)."

""For the Netley plan, it was a fairly large project management team for that one, and a lot of...you get the Reeve of West St. Paul, who was going to be completely focused on storm water retention, and sewage management and that kind of thing. And then you have producers who are around Oak Hammock Marsh who want drainage, so it's a pretty wide range of people in there. And they seem to really come together, and could eventually agree on the variety of topics, and some of it would start of kind of harsh, and it would get watered down a little bit, but I mean that is consensus building. I didn't see it as a huge problem, trying to achieve that. You do end up with a slightly more watered down plan. But I don't know that that is mainly coming from the PMT, that's probably more coming from what the government will implement (NGO, Interview 6)."

Overall, it seemed that given the degree of difference of perspective in the various decision-making groups, dialogue and compromise created plans which enjoyed broad support of the majority of the individuals I interviewed. There seemed to be openness on the part of the local representatives to rely on the input from the Technical Advisory Group where the issues fell outside their scope of expertise. On the other hand, there were examples where local knowledge was thoughtfully considered by the PMT in the form of public comments and the records from the public forums. The Willow Creek dedicated two day-long meetings to review this material, as did the Stephenfield Lake group. Even years later, committee members were referring to the 200 plus comments generated during the formation of the Stephenfield Lake plan, using them to guide next steps in plan implementation.

"On that survey, it was interesting, I was reading, looking through it here just the other day, and I think there was something like 200 or so comments, of every

shape and size and everything you could think of. But it was interesting to look at it and see some of the areas where action has been taken (SL, Focus group)."

The IWMP and alternative watershed plans appear to be a blend of the necessary topics set out in the *Water Protection Act,* with a sincere attempt to employ and prioritize the local contribution in the final drafts.

5.6 Discussion of Findings

The IWMP planning process used in each of the chosen case studies conforms in some ways to the process elements found in the literature. In social learning, facilitation sets the stage for group interactions, and is an important tool for framing the issues and providing a way to acknowledge different perspectives within the group (Buck, 2002). In terms of open communication, the ability of the group to share control of the problem definition and how the issues are framed is a key variable in the success of social learning outcomes (Van Bommel et al., 2009). Participants acknowledged the importance of facilitation to the success of public meetings, where different views could be presented without animosity. With the exception of one case which contracted a professional facilitation, the IWMP leadership facilitated meetings themselves. MWS experimented with different techniques, finding that interactive mapping worked well to engage the public and reduce conflict, as well as a shift from issues-focused discussions to values and goal-oriented discussions. Kilvington (2010) also found interactive mapping tools to be effective in the four case studies of multi-stakeholder decision making processes she considered. These more collaborative techniques were well received in participant feedback, and helped define the watershed issues through the lived experiences of participants. Some interviewees including MWS staff, noted that IWMP leadership required training to perform these duties well, and that more training would be welcome.

Another aspect of facilitation was the shared *Code of Conduct*, which was adopted through the MOU and Terms of Reference. This code was revised in later IWMPs to include references to principles and practices shown to support learning, collaboration, and collective action.

In relation to the process attribute of small groups work and extended engagement, the data show that the Watershed Teams were able to dedicate time to the IWMPs over multiple meetings, and in turn, had the opportunity to reflect on numerous presentations and points of view. The ability to revisit issues and gain a deeper understanding of the perspectives of others takes time, and the long-term interaction of participants supports iterative cycles of deliberation, action, and reflection in social learning processes and is necessary to managing complex systems as noted by Cundill and Rodela (2012). With current IWMPs using fewer face-to-face meetings for the WPAT and fewer public forums, it reduces the ability of participants to learn from each other, and discover how different groups view the problems and solutions in their watershed (Bouwen & Taillieu, 2004).

Overall, the diversity of the PMT, the WPAT, and the public meetings reflected typical political involvement in the rural community, where RM Councils, landowners, and CD boards are represented by older males, as the data show. In my interviews, participants noted that the process could benefit from greater diversity in age and gender, and more could be done to encourage future participation. The literature on effective and inclusive resource decision making processes provides insights into how diversity of practitioners impacts plan and policy outcomes. According to Koontz and Johnson (2004) the breadth of multi-stakeholder involvement can have positive outcomes for legitimacy,

building social capital and resolving conflicts, while the drawbacks included increased costs, time and energy. This view is supported by other authors in the social learning literature (Reed et al., 2010, Schusler et al., 2003). Koontz and Johnson noted a correlation between planning committees with a fairly equal distribution of government and non-governmental members and their enhanced ability to identify and prioritize issues, and how they positively self-evaluated their success in developing collaborative group dynamics over time. Participants described a similar experience in some of the earlier IWMP cases, finding that there was a lack of momentum in the WPATs when membership dwindled to government representatives. Given that a range of participant backgrounds helps ensure a stronger knowledge base for decision making, the membership of the case study plans had room for more diversity. In the cases I examined, it falls upon the provincial government, and the CD boards to ensure innovative methods of engagement are employed.

One of the foundational ideas in the literature on natural resource management and social learning is that of bringing together technical and experiential knowledge in a non-hierarchical manner (e.g., Pahl-Wostl & Hare, 2004). MWS staff members have stated their intention to value and include non-technical knowledge from local residents in the formation of the IWMPs, although some participants believed there were missed opportunities to gather this form of input and that there should be a greater commitment to making space for more formal presentations from watershed residents on their knowledge of issues like local drainage.

5.7 Chapter Summary

This Chapter reviewed each of the process attributes of my social learning framework presented in Chapter 2, drawing on quotes and evidence from documentation from the case studies. According to data from the six case studies, the watershed planning process used local leadership to facilitate meetings, and provided many opportunities to dialogue through small group work where people could dialogue with technical staff and local residents. Participants were drawn mainly from municipal and CD membership, and although invitations were made to numerous organizations, the resulting WPATs were much smaller. This was attributed in part to lack of resources for some organizations. Watershed planners tried numerous techniques to gain broad participation from the general public, finding that direct mail to all households gained satisfactory attendance at evening forums, though other interviewees noted a lack of women and aboriginal representation. Early IWMPs provided WPAT members with presentations by technically trained staff on topic areas impacting watershed health. Later IWMPs reduced these meetings due to increased demands on provincial staff as more plans came on line, potentially reducing learning opportunities for participants. Interviewees referred to the careful review of public input when drafting the plans, which came from surveys, written submissions and meeting notes. Other participants working on earlier plans, commented on the need for more ways to showcase local input, suggesting

Chapter 6 – Social learning outcomes

6.1 Introduction

Looking at the IWMP process through the lens of social learning provides a way to consider specific learning outcomes for participants, including how these directly relate to aspects of the planning process. An additional tool for considering learning outcomes is to look for instances of single and double loop learning, where organizations have both enhanced their ability to address common problems in the watershed, and where they have asked deeper questions about norms and polices, moving from questions of "how?" to "why?". What emerged from the interviews with provincial staff and those participants that contributed to earlier plans, is that the IWMP process in Manitoba is not static or entirely prescribed, and as the process factors change, so do the potential learning outcomes.

The following thematic areas I used to organize my findings are based on the social learning literature I reviewed and presented in Chapter 2, as well as additional topics grounded in the interview data. In the next few sections, I look at how watershed planning participants described their challenges and achievements related to developing technical knowledge, social skills, trust and relationships, as well as changes in the ideas and practices of these participants. In addition to the social learning framework presented by social learning researchers, I also took into consideration the work of Reed et al (2010), which proposes that the transfer of knowledge to a larger community of practice is an additional element of social learning, and important to how the concept is used and evaluated. In response to this, I also set out to examine how those most deeply involved in watershed planning in Manitoba shared new information with contacts, be it family

and friends, the organizations they represented, or those with whom they worked or volunteered.

At times it was difficult to correctly attribute learning outcomes directly to the IWMP planning processes, or determine whether they occurred through other means. For many of the interviewees, their involvement in watershed planning spanned a number of years, pre-dated the IWMP initiative, and reflected their career path, membership on a CD board, association with producer groups or non-governmental organizations. Their understanding of watershed issues was also built through their participation in previous planning processes or a multitude of other events and conferences designed to impart a greater understanding of resource management issues. In the semi-structured interviews, it was important then to focus the discussion on aspects of the planning process and draw connections to their experiences of the IWMP or alternative watershed plans. I asked interviewees to reflect on their own learning and changing perspectives on the watershed issues they dealt with, as well as what they observed and learned in their small group work. Some chose to comment on the public meetings they facilitated or attended, and talked about the deliberations that occurred and the opinions shared in those venues.

6.2 Technical Knowledge

The issues surrounding watershed management can be technically challenging and bring together a number of disciplines and specialized knowledge. Government agencies and community partners worked together during the IWMPs and watershed planning processes to compile whatever studies and background research were available that related to water resources in their jurisdiction. This created a foundation for prioritizing issues and highlighting areas of concern for each watershed. Within the

context of multiple sources of knowledge, the literature on adult learning in natural resource management emphasizes access to appropriate information provided in a timely manner (Fitzpatrick, 2007; Sinclair & Diduck 2001). The challenge for planning leaders is to make information available in the right format that will be useful and understood by participants who are closely involved in the process as well as members of the general public. This need was reflected in participants' comments when asked how information was shared.

> "I mean everybody learns a different way, and I think that's probably like, you need to know the people you are engaging, to try to expose them to as many different things as possible. When I see some of your questions here you know like, was their opportunities for socializing and shared meals, you know, there was. We provided information to people in different ways. (ES, Interview 1)."

> "But it was mainly to get feedback, probably mainly the goal is to, I mean you have to give people information so that they can contribute something sometimes, if you just sat there and said, give us feedback, they aren't going to be able to do that without some information (DW, Interview 6)."

The IWMP plans included the creation of *State of the Watershed Reports*, which varied in technical depth. Some of these differences were attributed to a general lack of research in the region due to low population or an absence of resource development (MWS, Interview 1). They were made available on-line on the CD websites as they were completed, as well as through the Manitoba Water Stewardship webpage devoted to the IWMP process. These documents covered a range of topics, including surface water, ground water, source water protection, wildlife habitat, fisheries, geology, topography, petroleum resources, and soils. Of the four IWMP cases, they ranged between 50 and 300 pages in length. The purpose of the *State of the Watershed Report* was for the PMT, WPAT and general public to learn the relevant technical details to develop their IWMP. The supporting technical documents for the alternative watershed management plans

were somewhat different. In the case of Tobacco Creek, a large body of research had been carried out through partnerships with Universities and government agencies over the last two decades. Some of this research is available as short publications including those on Beneficial Management Practices by Agriculture and Agri-Food Canada, and others are academic papers, which are less accessible to the general public. In addition to the *State of the Watershed Reports*, some PMTs chose to create more accessible, shorter summary documents of 2-4 pages, containing maps and illustrative images from the watershed, which were distributed through CDs and municipal offices. The additional information pieces represent a strategic effort to create and present technical watershed information to a broader group of interested parties from which they can learn and make more informed contributions. Despite this, more participants commented on learning from presentations than learning from reading the technical documents produced or compiled during the IWMP process. For example, more than one interviewee expressed their doubt that anyone other than the authors actually reviewed the technical reports and the IWMP draft plans.

For the leadership at Manitoba Water Stewardship, desired outcomes did not necessarily include having all participants gain a thorough understanding of the technical information, and instead focused on how the process would contribute to a sound plan that would be implemented. Manitoba Water Stewardship staff also described how they referred to the Technical Advisory Team and the Watershed Planning Advisory Team, changing these names to simply the Watershed Team in the most recent iterations of the planning process.

> Technical knowledge? To me that doesn't matter as much as a clear plan for action to reach your goals. So what I'm hoping that people understand is a plan

for the future, so what do we need to do to reach those four or five goals that are in our plan. It doesn't matter to me if they know what adulatious units are in the groundwater structure, I don't care. But if we have all come to an agreement on what the future is for the watershed, and what we need to do to reach that, that's more important (MWS, Interview 1)."

"So the new process is, at the beginning of the process we don't have our technical experts describe their area of expertise. They provide that in writing to us, and we make that available on our website. And we've got positive feedback on how that change in process, so not from everyone, some people like the, you know, three or four year planning process that's really technical, but we, for the most part, I'd say 98% of people really, really like the new style (MWS, Interview 3)."

"Yes, we try to move away from that expert terminology because that…it would turn people off if they are commenting on an issue and there is an "expert" in the room, you don't want to label people like that if you can help it, it doesn't help anybody (MWS, Interview 2)."

As discussed earlier in the section on Small Group Work and Extended Engagement, the level of technical information provided to the PMT and WPAT committees during the first few IWMPs was not meeting the needs of all parties involved. One reason for this was that provincial staff did not appear to have the time to commit to multiple, concurrent IWMPs. There were different points of view on the issue of providing technical information to the process, and some cynicism whether enough resources were being directed to the IWMPs from within provincial departments.

"It's not shared, it's not organized, it's hard to get, there is a, I remember specifically for this planning process, the Chair, talking to him, that was his complaint too, is that we need information for the planning process, but it's impossible to get from government because, a) they don't have the resources to assemble this information, and b) some of it might be an outdated study from 1982 (NGO, Interview 4)."

"The data that we wanted was not what we got, as the conservative/non-risk taking civil servants did not want to walk the plank and provide recommendations for fear of future liabilities association with such would fall back on them. (Funny though, how the federal government and NGO's had no problem recommending actions) (Correspondence, January 25, 2008).

In evaluating how the IWMP process incorporated multiple sources of knowledge, I looked at how the integration of technical and local expertise was carried out, and how this had been an explicit goal for Manitoba Water Stewardship staff and CD managers. For some Watershed Planners, the benefits of this approach seemed to be a more balanced view of the issues for both technically trained participants, and those that had direct, long-term experience from living in the region. A number of interviewees talked about the complexity of the technical information presented, especially those who participated in earlier plans.

> "The problem with educating the public is that some of this stuff gets very complicated in a hurry, and even for me working with them, there's lots of aspects of this that I leave to the researchers and wait for the results. It can get really technical (DW, Interview 4)."
> "And I think now they have condensed what all they want, because there was a lot of stuff that was pretty dry, and we had to go through.
> *That you personally had to go through?*
> Well it was about a meeting every two or three weeks, and I had different, like they had geology, and mines and minerals, and they all had to put on a big presentation. A lot of the stuff is way above my head there" (LS, Interview 2)."

Manitoba Water Stewardship staff responded with this comment on how they communicated technical information:

> "When you start talking about aquifers and aquitards and overburden, the terminology gets away from you pretty fast, so we hope, the plans are all written, we think, to a grade ten level. And we try to take out terminology that's too technical, and I think we've done that in most cases. Maybe we've missed a few, but our goal is to make them readable to a high school level (MWS, Interview 1)."

