

Saskatchewan Water Governance Assessment Final Report

Unit 1E Institutional Adaptation to Climate Change Project

H. Diaz, M. Hurlbert, J. Warren and D. R. Corkal

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Table of Contents

	Abbreviations	3
I	Introduction	5
II	Methodology	5
III	Integrative Discussion	9
IV	Conclusions	54
V	References	60
VI	Appendices	

	Appendix 1 - Organizational Overviews	62
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	Introduction	62
	Saskatchewan Watershed Authority	63
	Saskatchewan Ministry for Environment	76
	Saskatchewan Ministry for Agriculture	85
	SaskWater	94
	Prairie Farm Rehabilitation Administration.....	103

	Appendix 2 - Interview Summaries	115
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	Saskatchewan Watershed Authority	116
	Saskatchewan Ministry for Environment	154
	Saskatchewan Ministry for Agriculture	182
	SaskWater	194
	Prairie Farm Rehabilitation Administration	210
	Irrigation Proponents	239
	Watershed Advisory Groups	258
	Environment Canada	291
	SRC	298
	PPWB	305
	Focus Group	308

	Appendix 3 - Field Work Guide	318
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Abbreviations

AAFC – Agriculture and Agri-Food Canada

ADD Boards – Agriculture Development and Diversification Boards

AEGP - Agri-Environmental Group Plan

APF – Agriculture Policy Framework (federal-provincial)

AESB – Agri-Environment Services Branch of AAFC (Formerly the PFRA – name changed in 2009)

CIC – Crown Investments Corporation (SK)

CSIDC – Canada-Saskatchewan Irrigation Development Centre

CWRC – Canada Water Research Centre (A division of Environment Canada)

DFO – Fisheries and Oceans Canada

EC - Environment Canada

EFP – Environmental Farm Plan

FRWIP – Farm and Ranch Water Infrastructure Program

ICDC – Irrigation Crop Development Corporation

ILO – intensive livestock operation

INAC – Indian and Northern Affairs Canada

IPCC – Intergovernmental Panel on Climate Change

IWMC – Integrated Water Management Committee

MVA – Meewasin Valley Authority

PFRA -- Prairie Farm Rehabilitation Administration, a branch of Agriculture and Agri Food Canada

PPWB – Prairie Provinces Water Board

PSSRB – Partners of the South Saskatchewan River Basin

RM – Rural Municipality

SAF - Saskatchewan Agriculture and Food -- renamed Saskatchewan Ministry of Agriculture (SMA) in fall 2007 – after that date the abbreviation SMA is employed

SARM – Saskatchewan Association of Rural Municipalities

SCIC – Saskatchewan Crop Insurance Corporation

SERM – Saskatchewan Department of Environment and Resource Management (re-named SME - Saskatchewan Ministry of Environment in fall 2007)

SES – Saskatchewan Environmental Society

SIPA - Saskatchewan Irrigation Projects Association

SMA – Saskatchewan Ministry of Agriculture – Saskatchewan Agriculture and Food (SAF) prior to fall 2007

SME – Saskatchewan Ministry of Environment (known as SERM – Saskatchewan Environment and Resource Management prior to fall 2007)

SRC – Saskatchewan Research Council

SSRWS - South Saskatchewan River Watershed Stewards Inc.

SUMA – Saskatchewan Urban Municipalities Association

SWA - Saskatchewan Watershed Authority

PCAB – Provincial Council of Saskatchewan Agriculture Development and Diversification Boards

PFRA - Prairie Farm Rehabilitation Administration (name changed to AESB in 2009)

PPWB – Prairie Provinces Water Board

PFSRB – Partners for the Saskatchewan River Basin

WAGS – Watershed Advisory Groups

WAI - Watershed Awareness Initiative

I INTRODUCTION

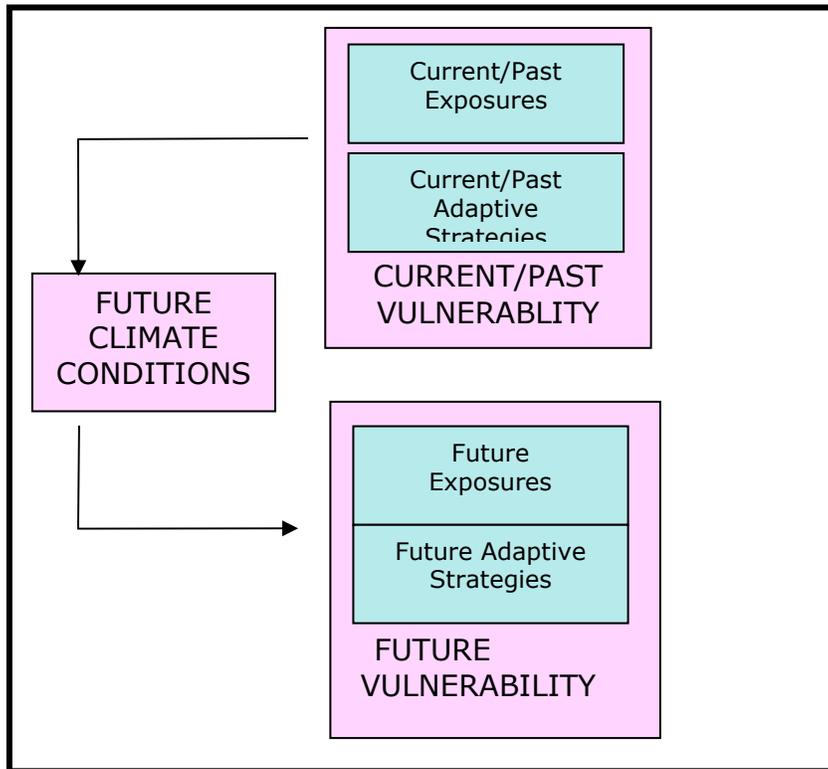
The IACC project seeks to develop a comprehensive understanding of the capacities of institutions to formulate and implement strategies of adaptation to the expected climate change risks and the forecasted impacts of climate change on the supply and management of water resources in the South Saskatchewan River Basin (SSRB – Western Canada) and the Elqui River Basin (Northern Chile). The project’s main objectives are to identify both the vulnerabilities related to climate and water resource scarcity of a group of rural communities in the basin and to assess the organizational capacities of governance institutions to address those vulnerabilities. Following the Intergovernmental Panel on Climate Change’s (IPCC) arguments on the determinants of adaptive capacity (2001), the IACC project has argued that the capacity of a community to reduce its vulnerability is determined not only by local resources but also by broader governance networks that define the use and distribution of resources. In this framework, three assessments of the capacities of water governance institutions to reduce the vulnerabilities of rural communities were completed within the project: one in Chile and two in Canada (one for Alberta and one for Saskatchewan). This document has as its main purpose to provide an integrated account of the outcomes of the assessment of the Saskatchewan governance network.

The report is divided into four sections. Following the introduction, there is a short section that describes the methodological approach used in the assessment. The third section offers an integrative discussion, describing the mix of provincial, local and federal agencies concerned with water governance in Saskatchewan and the main trends associated to the themes covered by the assessment. The last section provides the conclusions of the assessment. Three appendixes complete the report. The first appendix provides an organizational overview of the main agencies involved in the Saskatchewan water governance network. The second appendix provides summaries of the outcomes of the interviews completed during the assessment. Finally, the last appendix contains the Field Work Guide for the Governance Assessment, a thematic guideline used in the interview process.

II METHODOLOGY

The assessment was carried out in the context of the conceptual and methodological framework of the IACC project, the “vulnerability assessment model” (See Figure 1). This model emphasizes the need to analyze not only the future vulnerability of systems, but also their vulnerability in the context of current and future climate conditions. The model identifies three sets of interrelated activities: (a) the development of a systematic understanding of the current exposure of a system (a rural community in our case) and its adaptive capacity; (b) the assessment of future climate conditions for the area where the system occurs; and (c) the assessment of future vulnerabilities based on an analysis of

how the existing vulnerabilities of the system will be affected by future climate conditions.



Following the arguments found in Chapter 18 of the 2001 IPCC Report (IPCC, 2001) about the existence of well developed institutional frameworks as one of the determinants of adaptive capacity, one of the fundamental tasks the IACC team involved the assessment of the capacity of water governance organizations to reduce the vulnerability of rural communities. Water governance, a formal institutional framework that involves both government and civil society organizations (see Diaz and Rojas, 2006), shapes the vulnerability of rural people and rural livelihoods to climate and climate-related water problems, as a result of its central role in the management of water resources and their use by society.

The assessment of water governance was carried out in Chile and Canada. Given the complexity of water governance in Canada, where provincial governments assume a leading role, it was decided to assess the governance networks of both Alberta and Saskatchewan. The Canadian assessment involved several stages:

1. The development of a methodological and operational framework for assessing water governance. This framework was developed in two working documents. The first document (Diaz and Rojas, 2006) provides conceptual and methodological guidelines for assessing governance in the area of water resources. This document discusses the concept of institution, the nature of the

formal institutions to be assessed, and the main dimensions of a governance assessment. The second document provides a baseline description of the conditions of water governance in Canada, identifying the roles and mandates of federal, provincial, and local levels of government in the management of water resources (Corkal, Inch, and Adkins, 2007).

2. The development of an “inventory” of the governance of water resources in the SSRB with the purpose of identifying the characteristics of the multiple organizations that participate in water resources management in the basin. This inventory was developed in a third working document, which presents information about the formal roles and responsibilities of the organizations in the basin, their links with other organizations, and the main policies, plans, and regulations that govern or affect decision-making with regards to water resources in the basin (Orrego, 2007). Based on the information provided by this last document, and in consultation with stakeholders, a set of private and public organizations participating in the water governance in each of the two provinces were selected for the purpose of the assessment.
3. The development of an appropriate instrument for gathering information relevant to the governance assessment. The main instrument used in the assessment was a semi-structured interview oriented to understand the role of the organization and its decision making processes with respect to water and climate stress, including identifying factors (beyond the public self-presentation in websites and public documents) which facilitate or hinder rural people’s adaptation to changing conditions and how they do so (past, present, future). For the purpose of ensuring consistency a field work guide was produced. This guide outlines all the research themes and questions which should be addressed in the semi-structured research interview (see Appendix 3). In addition, several public documents of the organizations participating in the water governance network were obtained for the purpose of contextualizing the interviews. Appendix 1 provides summaries of these organizational overviews.

For the purpose of facilitating the assessment of the two water governance networks operating in the SSRB (Alberta and Saskatchewan), two teams of researchers assumed the responsibility of interviewing the representatives of the selected organizations in each of the provinces. Interviews were conducted by study team members from across Canada beginning in April 2007 and ending in May of 2008, so the assessment corresponds to the conditions existing at that moment. Sixty-five confidential interviews (including one focus group) were held with members of the selected organizations in the basin. Table 1 shows the distribution of interviews according to the type of organizations that were assessed: public agencies and civil society organizations, as well as federal and provincial organizations.

Type of organizations	Public agencies	Civil society	Total
Federal	11	-	11
Saskatchewan	21	7	28
Alberta	11	15	26
Total	43	22	65

For the purpose of selecting individuals from the different governance organizations we adopted a purposive sampling procedure. Members of our partner organizations were asked for advice regarding the selection of one or two individuals from each organization. These initially selected individuals were contacted by phone in order to explain the purpose of the assessment and to set up a date for the interview. After the interview they were asked to identify other individuals in their organization, or in other organizations, who qualify for inclusion in the assessment. As indicated above, several themes were covered in the interviews;

- The institutional roles of the organization in relation to water resources and climate change.
- The experiences of the organization in dealing with situations of water stress and its main experiences in dealing with these situations.
- The existence of long-term plans for dealing with water stress and the factors considered in this planning process.
- The type of information collected by the organization and its availability to other organizations in the water governance network and to the general public.
- The resources available to the organization for managing, mediating, and planning for water related issues.
- The organization's relationships and interaction with stakeholders and the contribution to management and decision making from these stakeholders.
- The accountability of the organization as a whole and the process of accountability.
- The participation of the organization in the water governance networks and the degree of collaboration/coordination resulting from this participation.
- Expected changes of the organization's mandate and activities in the context of the expected climate change scenarios.

- The capacities of the organization to address the concerns of rural communities and its capacity to promote capacity building in rural settings.
- Identification and assessment of legal instruments relevant to the organization's day-to-day operation.
- Identification of other factors that facilitate or constrain the capacity of the organization to both manage water stress and address rural communities' concerns.

All interviews were electronically recorded and transcribed into Word documents, which were provided to the respondents for revision. The final version of the transcription was coded by theme using NVivo and Nvivo Merge as tools and analyzed. The next section provides the main results of the analysis by theme, while Appendix 2 provides summaries of the responses obtained in each one of the main organizations of the Saskatchewan water governance networks interviews.

III INTEGRATIVE DISCUSSION

One of the common threads running through the Saskatchewan Governance Assessment interviews was a sense that the province's water governance system is rather complex. The complexity is seen as a manifestation of the large number of provincial, federal, and local government organizations with involvement in water governance. The interviews provided numerous instances where respondents who participate in community-based organizations interested in water governance indicated frustration with that complexity. As mentioned by a respondent who was both a village mayor and member of a watershed advisory group *"It's a hassle in that you've got to go to so many groups to do what you have to do."* (R1 Sec. 0, Para. 255 – 271)

On the other hand, there is considerable support for the development of yet another layer of involvement in water governance. The Saskatchewan Watershed Authority has recently facilitated the establishment of approximately 30 watershed stewardship and advisory groups. This development is supported by the literature dealing with the development of adaptive capacity which stresses the importance of building local knowledge, institutions and stakeholder involvement (Diaz and Rojas 2008 pp. 8, 9).

Concerns were also expressed to the effect that the efficacy of the system is frustrated by instances of overlapping authority. For example, the Saskatchewan Watershed Authority and the Saskatchewan Ministry of Environment are both involved in source water management and protection. And there are numerous agencies involved in the approval of new developments, such as intensive livestock operations, which have the potential to impact both water quality and quantity. In response to the perception of unnecessary complexity and overlapping authority, a number of provincial and federal government managers employed in the water governance agencies have been involved over the past two years in an Integrated Water Management Committee that is looking for ways to streamline the system. Indeed, a few interview respondents suggested that improved

efficiencies could result from moving toward single desk (or one-stop shopping) management of water resources in the province.

The research findings of the IACC project suggest that while complexity presents challenges, efforts such as the Integrated Water Management Committee, which attempt to coordinate interagency activities, may be just as effective in providing good governance as an attempt to create some sort of single-desk agency or office of a “water czar”. The need for institutional growth at the local level might be perceived to run contrary to a vision which seeks to reduce complexity by enhancing central authority to the exclusion of grassroots involvement. These seemingly contradictory goals foreshadow the challenges involved in the development of a new adaptive water governance system. Such a system would strive to enhance horizontal collaboration (between existing players) as well as enhanced vertical collaboration by introducing greater local participation in the decision making process (which has up until now been dominated by provincial and federal players).

The provincial agency mix

The Saskatchewan government’s constitutional jurisdiction over water is exercised through several provincial agencies including two Crown corporations, at least four ministries of executive government along with a number of boards and quasi-governmental associations. The Organizational Overviews developed for the Saskatchewan Governance Assessment project (and attached to this report) provide descriptions of the major provincial government institutions involved in water governance.

The major departments of executive government and provincial Crown corporations involved in water governance are:

- the Saskatchewan Watershed Authority (SWA), a non-commercial Treasury Board Crown corporation which is responsible for management of the groundwater and surface water resources in the province;
- the Saskatchewan Ministry of Environment (SME) which is responsible for monitoring and regulating source water quality and municipal water and wastewater treatment;
- SaskWater, a commercial Crown water utility that services approximately 44 municipalities;
- the Saskatchewan Ministry of Agriculture (SMA) which provides support for irrigation, producer income support and crop insurance – and as of 2008 a farm water enhancement program;
- the Saskatchewan Ministry of Health which oversees the provincial laboratory that tests water for municipalities, provides guidance for individuals reliant on private water supplies, and plays a critical role when water quality threatens public health;
- the Ministry of Municipal Affairs, which is involved in municipal financing and governance issues as well as overseeing zoning regulations and;

- the Ministry of Industry and Resources which governs oil and gas well construction and operations.

There are also a number of provincial regulatory and advisory boards and service providers involved in water governance, including:

- the Saskatchewan Water Appeals Board which responds to requests for the adjudication of drainage disputes from SWA and is funded by SME;
- eight Watershed Management Associations under SWA's jurisdiction, which operate source water projects such as dams and reservoirs;
- SWA has a 19 member Advisory Committee made up of people with particular expertise or interest in water management; and
- the Saskatchewan Research Council (SRC) provides research assistance to agencies such as SWA regarding groundwater mapping and water-related research.

There are a number of provincial non-governmental organizations (NGOs) involved in water management and/or advocacy on behalf of water management and use:

- numerous local watershed advisory groups operate in the provinces in close collaboration with SWA. These include 11 Watershed groups and approximately 22 subsidiary or tributary advisory committees which are affiliated with their respective Watershed groups;
- Partners For the Saskatchewan River Basin and the Meewasin Valley Authority are NGOs based in Saskatoon which operate outside of the SWA supported Stewards process;
- the Saskatchewan Irrigation Projects Association (SIPA) lobbies on behalf of producers who irrigate and who are in turn often members of irrigation district associations;
- the Saskatchewan Association of Rural Water Pipelines advocates on behalf of eight groups which deliver water to collections of farmsteads;
- the Saskatchewan Environmental Society (SES) advocates on behalf of environmentally sustainable water management and use;
- Saskatchewan Agrivision is an agri-business lobby group, which promoted a major expansion of irrigation in the province (According to a June 1, 2008 article in *Saskatchewan Business*, Saskatchewan Agrivision was dissolved at its April 22, 2008 Annual Meeting due to a lack of sufficient financial resources); and
- Water Wolf, a regional development and planning organization with a focus on the portion of the South Saskatchewan River watershed extending from the Gardiner Dam to Saskatoon.

Notwithstanding the list of organizations provided above, Saskatchewan's 497 urban municipalities are the organizations which deliver most of the treated water used by urban households, and businesses. Total municipal expenditures for water treatment and delivery, and wastewater management, far exceed the budgets of any of the organizations noted above. However, municipalities are creatures of the province, and they do not make

the rules regarding management or use of source water. Those functions fall primarily under the jurisdiction of SWA and SME. That said, municipalities do promote sustainable practices such as water conservation and have the capacity to ration water at the community level. The largest water usage/consumption in the province is, however, irrigated agriculture (accounting for about 90% of water consumption) by extracting raw water from surface water sources for the irrigation of field crops to irrigation districts or individuals. Water licenses for irrigation can only be granted by SWA on suitable lands as deemed appropriate by SMA.

Federal involvement

Despite the province's constitutional jurisdiction over water, a number of federal agencies and two trans-boundary organizations are involved in water governance issues in Saskatchewan. For example, Environment Canada (through agencies such as the National Water Research Centre) provides technical and operational support to the Prairie Provinces Water Board (PPWB) which administers, monitors and reports on the quantity and the quality of inter-provincial water flow. The Prairie Farm Rehabilitation Administration (PFRA), until 2009 a branch of Agriculture and Agri-Food Canada (AAFC), now a part of AAFC's Agri-Environment Services Branch, is active in the management of a number of water infrastructure and conservation projects in the province, and has been one of the most active agencies, federal or provincial, in reducing vulnerability to drought in rural Saskatchewan. Fisheries and Oceans Canada is involved in the management of Saskatchewan surface waters when circumstances impact fish stocks and habitat. Indian and Northern Affairs Canada (INAC) and First Nations are involved in the governance of water on reserve lands and on-reserve water and wastewater infrastructure. The federal government is also involved in international trans-boundary water issues with the United States via the Boundary Waters Treaty.

Intergovernmental organizations

Since watersheds, lakes and streams can overlap political boundaries trans-jurisdictional policy making and monitoring agencies are involved in water governance. For example the International Joint Commission is comprised of federal government representatives from Canada and the United States, and deals with waters that flow across the Canada-United States border. The Prairie Provinces Water Board (PPWB) is comprised of federal and provincial representatives and deals with inter-provincial waters. There are federal-provincial committees operating in Saskatchewan that share information and collaborate on water management activities (e.g. recently, the Integrated Water Management Committee was created to examine ways to enhance inter-agency water activities between provincial agencies and between provincial and federal agencies).

Respondents who participate in a number of these agencies were interviewed for the IACC project including:

- The Prairie Provinces Water Board (PPWB) which operates under formal relationship between Manitoba Environment, SWA and Alberta Environment and the federal government represented by Environment Canada and PFRA.
- The Canada Saskatchewan Irrigation Development Centre at Outlook, Saskatchewan, which is jointly operated by the PFRA, the Saskatchewan Ministry of Agriculture, the agriculture industry and academic institutions.
- The Integrated Water Management Committee is presently an informal intergovernmental organization looking for ways to rationalize water governance in the province co-led by SWA and PFRA.