Provided with this foundation of plain language writing, the challenge was then to use the plan and supporting documents to create a multi-faceted view of watershed issues for participants for whom one issue might dominate. Many of the interviewees talked about the importance of learning about their watershed from more than one perspective, and how this helped them communicate their objectives to interested parties.

"Well, I think it's valuable to talk about all those other issues, in the end I think it comes down to one issue or one huge issue, in watershed planning and that is drainage. And that is where you have a little bit of the divide, and that is why I think you need to get at people learning about groundwater and surface water and wildlife habitat and think about the watersheds in more than one aspect. So I think there's a lot of value in doing that, it's hard to get people to… that issue of drainage (ES, Interview 1)."

I think one of the biggest outcomes of the process is that, you know you might not solve the problem, but at least to understand what this thing is better. But you learned something, kind of whether you want or not, you'll find out there's things that you didn't know, and now I know how this watershed works a little bit, not only from that guy's point of view, just sort of you know, technical things, just a wide range of things that you can learn (DW, Interview 6)."

I have seen people, like sometimes we need to bring in technical people to explain from a different perspective, so that does change people's opinions. You know, they thought that this was the best way to do it, but once they've talked to somebody that has a technical expertise in that area, they have changed their mind. However, there are definitely people and personalities around the table that aren't willing to budge from what they want. So, I've just seen both sides (MWS, Interview 3)."

"In the public context too, I think a lot of people from the public may have learned, just by coming to the meetings and seeing the different maps and hearing from experts per se, or Team Members as we now call them, what some of the different issues are in the watershed with different concerns, or different opportunities. Whereas, some people from the public may only have an interest in their particular drain and what that means for their agricultural operation - it might expose them to the idea that, or show them that there is valuable fisheries habitat just to the west of their farm, that their farm might have impact on, or their operation might have an impact on, so they might have never considered that otherwise, and by sitting in a room in looking at a map showing their area within a larger watershed, I think that may have exposed some people to that but, you know, it's what we hoped (MWS, Interview 2)."

How did you set that agenda to bring all that information together?
Well I guess we had pretty good help from...
I think the technical advisory group, that's where a lot of that information came on.
And then for me personally, when you go through all the people that we invited to present to us, I went home thinking, I've just been to university here, you see, because of the caliber of people we had, that presented to us and the opportunity we had to learn from them was very, very good.
So over the course of those meetings, a different person would present every time?
Pretty much so (SL, Focus group)."

Many interviewees expressed technical information they had learned and spoke with confidence on watershed issues. They referenced workshops, speakers, presentations, field tours, and research done by organizations such as DSWMA, and Ducks Unlimited. Some of this information related to wetland studies, and a number of interviewees demonstrated a strong understanding of this watershed feature: their value, issues surrounding the impacts of wetland reduction including the impact of increased farm machinery size, and new research promoting the utility of ephemeral wetlands.

> "I can remember some discussions at one of the presentations that suggested incorporating wetlands into a single wetland. If you've got a few potholes, put them together in one larger one. But studies from Ducks Unlimited have shown, and in fact Delta Waterfowl as well, that that is actually detrimental from a waterfowl perspective (AB, Interview 3)."

> "And having this discussion the other day at the CanAd Inns, somebody said well, why don't you just make all the potholes in one corner? Well that sounds good in theory, but that's not how it works on the landscape, potholes are where potholes are, and they usually aren't in the most convenient spots (WC, Focus group)."

Other interviewees stressed how the technical information presented in the draft IWMP impacted other participants in the watershed.

> "And you know, groundwater, and things like that, when you…learned a lot in that respect, as to, you know, recharge area, and over burdens, which areas are the most sensitive and that's…I think you get a lot. And I've noticed that from the participants that live in the recharge areas, all of this and they are very concerned about open wells and things like that, and actually planning where manure is stored and disposed of, and that sort of thing (WC, Interview 2)."

When interviewing participants, many wanted to share information on specific programs and projects going on in their region, through the CD or through other agricultural agencies, both federal and provincial. As an outsider to this community, I learned about various details of different programs that had come and gone for farmers over the years, as well as an explanation of how farming practices had changed due to technology and

market pressures. An overarching theme when discussing technical knowledge of watershed issues was the desire for more research and monitoring to be done in Manitoba, to support Beneficial Management Practices for farmers and decision making in policy and regulation. Many interviewees cited research from sources such as the Tobacco Creek Model Watershed, and the Prairie Farm Rehabilitation Association, Ducks Unlimited, International Institute for Sustainable Development, and testing being done by the CD in their own region, demonstrating their knowledge of place-based, technical data.

6.3 Social Skills, Trust and Relationships

Repeated interactions and collective deliberation provide a platform for building relationships between interested parties. The meetings of the Project Management Teams provided fertile ground for individuals to get to know one another both professionally and personally, both aspects important to promoting social learning (Schusler et al., 2003). IWMP and alternative watershed planning processes were a new venue for provincial and federal government departments to work together, and they were a new opportunity for non-profit organizations to become involved with Conservation Districts, and interact with other community groups and producer groups. To understand the potential benefit of these new groups, and how they actually functioned in their decision making role, I considered theories on the social dynamics of group behaviour, and how the interaction of groups – being government, business, NGOs, farmers, etc. can stymie cooperation, while people acting as individuals and viewing others as individuals can enhance cooperation (Welp and Stoll-Kleemann, 2006). Where people have the propensity to seek information that confirms their position and beliefs (Welp and Stoll-Kleemann, 2006),

the Watershed Planning Advisory Team, or Watershed Team exposed all participants to new information.

> "Having a written document at the end of the planning process is certainly not our only outcome. The whole process is educational on both parts, we're learning, we're learning what the local issues are, and how well programs are implemented in the area, and local people are learning, and sharing information. So absolutely the whole process is education on both sides (MWS, Interview 1)."

These processes contributed to bridging the rural/urban divisions that exist in Manitoba. In some cases these differences were typified by agricultural/government split in participants' backgrounds, with each side looking for recognition of their unique challenges. It seemed that both rural and urban participants were looking for solutions to overcome this divison, and the IWMP was another venue to grapple with these two perspectives.

> "Yes, they would understand how a farm would impact, and when you first start up with that kind of discussion right, you point to Winnipeg and, in Winnipeg is pointing back to the farms and then, you kind of get over that and you go well, everybody has gotta do something. What can we do? What is reasonable? (DW, Interview 6)."

> "They want to make a difference on the landscape I think, but what do they actually do? The perception from a rural person would be this: that Water Stewardship is more so an urban attitude directed at a rural landscape and presenting sometimes idealistic views or trying to implement changes that in the rural landscape that don't necessarily have the engagement of the rural people. I think there's a little bit of that disconnect (DW, Interview 5)."

When talking about this same issue from the Watershed Planner perspective, different CD boards varied in their ability to cope with change, and the provincial expectations that they would tailor their programs and activities to meet provincial priorities.

> "I think that the boards that you see, or the CDs that you see progressing are the ones that are open to having those conversations and trying to improve themselves, and the CD boards that are more in the struggling kind of category are the ones that are like, well, don't come in here and tell me what to do. They're

a little bit more...and I don't know if that's a culture of the board, the differences of the people coming to the board, for the area (MWS, Interview 4)."

Other participants contemplated ways to overcome prejudices on both sides, through activities that would enhance mutual understanding.

"And I think we should have a few busloads from inside the perimeter, and observe this once in a while because…
They are not aware of it?
Ray and his pigs, and this guy was at one time too, we get blamed for Lake Winnipeg's problems, but it's obvious that the City of Winnipeg contributes a lot more than the hog producers do. We aren't going to war with that…we're making an effort. And I mean "we" as in Conservation Districts (SL, focus group)."

"One idea that I have kicked around with some people in government, everybody that works inside the perimeter and all the other CD people, if you wanna bring these groups closer together, we almost need to do, like a speed dating setup where we sit down across the table and get to know them, again a bit on the personal level, but more about just trying to get to walk a mile in somebody else's shoes. Like some of the remarks that I hear from people that work inside the perimeter, and it's scary because these are the people that have the policy designation as their title, they are policy developers, it's like don't have a clue of how things operate out here, so there's a huge disconnect in the policy makers reality (AB, Interview 1)."

"But one in particular where there was a few members from an NGO that attended, who were particularly opinionated on drainage, and they got to sit down with some of the folks that were in the Alonsa area, and they sat at the same table with some of the drainage folks, who were interested in improving agricultural capability in that part of the landscape and it was a great discussion, you could see learning on both sides. You know, I think it's easy, it's easier to say how the landscape should be managed from Winnipeg than when you're actually out there on the land and seeing what farmers are faced with every day, it gives you a different view. So it's interesting to see people's eyes opened up to see what kind of issues farmers face every day (MWS, Interview 1)."

As in the example above, members of ENGO groups represent a different perspective at the table, one that is more wholly focused on environmental improvements, while at the same time they are being called to view the issues from a more social and economic viewpoint. The following quotes came from NGO participants regarding a public forum meeting they attended.

"Hearing from people around the table at how the last twenty years there have been really extreme. And it seems like it's getting more extreme, and it's not so much a matter of…at least for people there, they don't see it as a problem that we've taken away too many wetlands. Actually I hear that a lot in rural Manitoba, I hear from experts that we have to protect the wetlands, because that is what holds our water, but farmers are really convinced that we have too much water, and even if we have more wetlands it wouldn't do us any good. I don't know the answers to that, but there is certainly a mismatch between what farmers understand as the reality, and some of the experts see as reality, and how to bring those realities together is a challenge I think with any one of these projects (NGO, Interview 1)."

"I think a lot of times the attitude is, for example, dealing with agricultural workers, the attitude is often 'well they are going to be doing this anyway, so let's convince them to take a small parcel of land and do a slightly less harmful practice on that'. Whereas it should really be looking at it and saying, what do they need to be doing on the land, and can we change that in this whole area because it's not sustainable at all.
Looking at soil conservation and downstream impacts?
And drainage. And that has to go hand in hand with compensation for the landowner. Ecological goods and services (NGO, Interview 3)."

This example shows how cross-sectorial learning challenges both parties to broaden their perspectives. It would be naïve to think by fostering social learning, participants wholeheartedly integrate a foreign point of view. Instead, the above shows that environmentally-driven participants, and this may include government, may gain an understanding of the barriers to adopting new practices and the existing benefits in maintaining the status quo for those they would like to influence, as well as a more nuanced evaluation of stakeholder needs. This can create support for the types of programs mentioned here; investment in ecological goods and services to maintain ecosystem health and agricultural incomes. Where there still seems to be work to be done to strengthen the relationships between the provincial agencies and their rural partners, there may be an interest in the creative relationship-building solutions mentioned here, including rural exchanges or "day in the life" activities.

A recurring comment from those outside government staff members was a guarded view of the relationship of government and landowners, and the political nature of decisions related to resource conservation. Some of this mistrust stemmed from the belief that policy had been led by something other than evidence.

> "Source water protection. I'm not a cynic about his, yeah…okay, I was thinking about, well sometimes I am a little bit cynical about government, and sometimes they're a little bit too close and we know that there's inconsistencies, this is great in theory, and a wonderful academic plan, there's a lot of interest in those sewage ejectors, do you remember the sewage ejector issue?
> *No, I don't think so.*
> Well golly, you must be from Winnipeg (DW, Interview 5)."

In this instance, regulation governing septic fields was seen as an undue financial burden for rural households, which was eventually rectified through lobbying by this constituency. But the example was used as an indication that rural communities typically shouldered more of the burden of environmental stewardship than urban centres did, mainly due to their political power.

Interviewees in the role of CD manager and Watershed Planner were aware of their role as representatives of either government, or government funded agencies, and talked about how they learned to communicate to their partners in ways that reduced this apparent division.

> "Because one thing that I learned, just in my experience, is that hearing it from a provincial employee isn't the way to do it. So I can go to board meetings all I want and have a presentation and all shiny and tell them this is how you do it. And I know they're not going to listen to me, and their eyes are going to glaze over, and in the back of their mind they're thinking, you work for the province. And so I suggested to the board yesterday, I was like, they're going to listen to this guy, because he is one of them (MWS, Interview 4)."

> "It is interesting, for the number of people that assume we're government because we get most of our funding from them. If that some days you feel like you're working for the province for the amount that they want to have control over where dollars are spent. But in the end, as our old planner said, you're working for the

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board, you do what they want. If what they want is different from what the province wants, you pay attention to the people who pay your salary (AB, Interview 1)."

In addition to these comments on the difficultly in representing government in a multi-stakeholder process, this same group also talked about changing their approach and how they framed the issues to elicit different, more constructive conservations with the WPAT and the public.

> "What we did in earlier plans, is that we came in and asked people what are your issues? What are your problems? What should be changed here? And that sometimes led to conversations, or some people kind of, trying to push their own pet projects, and trying to bring up their own problems, and trying to be the loudest voice in the room. Water can be very contentious, that sometimes crops up, generally people were really well, trying to share information. But what we started to do slowly is, instead of asking people what the issues and problems were, we started to ask them what they valued in the watershed. We've got people to start to talk about what they enjoy about the area, what they like about the area, what they think is important in the area, so that moved people away from just trying to speak loudly about their particular flooding issue, whether drain problems, people would start thinking hey, you know, I value having a nice clean creek nearby where I can go fishing, where I can go take the kids swimming, or where I can get decent drinking water from this particular aquifer because I know it's managed, or it's not overdrawn and there's not a lot of pollution (MWS, Interview 2).

Some of these adaptive practices were echoed by CD managers discussing their improved ability to communicate with their membership. In the following quote, a participant from the La Salle River IWMP talks about framing watershed issues and solutions to promote social, economic, and ecological benefits.

> "I like to think that the producers that to show up, they learn that there is more than one reason why we're asking them to do something. Like even though riparian buffer, OK, nutrients, so we talk nutrients, nutrients, nutrients, well, you have a hard time having a guy give up 30 m to stop the runoff that you're telling him, that it's his fault that it's getting into Lake Winnipeg. But then to say well you know what, in addition to nutrients, you've got a fairly active river, if you leave that buffer zone, your crop is going to, the edge of your field, is going to stay there. If you take that buffer away, the river's going to start eating into your

field. So you're going to end up losing that land anyway, one way or another, why don't you keep it there with a buffer instead of losing it to erosion.
I see…
There is usually some way around their argument, that there is a better way for them to wrap their head around the solution, and some of what science is saying. So the way that these are structured with the public and science being together, if they're working properly, you get that mix, and they will get more than one reason, and the science guys will learn a little of the common sense practicalities of whether this is going to work or not, and the landowners learn a little bit of well – I'm going to do it and it's going to benefit me this way and this way and this way, and plus it's going to help all those people down there. Because most landowners, they think how is it going to affect them first, and downstream people second. So if you can come up with the reason how it is going to help them first, *and* help downstream, that's it's more likely to be an accepted practice and saying if you do this, it's going to help down there...big deal (LS, Interview 3)."

This quote and others like it, demonstrate responsiveness to group dynamics and problem solving within the leadership of the watershed planning teams, and learning through interactions within these groups. The challenge of cooperation between government and local participants appears to be an area that requires on-going attention and reflection on how the perceived top-down approach in the *Water Protection Act* can be diffused and more support given where local leadership is producing results – local plans that are successfully implemented outside the IWMP format.

In the case of the Stephenfield Lake Management Plan, representatives of producer groups were part of the 20 member Round Table committee leading the drafting of the watershed management plan. This plan was held up as a successful process by participants. In one example of this, they talked about the positive outcomes of sharing information to clarify the existing responsibilities of livestock producers.

"I think you are right, some of the things that I've noticed, there were questions asked in regards to these commodity groups, how they handle their problems, which is manure, is the main thing. But once, I can remember that the one meeting, that there was quite a bit of concern because anything under 300 animal units could do what they wanted. Well I pointed out quite clearly that this is not the case, anything over 300 animal units had to have a farm management, manure

management plan in place, anyone under it had to comply with all the regulations right down to the guy that had one pig in the barn. And once that was mentioned, things just kind of subsided, and they understood it then (SL, Focus group)."

During the focus group with three members of the Round Table, they expressed their satisfaction with the formation of the group, participation of community members, and the continued dedication to implementing the goals of the plan.

"And that's, that's where this one has excelled. Because you have this continuing action group that is still made up of all the smaller groups in the community, you still have the smaller groups now, better still promoting the watershed plan to all the landowners, so it's not just the CDs, it's not just the municipalities and the province, but you've got the Cattlemen, the watershed small groups, the wood lot association, the water Co-op, it amplifies the number of people who are, where it amplifies the direction that it's all coming from. Instead of just, yup, yup, if I talk to you, I know exactly what you are going to say. But now, their Cattlemen's Association is also saying similar things, their counselor is saying similar things, their neighbor down the road who was a member of the woodlot association is saying similar things, you get more of a coordinated effort, and if you hear it from a whole bunch of small groups, it's better than tunnel vision from the province (LS, Interview 3)."

They also attributed some of their success to the impetus for the plan, which was local concern and motivation to address watershed issues, as well as how they handled the facilitation of the group.

"A point of interest, when you first started you mentioned the top down approach or up from the grassroots or whatever, I don't think we would've gotten anywhere if we had used the top-down approach. Because there are too many different, if you look at page six, there were too many different, I don't know, people that attended from different areas, and with different requirements of what they thought was necessary (SL, Focus group)."

"And if we're helping keep a bit of phosphorus or whatever out of Lake Winnipeg, so much the better. I think the important thing about this whole thing is that I don't think we have ever been pushy with people, we've always tried to work the other way around, and I think that's probably been our strengths in that we have worked from the bottom up, rather than to bring stuff from the top down all the time. I know my fur just goes up the wrong way if we deal with top down issues. But I don't ever feel that that has happened here (SL, Focus group)."

"And just been a really…in other districts, some of them, they don't have that east to west trust and partnership. In a lot of them, 'you do it here or I'm out'. We have a little bit of that, but there is a really good east to west trust here that they know, they understand how everything works, and it's worth it to them to do projects like this (Pelly's Lake), outside their municipality because they do see and they know and that they will see, a huge benefit that will be worth to them the money that they've spent (SL, Focus group)."

Interviewees commented on the tangible relationship outcomes from the IWMP including the ability to find funding for specific projects. Many interviewees talked about this benefit, and how the new boundaries helped both local municipalities connect, share resources and build new relationships. They also talked about how having a prioritized list of actions and goals created confidence in partner funders, knowing that there was some level of community buy-in, helping establish greater legitimacy for the process and the plan (Ramin, 2004). In the case of the Deerwood Soil and Water Management Association and the Tobacco Creek watershed, both the upstream and downstream municipalities were able to see the benefit of targeting investments. For other Conservation Districts, partnerships through the IWMP with government agencies resulted in shared data that they would otherwise not have accessed.

"For a lot of data, we get the best data from them (PFRA). We've been lucky enough that through different partnerships they have flown, even things like LIDAR data, they have flown various areas in the province for projects they're working on. And because we're working on projects with them, we get shared access to a lot of the data they have, which is very nice for us. And they don't seem to mind at all (LS, Interview 3)."

"They would come up and do projects in another municipality, just because they could see the downstream benefits, which was just unheard of at the time to have a municipality sending their cats and scrapers to another municipality to do work (DW, Interview 4)."

"Water Stewardship has a grant, Lake Winnipeg Foundation fund has a grant, we got money from the Royal Bank Blue Water Fund, you know and I think really, for funding, if you have a plan, funders go to fund it. And if you have some science to back it up, even more so. And the more proof that you have that what

you are intending on doing has been thought about and there was consensus and everybody agrees, it's easier to get the funding (DW, Interview 4)."

"*Has the IWMP been a tool to get those partners?*
Oh, for sure.
Yes.
It helps in getting the external funding for a proposal. It's actually identified in this plan that, this is what the landowners and the watershed residents want, for sure (ES, Focus group)."

"I think it is a better sell to funding agencies, I've got a watershed plan completed, the first priority in our watershed plan is to do this and this and this, help us fund this to achieve our goal. I think it has far reaching potential for external funding. It brings together groups like, you there are a lot of people that contribute to these plans, so a Federal Agency can look at the plan and say that we know the local people in the area, and they prioritized this and this. It can help us to direct programming (MWS, Interview 1)."

"And it looks better on a grant application too, if you can sort of say this document says X, we want to implement X, and this document was developed with intense local involvement in, and these things, it's great for granting applications. So I fully believe that it will get you more money, and I don't know if they're still doing it, but the simple fact of completing one will get you $25,000 from the government for implementation. See, you take that and you leverage that money again, and it wasn't that hard to get funding to support projects. It's harder to get the project done than to get the money (NGO, Interview 6)."

The social skills and relationships built through watershed planning represent a new approach for provincial departments, and a refocusing of activities for Conservation Districts. Research participants gave examples where IWMPs and alternative watershed management plans were fulfilling their mandate – to focus limited resources on effective programs, and create the conditions for new partnerships and attract additional funding. The comments also draw attention to the areas of tension for rural and urban participants, and how these relationships can be improved.

The theme of learning about research-based policy wove itself through my discussions with interviewees in rural communities. Participants who were also agricultural producers talked about the need to verify or disprove the efficacy of

management practices for environmental benefits. Recent legislation in Manitoba set nutrient reduction targets in the *Save Lake Winnipeg Act* of 2010 in addition to the creation of special management areas in the *Water Protection Act* of 2005 restricting activity in ecologically sensitive areas. Changes to drainage regulation also prevented building new drains based on a 5 Class system, allowing only the construction of Classes 1-3 (AB, Interview 4). These legislative and regulatory changes provided a backdrop to my interviews on the IWMP actions and goals, and the expectations of landowners. Many of the participants interviewed gained a better understanding of their local watershed issues through their interactions with government and NGO staff and the presentations they received during each planning process. Much of what the participants discussed related to learning was regarding agriculture and its impact on water bodies. Nutrient management continues to be a major issue in Manitoba given the direct impact excess nutrients have on the declining health of Lake Winnipeg. According to my respondents, common or prevalent views of the issues clashed at times during these interactions and when new information being presented, especially where current research overturned historic beliefs. Interviewees described their desire to see research dictate policy, replacing what they saw as more politically motivated decisions.

> "And that gets to my point, should there not be a research and evaluation component to the MCDA program, which is where I see us fitting. I saw a document that they sent out talking about evaluation. They told their managers that taking pictures is really good. This is part of their evaluation. Their idea of evaluation and my idea of evaluation are very different (DW, Interview 4)."

> "*Do you think that is where you rely on local knowledge and the history of the...for looking back at what worked in terms of agricultural practices?*
> Not really, because you still need the scientific research to find out whether or not the local assumptions are right, because as we found in the past, they're not always right. It's a marriage of the two I guess, it speaks to why farmer-led research is important, because it brings different questions to the table.

And that should be a priority?
Back to watershed management plans, that is kind of why they want this water management plan to be based on science and results instead of public perception, common ideas (DW, Interview 4).

"It's very difficult. But that's my thoughts anyway, the watershed committees, or whatever you want to call them, I guess the watershed plan right, is what you're talking about essentially, should recommend where we need more knowledge that we don't have, and we haven't the money to do anything about that, but that's one of things we need to send up to the top, you know... (AB, Interview 2)."

Policy based on research was in the end viewed by some of the participants as a protective measure for both parties against arbitrary or uninformed decisions and a way to mediate differences. I also looked into the current *Surface Water Management Strategy Stakeholder Position Papers*, and this sentiment was repeated in the Briefing Note submission from the Manitoba Beef Producers;

"Producers will strongly object to any health or environmental regulations that are not based on sound, peer reviewed science. Inappropriate, non-science based reactions to environmental and health issues have resulted in significant losses by our producers and by the Manitoba economy (Manitoba Beef Producers, 2012).

The following comment introduced an additional challenge of having government employees feel comfortable enough to share information, or have their mandates adapted to include this task.

"Like there was the process where we had…that was another frustrating thing. We went, you know, we requested presentations from a number of different levels of government okay? And we were told well, basically there wasn't any information, you know so…we started out with the idea that we would look at all the information, and based on what that information was telling us, we would you know, somehow incorporate that.
Sounds logical.
But yes, well water sampling for one, that was one of the areas we discovered just left a lot of gaps, and the other frustrating thing that we encountered was that, where there was information, we would ask the department or the head of the department, somebody at the department, well I guess basically interpret the information for us, and there was a hesitancy on their part to do that.
Somebody wants to know…

> But nobody wanted to stick their neck out, because nobody…And that's just one of the things about working in government, you don't want anybody to be able to come after you with an axe, because it's often very sharp, so nobody wanted to be sticking their neck out where it might get, where their heads might get chopped off. They like their job, and they wanted to keep it, so they weren't going to endanger it in any way. But that wasn't really very helpful to us. So a couple of different types of frustrations, came as a bit of a surprise, it kind of had people's backs up a little bit, but you know, you deal with what you get, and try to move on because, we obviously weren't going to change those realities (AB, Interview 3)."

All of the case study IWMP plans indicate government departments as responsible parties for completing actions. These new partnerships represent commitment to a common goal across departments with diverse and sometimes competing mandates. The challenge of IWMP implementation is to strengthen the relationships built during planning, to ensure all parties see the value in completing their work.

> "Key challenges are going to be getting some of the other groups to keep up with what they're supposed to be doing, most of that being the province. Like our plan and most of the plans will have goals and recommended actions as well as key organizations who should be responsible for implementing these recommendations. And it gives you a time frame, and for a lot of it the holdouts are going to be the provincial government departments.
> *Why is that?*
> I don't know the real reason. I think it just ends up working that way. One department says another department should be doing something but that doesn't necessarily mean that department feels that it is high enough on their priority list to actually do that (LS, Interview 3).

> "Well there seems to be segmentation within the Provincial water departments, with Water Stewardship and MIT (*Manitoba Infrastructure and Transportation*). And there probably is work that can be done to harmonize those departments a little bit better than they are right now (WC, Interview 2)."

One interviewee also mentioned the need for government agencies to develop greater respect for the Conservation District's role, in addition to the need to work together across departmental divides.

> "I still feel it today even, within the department of Water Stewardship. They look at CDs as a bit of a child in the sandbox, and we don't have to give them, not the time of day but…equal…

You're not saying resources, you saying like…?
Like, you don't treat them like equals, and I still feel some of that today. So the whole thing about governments are operating in silos, it's just brutal (AB, Interview1)."

Again, the comments circle back on the need for better relationships between stakeholders, and the development of mutual trust. Where this relationship building seems to have a foundation is an investment in research and resources for implementation, so that any future programs and regulations can point back to evidence. We need to evaluate risk, explicitly acknowledging the difference between perceived and real factors affecting environmental health. This issue has been equally important in Ontario, and the development of Source Water Protection plans, where conflict exists between the growing ex-urban rural population and local producers (Ferreyra, de Loë, & Kreutzwiser, 2008). This involves having an accurate understanding of the cause and effect relationships on the landscape, and communicating these outcomes, or using a precautionary approach where evidence is lacking. Currently, the federal Conservative government in Canada seems to be reducing its reliance on evidence and scientifically-based policy, and under these circumstances, the provincial government is called upon to renew its efforts to support research and employ it in crafting regulations that are effective and fair. According to many of the research participants, this would go a long way in fostering trust between parties of the IWMPs.

6.4 Changes in Attitudes, Changes in Behavior

Researchers have tied successful social learning processes to adaptive management and pro-environmental behavior (Maarleveld and Dangbegnon, 1999, Pahl-Wostl et al., 2007, Mostert et al., 2008). But in behavioral psychology, it is clear there are multiple barriers between attitudes and action (Gifford, 2011, Ehrlich and Ehrlich, 2013).

Social learning looks at providing a space for deliberation – where an action plan can be developed that all parties can agree on and work to implement. The case studies of this research are located in a rural, agriculturally dominated landscape, and so it was not surprising that the interplay between farmers and the landscape became an overriding issue in my interviews. The following quotes talk about the path individuals took as they become more deeply involved in the process, and how they played different roles, piecing together diverse interests and helping the community take responsibility for improving watershed conditions, which underscore changes in behavior over time.

> "But you see, I wouldn't be talking to you and engaged in this if I wasn't involved in it. You see when you get involved in something then you start to understand and learn more about it, but if I was still on the farm and I never was involved in council, I wouldn't be involved, I wouldn't even know what you're talking about. I got engaged, but that is a very small percentage of people that get engaged.
> *How did you get engaged?*
> I ran for council, and all of this stuff came along and we had the Conservation Districts formed, and so we go to meetings and learn more about Conservation Districts - how do they work, and we joined the Conservation District, and I am on the board of the Conservation District, and it just evolves. But as ordinary Joe blow... (LS, Interview 1). Ref 6 Tech K

> "Well, they (upstream communities) were having issues with it too. Maybe not the same, but it was a big issue and I think they were surprised, just a little bit west of Elm Creek, they're having problems there too and I don't think they realized that before. That's the one thing being in a municipal government, you talk to other people and, you know, I always knew that they had trouble (LS, Interview 2)."