THEMATIC DISCUSSION

The thematic discussion that follows below essentially reflects the 12 theme structure employed by the IACC interview process. Summaries of the IACC interviews and the Field Work Guide for the Governance Assessment, which lists the 12 themes, are appended to this report.

1) INSTITUTIONAL ROLES AND ACCOUNTABILITY

This section provides a discussion of the roles of the major institutions involved in water governance and related climate issues in the province. The IACC project conducted interviews with officials from each of the organizations described in this section. The most prominent agencies, as measured by the scope of their water management mandates and budgets, will be described in rank order. Since there are a number of linkages and overlaps between agencies, the discussion of the more prominent players will include references to the activities of many of the less influential institutions. The IACC project research themes included within this section of the discussion include Theme 1, the institution's role in water governance and climate; Theme 7- Accountability and Evaluating Progress; and Theme 11 – Legal issues.

Saskatchewan Watershed Authority

Prior to 2002 Saskatchewan's water resources were managed by a non-commercial Crown corporation – SaskWater. SaskWater had been established in 1984 as an umbrella organization that housed a number of water governance functions and a water utility service within a single agency. Responsibility for drinking water safety was not part of the SaskWater mandate. Drinking water safety has been located within the Saskatchewan Ministry of Environment at least since 1984. The province's 2002 *Safe Drinking Water Strategy* required the splitting of SaskWater into two separate agencies. The water resource management side was transferred to a new Treasury Board (non-commercial) Crown corporation called The Saskatchewan Watershed Authority (SWA) which currently operates under the *Saskatchewan Watershed Authority Act 2005*. The utility section of the pre-2002 SaskWater was housed within a newly constituted SaskWater which now operates as a commercial Crown corporation under the *Saskatchewan Water Corporation Act 2002*.

In its most recent Annual Report (2006 – 2007) SWA describes its mandate as follows:

To manage and enhance the province's water and watershed resources for the environmental, economic and social benefit of citizens.

SWA's operating budget for 2007 was \$23.8 million. It has two major revenue streams, payments from the Saskatchewan Ministry of Environment and fees for providing water to SaskPower and other major industrial users such as potash mines. It has approximately 180 employees working out of its Moose Jaw head office and at other regional locations. The current level of expenditures is expected to rise dramatically in the near future due to expensive infrastructure upgrades, including a spillway maintenance project for Gardiner Dam expected to cost over \$20 million. The corporation's core activities include:

- Ownership and operation of 45 dams (including the Gardiner Dam) and 130 km. of irrigation canals and ancillary works.
- The provision of hydrology expertise to measure surface water supplies, guide allocations, license withdrawals, and predict water flow and floods; and, the provision of hydrogeology expertise to manage and license withdrawals from groundwater supplies.
- The authorization of all surface and groundwater allocations in the province for municipal, industrial, irrigation and intensive livestock uses.
- Under a provincial Order in Council, SWA employees represent the province on the Prairie Provinces Water Board.
- The investigation of complaints related to drainage and the alteration of natural water flows up to the appeals stage (appeals are dealt with by the Water Appeals Board which is under the responsibility of the Ministry of Environment).

SWA has a number of formal and informal linkages with the Saskatchewan Ministry of Environment (SME). For example the Deputy Minister for SME has traditionally served as the one-person board of directors for SWA. SWA and SME both report to the same cabinet minister – the Minister of Environment. Approximately 57% of SWA's total revenues are derived from the provision of services to SME. As a Treasury Board Crown corporation, SWA is also required to report to the provincial Treasury Board, which is a committee of the provincial cabinet headed by the finance minister.

The main services provided by SWA to SME include the monitoring of surface water quality and, more recently, the production of an annual *State of the Watersheds Report*. IACC interview respondents from both SWA and SME commented on the overlap in jurisdiction between SWA and SME with respect to water quality monitoring. SWA respondents recognized that the current arrangement gives their agency authority over water quantity issues, while SME is responsible for quality. SWA respondents reported on the contradiction that results from the overlapping authorities: "The agency [SWA] had been given a mandate for source water protection" (SWA1 Sec. 0, Para. 49-45) but "was given no new legislation around source water protection." (SWA2 Sec. 0, Para. 5 – 8)

One respondent from the Saskatchewan Ministry of Environment reflected that the jurisdictional overlap might be unnecessary. This respondent reasoned that SWA would be capable of dealing with both quality and quantity issues; especially since it was already putting together the data required by SME for its source water quality monitoring mandate. Indeed, SWA's legislative mandate seems to suggest the organization is eligible to operate in both the quality and quantity areas. The SME respondent indicated the converse would also be workable – whereby all or some of SWA's functions could be absorbed by SME. (E4 Sec. 0, Para, 93 -95)

Respondents from SWA indicated that SME was expected to consult with the Watershed Authority if a proposed development threatened groundwater contamination. However, threats to surface water quality would fall exclusively under SME's jurisdiction - not SWA's. Since SWA is responsible for approving water allocations it has at least that level of regulatory control over a development proposal that threatened to adversely impact source water supplies from a quantity perspective. Respondents from SWA were unable to point to specific protocols that would require the official approval of their organization for a particular development. One respondent stated SME or the Ministry of Agriculture would “probably” not grant approval for a project over the objections of SWA but in theory, “they could”. (SWA5 Sec. 0 Para. 197 – 210) Protection of groundwater and surface water in conjunction with oil and gas well development is also somewhat removed from the full purview of SWA since the Saskatchewan Ministry of Industry and Resources approves oil and gas well exploration and construction activities. (SWA4 Sec.0, Para. 197 – 219)

One of the major water stress issues to confront SWA since its inception in 2002 has been the flooding of a resort village on Fishing Lake. This Fishing Lake situation is illustrative of challenges related to institutional responsibility and accountability for water management. Whereas, municipalities are responsible for zoning regulations that might allow for development in a flood prone location, residents' concerns about lake level management have nonetheless become problems for SWA (FOCUS1 Sec. 0, Para. 23)

Saskatchewan Ministry of Environment

Given the jurisdictional overlaps and formal linkages that occur between SWA and the environment ministry, it is not surprising that a number of the Saskatchewan Ministry of Environment's (SME) water related activities were discussed above in relation to SWA. SME has a central role in ensuring the safety of drinking water and as a result that area dominates its activity in the area of water governance. SME also has a role in environmental protection and ensuring environmentally responsible development in the province. This requires SME to monitor wastewater treatment and to ensure that new development projects do not have a negative impact on water sources. However, with respect to the establishment of Intensive Livestock Operations (ILOs), the approval process is led by the Saskatchewan Ministry of Agriculture.

SME is responsible for administration of numerous pieces of legislation. Its water mandate flows from the *Environmental Management and Protection Act 2002*. Part IV of

the Act gives the ministry responsibility for: *16 (1) (a) the supervision, control and regulation of all matters relating to water quality; and (b) any impairment of water quality by any adverse effect.* Other sections of the Act [16 (2) and 16 (3)] authorize SME to consult (at SME's discretion) with other agencies and the public to assist in meeting its mandate. SWA and the Saskatchewan Ministry of Health are the two agencies specifically identified for consultation.

The *Safe Drinking Water Strategy* of 2002 required SME to develop a comprehensive water monitoring and regulatory system for municipal drinking water. Quality standards were set and municipalities were required to meet SME's reporting protocols and hire qualified water treatment technicians. An inspections and approval system for water treatment facilities was developed and municipalities were ordered to comply with the new standards. Penalties for failing to comply included the imposition of boil water orders for communities with unsatisfactory drinking water. SME demonstrates success and progress in this area by reporting details such as the number of inspections it conducts in its annual reports.

SME spends approximately \$13 million annually, or 7% of its \$186 million annual budget on activities related to its water safety mandate. Much of that expenditure is accounted for by SWA's provision of surface water monitoring data. Approximately \$5.5 million of SME's water related expenditures are devoted to its own in-house water and wastewater quality protection activities (involving 36.7 FTE employees).

SaskWater

When SaskWater was reconstituted by the *Safe Drinking Water Strategy* as a commercial Crown water utility it was already providing water to approximately 30 municipalities, a handful of industrial users, a number of rural pipeline associations, and irrigation projects. While SaskWater's dealings with these water users typically involved commercial relationships, its efforts were also viewed as a public service. It was seen as an agency that could come to the assistance of small and mid-sized communities which had run into difficulties due to circumstances such as drought and inadequate source water, aging infrastructure or inadequate water treatment facilities.

In its 2002 incarnation, SaskWater's mandate was adjusted to make it a commercial Crown corporation, operating under the jurisdiction of Crown Investments Corporation (CIC). Striving for profitability is a requirement under this new mandate. Unlike the province's other utility Crowns such as SaskPower, SaskTel and SaskEnergy, SaskWater was not given a monopoly franchise over any portion of its mandate area - Saskatchewan's water and wastewater systems. Another important distinction is that SaskWater is expected to develop new water and wastewater infrastructure on a pay-as-you-go basis, whereas, when the provincial government expanded SaskEnergy's natural gas distribution network into rural areas in the 1980s, the province provided much of the necessary financing. New rural natural gas customers were not expected to pay the full cost of the new service hook-ups and their delivery and use rates were kept in line with the rates of existing customers. The debt to equity ratio that CIC requires SaskWater to

maintain makes it difficult for the corporation to finance new infrastructure projects at rates that municipal customers view as fair or affordable.

The new (post-2002) SaskWater's annual revenues were \$19.6 million for 2007. Despite CIC's profitability objectives, the corporation chalked up a loss of \$477,000 for the year. Since its establishment in 2002, SaskWater achieved a modest profit for only one fiscal year – 2006. SaskWater's core business activities include the following:

- The provision of potable and non-potable water to urban communities, businesses, rural pipeline associations and individual rural residents. Water provision can involve a number of business models. For example, SaskWater might own and operate the water system; or it might build the system and turn it over to the municipality to operate. The creation of regional water system solutions whereby several communities and rural users share the same treatment plant and pipelines has been one of SaskWater's more innovative and cost effective activities.
- The provision of wastewater treatment, under the same sorts of commercial relationships as noted for water systems.
- The provision of certified operations and maintenance for customer-owned systems. And in some instances, training for municipal and First Nations operators. Operating services options include remote monitoring technology which allows SaskWater to monitor treatment systems on a 24-7 basis from a central station in Regina.

Saskatchewan Ministry of Agriculture (SMA)

There has been a Saskatchewan Department of Agriculture as long as there has been a province of Saskatchewan. Agriculture is an area over which both the federal and provincial governments have constitutional jurisdiction. This has resulted in the involvement of both provincial and federal actors in the management of agricultural in the province. The lead agencies are the Saskatchewan Ministry of Agriculture (SMA) and Agriculture and Agri-Food Canada (AAFC) -- through AAFC's Research Branch and the Prairie Farm Rehabilitation Administration (PFRA) branch.

The division of financial responsibility for assisting agricultural producers through a succession of climate and market related crises has been a bone of contention between the federal and provincial governments over recent decades. Federal risk management and emergency assistance programs are typically cost shared with the provinces. For example the federal government requires provinces to pay 40% of the costs to governments of the CAIS/AgriStability program. The federal view that the 60-40 ratio is appropriate for most cost shared programming is often challenged by Saskatchewan which argues that since the province has a small population and tax base, but over half the agricultural land in Canada, it should not be required to meet the 40% funding requirement.

SMA's mandate includes a number of programs that relate to meeting community/stakeholder needs with respect to water stress. These include federal-provincial programs such as crop insurance and other income support (risk management)

schemes. SMA also supports irrigation projects and has recently delivered a water infrastructure program to drought affected municipalities in the southwest of the province, which assists farmers and ranchers in developing community wells and pipeline systems. These activities will be discussed in more detail under section 3 which deals with measures taken in response to climate variability and climate change. In 2005 SaskWater transferred its irrigation operations to the SMA.

Saskatchewan Research Council (SRC)

The SRC's website claims it is "Saskatchewan's leading provider of applied R&D and technology commercialization." It has a staff of 300 and annual revenues approaching \$28 million. The SRC has been involved in a groundwater mapping project with SWA and has recently applied modest resources to reviewing the science on climate change to develop an understanding of the potential impacts on Saskatchewan.

Prairie Farm Rehabilitation Administration (PFRA)¹

The Prairie Farm Rehabilitation Administration (PFRA) was established by the Government of Canada in 1935 as a federal response to catastrophic drought on the prairies. The PFRA's focus has always related to land and water conservation and agri-environmental sustainability. In the years since 1935, the PFRA has developed long-term relationships with agricultural producers and communities across the prairie provinces. It has become the go-to agency in many instances for farmers experiencing challenges due to drought. The PFRA operates as a branch of the federal department of Agriculture and Agri-Food Canada (AAFC).

The PFRA has a significant water management mandate. It owns and operates a number of dams, irrigation systems and associated works on the prairies. Other major PFRA programs, such as its community pastures and shelterbelt tree planting projects, operate in accordance with sustainability and conservation principles that enhance water conservation and management.

The PFRA has developed climate monitoring and forecasting capabilities designed to facilitate decisions and planning related to climate induced water stress events like droughts. The PFRA currently appears to be far ahead of provincial water resource managers on this front.

To a large extent the PFRA has been responsible for considerable drought resilience on the prairies. Thanks in part to the PFRA, thousands of farmsteads that in the 1930s would have been without domestic and livestock water during a severe drought, now have wells

¹ After roughly 70 years PFRA evolved into a national agency, and was known briefly as the Prairie Farm Rehabilitation Administration and Environment Branch. In April, 2009, the agency's name became Agri-Environment Services Branch, and remains a branch of Agriculture and Agri-Food Canada. AESB's mandate will be national in scope and remain focused on agri-environmental sustainability and innovation to promote a competitive profitable agricultural sector.

and dugouts storing snowmelt surface water capable of withstanding one or more years of drought. Efforts to drought-proof farms and rural communities (or as PFRA officials refer to it as mitigating drought impacts) extend to technical support and assistance in locating financial support for the construction of rural water pipelines. Current PFRA programs are cost-shared with the provinces.

The PFRA employs 670 staff across Canada with the majority of those employees located on the prairies. The head office is in Regina. The annual budget for the PFRA is approximately \$65 million. Approximately 22% of the total budget, or \$14.3 million, is primarily dedicated to water and climate related activities.

Environment Canada

Environment Canada's (EC) role in water governance related to Saskatchewan is primarily manifested in the activities of the National Water Research Centre (NWRC) in Saskatoon and the Regina offices of EC which provide administrative and technical support to the Prairie Provinces Water Board (PPWB). The NWRC monitors and reports on the quality and quantity of inter-provincial stream flows. Environment Canada has also been active in developing national water quality standards that provinces have been encouraged to adopt.

Prairie Provinces Water Board (PPWB)

The PPWB manages the multi-party (the three prairie provinces and the federal government) agreement on trans-boundary water sharing. The PPWB makes use of administrative support and technical services provided by Environment Canada. Crudely summarized, the master agreement requires that at least 50% of the waters which rise in Alberta are to be passed into Saskatchewan and that half of that amount plus half of any waters that rise in Saskatchewan are passed on to Manitoba. As will be noted later in this report, there are caveats attached to the master agreement that affect the precise amount of water that must flow from Alberta to Saskatchewan. The PPWB also monitors the quality of water entering and leaving Saskatchewan.

Irrigators and irrigation proponents

The IACC research effort included interviews with respondents involved directly in irrigation and irrigation development. The institutions represented advocated on behalf of improving and/or expanding irrigation agriculture in the province. Given the relatively small size of these organizations, the summary of findings which follows will be structured somewhat differently than those for the government agencies already described.

CSIDC

The Canada Saskatchewan Irrigation Development Centre (CSIDC) is located at Outlook, Saskatchewan. The centre's roots extend back to 1949 when the PFRA established an

irrigation demonstration project near Outlook in anticipation of the Gardiner Dam and the promise of significant irrigation development in the future. In 1986 the provincial department of agriculture (SMA) partnered with the PFRA to jointly operate and fund the centre under the CSIDC label. Participation in the centre has been expanded to accommodate the involvement of producer groups such as the Saskatchewan Irrigation Projects Association and collaboration with commodity groups and academia. The centre coordinates research and promotes irrigation development and value-added agricultural diversification by testing and demonstrating irrigation systems and the suitability of new (and higher-value) crop varieties for irrigation farming in Saskatchewan.

SIPA

The Saskatchewan Irrigation Projects Association (SIPA) is a producer group formed in the 1990s to consolidate industry policy positions and lobby on behalf of irrigation producers. SIPA is funded through a modest member assessment based on the acreage they irrigate. As noted above, SIPA is involved in the programming offered by the CSIDC and has been responsible for funding research of value to producers. SIPA members have also been active in their local watershed groups.

SIPA has been actively pursuing irrigation development as a climate change adaptation tool, as evidenced in their Dec. 2008 major comprehensive report, “Time To Irrigate – The Economic, Social, and Environmental Benefits of Expanding Irrigation in Saskatchewan.”

Saskatchewan Agrivision

Agrivision was formed in 1999 as an agri-business think tank with a mission to promote transformational developments in the agriculture sector. It was led by Dr. Red Williams a prominent commentator on agricultural policy issues and Professor Emeritus with the University of Saskatchewan’s Department of Animal Science. One of Agrivision’s major achievements was the production of a \$299,500 study in 2005 which examined ways to expand agri-business activity in Saskatchewan through increased irrigation development. The study, entitled *Water Wealth: A Fifty-Year Water Plan for Saskatchewan* received federal-provincial funding support and involved a degree of collaboration with the PFRA. According to Dr. Williams, the Agrivision effort expanded on a previous study conducted by the PFRA in 1972.

Water Wealth constitutes an ambitious attempt to promote the development of an irrigation based livestock production and value added processing hub in the west-central grain belt region of the province. The study called for the construction of up to fifteen dams along with canals, pipelines and ancillary facilities. One of the major developments proposed was the Highgate Dam on the North Saskatchewan River which would divert water south to Lake Diefenbaker. The study met with a lukewarm reception from government and opposition from environmental groups such as the Saskatchewan Environmental Society. Environmentalists rejected the proposed damming of waterways as economically inefficient and hazardous for ecosystems. According to Agrivision, an

opposing viewpoint was taken among rural-urban communities and producer groups. The communities understood that the project would increase their access to pipelines and secure supplies of water, and producers believed that increased livestock production and Saskatchewan based value added processing would enhance revenue and employment opportunities (R3 Sec. 0, Para. 26 – 38)

As noted previously Agrivision's Board of Directors dissolved the organization at their April 22, 2008 Annual Meeting due to a lack of access to sustainable funding.

Water and Watershed Advisory and Advocacy Groups

Watershed Groups

Saskatchewan Network of Watershed Stewards (SNOWS)

The Saskatchewan Network of Watershed Stewards is a partnership involving provincial, federal and NGOs which coordinate and support watershed stewardship programs in Saskatchewan. The watershed programs undertaken have goals of protecting, restoring and enhancing the aquatic ecosystem, promoting communication among stewardship groups and promoting interaction and partnership among local groups, government, NGOs and the scientific community. This network has been operating in the province of Saskatchewan since about 2002.

Watershed Advisory Committees

Since its inception in 2002, SWA has been coordinating a community-based watershed advisory process. The process is based on the premise that people who live and work in a watershed are among those who understand it best. The system envisaged by SWA addresses a number of sustainability objectives such as building a knowledge base around water and enhancing the social capital and institutional components of adaptive capacity. The watershed advisory system is also a good fit with theories of governance that see an important role for stakeholders and the need for policy development to be as much a bottom up process as one that is exclusively top down. (Diaz and Rojas 2008) The concept relies on achieving watershed and/or aquifer management decisions with citizen engagement and participatory planning that includes the interests of all stakeholders within a watershed.

Major watersheds such as the South Saskatchewan River currently have operating watershed groups. Some of these groups have formally incorporated under the province's non-profit corporations legislation. There are currently 11 watershed groups operating in the province, one of which is a groundwater based organization (Yorkton Aquifers). All of these groups have been supported financially by SWA during their organizational phase and were provided with technical support for the development of source water protection plans unique to each watershed. Drafting these plans has been a central objective of the watershed advisory committees working in partnership with senior levels of government (which provide advice on technical issues).

Participation on the watershed advisory committees includes many community members, municipal government representatives and local watershed stewards as described above. Often the nomenclature becomes confusing given that some groups embrace the term “steward” and others do not. Watershed advisory committees were sponsored by SWA to establish formally documented source water protection plans. These watershed advisory committees wrote and published source water protection plans and there is currently a reorganization process of these committees underway (driven largely by determining the best size for local decision making). For example, smaller sub-watershed scales may be more manageable for local committees, but combining sub-watershed groups allows the formation of a stronger representative group within the larger scale watershed. In some situations such as the Upper Qu’Appelle and Wascana Watershed group, three watershed advisory committees have banded together to form a larger committee and incorporate as a non-profit organization (described in more detail below). These umbrella organizations will be referred herein as “watershed groups” and watershed advisory committees will be the groups initially responsible for the source water protection plans.