> *"So did you go into this plan thinking that you are going to educate the public on some of the BMPs you're talking about, or some of the issues in the watershed?*
> I'm not sure that we went in with that in mind, but it certainly turned out that is exactly what came out of it. I don't know why, what do you think?
> I'm just thinking of an answer here, we're always aware of the fact that we are here to represent the public at large, and do what we can on their behalf (SL, focus group)." L4 Sharing K Ref 2

> "I guess there has been enough, there's been a fair amount, write-ups in the press and radio and so forth, and everybody has come to the conclusion that we have got to do our share (SL, focus group)."

The public nature of the work supported IWMP participants to think of themselves as role models, and to take on the responsibility for demonstrating practices on their own property that supported watershed health. Interviewees talked about how they observed the positive influence of early adopters, and how one or two individuals could model behavior that was later taken up by their neighbours after the practices were proven effective. The first quote refers to a large cattle rancher who was motivated to improve his operations by fencing his cows off the waterway.

> "I remember two or three guys phoning me up and saying, you're sort of representing us on this thing, how do we progress, or how do we go ahead and progress at trying to move some of our cattle off? And one of the large ones that took place, and I think he spent an awful lot of money of his own doing this, then with a bit of top up that he got from us, and the BMP process, I think that particular one was certainly a real advantage, because everything got moved off, and it was a fairly large setup, everything got moved off the Boyne river, and what have you. And I remember him sitting at that meeting at Rathwell, for the sake of argument.
> And it only took one or two people like that, making an effort to do it, that other people just took notice, that they can't continue the way they were, they've got to make some changes (SL, focus group)."

> "And that may be one of the challenges, you know if I am simply sitting here and saying that, well, you know, this is what people should be doing, and *I'm* not, the immediate question, my immediate question would be, well why not? I think if board members buy-in to a program, and then follow through with actually incorporating the…I've got to back up a little bit, you are no doubt familiar with the term 'farming the mailbox'?
> *No.*
> Well, you've got to be – seriously? Okay, just doing programs because governments got incentives to get into the program, and not necessarily because you are hook, line and sinker into the program, but just because there is government money there. So you know, as a board member, you shouldn't simply be farming the mailbox, but ought to be incorporating some of these best management practices because I really have come to see that they are benefiting my operation. And if I believe that, then that's what I'm going to be telling my acquaintances (AB, Interview 3)."

> "Something we've talked about, we talk about on a broader scope, that we are a demonstration organization, that we do projects that producers and landowners

won't do on their own, and we demonstrate – this could be the way to do it. Hopefully they will look at that, and other ones will look at that, and carry that on. So I think that is somewhere that I would hope this would go, and more producers would say yeah, they've shown us that this is the proper way to do it, and some of those programs we could delete, because the producers do it on their own. So it's a learning process, so I hope that we can continue doing that, showing producers that, and society if you will, they right way to do it.

And even further to that, Turtle Mountain has been pretty lead in some of the programs that other CDs learn by example. TMCD demonstrates a successful program, and then they start adopting it. I think that is where the cross-CD learning is, is you take program that is working really well in one CD and try to apply it to your situation (ES, Focus group)."

The following interviewee used the example of a tour they had taken to visit an operation where the farmer had installed an off-site watering system for his cattle. In this case, the producer confirmed research that cattle do better in terms of weight gain when their drinking source is fresh, standing water, rather than flowing fresh water or stagnant pools.

"Anytime anyone can do that, it's gotta be a big plus to move Conservation District programs forward. I guess at the end of the day, that kind of meticulous record keeping that would allow a person to be able to see and then share positive results, and connecting to kids in schools with that kind of information (AB, Interview 3)."

In this example, the participant noted the importance of record keeping in testing beneficial management practices and communicating their effects. Farm tours and experiential learning have been offered through many of the organizations involved including the MCDA, individual CDs, and by the two lead groups for the non-IWMP case studies. These tools offer an additional venue for interaction and learning, as well as providing for the urban/rural interface promoted by research participants.

A common concern expressed by interviewees was how land use planning, including agricultural drainage (especially illegal drainage) is negatively impacting the health of Lake Winnipeg, and how watershed plans are addressing this issue. On the one hand, interviewees talked about the desire around the table to restrict drainage, while

sensing reluctance on the part of the provincial government to follow through with increasing strict regulation and enforcement. In the example of the Willow Creek IWMP, two interviewees representing NGOs commented on some of the shortcomings in the goals and actions written in the draft plan, and how underlying issues were starting to be addressed. These quotes are followed up with a comment from MWS staff on the kind of support these policies received.

 "My point then is that in that plan, the Willow Creek one, for example, under the second priority, which is Surface Water Management, so one of the second category priorities would be environmentally friendly drainage. And wetland retention and restoration is at the bottom of the list, so you know, flooding is one of the biggest problems but you're going to do more drainage. They haven't thought this through, is my point, they haven't thought this all the way through to…they're just addressing the symptoms of the problems with outputs, rather than trying to achieve outcomes with well thought out strategies (NGO, Interview 5)."

 "Sometimes I find that the province needs to take the leadership, and sometimes I find the local people take the leadership. A classic example again is on wetlands, I'm finding that there are more local people demanding for wetland protection than…the province is not committed to the level that they need to, and certainly not the level that the locals are demanding right now. So we're probably going to see a policy shift at some point here, because Conservation Districts and local people are getting sick and tired of the Province being lax on wetlands and on drainage. Hopefully that happens in my career but we'll find out (NGO, Interview 5)."

"Like if you get something like, you know, no more drainage or something like that, or no wetland loss or something, it's going to be like, I don't, you know the PMT may be in for it, but then, who has to implement that? They may not be in for it. It's mainly, from what I recall, the PMT was more willing to put harsher restrictions, this is in general not just Willow Creek, than the regulators. And my interpretation of that was that the regulators didn't have the capacity and, or, the willingness to really take that local advice, and say, yeah… They can't change policy on it, basically, especially on a watershed by watershed basis right now. Maybe in the future, but nobody likes to be told what to do, so if you're telling a government that you need to restrict all cattle operations on areas of overburden less than 5 metres in the Netley-Grassmere, then it's okay, okay, maybe that is a good idea, but, it's not going to happen (NGO, Interview 6)."

"And they'll send out the plan for public review, but also for review from municipalities from the Watershed Team. And sometimes, we got a lot of really, really good comments about our 100 metre setback, so we left it in there, were ambitious and people loved it, we got really good comments about it, not only from the technical people, that were like, yeah, you are pushing it even farther than we did, you know, in the Provincial regulations. And there's local people saying this is great, we really like having that beach reserve and bush along the lake so it's not entirely developed shoreline. And then we're always going to have one or two people, or a handful of people that don't agree with you (MWS, Interview 3).

In addition to these quotes, interviewees talked about change over an extended time frame; the time it has taken to degrade the watershed and what it will take to reverse these trends, including potential future land use practices. One interviewee called for a longer term view of the watershed issues facing Manitobans in the Interlake region, where long wet and dry periods can conceal the underlying need for adaptive capacity.

"We if you look at the Interlake, they're looking at buying out, and the only lesson I hope they learn from that, say, fifty years from now, the place is all dry – just lease it out, don't sell it again. Like, document this very well. But you know, the government gets in a tight spot, and someone may come in and say well here, I will buy this from you, and they get their revenues to use for something else. And they should just lease it out (LS, Interview 2)."

The idea of long term change was also reflected in the question of monitoring for effectiveness, and how the activities laid out in the watershed plans could improve ecosystem health. This was especially true in terms of water quality parameters.

"We've had a lot of internal discussions on how that works, but if you're looking a water quality monitoring, you're looking at a completely different scale than what a 10 year plan can provide."
…
"At this point, yeah, I think for an area that's as heavily agriculturally managed, this landscape, it's so heavily drained, and the budgets that these organizations work with are a few $100,000 dollars per year, I mean the budgets of half of these producers here are millions and millions of dollars, and their influence on the watershed is tremendous, if you consider there is a spike in canola prices, if there's a spike in soya bean prices, or corn, all of these different crops will have a much bigger impact on the water quality over the whole landscape than whether

you do a riparian and fencing project or whether you do a tree planting project (MWS, Interview 2)."

Social learning has been seen as both an evaluation of process and outcomes, though in my readings, the tangible benefits has been measured in terms of social progress, better relationships and cooperation, rather than perceptible ecosystem changes. In this research, the focus is on social changes, with an acknowledgement that the timeframe required for reversing the negative impacts of human development is measured in decades, and that the incremental changes in between need to be measured as well. I would argue that the relationships built today create the conditions for continued improvements. In this way, the IWMP and alternative watershed management plans set the stage for a more focused examination of land use and environmental repercussions, and the changes residents can make to mitigate negative impacts.

One particular research interest for this thesis was the involvement of non-governmental organizations in the IWMPs and how they were able to participate, and how their work was influenced, or how they influenced the proceedings. This involved asking NGO representatives about changes their IWMP participation had on how they viewed watershed management issues, and whether they adapted their organizational messaging or practices in response to what they learned from the meetings they attended, readings they did, or conversations they had because of the IWMPs. Each of the NGO interviewees was asked to talk about how their involvement in watershed planning in Manitoba impacted their work as an organization and as individuals. They talked about attending meetings, preparing documents for the PMT, and in some cases, adapting their work to the new opportunities plans provided. Research participants from the non-governmental organizations produced many of the comments on how the IWMP can be

taken to another level, and provided the process with valuable input and alternative

perspectives on the issues being addressed in the plans.

> "So we have seen an evolution in the Conservation Districts with programs as a result and we have adjusted to that. We have adjusted our messaging. We've adjusted how we communicate with CDs, and adjusted how we communicate with the Conservation District Authority, and how we work with the Province of Manitoba. So we have learned a lot being a participant, in various phases or level, structural levels if you will, of the IWMP process.
> *Can you give me an example of how you've made an adjustment in your communications?*
> Just in the way we communicate, in what we communicate and the level of what we communicate. For example, as you said at the beginning, CDs are starting to get it about watersheds, we're getting our science out, we're starting to see some uptake of that, some acceptance of that, some buy-in of that. And actually, some Conservation Districts are real champions of the need to get a control, get a handle on drainage, and stopped draining the landscape and increasing our flooding problems and water quality woes all the way downstream. So what we've done is say, okay, we've got these champions, we should be helping them to helps us. Can we feed them information about what they can do, what role they can play as advocates, do they know what role they have in terms of policy influence that they – they have a lot of capacity and influence with the Province of Manitoba, they should be meeting with the Minister and saying what they are saying to us. So you know, we're coaching them, educating them, and they're educating us and it's a two way street of learning, as we kind of evolve and develop a relationship going forward. So that's been a big thing for us as well. The other thing that has been important for us is to continue to stay on top of where the IWMP process is, because it is a growing phenomenon so to speak. And it's changed and evolved from when they started the very first one to now (NGO, Interview 5)."

Another contributor to water resources discourse in Manitoba is the Water Caucus

of the Manitoba EcoNetwork, based in Winnipeg. As an umbrella organization for

environmental non-profits throughout the province, the Manitoba EcoNetwork have a

particular focus on bringing together those working on water related projects through

their Water Caucus project. This project is staffed by two part-time employees, and

works to share resources and information, prioritize issues and support water stewardship

(Manitoba EcoNetwork, 2012). Staff members described their involvement in IWMP

planning, which included attending some IWMP public meetings and providing educational events on relevant topics. Manitoba Water Caucus staff prepared a best practices document that they submit to each IWMP process, and their research highlighted soft path water resources planning and the precautionary principle, both important tools in developing watershed plans, especially where future climate variation is unpredictable. There was some question as to whether their participation was resulting in changes to the plans, or whether this was the best venue to enact the changes they felt were important.

> "So you know, at the beginning everyone thought, watershed planning, it's the silver bullet. It's not gonna solve a lot, it's going to help, it's gonna help people come together and understand the issues and come up with some easy to do solutions over the course of the next decade. But you know, as an environmentalist, and NGOs with limited funds and capacity, there are other venues to spend your time and focusing on to make changes. Everything is like, you know, get rid of this regulation, deregulated, no mandates no targets, will this kind of come together and say, if we do this it will be all nice and pretty. And it's all voluntary, so if you get dragged into that process without getting any compensation whatsoever, from an NGO perspective it's kind of a waste of time. You got to put all of your, as much eggs in one basket as possible to affect change, so whatever that can be, that could be focusing on regulatory change, changing the rules, a change in how much government spends on certain programming, et cetera. Or doing advocacy, and getting citizens behind you on that, so that they feel that they have to change (NGO, Interview 4)."

It is concerning that these participants felt their involvement in the IWMP process is not considered to be effective. This organization contributes additional learning opportunities for participants and the public, which enriches the process and provides valuable concepts for IWMP leadership to explore and incorporate into their work.

The Manitoba Habitat and Heritage Corporation (MHHC) is also involved as an NGO partner in watershed planning. MHHC is a crown corporation with the ability to receive charitable grants and contributions. Although they work in specific areas of the

province based on wildlife habitat, they have offered their input and services to a number

of the CDs, and receive all draft plans and are invited to review them.

> "*How has MHHC benefited or not benefited from having IWMPs carried out?*
> Probably the biggest thing is when…the biggest benefit is when we actually get
> listed in there as a partner.
> *Someone who will do something by a certain time?*
> Yes, exactly. We will deliver X number of Conservation Agreements in there and
> we are in the glossary in the back, which explains MHHC, and that's a huge
> benefit for us in getting our name out there and getting a sort of first out the door
> for the go-to organization. We don't actively participate in the development of
> these.
> …
> It smoothes the waters really well for us, and we get some of our goals achieved,
> like protecting habitat, and the CD, it addresses some of their issues.
> …
> Before twoish years ago, we didn't really have a whole lot of engagement with
> the Conservation Districts, as far as I'm aware of, I mean I wasn't around, but
> from what I hear, we would do some work, but it was mainly, we're doing our
> thing, we have our funds, we're just going as she goes (NGO, Interview 6)."

Participating environmental NGOs offered additional voices to the mix, although in most

cases their contribution was limited to written comments due to the travel time and lack

of resources to participate, but also because the IWMP process focused on local plans for

local people, where NGOs based in urban centres seemed to have priorities that were

disconnected from rural communities.

> "Like the Conservation Districts that I work with are very rural, very
> agriculturally based, well, you were in Neepawa yesterday, that's the biggest town
> in any of my Conservation Districts, and even then, a lot of the people that live in
> Neepawa have rural agricultural connections, like their grandpa has a farm or
> whatever. And I feel like, at least in the Conservation Districts I work, there isn't
> that sort of urban environmental ethic that you get in some larger cities where you
> know, people want the parks and everything else. Like I lived in Neepawa for a
> couple of years, and people didn't really do that, they couldn't relate, why would I
> go outside when I can go…
> Go to my grandpa's farm.
> Like why would I go to a park when I can just go walk around his fields or
> whatever. So I think probably with Brandon joining the program, there will be
> more of that. And I think actually in the East Interlake Conservation District,
> there's probably more of a need to do that because they have a lot of urban people

who have cottages there and who commute into Winnipeg. And so I think they have probably more of a potential to make the connection. (MWS, Interview 4)."

"But watershed planning is just such a foreign thing when you live in the city, I mean that is the thing; two thirds of our province's population lives in the city. And watershed planning is foreign to them (NGO, Interview 4)."

Social learning can act as a link to behaviour change. This is based on an individual's choice to act on new information. In some of these examples, changes in behaviour seem to stem from the roles these participants played in the process, taking responsibility as representatives and as examples for their community. These plans also brought to light underlying issues including wetland drainage and development in riparian areas, as well as the type of policies that will provide better environmental protection in the long term. Although the issues were raised, the question remained how these locally devised policies can be put into action both regionally and provincially. The participation from environmental NGOs provided examples where the IWMPs provided opportunities to improve communication campaigns and expand the reach of conservation programs and introduce new ideas into the plans. Where NGO groups are constrained by funding, there is room for additional support to ensure their voice and their ideas are included.

6.5 Sharing with the Network

In terms of sharing the finalized plan documents within their communities, copies were printed and distributed by Manitoba Water Stewardship to all the municipal offices within the watershed region.

"We still struggle with that, I think that the PMT learns a lot, I don't know how much further it goes beyond that, they sort of create the plan and then the CDs try and distribute the plan. They do have a public review of the draft plan, and get it printed and do a little news release. How much beyond that it actually gets taught, I'm going to say it's probably limited. Other than maybe if there's specific objectives for specific education things within the watershed (NGO, Interview 6)."

In addition to looking at how PMT shared their results I also considered how the individuals that participated might have shared what they learned. My research questions included how individuals have used existing opportunities, or have created new opportunities to expand the reach of their own increased understanding of watershed issues. This learning occurs in different social groupings, including within the Project Management Teams, the Watershed Planning Advisory Teams, and the staff of Manitoba Water Stewardship. On another level, bringing these smaller groups together provides additional venues for sharing and communication. Finally, as these groups and their individuals interact with other parties to the process, like NGOs and other organized groups, lessons and information can be transferred to the wider community (Reed et al., 2010).

One level of communication and shared learning occurred between CDs, their staff and their boards. Conservation Districts have a number of venues to work together and deliberate on policy goals for their program and become more influential at the provincial level, including having input into the legislation and regulation that impacts their work and ability to succeed. These include the annual conference, manager meetings, and proposals to the Conservation District Commission. More specifically, formalized mechanisms included meetings twice a year between CD managers, and an annual conference for the board members and sub-district members coordinated by the Manitoba Conservation District Association in Brandon, MB. Historically, each CD would present a summary of their accomplishments that year at the conference. This became more and more time consuming as more CDs were developed (MWS, Interview 4). CDs then tried other means for sharing information, including inviting CD staff and

board members to attend other CDs provincial budget presentations. Although this initiative was met with some resistance as a possible venue for public scrutiny, it did result in concrete examples of shared expertise, for example, finding local, affordable contractors to perform well-capping (MWS, Interview 4). They also talked about a barrier to communication between CD managers being competition for grants, and a reluctance to share their tactics for gaining access to additional funding for projects. From the vantage point of one Watershed Planner forums for learning between managers and boards could be better developed.

> "I think there is a lot of recognition that there's a lot of knowledge in the program and there's a lot of benefit to learning, but there's no formal structure for actually passing along (MWS, Interview 4)."

> "I think that a mentorship…there has been a lot of staff turnover, and I used to be the manager of the Conservation District, and when I first went on, I was green to the program, I didn't even know Conservation Districts existed, and there wasn't a lot of help in finding your way. So it takes a good couple of years to figure out how to get going, and I don't think other than us being there to support, like the Planners to support the staff, I don't think there is a good interaction even between the managers, or staff on what their role is, and how do I find this information.
> I think some kind of mentorship between experienced managers might help the program, or even experienced boards (MWS, Interview 4)."

> "I think there are definitely some Conservation Districts that are much better at calling around and asking, like at the Whitemud board meeting yesterday. He mentioned two or three different managers that he talked to over the course of the last month on different issues, you know, or different questions, whereas I go to other board meetings and I don't hear any of that. I think it's partly personality of the individual in charge (MWS, Interview 4)."

Other Planners and participants described where communication had been successful, and their strategies for maintaining contact between regions. They also described the personality traits necessary for being successful at reaching out to one's peers, or to the public.

"But our CDs talk to their neighbours all the time, so these guys work really closely with these, like when I was a CD manager, there was only one other female CD manager, and she was way down here, so I would call her all the time just because I felt a different connection with her (MWS, Interview 1)."

"I find that to meet people and learn about them on a personal level really opens doors to the interactions side of it. And me being around for six or seven years, my network is vastly larger than the other CD managers, so I get frustrated with them for not just reaching out to people, it seems like people five or six years younger than me are so reluctant to just pick up the phone and be like, hello my name is this, what's yours? Let's go for coffee. They prefer to write emails back and forth and then wonder why somebody hasn't responded. So the whole personal piece has been kind of overlooked, I think (AB, Interview 1)."

"He had the ability to understand those BMP programs and be able to explain it to people that had troubles understanding if it fit on their farm or not, and in a nice way, he liked to go and see people and talk to them right at their kitchen table, and he made that part of what we did a success, yes (SL, Focus group)."

When reflecting on my question regarding how they shared their knowledge with their own network, interviewees discussed how iterations of the IWMP plans had been used to learn lessons about what worked, and how that information had been shared.

"That was probably one of the more successful ways of getting information out that we have found (*bus tours of their projects*). But technology, farm size, it's harder to get guys out for meetings now. If they want to know something, they can Google it (DW, Interview 4)."

"We did look at, I don't remember who it was that had already pretty much produced an IWMP, and so yeah, we looked to the format and in fact, in discussion we were cautioned that people who had already done one, had already learned the error of their ways, I can't remember what it was specifically, but there was the realization. I guess the encouraging thing about that is that you know, we are capable of recognizing error and if we can correct it, and we should, let's see if we can do it (AB, Interview 3)."

A recurring theme was the involvement of school children as influential agents, although this type of initiative received a somewhat negative review from Watershed Planners in that it was somewhat outside the scope or mandate of the Conservation District program.

"We really struggled too with how much emphasis do you put on education because really our program is meant to make a measurable improvements to the water quality and ecosystem health, and absolutely education is a part of that, but we aren't educators, and Conservation Districts aren't educators, so I think in terms of sharing information you know, that's helping people to learn, but in terms of actual, explicit, education programs, we actually almost tried to steer our Conservation Districts away from that. We will encourage them to partner with people like say, Ducks Unlimited (MWS, Interview 4).

Despite this advice, interviewees talked about engaging schools in CD programming and how the information on conservation issues and sustainable agriculture would be discussed at home through parent-child interactions. This was underscored in the La Salle Redboine Conservation District and their work with both the La Salle River IWMP and the Stephenfield Lake Management Plan.

"I think that's how we got the information out, is between the kids going back home and saying, we did this, and they actually did soil testing, there is a number of activities that particular day at the school, then plus the fact that we held public meetings, I think that's how the information got out of there (LS, Interview 4)."

This was reiterated in their work with the South Central Eco Institute, where are group of teachers and staff from the Prairie Spirit School Division adapted the River Watch program for the Manitoban context. This group involves children from grades 5 to 12 in water sampling and measuring different parameters of water quality, reporting the data on a public website.

"The students are quite interested and it gets them out and using the same equipment that they might use if they go on to a career in any kind of water quality testing, and it's really good for us to be involved because, it's giving us a baseline of history of water quality. And we can monitor if something changes and we know something has happened in land use up to that point, then we can maybe go to pinpoint some programming to counteract the effects of what is happening (LS, Interview 3)."

Some of the effects of this program and other programs focused on school age children included increased interest and awareness of watershed issues, and another avenue to

communicate with landowners and farmers in the area. The first quote relates to a partnership project with the South Central Eco Institute, a student water quality monitoring program.

> "Well that's just it - it develops a bit of a ownership over, they have like, their spot on the river, they get a little bit concerned, basically they track it, take care of it, if something happens, they can investigate why, well we are part of a watershed it comes from anywhere else, where could this be coming from? If you are seeing a problem down here, what should we do? It gets them the watershed concept, that what someone does upstream affects someone downstream. And that is the big focus, the watershed model, and you really have to be careful with what you do because there is always someone downstream, and what you do matters. So it's really good that way, most of the kids in this area will have some kind of farming background or their parents, uncles, so there are really good in's there, where they can go back and 'oh, you know what, this is going to affect someone downstream, maybe we need to do something a little different'. It has shown a lot of promise, there's already been a lot of rewards, I'm quite happy that we're involved in it, and our board is really supportive as well (SL, Focus group)."

> "One of the realizations I thought I made was that, if we're going to succeed in moving toward a more sustainable, responsible way to practice agriculture, it will only be if we do an effective job of educating young people. Get those other ideas firmly planted in those young people's minds before those other ideas have completely taken hold, so that when they leave school and if they're going to get into agriculture, they at least got that option to consider. If they don't then I think that really kind of weights it very much towards the kid going the way his father did. My father has done this for years and I see him as a successful farmer so why should I change? So yes, that takes time, and that takes a real concerted effort on the part of Conservation Districts working through the education system (AB, Interview 3)."

> "And we've been fairly fortunate through the schools, we've had teachers that haven't been afraid to take their kids out, and follow some of that educational part of the conservation science, and so that helps too because then all of a sudden it starts to show up. I know with my kids, they weren't scared to come how and say "Dad, are you doing this?" And I say to them, well I would, but if you've got the money, I've got the time. But they are very good then at keeping you honest (ES, Focus group)."

There was also evidence that the dissemination of research was improving through collaborative research projects with CDs, NGOs, and government agencies.

"And CDs don't always have to be the proponent of research, and then again I will say, there's been progress, it was very little collaborative research done with conservation districts 15 years ago, or whatever, but now when you take a look now, there are university professors and a lot doing collaborative studies in various Conservation Districts and then there are also workshops, and communication forums to educate people about their research and disseminate that. That is, we're moving ahead, light years ahead from where we were a few years ago. Again, it is something that we need to continue to do. I'm not suggesting that is all CDs do, but there has to be implementation, but at the same time we need to make sure, whatever path we are going down, we're getting feedback that it is the right path (NGO, Interview 5)."

Face-to-face meetings and personal communication are part of the conditions supporting social learning. One interviewee talked about how this level of interaction held the potential for better outcomes in their community.

"I think one of the other things is that because, I really see that in the end, we're all busy with our own lives kind of thing right? And I keep thinking that you know, when I was a wee fellow, and before, life was less pressured, then people spend more time congregating, I don't know if that's true or if that's just a myth I like to carry. So because we're kind of busy with our own lives, and you know, and if the board members were each plugged into little cells that they spent a lot of time talking with, their neighbours, that would seem to provide that means of disseminating information and also gathering information so that there's this two way thing happening, and everybody's the beneficiary for it, over the long term. But because we're not doing that, very much, then that information gathering and information spreading becomes a little more difficult (AB, Interview 3)."

They were encouraged to reflect on the means by which they may be able to share information about the watershed plan in their network of social contacts.

"If you like, we could look at, and this is just one example, but let's look at my example. The people that I know at the church, I didn't see anywhere else, I only them at church pretty much. The people I saw at Game and Fish, I mostly saw, to do with Game and Fish stuff. Although, that was one of those information expanding things that could work, you know, I attend a board meeting, I could bring that to a Game and Fish meeting, but it works best if there is that recipient audience. But unfortunately, if everybody's in a hurry to get the meeting over with and go home and do whatever they're doing, then it becomes more difficult to say well he, what happened last Thursday at the board meeting…shut up, who cares, I'm going home, eh? So ultimately, this personal one on one thing, even thought that means having to talk more often, probably is the surest, most

effective way to convey information either going away or coming in (AB, Interview 3)."

This interviewee went on to say how this type of communication, done in conjunction with the public awareness publications produced and distributed by CDs, was capable of increasing the expectancy and sense of investment and interest in the final plan and how it was implemented.

The spread of information from municipal representatives on the CD board was cited as a possible bottle neck of communication, and a place where improvements were needed.

> "I was talking to somebody actually who sits on a municipal council, and they said that they have two Conservation District representatives from within their council, and they never provide reports back when they are having their council meetings with their municipality, they never provide reports back from what's happening at the CD, what decisions are being made, the policies that are being made, so the municipality isn't getting that information and so, it's hard to make that switch at the Conservation District board table (MWS, Interview 4)."

The following statements came from representatives of industry organizations, who acted as a liaison between their group and the watershed planning process. Their role seemed to be more of an advocate for the interests of their organization than a conduit of information.

> "If I can speak for the group I represented, and I'm not on there anymore, I have been retired off the board. I was appointed by them to be on here, and the number one issue was the manure issue, they wanted to make sure that we were represented there, and to make sure all, so that producers in that area were abiding by…because they're under the microscope. So the reporting back that I did was mainly just the concern around the manure issue, not so much around…because Manitoba Pork really didn't have anything of interest as far as a watershed was concerned, other than the fact that the producers in there dealt with manure management (SL, focus group)."

> "Officially there wasn't a lot of follow-up between myself and my group either, save the fact that the follow-up occurred by actions taking place with a number of producers that went ahead and did a lot of the things that I suppose came out of

this report, or came about because of this report. As far as actual meetings or follow-up, no. Outside of speaking more or less one-to-one with people, and the meetings that we had (SL, focus group)."