Currently an organization is being formed to coordinate all of the watershed groups in Saskatchewan. This organization is called the Saskatchewan Association of Watersheds (SAW).

While SWA’s involvement has been critical to the design and evolution of establishing a system of watershed groups in the province, it should be noted that at least two (and possibly more) of the watershed groups, the Moose Jaw River watershed and the Swift Current Creek watershed group were active prior to SWA getting involved.

There are also area and tributary-based watershed advisory committees which operate under the umbrella of the larger watershed groups. For example, the South Saskatchewan River Watershed Stewards Inc. (SSRWSI) have relationships with the South Saskatchewan River West Advisory Committee, the South Saskatchewan River Central Advisory Committee, and the South Saskatchewan East Advisory Committee. The SSRWSI bylaws allow for representation from these groups on its board. Similarly the Upper Qu’Appelle and Wascana Watershed Group form an umbrella organization for tributary-based advisory groups for the Lanigan-Manitou watershed, the Last Mountain Lake watershed, and the upper Qu’Appelle watershed. Approximately 22 of these subsidiary or tributary advisory committees have been established since 2002, many continue to operate but some appear to have become inactive. SWA provided seed money to establish the advisory committees as well as technical support for the development of watershed plans.

The level of activity that the groups engage in varies. Those able to secure adequate financing might have a public office and a watershed specialist on staff. Others cease to function (or at least limit their activity) soon after their source water protection plan has been produced and the start-up funding supplied by SWA has been exhausted. While SWA has funded the groups in their establishment phase and for projects such as watershed plans, it does not provide long-term financial support. It has funded some of

the watershed groups which are forming on a term basis, but not enough to cover their entire budget. Once watershed groups are organized and have their watershed plan produced, the groups are essentially on their own financially.

Some groups have been quite successful at what one participant referred to as “funds chasing”(R2 Sec. 0, Para. 251 – 252) (PSRI Sec. 0, Para. 112 – 126) Other groups have been less successful and there is pessimism regarding their long-term viability. The SSRWSI has developed a voluntary assessment system, whereby they calculate the share of watershed resources a city, town, village, RM or industry uses and apply that proportionally to their spending requirements. Since the system is voluntary there is no guarantee that all those assessed will pay up.

Thus far the watershed groups and advisory committees have not sought any sort of regulatory powers. There is in fact some disagreement among participants on this point. Some believe there is already too much bureaucracy and regulation in the province and do not want another layer of governance applied to what is an already complex system. One respondent maintained that existing provincial regulations and municipal governance structures are more than sufficient, and therefore the watershed groups should focus on public education and consultation along with providing advice to local government and senior water governance agencies (R2 Sec. 0, Para. 17 – 35) (CAB1 Sec. 0, Para. 25 – 34).

The opposing view holds that if the watershed groups had some level of regulatory capacity it could assist in the provision of better informed water governance – at least form a local community perspective. Furthermore, some sort of licensing or taxing capacity would provide the groups with secure funding that would enhance their ability to operate into the future (OUT1 Sec. 0, Para. 423 – 425).

Other advisors and advocates

Urban water body authorities

Saskatchewan has a number of quasi-governmental authorities with interests in source water management and protection. These include Regina's Wascana Centre Authority and Saskatoon's Meewasin Valley Authority and Moose Jaw's Wakamow Valley Authority. Membership and governance for these groups involves a mix of public participation, and representation from the provincial and city governments. The Wascana Centre Authority has been a participant in its local watershed advisory committee. The Meewasin Valley Authority (MVA), possibly by virtue of the fact it is located on a larger river system, has been considerably more active and was the institution from this category from which the IACC solicited an interview.

Partners for the Saskatchewan River Basin (PFSRB)

The Meewasin Valley Authority participates in a group called Partners for the Saskatchewan River Basin (PFSRB). The MVA provides the PFSRB with office space

and office support services. The PFSRB is not a SWA creation and is only informally connected with SWA. This is primarily a result of the fact that its mandate extends to all three prairie provinces. The three province mandate has encouraged relationships with watershed groups and governance agencies from all three provinces. The PFSRB has engaged in public education activities and developed stewardship plans and assessments for the basin. The PFSRB appears to be one of the more successful fundraisers among the province's watershed-based advisory and advocacy groups, garnering hundreds of thousands of dollars in government and sponsorship funding.

Water Wolf

Water Wolf is an agency that promotes sustainable planning and development in the region that overlaps the South Saskatchewan River watershed between the Gardiner Dam and Saskatoon. The organization describes itself as a "Project" involving 16 RMs, 46 villages, towns and hamlets and one First Nation. In addition to its emphasis on economic development of the region, Water Wolf has taken a strong interest in water resource management. One of Water Wolf's initiatives is promotion of the creation of a river valley authority. Water Wolf's activities intersect with those of existing watershed groups such as the SSRWSI and a number of the same players are involved in both organizations. It appears that the relationship between Water Wolf and the stewards group constitutes a collaboration as opposed to a conflict of interests.

The Saskatchewan Environmental Society (SES)

The Saskatchewan Environmental Society (SES) has been active in advocating on behalf of the environmentally sustainable governance and use of Saskatchewan's water resources. The SES is an NGO with a membership and governance structure that is open to the public. The SES funds itself through membership contributions and donations from sympathetic sponsors. The SES is not formally linked to water governance organizations. The SES respondent demonstrated considerable familiarity with governance issues and offered a theoretical understanding of water and climate issues that stands in contrast with the development and growth driven approach of Agrivision.

2. MANAGING WATER STRESS

This section of the discussion mirrors Theme 2 of the assessment, which pertains to organizational capacity to manage water stress; whether the organization had the capacity to learn from previous stress events; and whether the organization has the capacity to respond promptly to stress events.

Virtually all of the institutions under consideration in the IACC project were concerned with various aspects of what was termed "water stress". Water stress refers to challenges emanating from climate related events such as droughts and floods or non-climate stressors such as water contamination. Indeed the preceding discussion of agency roles indicates that the mandates of the institutions often involved activities specific to water

stress management. The discussion which follows deals with stress management issues on an agency by agency basis. It focuses on those governance agencies most closely associated with the delivery of water and climate related policy and programming.

SWA

For SWA, water stress has typically been instigated by climate events – droughts and floods. Drought issues were predominant during the period between 1984 and 2002, when SWA was a division within the old SaskWater. Drought becomes an issue for SWA when it threatens surface water allocation to irrigation projects and when it threatens the flows required to provide for hydroelectric power generation. Since 2002, drought conditions have never reached a point where the basic needs of municipalities (which obtain water from the South Saskatchewan-Qu'Appelle River systems) were impacted. However, resort village residents and irrigators have been impacted by levels on Lake Diefenbaker and the Qu'Appelle system. Those levels are impacted by both drought, and excessive runoff and stream flows.

The most significant water stress/climate issue to confront SWA since 2002 has been flooding in Saskatchewan's east-central grain belt. Incidents of concern include the flooding of a resort village on Fishing Lake and the overflow of highly alkaline lake water into relatively fresh water bodies such as Lake Lenore. While SWA officials attributed most of the flooding to increased precipitation, some area municipalities and cottagers have maintained that excessive drainage of agricultural land was a major contributing cause.

Since SWA's mandate involves it in disputes over farmland drainage and watershed planning, impacted individuals and organizations held it partially responsible for flood damage. One of the SWA respondents expressed indignation over the \$30 million plus that he/she estimated had been spent to remedy the problems of cottagers -- for 250 cottages that should never have been built in a flood zone in the first place (SWA3 Sec. 0, Para. 191-197). This reflects a certain lack of environmental awareness in community planning. Municipal authorities permitted the development of a resort village in a flood prone area, potentially leaving the watershed authority partly responsible for fixing the mess. A respondent from the IACC project focus group asserted that improved municipal zoning efforts could assist in mitigating the impacts of flooding on communities, and was indeed an area where institutional capacities should be strengthened (Focus1 Sec. 0, Para. 66).

SWA lacks a comprehensive drought response plan. SWA officials indicated that in the event of a severe and sustained drought, the domestic water needs of communities would take precedence over other uses such as irrigation. However, they also acknowledged that there are no formal plans or protocols to this effect. Responses to water stress events generally appear to be handled on an ad hoc basis.

Saskatchewan Ministry of Environment

As discussed above SME is concerned with maintaining source water and drinking water quality. Therefore threats to water quality constitute the major form of water stress the ministry deals with. SME's activities in this area involve monitoring and requiring municipalities to take measures to ensure the quality of treated water. Response systems related to drinking water safety appear to be working satisfactorily.

One can imagine that should climate related events such as drought or flooding threaten water quality SME would be challenged to become involved in developing remedial measures. This begs the question, if SME is not involved in planning for extreme climate events, should it be? And if not SME, which other agency of government should have this responsibility?

While SME appears to devote effort toward monitoring climate conditions pertaining to forest fires, it does not engage in similar activities for the agricultural regions of the province. For example, a respondent from the PFRA noted that when the rural district surrounding the village of Vanguard was inundated by flooding caused by an intensive rain storm in 2000, and similar incidents affecting Saskatoon and the surrounding Corman Park municipality occurred, there was no extreme climate event response plan for authorities to consult. And there was no climate modelling system in place that might have assisted authorities in anticipating extreme climate related events. The response to these incidents was led by civil emergency response agencies such as the police and fire departments and municipal engineering departments. The Vanguard flood prompted the production of an interagency report which might offer a basis for further planning. The report is available through the website of the province's Ministry of Corrections and Public Safety.

SaskWater

SaskWater's relationship with water stress flows from its mandate to provide utility services to municipalities which are experiencing difficulties in meeting their water and wastewater treatment needs under the guidelines set by SME. Climate related stress on water supplies can also encourage municipalities to seek out SaskWater's services. However, SaskWater remains only one of the possible options available to municipalities in meeting climate related challenges. They may take advantage of SaskWater's services, hire independent consultants or contractors, or perhaps seek support from the PFRA or federal-provincial grant programs. Indeed, they may take advantage of a variety of combinations of assistance from any or all of the sources mentioned.

SaskWater may have the resident expertise and personnel required to respond to climate challenges on behalf of municipalities. However, under its current commercial mandate it lacks the financial capacity to respond to urgent needs.

Saskatchewan Ministry of Agriculture

The IACC research findings demonstrate that for water governance agencies, water stress can manifest itself in a number of forms. It can involve drinking water safety and the availability of water for general domestic use by households and farmsteads. Farmstead water requirements can extend to watering livestock. Managing water includes its delivery to industry and ILOs. And while Saskatchewan's agriculture industry is dominated by dryland farming, a few districts with irrigation projects are able to withstand drought and grow crops that benefit from irrigation.

Saskatchewan's Ministry of Agriculture (SMA) deals regularly with water stress on three fronts: crop insurance, providing assistance to irrigation associations, and facilitating projects to assist farmers and ranchers in meeting domestic and livestock watering requirements. Its most costly activities, from a budgetary standpoint, are the delivery of a joint federal-provincial crop insurance program and its participation in the federal-provincial CAIS/AgriStability program which purports to protect farmers and ranchers from exceptional drops in income. These programs provide a modest degree of adaptive capacity for farmers impacted by income loss due to climate stress. The lion's share of that climate stress is typically related to water, most often drought – although too much moisture or early frosts, insects, and disease can also adversely affect crop production. Climate change may exacerbate the challenges in these non-water related areas as well.

Saskatchewan Crop Insurance is a Crown corporation, which is managed by the SMA. It is funded through a combination of producer premiums and contributions from the SMA and the federal Department of Agriculture. The SMA spent approximately \$98 million, or 32% of its annual budget of \$320.2 million, on crop insurance premiums and administration in 2007-2008. The capacity of programs such as crop insurance and CAIS/AgriStability to sustain producers through a protracted drought or other climate related catastrophes such as a succession of cold wet summers is doubtful. IACC respondents identified anything over three successive crop failures as approaching the economic breaking point for many producers. Each year of crisis results in increases to crop insurance premiums in relation to payouts to the point where insurance can cease to make economic sense. Similarly, the income support programs are based on multiple year averages. A succession of financial losses constitutes a negative feedback loop that can result in little or nothing in the way of income support for adversely impacted producers.

Secondly, the agriculture ministry provides assistance to irrigation agriculture. Currently there are only 338,778 acres (approximately 0.5%) of the province's 64 million acres of farmland under irrigation. Both SMA and the PFRA own and manage a number of irrigation projects that support private farm operations. These two agencies also collaborate on efforts to support, improve and expand irrigation agriculture in the province through the Canada Saskatchewan Irrigation Development Centre (CSIDC)

located at Outlook, Saskatchewan. A review of the CSIDC's operations and the comments provided by its managers are included in the *Irrigators and Irrigation Proponents* section of this report. Apparently both the federal and provincial governments are working on irrigation development strategies (SAF2 Sec. 0, Para. 167 - 247) Management of the province's irrigation infrastructure was formerly handled by SaskWater and was only turned over to SMA in 2005. (The PFRA's irrigation infrastructure is scheduled to be turned over to the provinces and/or proponents by 2017.)

And thirdly, SMA, like the PFRA, has been involved in projects that assist farmers and ranchers in meeting their domestic and livestock watering requirements. In 2008 the SMA managed a federal-provincial fund (approximately \$14 million) that supported the drilling of community wells and shallow bury pipelines by farmers and ranchers in south-west Saskatchewan. The municipalities included in the project were experiencing their third consecutive year drought by the spring of 2008. (It was recently announced that the program would be extended into 2009 and beyond). It is interesting that the province chose to utilize the SMA for this endeavour. This sort of infrastructure development clearly falls within SaskWater's area of expertise, but not its for-profit business model.

The SMA does not have a climate adaptation program. With the exception of recent interest in climate change for actuarial purposes within Crop Insurance there is no drought plan. The SMA relies on other agencies such as the PFRA to provide it with data related to climate issues such as drought.

Prairie Farm Rehabilitation Administration (PFRA)

The PFRA has the longest continuous record of any federal or provincial agency in dealing with water stress on the prairies. As its budget total of \$14.3 million devoted to water and climate related activities suggests, it is currently not the major player in water governance and management in Saskatchewan. Nonetheless, the PFRA continues to deliver important programming related to adapting to the sorts of water stress that come with climate variability. These include its assistance to municipalities and farm communities in developing solutions to water needs through supporting certain rural pipeline projects. Its community pastures system ensures that huge areas of drought sensitive land remain under permanent forage cover. Its tree nurseries continue to support the development of erosion reducing shelter belts and it is involved in irrigation management and research.

The PFRA has been involved in numerous projects that supported farmers and ranchers in developing dugouts, wells, dams, irrigation projects and regional rural water pipelines in order to provide producers with a higher degree of water security during droughts. The PFRA's leadership in this area has helped to provide what many consider as up to two years of drought-proofing with respect to the domestic water and livestock watering needs of individual farmsteads.

The PFRA operates a drought watch program which constitutes the most significant climate monitoring effort pertaining to water stress on the prairies. The PFRA has also

been engaged in modest preliminary efforts, working with provincial partners, to design a drought mitigation or adaptation plan for the prairies.

3. DEALING WITH CLIMATE CHANGE AND VARIABILITY – ADAPTIVE CAPACITY AND ADAPTATION

This section of the discussion reflects the research findings for Theme 3, which involves the level of planning and response that the institutions have engaged in that pertain to water/climate issues affected by climate variability and climate change. It also incorporates issues that would have appeared under Theme 9 which considered how climate change might impact upon the activities of the institutions.

In the discussion of stress management in the preceding section the dearth of climate change planning and the development of planning for building adaptive capacity was described. This section of the report underlines that finding -- the province lacks coordinated planning around climate and adaptation. This is not to say nothing is happening that could support planning and the enhancement of adaptive capacity. Clearly, organizations such as the PFRA, SMA, SWA, and SaskWater have existing projects and programs which improve the understanding of climate impacts, enhance adaptive capacity and reduce vulnerabilities. Although, it can be reasonably argued that these programs are often proving unsatisfactory in terms of their capacity to meet current needs let alone the challenges presented by climate change models. And, without a comprehensive plan these seemingly ad hoc activities lack the more comprehensive coordination that effective adaptation would seem to require.

The discussion which follows examines climate and adaptive capacity issues as they apply to each of the organizations studied by the IACC project.

SWA

Thus far SWA's efforts to adapt to climate variability have for the most part been reactive. Indeed, the Safe Drinking Water Strategy which established SWA was a reaction to a water crisis. Interview respondents indicated some work is underway toward the development of a drought plan and a modest water conservation plan document has been produced. Apparently SWA hired its first climate specialist in July of 2008. At the time of the interviews the incorporation of climate change modelling into SWA's long range planning had not yet occurred. And no specific plans for the development of climate related adaptive capacity have yet been produced. All that said, SWA's efforts to encourage local watershed planning and community participation is the sort of initiative that has the potential to increase adaptive capacity in the province. It stands as an effort to increase knowledge about watersheds and enhance the institutional and social capital available for responding to negative climate impacts.

SWA respondents addressed the dearth of planning with respect to reducing water related vulnerability to climate change by essentially asking – “adapt the what?”(SWA2 Sec. 0,

Para. 12 – 16) (SWA3 Sec. 0, Para. 103 – 105). SWA respondents elaborated further by commenting that for generations people have assumed Saskatchewan’s greatest water related climate challenge has been drought. Whereas, in SWA’s experience since 2002, the greatest climate related crisis has been flooding. These respondents alluded to the potential danger of investing in major anticipatory projects such as costly new infrastructure when we don’t really know how climate change will manifest itself in the province. Given the lack of certainty about Saskatchewan’s climate future it is difficult to envisage risk free “no regrets” plans that involve significant public expenditures.

One SWA respondent commented on the lack of climate change awareness of many people at the community-watershed level. The respondent doubted that even half the people participating in some watershed advisory groups were prepared to recognize that climate change was happening and were reluctant to plan for it (SWA6 Sec. 0, Para. 26 – 27). If greater adaptive capacity is to be built in the province one would assume enhanced efforts to educate people about climate change are advisable, with a particular focus on how climate variability (in the form of droughts and floods) may be affected by climate change.

Saskatchewan Ministry of Environment (SME)

SME has approximately eight climate specialists on staff and they have indeed been thinking about climate change. The ministry’s climate change focus has primarily been directed at, what one official referred to as “front-end” measures – efforts to mitigate climate change by addressing things like the production of greenhouse gases. (E1 Sec. 0, Para. 80 – 108) Respondents pointed to developments such as the province’s Green Strategy and Energy Strategy, which include initiatives such as ethanol production and SaskPower’s wind powered electrical generation and clean coal/carbon sequestration initiatives (E1 Sec. 0, Para. 172 -174)

Less effort has been applied to addressing “back-end” planning that would deal with measures for adapting to climate change. Such measures would seek a reduction in vulnerabilities, improve adaptive capacity, and enhance opportunities to benefit from climate change. One SME respondent reiterated the difficulties encountered by environmental planners when officials from other government agencies claimed climate change wasn’t an issue for them -- “basically because there is no certainty about the potential impacts of climate change” (E1 Sec. 0, Para. 188 – 194)

Despite the lack of progress resulting from focused planning, SME respondents reported that a certain amount of adaptation is already happening. For example, the Ministry of Agriculture operates a crop insurance program; the Ministry of Health has been dealing with the West Nile virus. One official suggested that while the Ministry of Highways and Transportation may not realize it, when it rebuilds roadways in response to high run-off from severe rain storms, it too has been adapting to climate change (E3 Sec. 0, Para. 80 – 108)

One SME official commented that provincial agencies were in their infancy in appreciating the fact that climate change is going to occur and that there is going to be environmental change because of it. (E2 Sec. 0, Para. 199 – 217) Additional research and public education, including the education of senior decision makers in government were identified by SME officials as things that would encourage planning to enhance adaptive capacity. Efforts such as the Prairie Adaptation and Research Collaborative and SWA's watershed stewards project were identified as positive steps toward the development of adaptive capacity through watershed and water use planning (E1 Sec. 0, Para. 172 – 174)

SaskWater

SaskWater has undertaken communications campaigns to educate its customers about the value of water and the benefits of water conservation. This sort of activity contributes to building adaptive capacity given that water conservation is an important tool in dealing with the kinds of water supply challenges that accompany drought. However, SaskWater does not have specific plans or protocols for dealing with the impacts of climate change or variability. That said, the corporation's regional water systems constitute one of the most innovative measures undertaken in the province in recent decades for enhancing the adaptive capacity of rural communities in the province.

The regional water and wastewater systems concept developed by SaskWater offers considerable environmental and economic advantages. The traditional approach over the past century has been for each community to have its own local system. Under the regional systems approach, a single treatment facility and pipeline network services several communities. Several of these systems are currently operating. SaskWater's Melfort and Humboldt regional systems are examples. It should be noted that regional systems have been developed outside the purview of SaskWater by combinations of municipalities such as the EK (Eston-Kindersley) system. That particular system was established with the assistance of the PFRA. Furthermore, the requisite pipelines offer hook-up opportunities for farm residents, who are encouraged to form their own rural pipeline associations to take full advantage of the new infrastructure. And a number of rural pipelines and rural pipeline associations have been established both with and without SaskWater's participation. The Saskatchewan Association of Rural Water Pipelines (SARWP) advocates on their behalf.

Regional systems allow for the piping of water from safe and reliable sources into neighbourhoods lacking suitable ground or surface water. For a small community that might itself be incapable of financing an infrastructure upgrade, having a regional pipeline pass nearby can offer a great cost saving opportunity. Environmental benefits are apparent in wastewater projects whereby municipalities with substandard sewage lagoons and sewage treatment facilities can pool their resources and construct a single environmentally sound system.

While SaskWater's continued operation as a profit-seeking utility business may be in doubt, one would hope government does not 'throw the baby out with the bath water.' SaskWater's regional approach offers adaptive capacity for communities whose water

supplies could be threatened by the sorts of severe and sustained drought that climate models suggest will occur in coming decades. Even if SaskWater's current business model is not working as CIC had hoped, the corporation has a level of experience and expertise available that could contribute to reducing the vulnerabilities of communities to climate change. SaskWater is the only senior government agency, besides the PFRA, that has been involved in planning and delivering the kinds of multi-community infrastructure initiatives that add to the adaptive capacity of rural communities with respect to water.

Should the two agencies disappear and the province find itself in the midst of a debilitating and protracted drought, policy makers would have to reinvent the wheel if they wanted to relieve water stress and vulnerability in the rural areas of the province. Perhaps if a comprehensive climate adaptation planning process was launched, policy makers would recognize the contribution that these agencies could make to building adaptive capacity and the reduction of vulnerabilities.

Saskatchewan Ministry of Agriculture (SMA)

SMA respondents indicated that the ministry is in the very preliminary stages of coming to grips with climate change. Officials indicated much of the effort to date is at the awareness building level. But they also maintain that there is a lack of certainty about what the climate impacts, with respect to things like rainfall, will be. There is of course a big difference between discussing the need for more data and education and taking specific action. An official from a federal agency involved in water governance claimed that SMA was at one time interested in developing a climate monitoring system until it discovered that the effort might involve spending provincial money (PFRA2 Sec. 0 Para. 51).

As noted earlier, Crop Insurance officials have just recently incorporated climate change into their planning exercises. And the ministry has hired a staff person to deal with climate issues. In addition, respondents indicated that the federal-provincial Agriculture Policy Framework is currently being reviewed and that "there is every expectation that there will be a climate change component included" in the new policy framework (SAF1 Sec. 0, Para. 118 – 118 & 120 - 122)

While SMA programs such as Crop Insurance may constitute efforts to adapt to climate variability, it is unlikely that existing programs are sufficient for dealing with climate change scenarios that predict severe droughts that persist for more than three or four consecutive years. One of the watershed group respondents compared building drought resilience to 'trying to hit a moving target'. The more economically challenging that farming becomes (the higher that expenses and debt loads rise) – there is less drought that a farmer can tolerate (CAB1 Sec. 0, Para. 159 – 179).

One IACC Focus Group respondent suggested that certain aspects of Crop Insurance may not fit the requirements of long-term climate adaptation and drought planning. In the respondent's view, it can be argued that Crop Insurance encourages particular types of annual crop farming that may not be suitable for all regions from either economic or

ecological points of view. This could be an even more important issue if modeling scenarios that predict longer and more intense droughts proves correct.

Why are we allowing for certain types of agricultural activities in an area that is destined for drought? And then having to deal with the issue after the fact? Why don't we have a big picture approach to this where we say that okay according to our forecasting there is going to be drought in this area so there are restrictions in regards to the activities that go on there? (FOCUS1 Sec. 0, Para. 23)

While it was not mentioned by focus group participants, one can assume from other respondent comments that the fact a producer's premiums may increase in the event of successive claims and the fact that CAIS/AgriStability payments decrease in the wake of successive bad years already constitutes something of a disincentive for growing certain crops in drought prone areas.

One Focus Group participant asked whether government should even be responsible for providing farmers with assistance "*when the rain doesn't fall*" (Focus1 Sec. 0, Para. 21). This prompts the question, how much should private risk in agriculture be considered a public problem? It appears from the comments that providing answers to this question will be among the challenges faced by those developing climate change adaptation plans.

As will be discussed in the *Irrigators and Irrigation Proponents* section of this section, officials with SMA and respondents from other organizations have speculated that climate change scenarios predicting sustained and intense drought for the western plains of North America suggest opportunities for agriculture in Saskatchewan. The idea being that since Saskatchewan has untapped irrigation potential it would be in a preferred position relative to competitors from the U.S. whose source water supplies are already severely stressed. However, as interviewees from SWA and PFRA suggested, there is no guarantee that current flows in the South Saskatchewan River would be sustained under radically altered climate conditions.

SMA collaborates with PFRA in the delivery of the federal-provincial Environmental Farm Plans (EFPs) program. Under this program producers are encouraged to implement environmentally sustainable farming practices, including the protection of source waters. The EFP program dovetails comfortably with the activities of watershed advisory and stewardship groups since it assists farmers and ranchers with projects that protect riparian areas from erosion and pollution. The EFP program encourages group projects and this has led to the creation of watershed management projects and associations. The practices supported and encouraged by the EFP program contribute to adaptive capacity by improving the quality of water available on the prairies and by building knowledge that supports the emergence of a sustainability culture among producers.

Prairie Farm Rehabilitation Administration (PFRA)

The PFRA has been involved in managing the water related impacts of climate variability on the prairies since 1935. It has developed considerable depth in experience, information networks, good will and brand recognition. It is also ahead of other agencies in developing a climate monitoring system designed specifically for the rural prairies and strategies for dealing with drought.

The PFRA was involved in the introduction of irrigation on the prairies and it assisted in the improvement of irrigation practices. Its tree nurseries have sustained the planting of shelter belts across Saskatchewan. As noted above it has been instrumental in the development of farm wells and dugouts. And its community pasture program has seen land prone to wind erosion seeded to permanent pasture cover. All these activities are examples of adaptations to climate variability which have increased the resilience and adaptive capacity of the prairie farm community.

One of the PFRA officials interviewed maintained that responding to drought has often been a reactive process on the prairies. In previous decades *“droughts seemed to come quickly and unannounced”*. Conventional wisdom has held that *“you can’t fix drought until it happens”* An alternative approach is gaining prominence -- the PFRA’s programming around water is striving *“not to be ‘reactive’ but ‘anticipatory’ – focused on building capacity and resilience against the effects of drought* (PFRA Sec. 0 Para. 83 – 101). Very few of the IACC interview respondents could provide this sort of succinct encapsulation of their organization’s approach to the challenges of climate variability and climate change.

Irrigators and irrigation proponents

Irrigation was viewed as the solution to Saskatchewan’s drought problems during the 1930s. It was the Holy Grail of adaptive capacity that spurred the construction of the South Saskatchewan River Dam project. Given that less than one percent of the province’s farm land is irrigated there is a perception that major initiatives such as the Gardiner Dam have failed to live up to expectations.

Respondents suggested a number of reasons for the modest level of irrigation. Soils to the north and west of the Gardiner Dam proved more saline than expected and therefore unsuitable for irrigation. Low prices for agricultural commodities often did not justify the expense of irrigation – for example, spring wheat yields did not improve enough to recover irrigation costs. Saskatchewan’s climate and short growing season were not suited to higher value crops such as sugar beets and corn that benefited from irrigation. And, governments have been sporadic in their commitment to irrigation expansion.

As one respondent put it,

“We develop a bit then we quit for a while, we develop a bit more and we quit again. People need to see continuous development so they know it is going to

happen. Quite frankly if a government person said we are going to develop this 100,000 acres over here, people wouldn't believe it until the pipe or channel were in place." (SIPA Sec. 0, Para. 106 – 108)

Another limiting factor suggested is the entrenchment of dryland farming culture in Saskatchewan. Most of the province's farmers are older and not interested in radically altering their farming practices to include "lugging pipe around the field" (SIPA Sec. 0, Para. 106 – 108).

The CSIDC's efforts to test new crops and crop varieties are contributing to the potential for increased irrigation development. Plant breeders have shortened the growing seasons required for a number of crops and the CSIDC has demonstrated their performance under irrigation in Saskatchewan.

Some of the irrigation proponents were optimistic about the future of irrigation in Saskatchewan under climate change scenarios that envision a longer and drier growing season. As noted earlier in this report, there is a current of opinion that suggests Saskatchewan producers would be in an enviable marketing position if prolonged drought seriously impacted agricultural production in the U.S. and other competitor countries. The rationale being that there would still be plenty of water to irrigate with in Saskatchewan whereas the U.S. and others would be hopelessly parched.

One respondent pointed out that Saskatchewan irrigators are using only 3.5% of the annual flow into Lake Diefenbaker. Conversely, according to the respondent, in regions such as the U.S. southwest irrigators are already consuming 70% - 80% of annual stream flows and are exhausting their aquifers. It was suggested that even if Saskatchewan irrigators increased their usage to 10% or 20% of the flow into Diefenbaker it could be done in an environmentally responsible manner. (OUT2 Sec. 0, Para. 145 – 161) The optimists' projections are based on the assumption that climate change will not significantly reduce flows on the South Saskatchewan River and that Alberta can really be prevented from using more than its 50% allocation before the water gets to Saskatchewan. (SIPA Sec. 0, Para. 70 – 76)

If in a "climate changed world" there proves to be ample enough stream flow to put more acres into irrigation, and, if the length of the frost-free growing season and the degree days of heat are sufficient – the expansion of Saskatchewan's irrigation system could make eminently good sense. However, irrigation requires infrastructure and infrastructure can be expensive. Questions posed by SWA respondents relate to this point. Who wants to pay for costly new infrastructure with so many unknowns? What if the irrigation system was expanded and a decade later the climate proved too wet, or the springs too cool for irrigation agriculture to work?

Agrivision argued that the expansion of the irrigation system was a sound idea exclusive of concerns about climate change. The organization maintained that climate change does not even have to be on one's radar for irrigation expansion to make sense from the perspectives of economic and community development. Expanding the system would

stimulate growth in livestock and value-added production and the requisite pipelines would provide water to numerous rural communities and farmsteads.

Given the province's reluctance to provide the funding required by rural communities for the upgrading of their water infrastructure, it seems unlikely that we will see the sort of water mega-projects envisioned by *Water Wealth* going ahead any time soon. The *Water Wealth* plan is something of an expanded version of SaskWater's regional system approach – and even that far less ambitious solution has proven difficult to fund. Nonetheless, the irrigation activity currently underway in the province, and the efforts of CSIDC and SIPA to advance the sector constitute an asset on the province's adaptive capacity balance sheet. There is a knowledge base and potential source of water for further development if climate conditions warrant it. And while *Water Wealth's* vision has failed to capture the imagination of water planners, it has nevertheless provided the sort of "outside the box" thinking that can contribute to solving big problems.

One would expect that one of the factors involved in long range water management planning will be the consideration of environmental and ecosystem sustainability – such as the need to safeguard aquatic ecosystems, and the balance required to ensure environmental protection is not severely impaired. However, with the exception of a respondent from the Saskatchewan Environmental Society, IACC project respondents did not discuss ecosystem sustainability.

Water and watershed advisory and advocacy groups

A respondent from the Saskatchewan Environmental Society (SES) indicated that his/her organization is trying to change the way people in Saskatchewan think about water management.

"We're trying to reposition thinking in Saskatchewan away from supply side solutions and adaptations to climate change and towards the demand side – conversation and efficiency and what people such as David Brooks have coined the soft path (SES1 Sec.0, Para. 8)... the proponents of big supply measures [such as Agrivision] give you best case scenarios not only on the hydro geology but also on the economic side. You know, doubling this doubling that, doubling the population, doubling jobs. So in terms of the big alternatives just in terms of water supply, it ranges all the way from water efficiency to conservation to soft path thinking and to really adapting what we do." (SES Sec. 0, Para. 74 – 101)

Watershed advisory group participants indicated that there has been some antipathy between the essentially urban-based groups such as the SES and their rurally-based organizations. It was noted that urban-based environmentalists did not make frequent appearance at their meetings. There is probably some comfort for urban environmentalists in the fact that hundreds of community volunteers have at least been discussing water management issues at watershed committee meetings. One of the findings of the research is that there is a low level of awareness or concern about climate change in certain sections of the rural population. It is reasonable to speculate that

enthusiasm for building adaptive capacity would be enhanced if there was greater awareness of the potential for significant climate change in the future. Nonetheless, interview respondents provided descriptions of climate change awareness that indicated there is a lot of education work to be done.

"I just think it is not a big enough concern with local people actually. I think they are so used to having droughts, not having rain. You know, to them it seems like the normal cycle of things and climate change is something that is out there down the road." (CAB1 Sec. 0, Para. 159 – 179)

And the following:

"Climate change awareness is slowly coming. But a significant number of rural people have been very resistant to it. It has been a very slow process. Every time it's cold out they say 'Where the hell is global warming? Why is it 42 below today? Global warming is bullshit.'" (OUT1 Sec. 0, Para. 451 – 461)

Various sections of the analysis and reports on the commentary contained in the interviews provided in this report indicated that watershed-based community organizations contribute to enhancing adaptive capacity on a number of fronts. They assist in building local knowledge and water awareness; they provide a locally-based feedback system for senior water governance agencies; and they contribute to the enhancement of social/institutional capital.

It appears that the efficacy and longevity of the watershed advisory committees will require a resolution of problems around their core funding requirements and the development of a meaningful consultative role. If they are not listened to, will they become frustrated by their apparent redundancy? Enhancing their effectiveness and survival may require the provision of some sort of regulatory authority or at least a formalization of their consultative role with respect to developments that pertain to the sustainability of healthy watersheds.

4. DATA COLLECTION AND SHARING

The discussion which follows under this heading reflects the responses to Theme 4, which examines the information inputs used by the institutions in their operations and decision making. Sub nodes or categories for the theme include primary data collection, secondary data sources, the need for additional data, and access to the data of other organizations.

A number of IACC interview respondents identified a lack of co-ordinated data collection and assessment; particularly with respect to groundwater and climate monitoring. In discussing the dearth of groundwater mapping and planning for Saskatchewan, one of the PFRA respondents indicated it was a problem across the west. The respondent quoted the Canadian Senate Report authored by Senators Tommy Banks and Ethel Cochrane, *Water*

in the West: Under Pressure which called the lack of information “shocking” (PFRA4 Sec.0, Para. 119 – 145).

Groundwater data

The current data collection, management and assessment system has not yet produced a comprehensive groundwater resource map for the province. This is a troubling circumstance for those hoping to assess the status of the resource in conjunction with the development of strategies for adapting to climate change. Planners are uncertain of the extent of the resource and its resilience. There is no province-wide sense of what sustainable levels of extraction are, or even whether some aquifers are already in an overdraft situation, although considerable unassessed information already exists within SWA.

Legislative authority for the allocation and protection of groundwater is vested in SWA, but there is some overlap with SME in relation to contamination issues and development approvals. SWA employs a number of mechanisms to assess the province’s groundwater resource. Respondents referred to a system of 72 – 80 test or monitoring wells located throughout the agricultural regions of the province (SWA5 Sec. 0, Para. 27 – 47). This total was contrasted with Alberta and Manitoba where respondents estimated there were approximately 500 and 350 monitoring wells respectively (SWA5 Sec. 0, Para. 113 – 115). One respondent indicated that the need for a greater number of monitoring wells is exacerbated by the glacial geology of the province.

I don’t know how many test holes one might need to establish because our geological makeup is glacial. We have a real muddle of stuff that happened out there and we don’t have aquifers that are continuous. The groundwater resource is very difficult to map unless you’ve got something very site specific (SWA4 Sec.0, Para. 104 – 106)

The Saskatchewan Research Council has been assisting SWA in a groundwater mapping project for the south of the province with a view to filling in some of the knowledge gaps. This exercise involves looking at already accumulated data which had not previously been assessed. There is apparently a significant amount of groundwater data on file with SWA. Much of that data has been acquired through SWA’s regulatory mandate which enables it to require water well drillers to submit data such as “E-log” reports for each new well they construct. The problem is that while a considerable amount of well driller data is on file, SWA lacks the human resources required to promptly assess it (SWA2 Sec. 0, Para. 113-115).

Efforts to standardize data collection and monitoring systems was presented as a mechanism for improving both the ground and surface water data systems. This would involve standardization between provinces and between the provinces and Environment Canada (SWA3 Sec. 0, Para. 49 – 51).

Surface water data

A collection of agencies are involved in surface water monitoring in Saskatchewan. SWA, for example, provides surface water quality reports to SME for the purposes of assessing raw water entering drinking water treatment systems. In 2008 SWA produced its first *State of the Watershed Report*, which describes source water quality. And SME, the municipalities, and SaskWater all monitor the quality of treated drinking water.

Under the terms of a master agreement between the three prairie provinces and the federal government, the Prairie Provinces Water Board (PPWB) monitors trans-boundary stream flows and quality and is also responsible for monitoring trans-boundary aquifers. Environment Canada collects the data required by the PPWB. There are 12 boundary monitoring sites on the Saskatchewan-Alberta border and additional sites at the Saskatchewan-Manitoba border. Respondents from the SRC and the PPWB described the challenges that arise when stream flows in Alberta become stressed and how that can complicate determining that Saskatchewan receives its full 50% of natural stream flow originating in Alberta.

Respondents indicated that the assumption that 50% of the natural flow rising in Alberta will pass to Saskatchewan is complicated by schedules attached to the master agreement. Schedule D refers to previous allocations of inter-provincial waters approved by an Order in Council. And Section 4, of Schedule A states that Alberta may use 2,100,000 acre feet of water, even if that amount exceeds 50%, as long as a minimum flow of 1,500 cfs is passed from Alberta to Saskatchewan. (PPWB1 Sec. 0, Para. 34 – 64)

SWA respondents described gaps in surface water quantity and use monitoring within Saskatchewan. They claimed that considerable data was available for municipal and industrial use. However, the picture is somewhat incomplete because not all municipalities collect usage data. In addition, the measures employed to calculate use by irrigators were seen as insufficient. While estimates could be made by looking at things like pumping capacity, they did not reflect actual use or provide data that might inform more efficient use strategies (SWA1 Sec. 0, Para. 112 – 118).

Interestingly, one of the SWA respondents was critical of the Geological Survey of Canada for the dearth of groundwater information in Saskatchewan. The respondent claimed that Saskatchewan was the only province where the “Geological Survey” (Natural Resources Canada’s Earth Sciences Sector) had not done significant work. It is not often that provinces surrender activity related to a provincial resource to federal authorities, except perhaps when the federal government is picking up the tab (SW5 Sec. 0, Para. 286 – 289).

Climate monitoring

One frustrated respondent compared climate monitoring in western Canada to a system more common to the “Third World” than a developed country (PFRA2 Sec.0, Para. 55) While Environment Canada received the brunt of the criticism for the sorry state of

climate monitoring, the Saskatchewan government was also found wanting. Indeed one of the factors limiting the development of comprehensive planning around adaptive strategies may be the dearth of data available for planning purposes.

While the Saskatchewan Ministry of Environment has eight climate specialists on staff, they have been involved in projects aimed more at mitigating greenhouse gases than efforts to enhance adaptive capacity. The climate information they do collect with respect to adaptive planning has been focused as much or more on forest fire management than on water management. SWA just recently hired a climate specialist and Saskatchewan Crop Insurance now has a climate person on staff. Saskatchewan Crop Insurance officials have recognized the importance of developing climate modelling into its actuarial planning.

Respondents from the PFRA described their agency's drought watch program and its relevance to provincial planners, particularly crop insurance managers. They indicated that the Saskatchewan government has been slow to 'get with the climate monitoring program'. One anecdote provided referred to a PFRA effort to get the Saskatchewan Ministry of Agriculture to set up a climate/drought monitoring system similar to one operating in Alberta which utilizes some 67 weather stations. According to the respondent the province was enthusiastic about the project until officials discovered the PFRA would not be paying the full cost (PFRA2 Sec. 0, Para. 55)

For their part officials from SMA recognized the leading role taken by the PFRA on climate monitoring, and indicated that the two agencies had a good working relationship. In recognition of the broadening of their mandate to include more climate related activity, especially with respect to crop insurance, SMA officials are endeavouring to plug themselves into the water data network (if it could be called that, such as it is). They indicated that SMA was "at the mercy of other data bases" and were trying to get data from SWA and SME. (SAF1R2 Sec. 0, Para. 231 – 247)

A respondent from Environment Canada's National Water Research Centre indicated that EC is indeed interested in the potential impacts of climate change. However significant additional research and data collection will be required before climate impacts can be better understood and planned for. And that effort is needed to approach the issues from a number of different directions

"We need to first understand the processes themselves, the natural ecosystems that climate changes are occurring within. We also need to understand human impact on those physical, chemical and biological activities. We need to predict what the impact could be in the future because it's not sufficient to just understand it as it is now. We'd like to predict into the future. Where necessary and appropriate we'd like to come up with remedies – mitigations - and then we need to look at the consequence of our actions in those ecosystems." (CWRC1 Sec. 0, Para. 115)

Data sharing

While a few instances of silo building and data protection were described, it does not appear that water governance agencies are overly protective of their data and unwilling to share information. More to the point, is the fact that for agencies such as SWA, data collection and assessment is incomplete. It is clear that there is no overall coordination of data management with respect to water or climate for Saskatchewan. This lack of coordination is reflected by the situation noted above whereby electronic data management systems may not always be compatible between agencies.