During the planning process, venues exist for communication between Watershed Planners, CD managers, PMT and WPATs in formal meetings. Where participants talked about areas of improvement is encouraging people to reach out on a more personal level where experienced colleagues can share from their own practice. This was seen as an improvement over direct communication by those in perceived roles of authority like provincial staff, or even CD staff members.

> "And I think that in providing those programs that the CD does, there is a huge opportunity for them to use that program, whenever they implement it on the land, and use that landowner as their education tool in promoting it to their peers, like the landowner's peers, versus the CD coming in and saying, you should do this. It's the same as the province coming into the CD and telling them (MWS, Interview 4)."

The comments in this section also point to the value in building personal relationships between peers, noting it is a better setting for sharing information on beneficial management practices and as a way to overcome prejudices towards messaging from official representatives of government. Finally, although education programs do not fulfill the province's desire for targeting funding to infrastructure programs, they remain a popular tool among CDs, and may prove to be an important supplement to peer communication for creating the conditions for social action.

An important nexus of knowledge transfer occurs between municipal land use planning and how those plans relate to IWMPs and alternative watershed plans. Land use planning is carried out on a municipal level, either through municipal councils or through planning districts that overlap watersheds boundaries and CD boundaries. The fragmentation of responsibility is a common feature of water governance (Mitchell,

2005), and a key challenge in successfully implementing cross-sectorial cooperation. Interviewees commented on the relationship between these two planning processes, and how they saw information being shared. One mechanism was the municipal councilors who sat on either the CD board or PMT, and contributed to the municipal plans.

> "And that's where if you're educating some of those municipal councillors into the process, hopefully by maybe introducing things like source water protection and those types of things it means that maybe they go back and update development plans and make some of those changes. It would be interesting is someone could do an evaluation five or ten years down the road after a lot of these IWMPs are done, if they're really successful or not, what changes were brought about because of it, or is this just a feel good exercise (ES, Interview 1)."

Another development of the IWMPs is the built-in accountability of being listed as a partner organization in the implementation plan.

> "We were in the implementation stage before we were in the approval stage so well, we will be able to sit down at five years, or ten years, and when we do end up doing it, we will be able to say, what were we responsible for? This is what we have done, and hopefully we will have some information from these other groups to say, this is what they have done. But because they are there as lead organizations, when we do sit down with this, we will be making sure to get the MIT (*Manitoba Infrastructure and Transportation*) reps, the Conservation reps, Habitat Heritage, all the groups that are listed under these headings, and try to get their input on what they've done (LS, Interview 3)."

In speaking with Manitoba Stewardship staff about their work with multiple IWMPs, they offered additional examples from plans outside my cases and the successes they felt occurred through government departments working together. An interesting example of this was through a close examination of the regulatory protection of drinking water sources, and how enforcement of these existing regulations could improve watershed management. In addition to the *Act* supporting the work of Manitoba Conservation and Water Stewardship, the department of Public Health was identified as an important partner.

"Public Health can do some work, so in the Pembina plan we made comments if people feel, or if they witness anything that may compromise water above the drinking water source, they are encouraged to call the Public Health Officer and we provide numbers and information. That was something that wasn't really known before, and it does really have a fairly powerful Act behind it. There are people who are empowered to enforce that, and you can't pollute drinking water sources (MWS, Interview 2)."

Other interviewees were interested in seeing how the two planning processes would unfold, and whether the IWMPs would be upheld under pressure from municipal development priorities.

"I believe if the Conservation Districts had gotten involved in this 30 or 40 years ago, that's where the planning would happen, but at this point in time, we have two agencies, and the Planning Districts are going to continue, there are some differences, but they've got to – Planning Districts and Conservation Districts have to learn to work together a lot more than they are. And I mean that is something that will evolve during time, because certainly some of these things within the Integrated Watershed Management Plans are affecting Planning Districts. And the unfortunate part about putting things like this together is people don't realize what is in here until it starts affecting them personally. (WC, Focus group)."

"I guess the question really comes in, you've got to look at, not just at the watershed plans, you have to look at them in conjunction with the land use plans, and the local planning districts and what the councils are allowing to happen or, passing bi-laws about, because there is the question of precedence, like the water plan is supposed to have precedence over other stuff, but does it? And we see that in a lot of circumstances that it doesn't necessarily have that precedence. So the plan itself might look really good, but on the ground, what's really happening? And that's where there is a challenge, and when we did the wetland conservation, we reported back, a lot of people said we needed integrated land and water planning. It's really critical (MWC, Interview 1)."

"And there are the municipalities and they have their conference. If their agenda is different than the CDs agenda from their conference, I'm not sure what happens, then it's the politicians. I mean anybody can pick up the phone and probably get through to the Minister's office. It's not likely that you'll talk to the Minister, but you probably can be heard. But I mean the government is only going to take recommendations from these structures that are set up underneath it (AB, Interview 4)."

The integration of IWMPs and Land Use Plans is also being examined by Robin Beukens, through a Masters of City Planning thesis at the University of Manitoba. The IWMPs appear on the surface to propose more progressive environmental statements, restricting some forms of development, so it will be interesting to see how municipalities choose to follow these plans where they conflict with development proposals.

6.6 Discussion of Findings

Looking at resource decision-making processes such as Environmental Assessment, research by Fitzpatrick (2007) advanced the idea that information must be consciously managed so as not to overwhelm participants. The IWMP leadership made an effort to produce materials that did not use jargon or technical terms, and there were a number of examples of informational pieces created for the public that used provocative questions, local images, and presented the importance and need for resident participation and input. Information on the draft plans was available on-line, from municipal offices, and through direct mail to local households. Whether this level of communication was sufficient for the general public is unknown, but for the WPAT, their deeper involvement opened up additional opportunities to attend presentations, explore the issues through question and answer periods with technical experts, and the ability to dialogue with the presenters and their peers over the course of multiple meetings. Participants indicated that using the *State of the Watershed Reports* or the draft plan itself as a promotional tool was less effective in sharing information with the WPAT or the general public, as it was agreed that they were not widely read.

When discussing technical learning from the WPAT meetings, I encountered both participants who had the experience of being overwhelmed where presentations were

overly technical and others who appreciated the depth of these sessions. These different views may depend on background education, but a mechanism within the process to check in with the audience and gather feedback from both staff and participants would go some way towards tailoring the material to the group.

One of the benefits of the IWMP is the shared problem definition that arises through the planning process and the concerted messaging from producer groups, CD boards, and government agencies on beneficial management practices for watershed health. Hearing the same arguments from multiple sources helped build trust in the proposed issues and solutions, and confidence in the final plans for many of the research participants. It also provided evidence of participants' ability to understand and adopt alternatives perspectives or reframe their outlook in order to better communicate these practices (Mostert et al., 2008). They were able to see the issues from the point of view of other participants, in order to communicate their importance. This included expanding the dominant issue of drainage and flooding to other watershed aspects including fisheries, riparian health and source water protection. These same issues were areas where participants reported improved technical knowledge.

In participatory natural resource management, the adequate presentation of technical information is foundational to resource decision-making, but as Schusler et al. (2003) observed, this is only part of the equation of a successful collaborative approach. In building social skills and better relationships during the watershed plans, the challenge was presented as one of trust between rural/urban citizens, or landowner/regulators. There was also a clear desire to create more cross-sectorial, creative relationship-building opportunities to bridge perceived divides, including rural exchanges or even job swaps.

Part of my research goal was to examine my chosen case studies for evidence of single and double-loop learning (Argris, 1977). Processes that support social learning can create a space for knowledge sharing and an opportunity to delve into underlying norms and values of the resource issues facing watershed residents (Steyaert and Jiggins, 2007). Social learning in practice requires critical self-reflection (Mostert et al., 2008) and the capacity to question the status quo. These aspects of learning were addressed in section 6.5, Changes in attitudes, changes in behaviours. With the agricultural producers I interviewed, as they worked to define the problems facing their region, individuals were able to acknowledge their collective contribution to ecological damage and their responsibility to alter these behaviours. Through their learning and role in the IWMPs, they saw themselves as role models and early adopters. They also saw the CD as having responsibility to demonstrate proven conservation tools and share effective programming with their residents, but also other CDs.

Participants from the NGO community, the provincial government and CD board members all delved into the question of farming marginal land, and possible measures to reduce this practice in the most vulnerable regions. This challenged the status quo, and was a difficult conversation to have in a province where farming the "wet prairie" has long historical roots. It is also a necessary one in the process of solving watershed drainage and flooding issues. In the case of Willow Creek, the IWMP proposed more stringent development restrictions, based on the learning and conviction of local residents, an example of changing attitudes towards conventional land use policies.

What also came through many of my discussions was the desire of participants to see evidence-based policy developed through the IWMP process in order to create more

transparency and trust. This same desire was found by Steyaert and Jiggins' (2007) in their review of the SLIM project. This research group used case studies throughout Europe to look at non-coercive methods of facilitating local watershed management (Gibbon, Powell, Roggero, Seddaiu, & Toderi, 2004). Their research revealed an increasing demand for policy based on research findings, and the need to present the values and meaning underlying scientific knowledge and subject it to public scrutiny and discussion (Steyaert and Jiggins, 2007). Participants of the watershed plans in Manitoba talked about instances where they perceived politically motivated policies not based on evidence, which was a recognized sticking point in creating the relationships and trust required for an efficient and open process (Sol et al., 2013).

Based on Reed et al. (2010), social learning also involves the social network, and the sharing of knowledge with the broader community of practice. Each participant was imbedded in a unique community where they could share what they learned, and communicate the concepts and issues surrounding watershed management in their region. There were many examples where communication and information sharing could be improved, as it is in many water governance contexts (Mitchell, 2005). Participants were able to identify both ways they had shared information, and venues where better communication should be supported. This included communication between CD boards and managers, and better use of WPAT members as ambassadors for the IWMPs. Many of the CDs work with schools, and saw this as a good way of reaching the next generation of landowners, and parents with conservation messaging. They also saw a role for collaborative research projects with Universities and Federal and Provincial agencies, which would provide additional learning opportunities though workshops and forums to

disseminate findings. Other means to share the IWMPs included expanding watershed protection mandates to other government departments such as Public Health and Infrastructure and Transportation.

6.7 Chapter Summary

In this Chapter I looked at each of the social learning outcomes in my framework, and then discussed my findings as it related to the social learning literature. In relation to the IWMPs, I found participants self-reported learning about many aspects of environmental management, particularly through presentations, tours, and interacting with others at meetings, and less so from published materials. This learning related to research on agricultural impacts, source water protection, wetlands and fisheries/riparian areas.

A main finding when looking at social skills was the ability to view watershed issues from other participants' perspectives, and the capacity to frame these issues in a way that would appeal to their peers. WPAT members also described themselves as having the responsibility to adopt and promote good watershed management practices because of their role in the process. The IWMPs created a way for new organizations to interact, and provided new ways for both government departments and NGOs to become involved and be held accountable for their part in carrying out the plans. The plans also offered evidence of commonly agreed upon actions, building a strong case when applying for new funding. By having a prioritized list of actions and goals it created confidence in partner funders, showing there was community buy-in and greater legitimacy for the process and the plan (Ramin, 2004).

Although WPAT members were well situated in their communities to share what they learned, they also saw this opportunities underutilized, especially lines of communication between CD boards and municipal councils. They discussed communication between CDs and the formal mechanisms for sharing, being annual conferences and manager meetings. They talked about the benefit of staff who were willing to reach out to peers and how this strengthened shared learning in the CD program. Many interviewees were enthusiastic about their works with schools, and how this had the added advantage of reaching parents.

Chapter 7 – Conclusions and recommendations

7.1 Introduction

The following Chapter brings together my conclusions, some practical recommendations, observations and questions regarding the future of the IWMP process in Manitoba. I will be summarizing my findings in response to my initial research objectives which were; to document the new model of integrated watershed management planning (IWMP) being used in Manitoba; to examine who is participating in the development of the IWMP, how they are selected, and what influence they have on the planning process; to explore social learning outcomes from watershed planning, to examine specifically how the IWMP process contributes to social learning outcomes in the non-profit community, and finally, to recommend ways to enhance social learning in future IWMP processes.

7.2 Steps in the Planning Cycle

I outlined four examples of the IWMP process in Chapter 4, along with two watershed plans completed outside the IWMP model. By looking at these cases, I recorded how individual CDs have chosen to carry out the legislated components of IWMP, and how overarching changes were implemented based on feedback and experience. For each example, there were a number of important steps identified in the process. These included accepting responsibility as a Watershed Planning Authority from the provincial government by developing a Memorandum of Understanding and agreement on Terms of Reference, gathering representatives of local groups and technical experts to form the WPAT, providing a forum for the public to have input into the plan,

incorporating local and technical knowledge into a draft plan and presenting it to the public and then the Minister for review. Finally, the CD boards have continued this work by reviewing the goals and actions annually as part of their work, and communicating with other partner organizations and government departments named as responsible parties in the plan. A number of IWMP will soon be coming up for a full review as their ten year planning cycle is completed.

The way in which IWMP is being carried out in Manitoba has also been working to avoid a number of pitfalls associated with unsuccessful participatory processes. One of these is the foregone conclusion (Das and Koelen, 2002, Sinclair and Diduck, 2001), where the leadership group creates pre-determined criteria and goals. The focus of each IWMP was dictated by the *Water Protection Act*, but there was evidence of reflection on the potential resistance to top-down decision making, and how the leadership within Manitoba Water Stewardship could avoid this type of confrontation. Although there were differing opinions on how much autonomy was afforded CDs as Watershed Planning Authorities, the fact that each plan is unique and local concerns were given primacy, shows that predetermined outcomes were kept in check at the provincial level.

As in other applications of IWRM in Canada, Manitoba's approach has emerged from its particular existing social environment (Cervoni et al., 2008, Ferreyra and Beard, 2007). There are many IWRM initiatives taking place across Canada, occurring at multiple scales from local volunteer organizations to basin-wide stewardship groups with significant funding (Roy et al., 2009). Manitoba is following a similar model to Ontario and Saskatchewan's Source Water Protection Plans, including comparable planning regions in terms of landmass, the collection of baseline research to support decision

making, the formation of Technical Advisory Teams including provincial and federal employees, and multi-stakeholder participation in setting the goals and actions in each plan. Manitoba's model is like other Canadian applications of IWRM in their effort to share decision-making power in resource management with a broader cross-section of the community. Other provinces have partnered more closely with federal agencies like Environment Canada and the Atlantic Coastal Action Program, or created new organizations where none existed before, as with the Alberta Watershed Planning and Advisory Councils.