Respondents from SWA suggested that there may be reluctance by officials from some agencies to share their water and climate related data. They described the concerns of science people about having their data misused or misinterpreted. According to one of the respondents, this sort of sensitivity seems reflective of the growing tendency of government agencies to tightly monitor public communications to prevent embarrassment for policy makers and senior officials (SWA2 Sec. 0, Para 121 – 127).

5. RESOURCE REQUIREMENTS

This section of the discussion pertains to IACC Theme 5 which describes the resources the institutions have access to and the constraints that affect managing, mediating and planning for water related issues.

Respondents from most of the governance institutions were somewhat reconciled to the size of their respective budgets and the realization that senior policy makers provided them with financial resources that fit within the parameters of government budget processes. There was an attitude expressed to the effect that “we are civil servants after all and we are typically capable of doing the best with the resources we have”. Respondents allowed that they could generally find uses for additional financial resources but were aware that there were limits to what the treasuries could provide. A respondent from SME described his/her department’s financial resources with respect to efforts on behalf of water governance and planning which is illustrative.

"We have the resources to get us started. Do we have sufficient resources to deliver it in the fashion I just described? No, we don't. But will we ever have those resources? Probably not...I think part of the challenge is we can't be waiting to look for the perfect solution. If we wait that long it will be too late."
(E1 Sec.0, Para. 188 – 190)

There were examples of respondents pointing to a lack of financial or human resources for performing particular tasks. For instance, SWA’s lack of resources for the assessment groundwater data, which is described above under the *Data Collection and Sharing* heading.

There was significant mention of the lack of resources available to rural-urban communities for dealing with water infrastructure issues. This extended to the capacity of

rural community activists to participate in the watershed advisory process. And to the ability of the watershed advisory process to succeed in the face of a lack of consistent funding administered in a transparent manner, and with long-term sustainability of the advisory groups as an official objective.

Water and watershed advisory groups (WAGS)

Given the dearth of regularized government funding for WAGS, linkages in the form of social networks are important to fundraising. It appears that the PFSRB has benefited from having a staff person who formerly worked in the water governance field and knew the ways of the government grant game (PSRI1 Sec. 0, Para. 160 -174). For example, while the PFSRB has been able to obtain approximately \$300,000 in funding for just one of its projects, other groups are not so lucky. The South Saskatchewan River Watershed Stewards Inc. has scrambled to meet its annual core operational expenditures of \$130,000 (OUT1 Sec. 0, Para. 126 – 143). Indeed as one respondent noted, the lack of consistency and transparency in the funding process for watershed groups has caused disgruntlement. This was the case when a financially hard-pressed group, which had been denied funding by SWA, discovered that a sister organization had been provided with funding.

"When they found out we got our funding, their eyebrows went up. What makes us so special? I have no idea, but what you do for one, you've got to do for the other." (R2 Sec. 0, Para. 251 – 272)

As noted earlier, watershed advisory group participants are divided over whether their organizations should develop a regulatory capacity which might also assist in providing the groups with the revenue generating capacity they need to acquire core funding and financial stability. One of the respondents provided the following comments:

"At the end of the day we [Water Wolf] need and want some valley style authority in the river valley between Saskatoon, Gardiner Dam and the lake area. And it needs to have its own source of funds. It needs to have a taxing authority. It needs to be able to tax somebody for something. They need to tax land or whatever. They have to be able to get their hands on some money of their own so that they have independence. And that authority needs to be the one that judges how we do development right in the immediate part of the watershed that fronts on the water. And that is my goal, long term. The warm fuzzy stuff of the projects, that's all nice. But you need something with teeth that can enforce what they want to do. And I think the province is looking for that. They want some kind of regional body to be a lot more aggressive about what we do..."(OUT1 Sec. 0, Para. 423 – 425 COORDPROV)

6. COMMUNITY NEEDS AND STAKEHOLDER ISSUES

The discussion in this section reflects the "Community Need" comments collected in relation to Theme 1 (the role water theme), and the stakeholder issues comments pertaining to Theme 6. The thematic areas were combined for the purposes of this report

since the mandates of most water governance institutions direct them to meet the needs of the community and sections of the community and other governance institutions also constitute affected stakeholders.

The discussion that follows in this section describes the capacity of institutional players to meet the water and adaptation needs of Saskatchewan's rural communities. The research findings indicate that community/stakeholder needs with respect to water and climate issues exist within a context of rural decline. Rural communities are facing the challenges of a declining and an ageing population; an economically stressed agricultural industry; and government reluctance and/or inability to come to grips with the huge challenges presented by rural decline.

Two somewhat contradictory processes seem to be operating. On the one hand SWA and other agencies are actively encouraging the development of local watershed groups. However, this development is occurring within a context which suggests that certain senior government agencies are pulling resources out of rural Saskatchewan. The closure of most of the province's rural service centres in 2004 standing as a case in point. One of the Focus Group participants described the latter mentioned process.

"The perception is that there have been cutbacks by provincial and federal agencies, not just here in Saskatchewan but elsewhere too, in extension staff or regional staff. I think that perception has some validity in that governments are becoming more centralized and we don't have the government people out in the local communities that were formerly there to provide that two-way communication." (Focus1 Sec. 0, Para. 31 – 35)

Saskatchewan Watershed Authority (SWA)

In a general sense SWA's water governance activities serve the interests of rural communities through the judicious allocation of water and its water quantity and quality monitoring capacity. However, notwithstanding SWA's official mandate the IACC research has prompted questions about the actual status of SWA's capacity to effectively administer groundwater allocations given what appears to be a lack of comprehensive groundwater data and SWA's ability to influence developments that might threaten water quality.

SWA's monitoring and allocation operations result in little direct ongoing contact with municipalities. Exceptions to this general state of affairs would include remedial measures in response to flooding at Fishing Lake. That said, SWA has established relationships with numerous municipalities through the province's watershed advisory committees and watershed groups. SWA's role in initiating the establishment of many of these groups constitutes one of the most innovative initiatives it has undertaken in relation to enhancing adaptive capacity since its incorporation in 2002.

A handful of community-based organizations interested in the management of their local watersheds existed prior to SWA's incorporation in 2002. These groups sometimes

involved irrigators or farmers and communities attempting to deal with contamination or allocation issues along particular water courses. Under SWA's active encouragement many new watershed advisory organizations were created and added to the existing mix. As noted earlier there are presently 11 umbrella watershed groups in operation and some 22 subsidiary advisory committees.

SWA officials invited a variety of stakeholders to participate in the advisory groups, including urban and rural municipal officials, irrigators, First Nations, conservationists and representatives from other federal and provincial government agencies such as Saskatchewan Environment and the PFRA. The advisory groups were provided with technical assistance in the development of watershed management plans and encouraged to organize themselves as permanent organizations once the plans had been produced. Respondents from SWA indicated that the advisory group initiative recognized value in the knowledge about watershed issues that was available through the people who lived and worked in the watershed - in some cases for decades or generations.

Concern was expressed by SWA officials about the longevity of the groups given the absence of secure long-term funding. They also indicated that the advisory groups were themselves reluctant to broaden the scope of their activities to include a regulatory role that might include the ability to fund through licensing or taxing water related activities. Additional discussion of the watershed advisory groups will be provided later in this section of the report.

Saskatchewan Ministry of Environment (SME)

The environment ministry has a regulatory relationship with every urban municipality which supplies water to its residents (in a minority of urban centres residents have individual wells). Since SME's drinking water safety mandate was reaffirmed in 2002, there has not been a major water related health crisis in the province. Hundreds of inspections are conducted annually and comprehensive municipal water monitoring protocols are administered by ministry staff.

SME officials indicated that their ministry was involved in the creation of water related information and educational materials dealing with issues such as water conservation promotion. Activity in this area is also reported by SWA, SaskWater, a number of municipalities, the Meewasin Valley Authority and NGOs. It appears that many agencies involved in water management in the province are devoting resources to educating people about the value of water and the importance of conserving it. None of the respondents suggested that there might be an unnecessary duplication of effort or confused messaging resulting from the multi-agency efforts.

SaskWater

Since 2002 SaskWater has not been very successful in attracting new customers. Early in its new mandate the municipal customer base expanded from just over 30 customers to 43. However, from 2006 to 2008 the corporation has acquired only one new customer –

the regional wastewater system located near Fort Qu'Appelle. SaskWater respondents noted a number of reasons for the lack of growth including the perception among municipalities and industrial water users that SaskWater's services are too expensive. As one of the interview respondents put it: "*SaskWater? You gotta have a cheque book to talk to SaskWater. They are worse than the phone company*" (Out1 Sec. 0, Para. 356 – 358).

There was a perception in water governance circles that the new regulations and protocols being enforced by SME in the wake of the *Safe Drinking Water Strategy* would leverage municipalities into doing business with SaskWater. This hasn't happened to the extent imagined. Many municipalities made the necessary system upgrades without SaskWater's help by taking advantage of their own financial resources or various federal and provincial grants to upgrade their infrastructure (often using the services of private engineering firms).

SaskWater's marketing staff realized that their services were typically too expensive for municipalities with fewer than 500 residents and also that communities with populations over 5,000 were generally capable of meeting their own needs. SaskWater's *2006 – 2012 Marketing Plan* focused the corporation's sales efforts on the handful of communities that fell between the 500 and 5,000 range. Clearly a number of smaller communities were left in the lurch – unable to afford upgrading, but required by SME to comply with the new water quality standards. Comments provided by a respondent from a community-based watershed stewards group indicated that small rural urban centres (rural-urban) are under considerable stress with respect to managing their water problems.

"And according to SaskWater's model, sewer and water utilities are supposed to be able to pay for themselves. There is no way a small village that has 20 or 25 residents can afford it. One of our concerns from a municipal level is that it is fine to have these new regulations, but if you are going to make us comply, you have to help us do it." (R1 Sec. 0, Para 113 – 129)

And further:

"The villages are in virtual free fall. They just stumble from one crisis to another whether it is water quality or collapsing infrastructure. There is no strategic planning, there is no thinking, there is no technical expertise. They have nothing. Most rural municipalities – same thing." (OUT1 Sec. 0. Para. 63 – 173)

It is noteworthy that this sort of comment was being made six years into SaskWater's new mandate. Clearly, SaskWater has not succeeded in ameliorating the water stress of certain small communities under its current business model. SME came to the rescue of a handful of the worst off small municipalities by allowing them to continue delivering water that was sub-optimal to their residents, provided that they offered them access to bottled potable water, and posted boil water notices in the community.

An SAF official who was interviewed for this project maintained that small rural communities were so occupied in dealing with the challenges facing agriculture and the population decline which accompanies increasing farm size that upgrading water systems to meet quality objectives was among the least of their concerns.

"You just need to drive down the highway and you see it. There are lots of communities that are dying. I think if you went out to the communities and asked them they would tell you that structural economic changes were going to kill them long before water issues kill them...if you asked them to rank what their biggest problems are, water would be important to them but it would be well down the list, even if they secure a safe supply of water they're still not going to be sustained." (SAF1 Sec. 0, Para. 265- 299)

Even though SaskWater's ability to assist in the development of regional water and wastewater solutions offers municipalities considerable economic advantages, the development of new regional systems has stalled. SaskWater officials have partly attributed this to the fact not all municipalities in a region need system upgrades at the same time. Indeed, as one municipal official commented, municipalities who have judiciously saved for water infrastructure upgrades are reluctant to cooperate with communities that haven't done so. (R1 Sec. 0, Para. 131 – 138)

SaskWater and its current customers face some difficult challenges and choices. The corporation continues to expend financial resources on its marketing, engineering, and construction activities. With no new growth, many of these costs have to be passed on to existing customers – given that CIC continues to expect the corporation to shoot for profitability. The corporation's reputation as a "gold plated" high-cost service provider will continue to grow, further reducing the chances for new sales (R1 Sec. 0, Para. 113 – 129). In addition, existing customers are likely to exert pressure at the political level to get themselves out of unaffordable contracts with SaskWater.

Notwithstanding much of the foregoing, SaskWater has some notable achievements under its belt. No one has apparently become ill from water provided by SaskWater. It has also been able to provide innovative science-based solutions for communities which have to deal with substandard source water – which is a condition faced by many southern Saskatchewan communities. And, as noted earlier, SaskWater is an asset on the province's adaptive capacity balance sheet. It has an inventory of experience which could be employed to develop regional solutions to water supply challenges that might arise in conjunction with climate change. It is however, unlikely that SaskWater's potential in this regard can be realized under its current for profit model.

Saskatchewan Ministry of Agriculture (SMA)

Respondents indicated that there was concern in rural communities regarding the capacity of farm safety net programs such as Crop Insurance and CAIS/AgriStability to sustain producers in the event of climate related crises such as severe and sustained drought. One of the IACC focus group participants described the way federal policy makers had come

to view support for agriculture through the lens of fiscal demands as opposed to a process based on sustainability principles that reflect climate change modeling.

"How can we get away from the world of so-called bailouts to something that is more sustainable? When will we not be hit by surprises when we get drought? And I think we quickly learned that we probably can't. That we live in an area where there will be repeated crises in agriculture for example, drought is one of them. BSE is another. Avian flu. It is just one after another. So instead of saying there will be no money available for bailouts we say we are going to restrict the threshold so the institutional limit will be this amount of dollars per year over a 5 year period and we will renegotiate the program later with the provinces and try to manage our operations more efficiently." (Focus1 Sec. 0, Para. 52)

Prairie Farm Rehabilitation Administration (PFRA)

The PFRA's long experience on the prairies appears to have engendered a culture of cooperation with individual agricultural producers and rural community organizations. The ability to deliver programming that meets local needs is an important component of efforts to build adaptive capacity at the community/watershed level. One of the tributes paid to the PFRA in the IACC interviews came from a respondent involved in both municipal government and a watershed stewardship group. He/she indicated that government programs conceived in Ottawa or Regina often have a one-size fits all character. The programs don't always meet the specific needs or priorities of people at the local level. The respondent commended PFRA officials for their ability to be flexible and creative program administrators who could tweak bureaucratic program requirements to make them applicable in the real world. Indeed, one of the PFRA respondents noted the need for greater flexibility in federal programming. (PFRA4 Sec. 0, Para. 161 – 176) (PFRA4 Sec. 0, Para. 78 – 81)

Community needs and water and watershed advisory committees

Many of the formal and informal linkages that obtain between watershed advisory committees and the water governance system have been described above. Notwithstanding those linkages the interview respondents provided insights into the challenges that rural community activists and officials face today in Saskatchewan. One of those challenges involves the multiple demands that are placed on the time of people who are involved in community affairs.

One of the characteristics shared by the respondents from the SSRWS is that they wear many hats – they are each involved in a number of community activities. Two are currently village mayors, one is a former MLA. Another is involved in three agencies concerned with water management (CAB1 Sec. 0, Para. 36 – 59). One of the respondents reported: *It seems to be hard to get enough interest and enough interested people in your immediate area. By immediate area, I mean within 100 or 75 mile radius.* (CAB1 Sec. 0, Para. 25 – 34)

The problem has a number of causes. First, the rural population has declined continuously over the past five decades and rural residents are getting older – there are fewer young people available for assistance with community projects. Secondly, as described by the respondent quoted above, when it comes to community-based watershed activities, distance can be a problem. For example the SSRWS West area stretches nearly 200 miles, from the Alberta border all the way east to Outlook. The time available to community volunteers is already taxed by the number of hats they wear (too many linkages). The expense and time involved in travelling to meetings will clearly not contribute to making involvement in watershed groups attractive to people who are already spread fairly thin.

If meeting expenses such as travel and time away from jobs, farms and businesses are borne by participants and not the watershed group or government, a few things are bound to happen. Participation may be limited to financially comfortable self-employed or retired people; or existing community organizations such as village councils or RMs will be expected to pick up the tab. One respondent commented that for decades the provincial government had been taking responsibility away from municipalities (such as social welfare), leaving them with authority for little more than grading and gravelling roads. Lately, however, the municipalities are being asked to do more with their limited revenue generating capacity (Out1 Sec.0, Para. 39 – 45). While municipal governments offer a well-established democratically elected base of community involvement in the watershed advisory process, it should not be automatically assumed they have the money required to finance participation. Farm income pressures and the contribution of school assessments to the tax load place tight limits on the ability of local governments to raise money.

Some of the interview comments suggested that the RMs and village and town councils were well placed to develop water management policy at the local level – a solution that would not require the creation of another layer of governance i.e. watershed groups with regulatory powers. However, others consider this option unworkable because it is seldom that municipal boundaries and watershed boundaries coincide. Another factor that militates against municipalities leading the watershed advisory process arises when one considers who might be left out. For example, should there be a role for First Nations and conservation agencies such as the Nature Conservancy and Ducks Unlimited (who own or control a lot of ecologically important land in the province)?

7. COORDINATION

This section of the report reflects the comments collected under Theme 8 which deals with institutional networks and the co-ordination between agencies from different levels of government.

Given the number of institutions involved in water management and related climate issues in Saskatchewan, mapping the various interagency linkages and coordinated activities is no small task. As noted previously, the complexity of the web of linkages has been a source of frustration for stakeholders. The agency mix also involves overlapping

authorities and the duplication of activities in certain areas. It also involves the lack of coordination for federal and provincial infrastructure funding programs which are offered inconsistently.

Solutions suggested by respondents include the possible merging or shifting of agencies and functions. For example, SME's water quality function could be transferred to SWA or indeed SWA could be incorporated into SME. The federal government could choose to abandon its rural water management mandate in favour of the province, which indeed has the constitutional jurisdiction over water. Some respondents spoke to the possibility of establishing a single desk agency for dealing with water matters.

Regardless of the various options imagined, it is widely recognized that there is a problem of organizational complexity and coordination in the Saskatchewan's water governance system. The recently formed Integrated Water Management Committee co- led by SWA and the PFRA appears to be an effort in support of rationalizing the system. One can imagine that, before a comprehensive plan for developing adaptive capacity in anticipation of climate change can be developed, the current system needs to develop an improved coordinating capacity that would include the watershed advisory committees and watershed groups which are forming.

Coordination and linkage issues are described below in relation to the key agencies involved in water and climate related activity in the province.

Saskatchewan Watershed Authority (SWA)

As noted previously SWA and SME report to the same cabinet minister, and the Deputy Minister of SME has typically been the chair of the SWA board. SWA also receives a significant portion of its revenue by providing surface water quality monitoring for SME. And there are also areas of overlapping responsibility between SWA and SME with respect to source water management and protection.

There are a few legacy linkages between SWA and the new SaskWater. The two corporate headquarters are still located in the same building in Moose Jaw where the former SaskWater (1984 version) was located. From 2002 until late 2007 the President of SWA was also the President of SaskWater. The two corporations share a few support services such as payroll management. They share information on particular issues such as the promotion of water conservation programs, and have a joint employee social club, but otherwise there is very little overlap in their activities. Although, SaskWater, like any other water utility in the province, requires approval from SWA for surface or groundwater allocations.

SWA has a formal linkage with the Prairie Provinces Water Board (through an Order in Council) which administers a multi-lateral agreement on inter-provincial waters. It also has a collaborative arrangement with the Saskatchewan Research Council on projects such as hydrological resource mapping. SWA officials are participating in the Integrated

Water Management Committee, a somewhat informal gathering of water governance agencies, which is looking at ways to untangle the water governance process.

Saskatchewan Ministry of Environment (SME)

SME's jurisdiction over drinking water and source water quality involves some overlapping with SWA. It also requires SME to have formal regulatory relationships with virtually every urban municipality in the province.

The creation of the new SaskWater as a commercial Crown water utility in 2002 was promoted by the province as a means to enhance the capacity of municipalities to meet SME's more stringent standards and monitoring protocols. Municipalities which failed to meet the new drinking water standards could apply to SaskWater for assistance in building new infrastructure, and to qualify plant operators. SME's enforcement of higher quality standards would in effect serve to create new customers for SaskWater.

Since source water quality contributes to the treatability and final quality of drinking water SME engages SWA to monitor source water quality on its behalf. As noted earlier in relation to SWA's operations, the overlapping responsibility for water quality monitoring between the two agencies has been questioned. As noted above, coordination between SME and SWA is facilitated by the fact SME's deputy minister has typically served as chair of the SWA board and both agencies report to the same minister – the Saskatchewan Minister for Environment. The Ministry of Health provides monitoring services designed to detect incidents where low water quality is producing negative impacts on public health and can apply its own regulations to address contamination issues over and above those administered by SME.

Water related issues and initiatives have been under discussion recently at meetings of Canada's Ministers for the Environment. In other Canadian jurisdictions environment departments take the lead on water issues. Since SWA is responsible for a significant portion of water management in Saskatchewan and is not at the table, developments at the federal-provincial ministers level affecting its activities or plans often have to be communicated to it by SME officials. SME is involved with other agencies in the area of water management and governance including the municipalities and SaskWater as well as groups like the watershed advisory committees and the Integrated Water Management Committee.

SaskWater

SaskWater operates as a subsidiary of CIC and its Board of Directors is appointed by CIC. The Board reports to CIC and its cabinet minister, who is in turn responsible to cabinet and the legislature. SaskWater's linkages with SWA essentially involve legacy relationships that have extended beyond the reorganization of 2002. And SaskWater, like other water users, applies to SWA for new water allocations. From 2002 until 2008 the President of SaskWater was also the President of SWA. At present each has its own president. SaskWater is also subject to the water and wastewater quality standards and

monitoring requirements of SME. For example, when a depressurization occurs on a SaskWater pipeline, SME issues a water advisory order.

SaskWater's most significant operational linkages and relationships are with its customers. It works with more municipalities than any other water utility in the province – although most systems in the province are owned and operated by individual municipalities. In order to help customers meet their infrastructure needs, SaskWater is involved in collaborations with a number of provincial and federal agencies and a variety of grant programs. Since 2002 a number of federal-provincial programs have been available for water and wastewater infrastructure projects. SaskWater has worked with federal agencies such as the PFRA on the development and financing of various infrastructure initiatives.

Saskatchewan Ministry of Agriculture (SMA)

As noted previously, linkages and overlapping interests between federal and provincial agencies involved in agriculture is a constitutional reality in Canada. SMA is involved in the delivery of numerous federal-provincial agriculture programs. A list of the major collaborations would of course include Crop Insurance and Canadian Agricultural Income Stabilization program (CAIS/AgriStability), but there are many more including targeted funding programs intended to promote things like value-added processing, crop diversification and environmental sustainability (e.g. Environmental Farm Planning). There are a number of overlapping activities where federal and provincial agriculture agencies are doing essentially the same things. For example there are both provincial and federal community pasture systems in the province. Both the PFRA and SMA manage irrigation projects and assist farmers in securing dependable domestic water supplies.

SMA actively promoted expansion of the hog industry and the creation of intensive hog operations in the province during the 1990s. SMA, not SME, takes the lead in granting permits for new intensive hog barns and cattle feed lots (Intensive Livestock Operations or ILOs). While SMA officials indicated that they often “interface” with SWA regarding ILO proposals, it is SMA not SWA which has the final say on approvals (as required by the *Agricultural Operations Act*). If SWA officials believed a proposed hog barn or feedlot endangered groundwater sources, their ability to stop the project could be limited to providing an assessment to SMA (or to refusing to allocate water to the operation). If the ILO threatened surface water quality an assessment from SME would apparently “inform” the process. SMA respondents indicated that proposals were referred to several other agencies including Municipal Affairs, the Heritage Branch of the ministry responsible for culture, and neighbouring municipalities. It is conceivable that none of the agencies involved in the referral process has the capacity to stop a project from going ahead, provided the proponents adopt mitigation measures that satisfy the SMA. (SAF1 Sec. 0, Para.7-36)

Prairie Farm Rehabilitation Administration (PFRA)

As discussed in relation to the SMA, the shared federal-provincial jurisdiction over agriculture has led to the evolution of numerous inter-agency linkages and a certain amount of overlapping activity. It is difficult to conceive of any agency involved in governance activity in the agricultural regions of Saskatchewan that is not familiar with the PFRA. There was a sense of respect for the PFRA running through the IACC interviews. This was not always the case for federal agencies. For example Environment Canada was described as being unenthusiastic about sharing water and climate data. And Fisheries and Oceans Canada was the subject of a number of negative comments. (The appearance of a handgun toting Fisheries and Oceans official at the provincial legislature to charge the Minister for Environment with an offence is a well-remembered anecdote.)

There are a number of water related activities where the PFRA is involved with provincial government agencies. For example, the PFRA is co-leader with SWA on the Integrated Water Management Committee. It has worked with municipalities on rural water pipelines and has collaborated with SaskWater on some municipal water projects. The PFRA is often the go-to agency for federal government grant programs for projects such as farm wells, dugouts, rural water pipelines and soil conservation programs. These programs are generally cost-shared with the Prairie Provinces and often delivered in partnership. As noted above both PFRA and SMA are involved in the delivery of irrigation programming. It is a collaborative relationship which features the co-management of the CSIDC at Outlook.

The PFRA's interest in the impact of drought on prairie agriculture is evident through its *Drought Watch Program* which monitors and reports on moisture conditions. The overlap of the PFRA's activity in this area with Environment Canada's mandate and that of the provinces can lead to "pushback" from the federal Treasury Board, which may not always appreciate the necessity of having timely climate information communicated to the agriculture community in a format it can appreciate.

One of the challenges presented by situations where the PFRA's activities mirror those of provincial agencies is that one or both levels of government may at some point choose to abandon the field. This sort of situation could be imagined in relation to the community pastures system where both levels of government operate very similar programs. That said, the PFRA's operation of its pasture system falls more clearly within Ag Canada's mandate than water management which is primarily an area of provincial responsibility. As noted previously the PFRA has already initiated plans to transfer its irrigation systems to farmers and/or farm groups by 2017.

There would be a significant decrease in adaptive capacity in Saskatchewan if the PFRA were to suddenly become less involved in water issues. Provincial government organizations would be required to increase the level and nature of their activity to fill the void and that couldn't happen quickly or without financial costs. Given that a number of water challenges involve trans-provincial issues there may not be a provincial agency immediately capable of replacing the PFRA. As one interviewee reported:

"PF's primary role for water management has been as an honest broker, providing good quality technical information and a sustained presence. Its role could potentially become greater as pressures across the three prairie provinces grow in demand for water." (PFRA2 Sec. 0, Para. 15)

8. OTHER LIMITATIONS

A few issues emerged from the interviews which either didn't precisely fit within the other ascribed themes or which warranted special mention because they appeared to be of particular concern to respondents.

The rural urban split

One area of interest is what has been referred to as the rural-urban split – the phenomenon of division between the economic, cultural and political values of urban and rural residents. The divergent trajectories are seen to be causing increasing conflict and frustration as differences widen. For example, among some of the rural people engaged in watershed advisory work there has been a suspicion that the whole process was a conspiracy aimed at keeping their cows away from source water (OUT1 Sec. 0, Para. 39 – 45). The same respondent maintained that urban environmentalists didn't attend rural watershed meetings because they hoped to avoid likely confrontations with rural residents. Another respondent questioned the purported concern of urban residents for the environment. He/she pointed out the hypocrisy evident when urban residents complain about the impact of livestock operations when the biggest environmental disaster to occur on his/her local watershed involved the dumping of raw sewage by the City of Swift Current (R2 Sec. 0, Para. 139 – 153).

Indeed, as respondents from SWA noted, among rural participants in the watershed advisory process, climate change was sometimes regarded as a concern of urban environmentalists or policy makers located in Regina and Ottawa, making climate change issues appear to be both foreign and suspect.

What about nature?

Another point worth noting was the lack of focus on ecosystem sustainability or preservation of the natural environment. It would appear that discussions around sustainability in rural Saskatchewan relate primarily to community survival and the prospects for family farm agriculture (economics, human well-being and human quality of life). This is understandable given the chronic economic and social pressure rural people have been living with. It perhaps demonstrates the inter-relationship between economic and environmental sustainability, specifically how economic distress can limit people's capacity to deal with water stress and the larger issues related to climate change and adaptation.

Political limitations

Three of the additional areas of concern identified are related to the political process and its impact on policy making and program delivery. One concern in this area was the lack of interest and conviction on the part of certain political leaders that climate change was worth serious consideration. Political leaders are often reluctant to act; sometimes it is because they do not believe in climate change; sometimes it is because acting would present uncomfortable political and economic problems. *“I think that there is perhaps a reality within government agencies as viewing climate as a small ‘p’ political issue more than as a physical science reality.”* (PFRA4 Sec. 0, Para. 83 – 101)

The second political concern mentioned was the impact of election cycles. It was argued that when governments changed, established programs were frequently dropped or needlessly altered. Good programs could disappear completely or sometimes only temporarily, reappearing after an obligatory reinvention of the wheel (PFRA4 Sec. 0, Para.13 – 21) (R3 Sec. 0, Para. 132 – 134). For officials attempting to deliver policy on the ground, and the people counting on the programs, the process can be frustrating. For example, in the wake of changes in government, Canada’s 1987 federal water policy (which includes a climate change component) has never been fully implemented, despite the fact that it apparently remains official federal policy.

The third political concern noted was that policy and programming around water tended to be ad hoc, often involving knee-jerk reactions to crises, instead of thoughtful and proactive activities based on a long range perspective. And of course dealing with climate change is a long-term process that extends beyond four or five year election cycles. (PFRA2 Sec. 0, Para. 182) A respondent from the National Water Research Centre described the contradiction in time frames of policy makers and scientists looking for ways to manage water within a climate change context.

“One of the other big problems I think is policy and science work on different time scales. The Lake Winnipeg project, for example, it has taken us 40 years to get here. It will probably take us 30-40 years to get out of it and policy wants a solution based on an electoral cycle.” (CWRC1 Sec. 0, Para. 299)

IV CONCLUSIONS

The major findings of the Saskatchewan section of the IACC research project have been discussed throughout this report in relation to the various points included in the thematic discussion. In many respects, the findings from the IACC focus groups are similar to much of the published literature concerning Canadian water strategies, stemming back to the 1985 Inquiry on Federal Water Policy, Currents of Change, which called for increased clarity of the federal role and its departmental priorities with respect to water (Pearse et al, 1985). More recent literature looks back to the inquiry and the resulting 1987 Federal Water Policy as forward thinking and visionary for its day (most of the issues remain valid today – including citizen engagement and climate change), and identifies the current problems to be more related to a lack of implementation of the

policy (Pearse, 1994; Bakker, 2007). Today's literature continues to express similar concerns identified back in 1985: the lack of a mutual coordinated vision by the many agencies involved in water management, the lack of clear and obvious roles for all orders of government, and, fragmentation and a lack of integration. The literature is from diverse sources including academia, government and non-government agencies, and concerned scientists and citizens (Polis Project on Ecological Governance: Brandes et al 2005; Standing Senate Committee on Energy, the Environment and Natural Resources: Banks and Cochrane, 2005; Canada's Privy Council and its Policy Research Initiative publications, 2005; University of British Columbia (ed.) and academia (Bakker, 2007; The Gordon Water Group of Concerned Scientists and Citizens: Morris et al, 2007; Conference Board of Canada: Hoover et al, 2007; Canadian Water Resources Association: R.De Loë, 2008; Sproule-Jones et al, 2008, and others). With respect to the South Saskatchewan River Basin, one of the most appropriate publications is the 2005 Senate Report entitled "Water in the West: Under Pressure" (Banks and Cochrane, 2005). This report identifies "unacceptable" information gaps and recommends all orders of government need to work together. It is a clarion call, stating "decision-makers must pay urgent attention to water, especially in the semi-arid regions of western Canada where the impacts [of climate change] are already being felt." What is particularly interesting is that virtually all of the sources of literature identify a common and pressing need to improve and clarify water governance mechanisms by all orders of government across the country.

As noted, the IACC focus group findings echo much of the above-noted literature. By way of summary of the focus group governance assessments, the most significant water governance challenges can be encapsulated in seven interrelated areas listed as follows:

The Seven Major Water Governance Assessment Challenges

1. **The need for integrated, multi-disciplinary long-term planning.** There is a lack of concerted effort in support of comprehensive planning to deal with climate change and its water related impacts in Saskatchewan. There is no official drought plan, for instance, much less a climate change plan (SWA2 Sec. 0, Para 129 – 135). Nor is there a climate change adaptation plan. There have been a number of attempts to plan for the development of plans including an effort involving the PFRA in 2002. However, nothing of substance has yet been produced; especially anything that considers the multi-agency coordination required to develop effective strategies. That said, many existing forms of government activity assist in reducing vulnerabilities or enhancing adaptive capacity, and there are others which could be easily reoriented to assist with improving adaptive capacity. However, without a more concerted and collaborative effort, it is difficult to achieve maximum benefits for climate adaptation work. There is no formal mechanism for bringing discipline or strategic coordination to the process of strengthening resilience and building adaptive capacity to natural climate variability. Indeed, responses to more extensive droughts and/or flooding events are largely dealt with as reactions to an "emergency" condition. Yet both are a natural feature of the semi-arid climate variability of the prairies, and both are expected to intensify under climate change scenarios. The Integrated Water

Management Committee is possibly the sort of institution that, if formalized and provided with adequate resources, might assist in moving climate change/adaptive capacity planning along. To succeed the planning process would have to include climate change and adaptive capacity within its planning framework. Furthermore, building effective adaptive capacity will require the inclusion of the watershed groups in the process, because it is essential to have citizen engagement and participatory planning of the local watershed stakeholders if effective adaptive decisions are to be made. This will require the formalization of a governance structure incorporating these groups. The need for long-term planning is clearly evident by reviewing climate impacts and adaptations publications (see, for example, Canada's Federal action plan, *Turning the Corner*, targeting objectives as far into the future as 2050: Environment Canada, 2008; Oliver and Wiebe, 2003, pp. 69-71; and, Alberta's *Climate Change Strategy*: Alberta Environment, 2008. The need is further emphasized by the initiative of the Western Premiers in May 2008 with the formation of the Western Water Stewardship Council. Saskatchewan is an active supporter of this initiative which further illustrates the need for stronger federal leadership in cross jurisdictional water and climate change issues to address very real vulnerabilities in the SSRB, and without exaggeration, across Canada. The Premier's plans to develop a drought preparedness plan for the west and a climate change policy framework are laudable. The question is whether there is strong enough support to assign the necessary resources.

- 2. The need to empower stakeholders and citizens in water management decisions, using the principles of integrated water resources management.** The watershed groups and watershed advisory committees form an important component in support of increasing adaptive capacity in Saskatchewan. They reflect the widely recognized principle that water problems are always local and regional. If we want to deal with them effectively, information must be gathered at the local level and local stakeholders need to be included in the policy development process. Indeed, these groups offer potential to enhance both policy development and implementation at the local level. While the voluntary nature of the process may be laudable, it is unlikely that the advisory group process is sustainable under the existing model. The longevity of the advisory groups is threatened by their lack of predictable operational and project funding. In addition, while there is disagreement about whether the groups should be given a regulatory and taxing capacity, their consultative role could nonetheless be formalized. Ensuring that local input is given diligent consideration would provide the watershed advisory groups an assurance that their efforts are not wasted – that they constituted something more than an effort to create the appearance of local involvement. The need to incorporate all stakeholders is fundamental in the literature encompassing integrated water resource management, established by the Dublin Principles in 1992. This concept realizes water management decisions need to be made and implemented by governments, water managers, and all affected stakeholders working together. The principle is receiving considerable attention in government policy circles around the world, and is often referenced in the published literature (see, for example: WWCWAU, 2003, p. 23, Canada's Privy Council and its Policy Research Initiative publications, 2005, Moss, 2008, *Global Water*

Partnership's overview on Integrated Water Resources Management, 2009, World Meteorological Organization, 2009)

3. **The need to have adequate water data (water supply and water quality; both groundwater and surface water).** The research identified gaps in the water data pool (water quality and quantity; groundwater and aquifer data, climate data) required for effective water management and planning. If the status of the water resource is currently uncertain it is difficult to make determinations about resilience and adaptation in the face of climate change. At present the province lacks a detailed groundwater resource map. There is uncertainty about what data is available, what can be readily accessed and who is responsible for ensuring that the relevant data is collected and shared. This, in theory, is a manageable problem with dedicated resources (time, people, finances). Access to better data is essential for all stakeholders and orders of government. The need for more complete water quality data is also frequently reference in the literature (see Banks and Cochrane, 2005, Morris et al, 2007, de Loë, 2008).
4. **The need for a drought plan, considering future climate variability.** The preponderance of climate change modelling indicates that Saskatchewan will face increasingly severe and lengthy droughts in coming decades. In addition, there are the issues of flooding, and extreme events such as wind storms, etc. which may increase in conjunction with climate change. While many agencies involved in water governance mentioned preliminary efforts to plan around drought, nothing of significance currently exists. Indeed, multiple ad hoc responses do not constitute a comprehensive plan. Not only is there a dearth of planning related to the negative impacts of drought, there is little planning around the potential opportunities and benefits that drought in other regions might offer for Saskatchewan residents. The lack of a drought plan is related to the absence of sufficient data noted above. For example, will Lake Diefenbaker levels permit an expansion of irrigation during severe and sustained drought? It should not be forgotten that climate change may bring opportunities, not just negative impacts (e.g. higher value crops, more diversified agriculture). These opportunities cannot be achieved without long-term planning and consideration of cost, impact and development needs. Indeed, proponents of irrigation could very well see their desired future if water availability, risk determination and environmental potential (e.g. enhanced tourism around water development projects) were to be factored into a bigger picture plan that multiple stakeholders and all orders of government could strive towards (Oliver and Wiebe, 2003, pp. 69-71; Also see the need to counter the Canadian myth of abundance in Sprague, 2007)).
5. **The need for improved interagency coordination.** Saskatchewan's water governance and climate monitoring system suffers from duplication of effort and a lack of coordination. It is prone to failures to identify areas needing attention because others are assumed to be looking after things. For example, does SME still assume that its drinking water regulations can be readily met by municipalities because SaskWater is available to assist them? The complexity of the governance system

often creates confusion among the government officials themselves, let alone the general public. For example, if multiple agencies are doing parts of the data collection work required, which agency ensures that all the bases are being covered? Given that the operations of all water governance agencies will potentially be impacted by climate change implies that all of them should be brought together in efforts to develop comprehensive climate change response plans. Improved interagency coordination must include federal agencies that can support provincial efforts. Again, something along the lines of the Integrated Water Management Committee might assist in bringing discipline and structure to a long-term climate adaptation planning process. The need for improved integration and coordination of all orders of government is clearly a frequent theme of the published literature on water (see the references in the initial paragraph of this section on “Conclusions” and Berkes, 2009). It is clear that better integration will be necessary to address both climate and water issues because of the strong inter-relationship between both.

- 6. The need for improved water governance arrangements to effectively address operational issues and climate-induced water stress.** The efficacy of water governance in Saskatchewan is frustrated by the complexity of the water governance arrangements. Rural communities and their residents are often frustrated by the need to deal with a large number of agencies and are often unsure of which agencies are responsible for various aspects of water policy. Although unlikely, and possibly impractical, the one stop shopping or single desk approach was identified as a solution by a number of respondents. For many rural communities, water governance and management is also frustrated by the levels of funding available for service delivery. Funding programs are sporadic, and funding availability and eligibility rules often change in synchronization with the election cycle. Indeed, program delivery to rural communities on the part of SaskWater is frustrated by issues of affordability and certain adaptation measures come with unavoidable price tags. It appears that the lack of encouragement for planning initiatives around climate change and adaptation are a reflection of small “p” political preferences as opposed to planning based on science and the uncomfortably expensive needs of rural communities. The changing emphasis of government away from publicly supported utility delivery in favour of private sector solutions has perhaps contributed to the avoidance of service delivery by water governance institutions to communities facing economic challenges. There also appears to be a tendency among officials to excuse planning paralysis on the basis of incomplete data regarding the precise form that climate change impacts will take. There is a reluctance to accept risk (a natural tendency of most governments), especially with respect to infrastructure projects. Ironically, the precautionary principle is allowed to disable planning despite the eminent precautionary sense that developing adaptive capacity seems to represent. While it may be unwise to engage in expensive preemptive infrastructure expansion, building adaptive capacity and resilience can occur exclusive of infrastructure projects. What is necessary to unlock the fear of large or perceived “unnecessary” expenditures? It may be that opportunity options are not considered sufficiently in the face of risk reduction costs. And it may be that the full cost of ad hoc responses to extreme events year after year are not properly factored into existing arrangements. The published literature in Canada

frequently cites the need for improved governance (see the references in the initial paragraph of this section on “Conclusions”).