For Manitoba, CDs were the local organizations with the stability and local connections to take on the work of watershed planning. The current challenge of relying on the CD program is that there are areas in southern Manitoba lacking CD representation. According to participants, the agricultural dominance and focus on maintenance of the drainage network in the Red River Basin has led residents to resist CD formation, thereby missing the IWMP process completely. This issue is shared by other large provinces like BC, Alberta and Ontario, where planning does not cover the landscape, but occurs in priority regions or areas of high population. Their relative success in this area seems to depend on local leadership and the set of challenges facing each watershed – as one participant put it, watershed planning was easier in regions where there was a perceived crisis that was able to motivate the public to take part, and who also had the necessary resources in place to address the issues.

7.3 IWMP Participation

There are a number of levels of public involvement in Manitoba's watershed plans, and I chose to focus on the WPAT because of my interest in social learning.

WPAT participants were able to dedicate the time and focus to the IWMP process, and in turn, had the ability to learn more about the technical aspects and develop social connections with the planning group, both key process elements of successful social learning outcomes. The data show that participants in the IWMPs came primarily from the local community, aided by government staff members who provided technical assistance in developing the plans. Each PMT was responsible for engaging a broad cross section of organizations to be part of the planning process. Much of the outreach consisted of formal letters, and this method was successful to varying degrees, in that the list of invitees published in the 1st generation plans did not reflect the lower participation rates in practice. Participation with the WPAT was voluntary for organizational representatives, although it required attendance at approximately 8-12 meetings in the earlier planning model. This level of commitment was found to be too burdensome and meetings have been reduced to 2 or fewer in 2nd generation plans. According to MWP leadership, the long, technical planning process caused participants to "lose interest, enthusiasm and buy-in" (Coughlin, 2010). On the other hand, the reduction in meeting time impacts one of the strengths of the original IWMP process – the ongoing engagement and ability of participants to have sufficient time to interact with new ideas, and develop relationships with their peers (Schusler et al., 2003).

The *Water Protection Act* requires one face-to-face opportunity for the wider community to become involved in the IWMP. These public sessions have typically been evening forums facilitated by CD managers, Watershed Planners, or professional facilitators on contract. As described in Chapter 4, the format of these meetings have been short presentations on watershed planning, and small group work identifying and

ranking goals and issues for the region. In David Huck's thesis research on public participation in two Manitoban IWMPs (2012, unpublished thesis), a small number of people who attended the initial public forum returned to attend the second forum to review the draft IWMP. These meetings represent and important opportunity for shared learning and developing a common understanding of the issues. It is also is a crucial step in gaining input from an engaged, receptive network of community members, who bring a diverse set of perspectives and provide the multiple sources of knowledge that support social learning outcomes.

As I came to understand the role of the participants, the WPAT, composed of local representatives and technical advisors from the provincial and federal government, shared the role of prioritizing goals and actions with the participating public. From the interviews I conducted and the completed IWMPs, public input was reviewed carefully by those charged with drafting the final documents. The non-prescriptive nature of the *Water Protection Act* has enabled local plans to encompass the specific issues arising across the province, and this was seen as a benefit to both the provincial partners and those on the ground. The broad categories were able to encompass the concerns in each watershed region.

> "For the most part, every plan…it seems to be almost the same everywhere. If you look at all the different plans, even going back to here, you have source water protection, riparian wetland protection, education, surface water management. And they basically all come up with the same things, which I kind of think makes the Province happy, that would be the four categories they would like to see, and if you put everybody's problems on the table, they would almost always fall into one of those four categories. It works out fairly nicely that way (LS, Interview 3)."

In my case studies, I also found examples where it was difficult to reconcile the opinions of local residents with that of the technical advisory group. In some cases, this rift

impacted the public perception of the plan's legitimacy according to members of the PMT, highlighting the importance of transparency and relationship building in these types of resource management negotiations.

7.4 Social Learning Outcomes

I used material drawn from two authors (Muro and Jeffrey, 2008, Schusler et al., 2003) to guide my interview questions and create a framework to examine how the watershed plans have been carried out in Manitoba. The subsections of Chapter 5 and 6 looked at each element in more detail, and provide the basis for my observations here.

Research participants reported a better understanding of technical aspects of their watershed and how it functioned including sensitive wetland areas and the protection of drinking water sources, the upstream and downstream hydrological relationship, wetland protection and function, and nutrient management. Technical learning was mentioned more often as a result of presentations and meetings, rather than from reviewing technical reports, supporting the value of the WPAT and PMT meetings as educational venues. Participants also referred to Ducks Unlimited and the International Institute of Sustainable Development (IISD) as sources of research and information, and the partnerships that had evolved with these organizations.

Participants noted how the process encouraged them to find better ways to communicate watershed issues to both persuade and be understood. This provided an example of communicative learning, where participants were reinterpreting knowledge through communication with others (Reed et al., 2010), and a social learning outcome in that they had an ability to decipher and respond to the views and interests of their peers (Sol et al., 2013). They also highlighted new upstream/downstream, or as is the case in

southern Manitoba, east/west relationships forming between communities along watershed lines. The IWMPs also provided an improved ability to secure project funding based on the fact that they were able to agree on priorities and set goals for their region. Hayward, Diduck & Mitchell (2007), attribute social learning approaches with the ability to support partnerships like those created under the watershed plans, while (Berkes, 2009) discusses social learning as a way to expand governance and create more broad-based initiatives. Watershed planning has been a way for CDs to refocus their programming and clarify their goals, allowing other organizations to evaluate common interests.

The participants I spoke with described how attitudes towards responsible farming practices had evolved, and how they and other members of their community who had participated in the IWMP had come to take responsibility for adopting and promoting beneficial management practices that would reduce harmful impacts of their farming operations. This challenged intergenerational practices, and was sometimes difficult to defend in their communities especially regarding the use of marginal lands where economic incentives continue to support the status quo. Participants of the WPAT seem to represent those individuals who had accepted farming impacts could be negative and that these effects required mitigation, and who also held other groups to account – seeking fairness in the distribution of costs where change was needed. This was partly addressed through proposed solutions and actions, including incentives and funding for BMPs and finding new ways to support producers to implement these changes. This change in perspective relates to the way in which social learning helps participants gain insight into the effects of their actions and produce acceptable solutions for sustainability in their given context (Maarelveld and Dangbegnon, 1999). The watershed model brings

to light cause and effect relationships and the interdependencies of the social-ecological system.

Along with their role as early adopters of BMPs, participants commented on how they were able to share information with their community of practice, expanding the reach of their learning. Examples of this included speaking informally with peers, and organizing and attending tours and workshops. Their initiative in spreading information on aspects of the IWMP process and plan outcomes follows the Reed et al (2010) definition of social learning as being embedded in a social network. Because watershed issues are receiving more attention in the media, through the IWMPs and through localized crises like severe erosion and flooding, participants found that they had more opportunities to discuss water management. I heard interviewees call for better inter-departmental communication within government, and better facilitation of communication between CDs that could overcome the sense of competition between these groups for recognition or funding. A popular method of public communication was directed at engaging school children, although this is a lower priority tactic for the CDs according to provincial representatives.

MWS demonstrated social learning outcomes in how they reframed their approach to public consultation, switching from an issues/solutions tactic, to directing participants to think about watershed values and a future oriented view of how they wanted the watershed to be in 10 or 20 years. This change improved the tone of the discussions and the ability to engage people in finding common ground (Sol et al., 2013, Schusler et al., 2003).

7.5 Social Learning in the Non-profit Community

One of my research objectives was to explore social learning outcomes with participating non-profit organizations. The involvement of the NGO representatives depended in part on their ability to direct resources to the IWMP, given that the time commitments were extensive and the meetings were held in various rural municipalities. For two of the organizations, IWMP provided a new way to influence the work of the CDs, and become stronger partner in achieving their shared goals. The data show that these organizations were able to capitalize on the enhanced understanding and interest in watershed issues as a result of participating in the IWMPs. They were able to expand their projects into new regions and improve their communication tools. In these examples, they were able to better fulfill their own mandate, exhibiting single loop learning. But in one organization, they also were able to question the role of the CDs as policy takers, acknowledging that the CDs held an influential role with the provincial government based on their sustained local successes in resource management, and their latent power in the political realm. For members of a third organization, the IWMP process was more difficult to access, given their limited resources to participate. In spite of this, they contributed to the IWMPs by creating relevant learning opportunities through seminars and workshops on watershed issues in both urban and rural settings. They were able to perform the role of "bridging institution" (Pahl-Wostl et al., 2007, p.2), by providing an alternative venue to discuss and debate the views of stakeholders that may not have been accessible through the WPAT.

7.6 Recommendations

7.6.1 Space for Local Knowledge

A common barrier to success indicated in the literature is the potential conflict between the knowledge generated by technical experts and that of lay people. Again, leadership learned to put in place measures to balance the relative power of contributing experts, and worked to create a more welcoming environment for non-technical participants to take part. The MWS staff showed this in a small way by renaming the Technical Advisory Team to simply, Watershed Team, under the 2nd generation planning model. It was also found in the small group work of the public forums where PMT members facilitated discussion and made themselves available to participants to answer questions. Direct access to government staff and CD board members is an important factor in building better communication and openness between interest groups (Sims & Sinclair, 2008), and opportunities to facilitate this type of dialogue should be strengthened, not reduced.

In the work of Das and Koelen (2002), lessons from social learning in health promotion inform their recommendations for the resource management sector. Their observations include examples where citizen participants have been trained to understand technical research, while the same effort was not made for technical experts to become accustom to receiving, processing and valuing the experiential knowledge of their co-participants. Contributors with technical expertise may find it challenging to place experiential knowledge in pieces such as the *State of the Watershed* reports, but space needs to be carved out for recounting the input of local experts in IWMP materials. The focus on local and technical sharing can be emphasized further by formalizing local experiential input through presentations, moderated panel discussions, and explicit time

and space for this important addition. The data show that many watersheds lacked access to research specific to their area, including those with low population density. The tactic used in the case of the West Lake IWMP where the lack of a major river and low population contributed to an absence of data on the region, was to gather descriptions and stories from local residents from diverse sectors, drawing together an overview of their region from direct experience. This was a new approach, and it may hold some lessons for other IWMPs as a useful tool in future plans to gather local level information in a more strategic way, even where technical knowledge is available. The West Lake IWMP and Fisher River IWMP referenced in section 5.5 may offer an improved approach to balancing local knowledge.

Another area where local knowledge could be better recognized is the incorporation of the alternative watershed plans into the overall IWMP provincial program, such as the Tobacco Creek plan. These plans have succeeded in generating local support, participation, and momentum. The two cases considered in this research had developed viable plans for watersheds where no IWMP has been carried out, and had been able to maintain connection with their original planning group, demonstrating engagement and commitment to implementation.

7.6.2 Sharing Information

The challenge of communicating enough technical information, without overwhelming participants is a perpetual task for watershed management organizations. Agreeing on how to frame the problem influences the types of solutions available to the group (Ferreyra et al., 2008). Concerns voiced by participants included a call for provincial department staff to be more accommodating and responsive to requests for information. Where provincial or federal staff appeared to be reluctant to engage, this

may be partly due to organizational limitations where staff may not be at liberty to act on their own values and interests (Sol et al., 2013), or it may be a lack of dedicated resources or time. This shortcoming in the process appeared to impact stakeholder relationships, and addressing this issue with either more realistic expectations for technical support or a real investment in allocating resources to the IWMPs would improve accountability between participating government departments and their local partners to fulfill the commitments set out in each plan.

Another aspect of sharing information involves linking the learning outcomes from IWMPs to the policy level, where learning generated in the watersheds is shared with decision-makers. This may occur through greater interaction with the Conservation District Commission or through an enhanced advocacy role for the Manitoba Conservation District Association. Some suggestions from interviewees for improving opportunities for shared learning included, mentorship between old and new CD managers as well as CD board members, identifying ways to help transmit information from experienced personnel and by helping new comers transition into their roles and gain confidence to fully participate. Creating a more formal structure for passing on learning and sharing best practices between participants would strengthen and build the watershed management community of practice. On the more social side, interviewees talked about the need for open-door policies among CD staff and their stakeholders to overcome a sense of isolation or competition among CDs as well as encouraging the adoption of what has been successful – reaching out and making personal connections through 'kitchen table' meetings and informal contact. This could mean training or hiring for these skills.

7.6.3 Diverse Participation

The study also revealed that watershed planning in Manitoba has not involved all citizens equally, leaving out citizens in urban centres, primary Winnipeg, our most populous city. In May 2005, a public forum was held on this issue, titled, "Starting the Dialogue: Watershed Planning in Winnipeg and the Surrounding Area", sponsored by Winnipeg's Civic Environment Committee, the two environmental organizations; Manitoba Eco-Network and Manitoba Wildlands. This forum was designed as a first step to begin integrating urban citizens into the dialogue of watershed management, but aside from the work of stewardship groups such as Save Our Seine, the IWMP initiative has focused squarely on the rural landscape. Throughout my interviews, many participants expressed their desire for a more concerted effort to promote watershed health between urban residents and those in the rural communities. The recent move of the City of Brandon to join a local CD was seen positive step in this regard. For some research participants, this meant an opportunity for policy makers and environmentally-concerned citizens to improve their understanding of agricultural production and the challenges they face. There were also suggestions on how this gap was being bridged, or ways that this type of knowledge could be shared. The question of diversity in who participated was a matter of concern, but also a result of the legislation and the composition of CD boards and municipal government. Participants talked about examples from the United States, or discussions they had had within their existing groups on ways to expand the demographic spread of IWMP contributors. It seems that the ideas are there, but the action is yet to be realized. This is a promising area for CD managers and boards to pursue, and will be beneficial to the range of ideas and perspectives presented during future multi-stakeholder deliberations.

7.6.4 Financial Support for Participation

Another challenge was the ability of those people who wanted to attend meetings of the Watershed Planning Advisory Team and become involved at a higher level were limited by the fact that these meetings took place during the business week, took a half or whole day, and may have required relatively long travel times. Van Bommel et al., (2009) specifically point to obstacles such travel and financial difficulties as impediments to social learning. Where CDs provide stipends to their board and sub-district committees, this level of support should be extended to representatives of community groups where their own organization do not have the necessary budget allowances.

I have referred to the number of meetings, and how the mix of technical and local experts was a new platform created by the IWMP. The concern has been how to condense the meetings to relieve all parties of their time commitment for plans being conducted concurrently. Another alternative may be a facilitated retreat, where all participants of the WPAT commit to a block of time to share information and proceed through an issue and goal setting process. This is similar to the Search Committee work in the case study of Schusler et al., (2008), and other formats that foster non-hierarchical problem solving.