7. The need for centralized or timely decision making to address climate change problems. Currently most water supply and infrastructure challenges in Saskatchewan are met by municipal governments, and individual farm operators. However, two agencies of senior government, SaskWater and PFRA (in combination with a variety of federal-provincial funding programs), offer assistance and solutions to municipalities with infrastructure problems. SaskWater’s challenges in meeting its service delivery mandate have already been described in detail. However, despite the frustrations presented by its current business model, SaskWater constitutes a repository of expertise in developing water and wastewater systems for municipalities on a regional and individual basis. The PFRA has a long history of providing similar services, primarily to individual farms and farm groups. In the event that climate change results in severe and sustained drought, many communities could find themselves struggling to supply their residents with water. Presently the PFRA and SaskWater are the only senior government agencies with the experience and capacity to deliver solutions to water stressed communities and farmsteads. There are questions being asked in water governance circles about the current mandates and indeed the continued existence of the PFRA and SaskWater. Were these agencies to disappear, or lose their capacity to provide infrastructure solutions to water problems, there are no similar governance bodies in existence that could pick up the slack should a major drought event occur in Saskatchewan. Their loss would constitute a major reduction in the adaptive capacity of the province in the face of climate change. The notion of centralized decision making in effective water management is occasionally cited in the published literature on water governance (e.g. Banks and Cochrane, 2005). However, the key point here is that timely and effective decisions need to be made to empower local watershed groups and stakeholders undertake the best adaptations possible to address climate-induced water stress. If decisions are held up by uncertainty or inability to act, then it becomes an obstacle to more efficiently achieve effective adaptation.

Suggestions for further research

One of the beneficial outcomes of qualitative research can be the discovery of new questions to ask and new directions to take in future research. Based on findings from this project, future efforts to examine the water governance and management process in the province might include investigations of the province’s rural water pipeline associations and municipal government activities pertaining to water, possibly through interviews with representatives from their umbrella organizations. There is also merit in learning how to engage in future adaptation planning from the lessons of the 1930s. While the drought of the 1930s happened not all that long ago, we seem to have lost our memory of some of the necessary components of the coping strategies required in the face of multi-year droughts.

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- c) *Economic Instruments for Water Demand Management in an Integrated Water Resources Management Framework - Synthesis Report* [online]. June 14-15, 2004. http://policyresearch.gc.ca/doclib/WaterSymposium_e.pdf . Accessed: February 6, 2007.
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VI APPENDIX 1: ORGANIZATIONAL OVERVIEWS

Appendix 1 Contents

Introduction	62
Saskatchewan Watershed Authority Organizational Overview.....	63
Saskatchewan Ministry of Environment Organizational Overview.....	76
Saskatchewan Ministry of Agriculture Organizational Overview.....	85
SaskWater Organizational Overview.....	94
PFRA Organizational Overview.....	103

Introduction

The material provided in Appendix 1 describes key features of the five government agencies which are most active in water governance and management in Saskatchewan: SWA, SME, SMA, SaskWater, and PFRA. Each of the agency overviews follow a similar format in which the general mandates, and water and climate related mandates for these organizations are summarized as well as the level of resources (financial and human) they devote to both their general and water-related mandates. Publicly available electronic and print literature produced by these organizations was reviewed between April and September 2008. This information was supplemented by IACC interview commentary.

For each of the organizations noted above, the researcher posed three questions and recorded the results of the requisite queries (based on a review of official, publicly available, literature on each organization) within section #9 of each overview under the heading “three issue summary.”

Those questions were as follows:

- 1) Does the organization have plans, policies or activities specifically targeted toward dealing with climate change?
- 2) Does the organization have plans or policies for dealing with drought?
- 3) Does the organization have plans or policies devoted to water conservation?

Saskatchewan Watershed Authority (SWA) Organizational Overview

1) SWA Head Office:

111 Fairford St. E.
Moose Jaw, SK
S6H 7X9
Ph.: 306-694-3900
Website: www.swa.ca

2) History

SWA emerged as a distinct stand-alone organization in 2002 in conjunction with a restructuring of provincial government agency roles envisioned under the province's *Safe Drinking Water Strategy* of April 2002. The new strategy was developed by the province in reaction to the protozoan parasite, cryptosporidium parvum, contamination of North Battleford's drinking water in 2001 and the publication of the *Laing Commission of Inquiry Report* (March 2002). The drinking water related disease outbreak caused about 6,000 people, in a population of about 15,000, to suffer gastrointestinal problems and resulted in a major review of the provision of drinking water. However, while corporate information pieces allude to a relationship between the *Laing Report* and the agency reorganization, the report's recommendations did not include any mention of a reorganization of SaskWater or the creation of SWA.

Prior to 2002, the functions performed by SWA were incorporated within SaskWater, the provincial agency which, from 1984 - 2002, had been responsible for managing and monitoring the province's water resources and for the provision of water and wastewater utility services to a handful of municipalities, rural pipeline associations, industries and irrigators.

Under the reorganization, utility functions were transferred to a newly constituted SaskWater, which would operate as a Commercial Crown Corporation under the direction of the Saskatchewan Crown Investments Corporation (as per *The Saskatchewan Water Corporation Act 2002*). Source water monitoring and management functions were placed under the newly created SWA. SWA is currently established under *The Saskatchewan Watershed Authority Act 2005* (a refined version of its original 2002 Act), as a Treasury Board Crown Corporation, directed by the Treasury Board, which includes the province's minister of finance and other cabinet members as designated by the Lieutenant Governor in Council (as per *Section 14 of The Crown Corporations Act 1993*).

3) General Mandate

SWA's 2006-2007 Annual Report describes its mandate as follows:

To manage and enhance the province's water and watershed resources for the environmental, economic and social benefit of citizens.

In accordance with its mandate SWA engages in the following activities related to the management of surface water supplies:

- 1) SWA owns and operates 45 dams and 130 km of canals and ancillary works.
- 2) SWA provides hydrology expertise to measure water supplies, guide allocations and predict floods.
- 3) All major surface water and groundwater allocations in the province are subject to SWA approval including water allocations for municipal, industrial, irrigation and intensive livestock uses.
- 4) Via Order in Council, SWA employees represent the province on trans-boundary water issues including participation on the Prairie Provinces Water Board.
- 5) SWA investigates and adjudicates complaints related to drainage and the alteration of natural water flows up to the appeal stage (Appeals go to the Water Appeals Board which is under the responsibility of the Saskatchewan ministry of Environment).

In Canada the ownership of ground and surface water is vested in the Crown which according to Canada's constitution means jurisdiction over inland water resources is almost entirely in the hands of the provinces. There are exceptions of course such as federal control of inland fisheries, matters with respect to inter-provincial (transboundary) water flow (quality/quantity), and international agreements such as the Boundary Waters Treaty with the U.S. In addition, provincial jurisdiction does not extend fully to federal lands such as National Parks or First Nations lands. But, for the most part control of inland surface and groundwater resides with the provinces. Thus, SWA is potentially the agency with the greatest direct jurisdictional and statutory authority over the management of water within Saskatchewan. Indeed, SWA is considered by itself and other ministries as the "provincial water manager." That said, SWA lacks authority to govern certain issues related to water quality, which are managed by the Saskatchewan Ministry of Environment.

4) Legislative authority

SWA's legislative responsibilities include:

- 1) *The Saskatchewan Watershed Authority Act, 2005;*
- 2) *The Conservation and Development Act, 1978;*
- 3) *The Water Power Act, 1978;*
- 4) *The Watershed Associations Act, 1978;* and
- 5) various associated regulations and Cabinet orders

5) Mandates applicable to water management, water stress, and climate

According to its mandate, 100% of SWA's activities are devoted to the management of the province's water resources. However, its legislative powers do not include the sole authority for the protection of watershed resources – a portion of that authority rests with the Saskatchewan Ministry of Environment.

There is no specific corporate sub-division or staff positions within SWA which are dedicated full-time to activities specifically related to water stress that is related to climate and climate change. However, a number of the corporation's activities are by their nature closely associated with issues that relate to water stress as it is influenced by climate.

While SWA has no drought-proofing or drought-mitigation strategy, its involvement in collecting hydrology data and monitoring of trans-boundary water flows from Alberta (through the Prairie Province's Water Board) are activities that do provide support to efforts to combat drought. This is the case when drought impacts levels on Lake Diefenbaker necessitating measures to control lake levels and downstream flows. SWA's efforts to promote water conservation (i.e. its water conservation strategy) are based on sustainability principles that are important to drought management. SWA hired its first staff person dedicated to addressing conservation matters in July 2008.

Over the past two years flooding in the east central grain belt of the province has been a significant concern for SWA. The threat of drought is the area of climate related water stress that has historically received the greatest amount of attention in Saskatchewan. However, increased precipitation, record high stream flows and lake levels in some parts of the province are the areas of climate concern currently receiving the most attention from SWA.

While SWA's mandate suggests a responsibility for water quality, it has no authority to enforce compliance with quality standards. The enforcement of quality standards for ambient environmental water quality (e.g. rivers, lakes) and for potable municipal drinking water resides within Saskatchewan's Ministry of Environment (SME). SWA does hold the responsibility for water licenses, and enforces drainage issues/fines if illegal drainage is undertaken by landowners.

6) Accountability and Reporting

SWA is a Treasury Board Crown Corporation. As such, SWA officially reports to the Saskatchewan Treasury Board, which consists of the province's Minister of Finance and whichever additional ministers cabinet deems appropriate to sit on the board. Treasury Board Crowns are neither full-fledged Crown Corporations nor typical government departments. They lack elements of autonomy granted to the Commercial Crowns such as SaskPower and SaskEnergy, which are managed by the province's Crown Investments Corporation (CIC), but have somewhat more autonomy than the line departments of executive government (Interview with former CIC V.P. for Governance July 10, 2002).

Until August 15, 2006, the Treasury Board appointed a one-person board to act as chair of SWA. Until recently, the one person board/chair was always the Deputy Minister of Environment. As of August 15, 2006, the board was enlarged to three members. The Deputy Minister of Environment is Chair; the Vice Chair is the Deputy Minister of Intergovernmental Affairs and the Deputy Minister for Agriculture was a Director. It was reasoned that having the Deputy Minister of Environment as chair provided optimal liaison between Environment and SWA, agencies with certain overlapping responsibilities for water. Following the 2007 provincial election, the practice was again altered. The Deputy Minister of Environment (who was the chair of the SWA board prior to the election) was made SWA President and SWA's former President was made SWA Chair. As of July 2008 the chair is the only board member and currently the SWA Chair is also President of SaskWater.

There is another accountability stream that influences SWA's activities. Under the current Saskatchewan Party government and the previous NDP administrations, SWA has been required to report to a specific cabinet minister who is responsible for reporting on SWA's activities in the legislature. Since 2002, up to today, this has been the provincial Minister for the environment. SWA is accountable to both the Treasury Board and the Environment Minister's office. There is no requirement that the minister responsible for SWA also be a member of the Treasury Board. The minister responsible for SWA and senior officials can be required to report to a number of legislative committees such as the appropriate policy field committee or the Standing Committee on the Economy (for review of budget estimates). The minister would generally be expected to answer questions in the legislature regarding SWA's activities.

The notion that water management in the province is governed by an arm's-length relationship between the agency responsible for water allocation and the agency responsible for overall environmental considerations and water quality regulations is questionable since both agencies involved in the so called arm's-length relationship report to the same minister.

SWA performs a number of activities and produces certain reports on behalf of the provincial Ministry of the Environment. SWA receives payments for these services from the province's general revenue fund which flow through the Ministry of Environment's budget. SWA is therefore accountable to the environment department for a certain amount of surface and groundwater monitoring and water quality reporting. SWA produced its first *Status of the Watershed Report* for the province in March 2007.

Advisory Committee

SWA has relationships with a number of advisory/stakeholder groups which provide it with advice and feedback. These include a 19-person Advisory Committee (provided for under section 19 of *The Saskatchewan Watershed Authority Act, 2005*). According to the Act, members may be appointed to the Advisory Committee under SWA's own authority, provided the terms of members are of no more than one year's duration.

Watershed advisory groups

SWA has also been instrumental in establishing and supporting a number of watershed advisory groups. There are 11 groups representing major watersheds with another 22 subsidiary/tributary committees. Some of these groups have formally incorporated themselves under the province's non-profit society's legislation. They go by a number of titles including watershed stewards and watershed advisory committees. These organizations, provide a forum for community involvement in watershed management and protection issues. Stewards groups have been established for the Souris River Basin, the Moose Jaw River, the South Saskatchewan River, and the Upper Qu'Appelle watersheds, etc.. Neither the advisory committees nor the stewardship groups have legislative powers nor the ability to direct or order SWA, or anyone else, to undertake watershed activities or refrain from certain activities in a watershed. The groups have no authority over water related activities in the watersheds they represent. In addition, the groups have no permanent source of funding available through legislation, regulations, long-term grants, or the ability to charge fees to water users.

Watershed Associations

SWA also has responsibility for eight Watershed Associations established under the *Watershed Associations Act*. These can be either private or public organizations such as municipalities or industrial enterprises that are authorized by SWA to construct water works such as reservoirs, dams, ditches, etc. to manage water for an approved purpose. An interesting facet of the arrangement is that associations who own approved waterworks are permitted under the Act to sell water.

Reports

SWA produces an Annual Report which is presented to the Treasury Board and the Legislature. It also produces an annual Performance Management Plan which is presented in conjunction with the province's annual budget process. SWA has also begun producing an annual State of the Watershed Report.

7) Global budget and staffing

As a Treasury Board Crown, SWA has not been required to earn dividends for the province. However, income surpluses have been produced and the corporation has been allowed to accumulate a surplus. Some of the assets the corporation controls are of significant value e.g. the Gardiner Dam, and as a result SWA can face considerable operational and infrastructure maintenance challenges. For example, a necessary repair of the spillway at the Gardiner Dam is projected to cost approximately \$22 million, which comes close to equalling the corporation's entire annual budget in each of the past few years.

SWA's annual expenditures were: \$23.8 million for 2007; \$22.4 million for 2006; and \$20 million for 2005.

Revenues

Revenues over the same three year period were: \$26.5 million for 2007; \$26.8 million for 2006 and; \$20.2 million for 2005.

The two major sources of revenue for SWA are annual water sales of approximately \$15 million (57%) and payments from the province's general revenue fund, most of which are provided through the Ministry of Environment, totalling \$7.4 million (28%). Another environment ministry associated program, the Fish and Wildlife Development Fund has provided approximately \$820,000 in revenue to SWA in 2007 and 2006; and \$828,000 in 2005.

The major sources of water revenue are sales to SaskPower for hydro-electric power generation and sales to industries not supplied by municipal water services, such as potash mines and ethanol plants. The three rate structures employed reflect the cost of the infrastructure required to deliver the water. However, there are some specific agreements the government has in place with particular firms which places them outside the regular rate structure. SWA does not charge municipalities or farms for the water they use.

Staffing

For fiscal year 2006 – 2007, SWA had 180 FTE employees. Approximately 25 SWA employees have been designated as managers. (SWA1 Sec. 0, Para. 340 – 310) That roughly translates into one manager for every 6.2 non-management personnel. Non-management personnel belong to the Chemical Energy and Paperworkers Union (CEP).

8) Water management, water stress and climate related budget and staffing

All 180 SWA employees are working at jobs related to the management of water. There are no specific job classifications devoted entirely to climate monitoring or planning. However, addressing climate related issues, such as recent flooding can feature prominently in the corporation's activities. In addition, the corporation has incorporated sustainability principles into its planning, based in part on the principles contained in the province's Go Green initiative. Any effort to distil the financial resources devoted to climate and sustainability/conservation activities from the SWA budget is beyond the scope of this project, as the relevant figures are not specifically provided through the public documents published by SWA.

9) Activities related to water management, water stress, and climate

As noted above, SWA's activities and expenditures are devoted entirely to water management.

Three issue summary

In relation to the three areas of inquiry and interest identified for all the agencies reviewed SWA measures up as follows:

1) SWA has no specific plan, policy or activity related to water stress related climate change, other than its control over water flows as they relate to water levels and the release or retention of water on various dams and works.

2) SWA has no specific long range plan, policy or activity dedicated to dealing with drought. A draft 2002 “Drought Risk Management Plan for Saskatchewan” does exist, which states that all provincial and federal agencies will work together to address drought issues as needed.

3) SWA has produced a 28 page *Saskatchewan Water Conservation Plan*. Also SWA’s relationship with various advisory groups has the potential to increase communications around sustainability and conservation principles. Like other provincial agencies, SWA has incorporated language related to sustainability principles into its public communications, but it is difficult to measure whether the rhetoric is reflected in the corporation’s activities. However, SWA did recently hire its first employee dedicated to conservation matters.

It is interesting to note that the federal-provincial drought assistance programs announced for Southwest Saskatchewan in the spring of 2008 are not being managed either by SWA or SaskWater (the Crown water utility) but rather by the provincial department of agriculture and rural municipal offices.

SWA is co-leading discussions on integrated water management for Saskatchewan with PFRA. This is a forward looking exercise involving participation from SWA, other provincial and federal departments with a stake in water management. No documents have been produced related to this activity for circulation outside of the working group/committee.

SWA has engaged in a certain amount of sustainability-based planning in response to the province’s Go Green initiative. This includes plans intended to foster conservation. Sustainability-based planning has not extended to either a drought or drought-proofing strategy, or any other sort of long-range planning related to possible climate change impacts. SWA’s conservation plan document is a full colour brief, saddle stitched brochure.

10) Partnerships, relationships and overlapping responsibilities.

SWA continues to occupy head office space in the same building where SaskWater is located. Despite the division of the two agencies in 2002 they continue to share some services such as IT and payroll. From 2002 until late 2007, SWA and SaskWater had the same president.. As of today, SWA has its own president (the former Deputy Minister of Environment, and the president of SaskWater is Chair of the SWA Board of Directors.

The following table describes the interrelationships between SWA and other agencies. It was compiled utilizing both the public documents of the corporation as well as comments made by interview respondents.