7.6.5 Sustained Momentum

Extended engaged and small group work were both strong points of the plans, although once the drafts were completed, a year to 18 months could pass before a response from government was sent back to the community. Many of the MOUs between CDs and the Provincial government outlined the expected timeline of the IWMP planning process. The average estimate for the case IWMPs was two years. A number of factors extended the amount of time including staff turnover in the Watershed Planner position in the case of the La Salle River and Assiniboine-Birdtail plans. In these cases, two or three

Planners were assigned to the CD, causing delays while the hiring and training took place. This has been disruptive to the IWMPs and impacts the ability of the multi-stakeholder groups to maintain momentum in their work. Staff retention should be addressed as an issue plaguing the CD program, which may remedied through better wages and benefits in order to keep qualified personnel. At the provincial level, it is important to carefully consider how staff will sustain their involvement with multiple watershed planning processes and see them through to completion and implementation. Another challenge to the process was the seasonal nature of agricultural production, and the availability of community members to attend public forums at two points in the planning cycle. This timeline requires a practical review of how long plans should and will take, to make sure there are realistic expectations in the planning community.

The majority of IWMP plans sat with the Minister's office in excess of one year. In this time, they are reviewed by the various provincial and federal agencies. All the IWMP case studies included various government agencies as contributing partners in plan implementation. Each IWMP was also reviewed and approved by the Manitoba Water Council during this time. My research did not examine the internal functions of the provincial government while they carried out their review, but looked at the implications for community leaders shepherding the plans through to the implementation stage. Some interviewees did not know whether their plan had received an approval due to the fact that they became disengaged from the process while waiting on the Provincial endorsement.

This disengagement of individuals who invested their time over the long term is a barrier to building momentum in the community. The timing of outreach and public

participation may not be as easily remedied as streamlining the internal review process within Provincial agencies. These internal delays may be a result of many departments working together, and where this collaboration is new. Where a reduction in the review timeline cannot be achieved, better communication with the PMT, WPAT, and ultimately with the local residents on what is happening to the draft plan while it is reviewed and endorsed by the Province would be beneficial.

Working together towards a concrete plan of action for watersheds in Manitoba requires a group of engaged citizens, with a common understanding of the issues and possible solutions. One interviewee suggested that the individuals who participated in the IWMPs should have an opportunity to remain involved over time as participants had developed working relationships with one another, and this was seen as a critical first step to come to a common understanding of the watershed issues.

Because the WPAT's work is complete with the publication of the IWMP, the specific group interaction of government staff members, local residents, and CD members ends as well. Participants from bridging organizations called for the continued interaction and a sustained platform for problem solving. This can be achieved through annual reviews of IWMP work with a similar format to the WPAT, highlighting accountability and resident involvement.

7.7 Closing Thoughts

In my review of the six cases the strengths of the watershed plans became apparent, including the commitment of Manitoba Water Stewardship to learn from previous planning processes and adapt to the needs of the people they work with in each watershed region. The two alternative watershed plans case studies offered a look at

successful plans that maintained a Watershed Planning Advisory Team over the course of many years, and used this broad involvement to maintain momentum for the plans and the new activities and programs flowing from them. Where success exists, it seems prudent to support it, and learn from their strategies to involve stakeholders and maintain momentum and enthusiasm when implementing and renewing the plan in the years to come.

I wanted to create an executive summary or presentation of my findings that would be useful and applicable to current and future IWMP planning. Appendix A is meant to distill some of the literature and observations from my research for quick reading.

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Appendix A: Encouraging and Supporting Social Learning in Watershed Planning Processes – A Brief

What is social learning?

In my research, I considered social learning in a natural resource management context, and defined it as a deliberative process where diverse stakeholders share knowledge and perspectives in a democratic and open environment, in order to build technical understanding and social skills as well as develop trust and relationships. Such learning helps create a common understanding of the system or problem at hand and is essential to creating innovative platforms for collective action.

What did the case studies reveal about social learning?

I conducted interviews and reviewed supporting documents for six case study watershed plans in Manitoba. I found that there are many attributes of the watershed planning processes that support social learning, and areas where these could be strengthened. These attributes are described below.

How can watershed planning in Manitoba encourage and support social learning?

I began with the idea that participatory governance that includes stakeholder deliberation provides a potential learning venue for all involved. So, implementing such participatory process for the development of a watershed plan is key to ensuring learning outcomes. In addition to the necessary outcome of drafting a watershed plan, watershed planning leadership can foster social learning as a key co-benefit. By consciously reflecting on the structure of stakeholder interactions, the process can be improved to enhance learning in the following ways.

Facilitation techniques (e.g., collaborative mapping, framing the issue)

IWMP practitioners experimented with facilitation techniques over the course of multiple plans. Participants found interactive mapping to reduce conflict and promote collaboration, and the shift from issues based discussions to a new focus on values and goals through the collaborative mapping process for the watershed to be valuable in finding common ground.

Small group work

Repeated meetings of the WPAT and the PMT provided the opportunity for participants to get to know one another as individuals, not just as organizational representatives, helping to challenge stereotypes and misconceptions. This helped encourage deeper dialogue and problem solving and revealed interdependencies among stakeholders. The more opportunities to meet face to face the better.

Extended engagement

The number of meetings for WPAT members ranged from 2-3 to more than 12. These opportunities to interact with provincial staff helped build a common understanding of the problems facing the watershed from multiple points of view. The current decision to reduce these meetings to one or two may be efficient, but will not be effective in

providing a sound foundation for sharing knowledge among parties and developing robust outcomes.

Multiple sources of knowledge
Watershed planning in Manitoba draws on Technical Advisory Teams made up of provincial and federal staff members, and non-profit organizations. These partners contribute to the State of the Watershed Reports and Source Water Protection Plans, and help prioritize issues in the draft IWMP. This information should be enhanced and improved by finding ways to formalize local experiential input through presentations, moderated panel discussions, and explicit time and space for this important addition.

Diversity of participation
The case studies revealed that local participants came from municipal government and CD boards, but that few women, aboriginal people, or youth joined planning teams. Inviting these groups may require building capacity or thinking creatively to enable equitable participation, but it works to enhance learning by exposing participants to a breadth of viewpoints, and helps represent local interests that may not otherwise be heard The watershed plans studied were based in rural Manitoba, but urban residents live in watersheds too, and contribute to watershed degradation. To achieve basin-wide watershed protection and bridge urban/rural divides, cities need to be a part of watershed planning.

Sharing knowledge with the network
As an integrated process, participants involved in the process can become ambassadors for a watershed plan, and share the goals and solutions with their social networks. These individuals represented producer groups, NGOs, recreational association, staff of municipal government, and provincial and federal departments. Knowledge transfer is thwarted when there is no expectation or support for spreading the information within the community. Such knowledge transfer is essential both within and among watersheds to expand the impact and utility of the plans developed.

How does social learning benefit watershed planning?
Taking the above steps will help to improve learning outcomes for all involved and ultimately improve plans. Research showed that social learning outcomes include the overarching goal of defining a common purpose and collaborative relationships for collective action. The beneficial outcomes of social learning processes involve participants building their technical understanding of watershed issues, gaining social skills and developing new relationships, and reflecting on these experiences in relation to their attitudes and behaviours. Finally, social learning involves participants sharing their knowledge with their network of social contacts.

Appendix B – Participants Code of Conduct and Principles of Integrated Watershed Management

PARTICIPANTS CODE OF CONDUCT
By this Understanding, we agree to incorporate the following behaviors throughout the planning process:

Support: We agree to support the vision and goals of the planning process.
Cooperation: We agree to cooperate and constructively support the planning process.
Participation: We agree to encourage the participation of all watershed stakeholders.
Equity: We agree all stakeholders should have an equal opportunity for input in the IWMP and all voices and interests are to be heard and considered.
Integration: We agree a successful IWMP is dependent on comprehensive planning with respect to the interdependence of water, land and ecosystems.
Open and informed decision making: We agree to an open public process.
Adaptability, caution, and transition: We agree to be adaptive in the process, not rigid, to exercise the precautionary principle where there is uncertainty and to recognize that transition takes time (Province of Manitoba & La Salle Redboine Conservation District, 2005).

PRINCIPLES OF INTEGRATED WATERSHED MANAGEMENT
Mutual Dependence
Water, land and related resources are interdependent and must be managed as such.
Accountability
Each of us is responsible for the social, economic and environmental consequences of our decisions and accountable for our actions.
Transparency
Actions must be based on relevant information, and team members must use an accessible, open and informed decision making process.
Respect
All interactions must be fair and respectful and provide for an environment for sharing ideas and solutions. Everyone has an important role.
Balance and Integration
Consideration of social, economic and environmental costs and benefits must be an integral part of all decision making.
Be Local
Watershed management and planning will provide forums that will encourage and provide opportunity for consultation and meaningful participation in decision making.
Coordinated and Cooperative Efforts
Coordinated and cooperative efforts are needed among all government and non-government interests.
Recognition
There must be recognition of existing rights, treaties, agreements and obligations in all decision making.

Transition Takes Time

Sustainability is a journey that requires constant feedback, learning and adjustment. In the short-term, the elements of sustainability may not always be in balance.

Commitment

Watershed management requires a long-term commitment, with continual adaptation and modification based on information provided by regular monitoring and updates.

Support

Actions require resources. Support for the planning process extends beyond meeting participation, and is best shown through action on the ground (Province of Manitoba & East Interlake Conservation District, 2009).

Appendix C – Interview Schedule

Draft Interview Schedule, December 21, 2011

PROCESS

How did you decide to be involved in your region's IWMP?
How were the participants of the Watershed Planning Advisory Team selected?

Facilitation and open communication

How often did you meet? Who led these meetings?
Who facilitated the public meetings on the IWMP?
Was there facilitation training? Was it adequate?
Were you comfortable sharing your opinions? Did you think your views were incorporated into the planning process?

Small group work and extended engagement

Did you include opportunities for small group work in the public forums or WPAT meetings?
Did you attend more than one meeting/forum? Would you interact with these individuals on other committees or in other capacities?

Diverse participation

How did you invite groups or individuals to participate in the public planning process?
How were they contacted? How were the meetings promoted in the towns and rural areas within the watershed boundaries?
Can you describe the types of groups and their representatives who came to the public meetings? The list of invitees to the IWMP is extensive – how does this compare to who actually attended? Do you have a record of meeting attendance? How large were the groups?
What do you think prevented people from becoming involved?

Opportunities to influence the process (foregone conclusion)

Did organizers come to the process with a hope for a certain outcome in terms of goals and actions? For example, was the group given predetermined lists of issues or strategies? Was there openness to other ideas in the development of the plan?
Did you let participants know how their input would be used, and if so, how did you do this?

Multiple sources of knowledge

How difficult has it been to bring together opposing views of watershed goals, for example pro-environment or pro-development? Or city people vs. rural dwellers?
Can you describe how the process of consensus building has been successful or unsuccessful in the planning process?

Egalitarian atmosphere/democratic structure

Did everyone have a chance to speak, and share their opinions? Did anyone dominate discussion?

Did you feel that the members were on equal footing in terms of decision making?
Did there seem to be leaders and followers among participants?

OUTCOMES
Technical knowledge
Did you consider participant learning as part of the IWMP? Were there occasions when you thought those goals were realized?
Was technical information presented in a way you could understand? *or* How did you present technical information?
Did you feel you had sufficient understanding of the more technical issues to make good decisions? What would have helped if this was not the case/
Were there field trips or videos, or other means to impart this knowledge?
What did you learn that was new to you because of your participation in the IWMP?
How did you acquire the information - through reading, meetings, talking to staff, neighbours, etc.?

Social skills, trust and relationships
What did you learn about other participants' views and opinions?
Was there time to get to know one another during the planning process? Were there opportunities for socializing or shared meals, etc?
Are there more people involved now than before the IWMP?
Are people remaining involved over time, or do some people leave the process?
Have there been new partnerships formed because of the IWMP?

Changes in attitudes, changes in behaviour
Did you find your personal views on watershed issues change over the course of the planning process?
Did you note entrenched positions emerging from discussions? Did those positions change over the course of the planning process?
Did you change how you did things – in your work or home life because of the IWMP?

Sharing knowledge with the network
Did you have opportunities to share what you learned in the IWMP with your social network?
For example, with your peers, friends and family, groups you belong to?
How did what you learned during the IWMP become part of your own organization's work?
Was this new information or approach recorded in some way? Was it passed on at organizational meetings, or in newsletters, or in conversations with group members?

Partnerships and new initiatives
What types of spin-off activities have resulted from the IWMP? This might be environmental education programs for the public, funding for new watershed projects, etc.?
How are the goals and objectives of the IWMP being monitored and measured?

Appendix D – Letter of Consent Form

Natural Resources Institute

Clayton H. Riddell Faculty of Environment, Earth, and Resources

UNIVERSITY OF MANITOBA

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Research Project: Learning for Sustainability through Integrated Watershed Management Planning in Manitoba, Canada
Sponsor: Canadian Water Network
Researcher: Kate Dykman, Master's Student, Natural Resources, Institute, University of Manitoba

This consent form, a copy of which will be left for you, is only part of the process of informed consent. It should give you the basic idea of what the research is about and what your participation will involve. If you would like more detail about something mentioned here, or information not included here, you should feel free to ask. Please take the time to read this carefully and to understand any accompanying information.

Dear participant,

My name is Kate Dykman and I am a graduate student at the Natural Resources Institute (NRI), University of Manitoba. The purpose of my research is to learn from Manitobans what their experience has been when participating in the Integrated Watershed Management Planning process, and what they got out of the process. To gather data for this project, I am conducting qualitative research in the form of participant interviews. The results of this interview will be used in the development of a graduate level thesis on the learning outcomes from the current water resources management planning in Manitoba. Interview results may also be utilized in the development of a future journal article.

Our interview should take no longer than 1.5 hours and with your permission may be aided by the use of an audio recorder. Even if you initially give permission to be recorded, you may at any time verbally state that you would like to end the recording of the interview. Any records of our interview will be stored in a locked office where and only I, Kate Dykman, and my supervising Professor, Dr. John Sinclair, will have access to the interview recordings, notes, or transcriptions. The results of this study will be reported with no reference to specific participants. All records containing information identifying participants will be destroyed within two years.

Your mailing and email address will only be requested for the purposes of verifying my research findings, and forwarding you the final results of this study. Should you be interested in reviewing the final results of this study an electronic version or hardcopy version will be made available for your review upon completion of my thesis, in September, 2012.

Thank you for your time and consideration.
Kate Dykman