AGENCIES	TYPE OF RELATIONSHIP	DETAILS OF RELATIONSHIP
Municipalities both individually and through SARM and SUMA.	Regulatory & Monitoring, Some collaboration in planning through stewardship groups.	SWA approves water allocations and monitors source water quality and quantity. SWA is providing water management support to resort villages experiencing both flooding and low water levels.
Sask. Ministry of Govt. Relations	Overlapping jurisdiction re-zoning	SWA has the task of mitigating flooding in communities where Govt. Rel. and the Municipalities have allowed development in flood prone areas.
Farmers	Regulatory	SWA approves water allocations for intensive livestock operations and major irrigation projects. It also adjudicates drainage disputes between farmers. It also has input (but not final authority) into the approval of the siting of intensive livestock operations when impacts on source water quality is an issue.
Sask. Ministry of Agriculture	Regulatory with some overlapping interests and activities	The Ministry of Agriculture manages certain irrigation projects/districts which require SWA monitoring and approval. Some of the Ministry's irrigation works also supply water to industry and communities. The Ag Ministry has recently taken more action in responding to drought conditions in the south than SWA. There are some questions as to whether Agriculture can or cannot overrule a SWA concern when approving an

		intensive livestock operation. SK (Agriculture approves ILOs as the responsible agency for reviewing and granting operational licenses for Intensive Livestock Agricultural Operations Act.)
Private and Public Industry	Regulator & Supplier subject to certain government/industry agreements which override SWA's water rate structure.	SWA allocates and sells water to industries not included in municipal systems. Water sales account for 57% of SWA's revenues. SWA also plays a role in the approval process for major developments.
Sask. Ministry of Environment	Overlapping authority and governance. The Minister of Environment is also the Minister responsible for SWA. Supplier/Partner with overlapping activities, management and responsibilities. e.g. Environment – not SWA – enforces protection of source water.	28% of SWA's revenue is provided through SMA as a fee for services. SWA provides the Ministry with water monitoring and quality reports. The Ministry is a participant in discussions led by SWA and PFRA wrt integrated water management. Environment has the authority over enforcing laws that protect source water.
Prairie Provinces Water Board.	Participant on Board	A SWA employee represents Sask. on the Board.
Alberta Environment	Collaborative	Alberta Environment shares watershed information with SWA; esp. conditions affecting flows into Sask.
Water Appeals Board	Information provider. The board's legislation falls under the purview of Sask. Environment.	SWA investigates disputes and adjudicates them prior to an appeal to the board.
Watershed Authority Advisory Committee	Advisor to SWA	The Advisory Committee is appointed by SWA subject at times to cabinet approval.
Watershed Advisory Groups	Provide stakeholder input to SWA, are dependent on	Provide a vehicle for two way communication

	SWA for organizational support. These groups are incorporated under the <i>Non-Profit Corp. Act</i>	between water governance agencies and community stakeholders. Groups lack sustainable funding process.
Western Economic Development and Diversification	Funding support for at least one watershed stewards group.	The delivery agency is called Water Wolf.
Watershed Associations	Authorized and regulated by SWA, but incorporated as per the <i>Watershed Assns. Act</i> . There are 8 Assns. operating under this Act.	These are community or industry groups that may construct works such as reservoirs or canals. They have the ability to charge for water they manage.
Fish and Wildlife Development Fund	SWA is a supplier of habitat & habitat management and monitoring services. Funds are raised, in part, through a surcharge on fishing and hunting licenses sold by ENV.	The Fund is administered by Sask. Env. & provides approx. \$820,000 annually to SWA.
SaskWater	Formerly a subdivision. SWA was incorporated within SaskWater from 1984 – 2002. Shared personnel and services & regulatory. The SaskWater President is also Chair of SWA.	SaskWater must obtain SWA approval for obtaining licenses from allocation of ground and surface water supplies. The two agencies continue to share some administrative functions such as IT and payroll. SaskWater has met a SWA sponsored request to provide some core funding for the SSRWS. Full name required.
Saskatchewan Research Council	Collaborative with overlapping data collection tasks and projects.	SWA and SRC are jointly working on a groundwater mapping project.
PFRA (or AESB, Agri-Environment Services Branch as of April, 2009)	Collaborative/Overlapping. PFRA operates a drought monitoring system for the prairies. It also has its own irrigation works and projects in the province. PFRA's climate related activities complement and overlap with some Environment Canada	SWA relies on PFRA and ENV. Canada to provide it with climate and certain hydrological information. PFRA and SWA are co-leading the Integrated Water Management discussions.

	activities.	
Environment Canada	Regulatory/Collaborative.	Environment Canada monitors stream flows on trans-provincial waters. This includes monitoring of flows on the North and South Saskatchewan Rivers and other trans-boundary rivers. It also enforces certain hazardous products legislation and regs.
Department of Fisheries and Oceans Canada	Regulatory with considerable overlapping authority and agendas producing both collaboration and conflict.	DFO requires that water management in Sask. complies with its fish and fish habitat protection mandate. DFO funded a fish related study on Last Mtn. Lake for a watershed Stewards group. SWA, a number of municipalities and DFO have been at odds over the removal of beaver dams causing flooding to farmland. Normally where contraventions occur, DFO will work with the contravener to correct the problem, and can sometimes provide funding help. DFO has the ability to fine contraveners, and will do so where navigable waterways are impaired (e.g. fencing or other obstructions impairing a navigable waterway).
First Nations	Overlapping jurisdiction Some collaboration with stewardship groups. Conflict over water levels at Crooked and Round Lakes.	First Nations and/or INAC have control over water resources on reserve lands. Certain water bodies (ground and surface) cross reserve boundaries. Certain FNs have been invited to participate in watershed stewards groups but have seen it as a conflict of interests. A dispute over a

		dam on reserve land in the Qu'Appelle Valley has reduced water levels on Round and Crooked Lakes, frustrating cottage owners.
Integrated Water Management Committee/ discussion group	Collaborative -- with SWA claiming a co-leadership role with PFRA.	Discussions between federal and provincial agencies with water management mandates and concerns. No public information is available regarding the group's discussions to date.
Saskatchewan Health	Overlapping interests in water with SWA and Environment	Health provides water quality testing for farms, and becomes involved in regulating when municipal drinking water cause illness. SWA also provides water quality testing for people developing water sources.
Saskatchewan Industry and Resources	Overlapping regulatory responsibility re- oil and gas well construction	SIR regulates well construction, in theory activity which might contaminate ground water..
Ducks Unlimited	Parallel interest in wetland management	DU has been invited to participate in stewardship group and IWM activities.

11) Conclusions and other items of note

Based on the constitutional jurisdiction that provinces have over inland provincial water resources, SWA is the principal water resource manager for the province. Despite its statutory authority over water, SWA has not yet made a significant investment in developing long-range plans for dealing with the impacts of climate variability or dramatic climate change.

SWA's major activity relative to climate influenced water management stress have involved flooding in the northeast and east-central grain belt. Activities related to flooding at Fishing Lake and waters flowing into Lake Lenore stand as examples of the longstanding tradition of water management on the prairies which has often involved reacting to crises as opposed to proactively planning for future emergencies.

There is considerable overlap in responsibilities between Saskatchewan's Ministry of Environment and SWA. Indeed, both agencies report to the same minister. It could be argued that the various overlapping responsibilities of SWA and Environment simply

places one expensive layer of administration on top of another, potentially leading to client confusion and wasted resources. It would appear there is some redundant overlapping with respect to the promotion of water conservation, for example. That said, a counter argument can be made to the effect that there should be an arm's-length relationship between those who are assigned the task of managing the resource and those who are responsible for assessing and guaranteeing quality performance. One might question the extent of the arm's-length relationship given that both agencies report to the same boss.

Given its leading statutory position pertaining to water, it is not surprising that SWA is leading discussions in the area of integrated water management for the province.

12) Listing of relevant agency documents and reports.

Laing, Robert D. *Report of the Commission of Inquiry: into matters relating to the safety of the public drinking water in the City of North Battleford, Saskatchewan.* Regina: Queen's Printer, March 28, 2002

Saskatchewan Water Conservation Plan

www.swa.ca/waterconservation/documents/waterconservationplan8x11.pdf

Saskatchewan Watershed Authority Annual Reports 2002 – 2007 (SWA website)

<http://www.swa.ca/AboutUs/PerformancePlans.asp>)

Saskatchewan Watershed Authority Performance Plans 2002 - 2007 (produced in conjunction with the annual provincial budget SWA website:

<http://www.swa.ca/AboutUs/PerformancePlans.asp>)

Saskatchewan's Safe Drinking Water Strategy 2002 (SWA website:

<http://www.environment.gov.sk.ca/Default.aspx?DN=7bede8e4-739e-4723-acc3-d9a93e1428b2>)

State of the Watershed Report (1st Annual Edition) available electronically from SWA website. <http://www.swa.ca/StateOfTheWatershed/Default.asp>

The Watershed and Aquifer Planning Model

www.swa.ca/publications/documents/protectingourwater.pdf

The various reports (seven completed to date) of the Watershed Stewards Groups, produced with the assistance of SWA. These can be found at:

www.swa.ca/stewardship/watershedplanning/default.asp

Saskatchewan Ministry of the Environment (SME) Organizational Overview

1) Sask. Environment Head Office:

2nd Floor 3211 Albert St.
Regina, SK
Phone: 1-800-567-4224
Website: www.environment.gov.sk.ca

2) History

Saskatchewan's Ministry of the Environment (SME) was established in the 1970s (as the Saskatchewan Department of the Environment), at a time when governments across Canada were establishing similar ministries. Initially, the department's focus was on environmental protection, involving issues such as water, soil and air pollution and spills of hazardous substances. In 1993 the department's mandate was broadened when the Saskatchewan Department of Natural Resources was merged with it to create the new Saskatchewan Environment and Resource Management (SERM). The 2002 *Laing Commission Report* on the North Battleford cryptosporidium parvum outbreak (of spring 2001) was critical of SERM's failure to fulfill its drinking water safety mandate. The provincial cabinet also came under criticism because it was aware that SERM had responded to a series of budget cuts by significantly reducing its capacity to monitor and manage drinking water safety enforcement.

One of the most significant outcomes of this incident was the requirement for SERM and municipalities to be more publicly transparent. As a result records of drinking water characteristics are now available to the public, and failure to deliver safe drinking water results in a broader public awareness by informing the public and requiring precautionary or mandatory boil water warnings when the drinking water safety is compromised in a municipal drinking supply. Following the 2007 Saskatchewan Provincial Election, SERM was renamed the Saskatchewan Ministry of Environment.

3) General Mandate

The Ministry's mandate is to protect and manage Saskatchewan's environment and natural resources, so as to maintain a high level of environmental quality, ensure sustainable development, and provide economic and social benefits for present and future generations. (Sask. Environment's 2007-2008 Performance Plan p. 3.)

In its 2007 – 2008 Performance Management Plan, Sask. Environment identified the following as its key programs and services:

Forest Management	Controlling hazardous goods and landfills
Wildland Fire Management	Preventing land, air, and water pollution
Parks	Coordinating the environmental assessment process

Crown Lands Management Protection of drinking water
Fish and Wildlife Management Wastewater management

4) Legislative Authority

The legislation viewed by the Ministry as comprising its “major tools” includes: *The Environmental Assessment Act, The Environmental Management and Protection Act, The Forest Resources Management Act, The Prairie and Forest Fires Act, The Wildlife Act, and The Provincial Lands Act.*

5) Mandates applicable to water, water stress, and climate

Water quality

Ensuring that communities are supplied with safe drinking water is the major water stress and management function included in Sask. Environment’s mandate.

The lion’s share of water-related activity undertaken by the department is mandated under the *Environmental Management and Protection Act, 2002*. This piece of legislation more than any other provincial statute reflects the recommendations of the 2002 *Laing Commission of Inquiry*, into the cryptosporidium parvum contamination of the City of North Battleford’s water supply in the spring of 2001. Part IV of the Act gives the Ministry responsibility for: 16 (1) (a) *the supervision, control and regulation of all matters relating to water quality; and (b) any impairment to water quality by any adverse effect.* The overlapping nature of statutory responsibility for water in Saskatchewan is recognized by section 16 (2) of the Act which allows that the Ministry may consult with the Saskatchewan Watershed Authority, other government agencies and the public *with respect to matters concerning the protection of watersheds, and ground water sources of drinking water.* Section 16 (3) of the Act authorizes consultations with the Ministry of Health when water quality issues have related public health impacts.

Data collection

Section 17 of the Act requires the Ministry to collect and store data relevant to water quality and treatment and wastewater treatment, and to conduct research relative to water quality and wastewater issues. The ministry has a five-person information section that coordinates data management. This would include management of water quality and wastewater management data. SME assigns a considerable amount of data collection to SWA.

Monitoring water quality and wastewater

Division 2 of Part IV(19) requires the Ministry to file an annual report on drinking water quality, the *Safe Drinking Water Quality Report*. Section 20 (1) makes any person responsible for a waterworks supplying water for human consumption responsible for the safety of the water. Section 21 through to 31 involve the permit procedures involved in the construction of water and wastewater works, and the ability of the Ministry to suspend operations on works that fail to meet quality, safety, and environmental standards. Section 32 is the portion of the Act that produces the largest amount of public

attention as it authorizes the Ministry to issue Precautionary Drinking Water Advisories and cause a water or sewage works to cease operations.

Division 3 of Part IV lays out the prohibitions and reporting requirements related to the discharge of hazardous products into the environment, extending to surface and ground water systems.

Climate related activities

There is nothing in SME's legislative mandate that suggests it should be concerned specifically with climate issues. Nonetheless, the Ministry has a Climate Section which operates within the Corporate Policy and Programs Branch. This section is responsible for planning and programs related to climate change and has 6 full-time positions. One full-time employee is dedicated to the consideration of adaptation issues related to water.

The Ministry has indicated that management of water resources is a priority issue in its adaptation strategy. This includes drought proofing, provincial water allocation, impact of flooding on infrastructure, property and other assets, and water conservation. Some aspects of adaptation are addressed by other branches of the Ministry of Environment including drinking water and fish and wildlife habitat, while the Saskatchewan Watershed Authority deals with in-stream flows.

6) Accountability and Reporting

Requirements of executive government

As with any branch of executive government, the staff of Sask. Environment report to senior officials at the Director, Executive Director, Assistant Deputy Minister and the Associate Deputy Minister levels. These officials report to the Deputy Minister who, in turn, reports to the Minister. The Minister of course reports to cabinet and the legislature. The two official documents reflecting this process are the Annual Report of the Ministry and its Annual Performance Management Plan, which is part of the province's annual budget process. Currently, the Minister responsible for the environment ministry is also the Minister responsible for the Saskatchewan Watershed Authority.

Water quality accountability

The Ministry's Environmental Protection Division is responsible for activities related to drinking water quality and wastewater management. A variety of reporting and accountability mechanisms are employed by this division. Under *the Environmental Protection Act*, as noted above, a system of inspections, permits, orders and reports are required for monitoring of water and sewage works. Thus reporting and accountability involves virtually all municipal governments operating water and sewage systems. On the Ministry's part, an annual report on water quality must be published and all water and sewage works must be identified as to whether they meet quality and safety criteria set by the Ministry.

7) Global budget and staffing

Sask. Environment's 2006 – 2007 expenditures totalled \$186 million. Revenues totalled \$52 million, resulting in a net cost to the province for the operation of the Ministry of \$134 million for 2006-2007.

SME had 1,337.4 FTE employees for 2006 – 2007. Non-management employees belong to the Saskatchewan Government and General Employees Union (SGEU).

8) Water and Climate Related Budget and Staffing

Expenditures directly related to water management include:

Expenditures within the budget of the Drinking Water Quality Section of the Environmental Management Division and funding provided to the Saskatchewan Watershed Authority (SWA).

Drinking Water Quality Section	\$2.8 million
SWA Water Control	\$900 thousand
SWA Water Quality	<u>\$1.8 million</u>
Total	\$5.5 million

Note : this is only a rough estimate as many other Ministry costs such as communications costs are associated with water and climate related activities.

Third Party Payments

A number of water and climate related activities are supported by third party expenditures/grants made by Sask. Environment. These include:

- Canadian Water Resources Conference sponsorship	\$ 10,000
- Saskatchewan Water Appeal Board (legislated)	43,000
- SWA for managing and protecting source water quality	6,537,000
- SWA Green Initiatives Funding for water conservation and source water protection	833,000
- Univ. of Regina grant to Prairie Adaptation Research Collaborative	45,000
- Univ. of Sask. Green Initiatives funding to support Healthy River Ecosystem Assessment	<u>80,000</u>
Total	\$7,548,000

Proportion of total expenditures directed toward water and climate

Total direct water and climate related expenditures \$10.3 million (the \$2.7 assigned to SWA under the expenditures for the Environment Protection Division are not included in the total). The percentage of total expenditures of \$186 million devoted to water and climate change activities is something over 4 % (\$10.3 million). Additional expenditures are made through the employment of six staff people who are responsible for climate issues, one of whom is responsible for water related adaptations to climate change. An additional five staff members are assigned to managing Ministry data, some of which is data related to water. The total staffing dollars expended in this area have not been

determined by the researcher. The total expenditures, are thus approximately \$10.3 million plus whatever the additional expenditures are associated with the six climate staff and the water related proportion of the efforts of the data management staff. One would expect the figure to be approximately something between \$11 million and \$12 million or between 6% and 6.5% of the Ministry's annual expenditures of \$186 million.

Staffing related to water and climate

SME has 36.7 full time positions within the Drinking Water Section. Of these, 20 inspect both water and sewage works on a regular basis. Remaining staff in the section have duties involving guideline and standard development, operator certification liaison, management, planning, budgets, reporting, inter-jurisdiction committee work, engineering reviews and construction approvals, etc. All section staff perform data management to some degree, but the development and management of the data system is performed by the Environmental Information Section that has a total of 5 FTEs. The Environmental Information Section fulfills its data system development and management role for the entire Branch, with the majority of their time dedicated to drinking water.

The ministry also has six employees working on climate related activities, one of these employees is dedicated to water related climate issues

Staff with full-time water related responsibilities

Drinking Water Section

Water and wastewater inspectors	20.0
Other section staff	16.7
Env. Information Section	5.0
Climate Section	<u>6.0</u>
Total	47.7

Approximately 47.7 ministry employees are dedicated (both full and/or part-time) to water and climate issues at the ministry. This translates into 3.5% of the ministry's total staff complement of 1,374.4 employees.

9) Activities related to water management, water stress, and climate/climate change

Three issue summary

In relation to the three areas of inquiry and interest identified for all the agencies reviewed Sask. Environment measures up as follows:

1) Sask. Environment has no specific plan or policy related to climate change. It does, however, have six staff members working on climate related issues and has provided PARC with \$45,000 in support of its activities.

2) Sask. Environment has no specific plan, policy or activity dealing with drought or other water related impacts of climate change. SME was an active participant on the 2002 "Draft Drought Risk Management Plan for Saskatchewan".

3) Sask. Environment has devoted modest resources to encouraging water conservation through communications projects. It has no specific conservation policy or plan, but indicates that SWA is more active in this sort of effort.

Water and Wastewater Quality Activities

Monitoring/regulatory

Ministry staff conducted inspections of 832 water works and 547 wastewater works in 2006 -2007. Department staff collect and manage data related to inspections plus data on source water quality supplied by SWA.

Widening efforts

Activities have been extended (in accordance with the Act) to include new research and reporting activities such as the recent project involving the Saskatchewan Watershed Authority which has begun indexing the quality of Saskatchewan's surface water bodies.

The ministry has six employees working in a climate section, it appears this is a new focus of activity. One of the six climate specialists is working on issues involving adaptation to the climate impacts on water supplies.

The Ministry's Annual Report for 2006 – 2007 indicates that it participated in a committee of federal and provincial agencies with direct involvement in water issue "to develop and integrated water management strategy for the province". The report also indicates the Ministry lead in the development of a federal/provincial Municipal Effluents Project.

10) Partnerships and overlapping jurisdictions

The Minister of Environment also acts as Minister for the Saskatchewan Watershed Authority. The lines of authority are somewhat unclear, the minister does not sit on the board of SWA. But the Deputy Minister of Environment has until recently been the chair of the SWA board. One would suspect that the Minister of Environment retains some influence over appointments to senior positions i.e. president and chair of the board. One can assume that some officially important management decisions are reserved for Treasury Board.

The Ministry contracts a substantial portion of its surface and ground water monitoring activities to the Saskatchewan Watershed Authority, emphasizing the need for inter-agency collaboration. To enhance accountability and communications the Deputy Minister for the Environment was automatically appointed as Chair of the Saskatchewan Watershed Authority from 2002 - 2007. Following the 2007 provincial election the former Deputy Minister of the Environment was appointed President of SWA. The President of SaskWater was appointed chair of SWA. Prior to these changes SWA and SaskWater shared a President. The Ministry is also responsible for supporting the Saskatchewan Water Appeal Board, which adjudicates disputes over drainage and diversion of water. Appeals taken to the Water Appeal Board are made following

investigations of complaints and the issuing of orders by the Saskatchewan Watershed Authority as described under Division 4 of the *Saskatchewan Watershed Authority Act 2005*.

SME has also made efforts to educate the public about water conservation. SaskWater, SWA, and many municipalities support similar projects.

In addition, as noted above, there are a number of third party payments made by SME to organizations undertaking water and climate related projects.

The following table outlines the relationships that the Sask. Ministry of Environment has with other agencies that have authority over water resources or are active in the management of water and climate monitoring.

AGENCIES	TYPE OF RELATIONSHIP	DETAILS OF RELATIONSHIP
Water works and wastewater works operators (primarily municipal governments)	Regulatory	The Ministry inspects works and issues permits for operations and new construction and certification for operators.
SWA	Co-regulator of water resource, with a shared minister. Purchaser/supplier relationship and partner in some activities.	Both agencies report to the same Minister. SWA provides Environment with source water quality monitoring and cataloguing services. SWA adjudicates complaints related to water diversions that may be appealed to the Water Appeal Board.
SaskWater	Regulatory	SaskWater is regulated by Environment like any other works operator.
Ministry of Health	Partnership/Regulatory (overlapping jurisdiction)	Environment and Health collaborate when agents harmful to public health are causing problems in waterworks. Health was the agency which developed certain water safety guidelines employed by Environment. Sask. Health operates a provincial laboratory which tests

		drinking water quality for municipalities regulated by Sask. Env.
Water Appeals Board	Legislative	Environment is responsible for the Appeal Board Act and provides funding to the Board.
Federal, Municipal	Collaborative	Environment has participated on joint committees looking at integrated water management and municipal effluent.
Prairie Adaptation Research Collaborative (PARC) and the Universities	Funding Partner	Environment provides funding to research projects on water management and climate change.
Other Federal	Regulatory Overlap	There is overlapping jurisdiction over waters of interest to the Federal Dept. of Fisheries and Oceans.
Other Provinces	Jurisdictional Overlap	Environment extends its mandate to other provinces when it seeks to do research on the environmental status of trans-boundary waters.

11) Conclusions and other items of note

The Saskatchewan Ministry of Environment is the primary regulator of drinking water quality in the province. The Ministry monitors drinking water using its own staff resources. The Ministry also monitors source water quality, but does so by assigning monitoring activities to the Saskatchewan Watershed Authority. The Ministry appears to have recently developed a climate monitoring section which has one employee whose focus of activity is in part devoted to considering adaptations to water management that might be necessitated by climate change. The areas of drought-proofing/mitigation and water level management are not a focus of substantial Ministry activity, and are viewed (by default or design) as the responsibility of other agencies such as SWA, Sask. Agriculture, and the PFRA. That said, the IACC interviews demonstrated that SME does respond to many water stress issues in collaboration with other agencies such as watershed groups and is an active participant in issues related to flooding and drought responses.

The separation of water regulatory and management activities between SWA and the Ministry of Environment, might be identified by some observers as necessary due to the

principle that the allocator of water supplies should have an arm's-length relationship with the safety regulator. This distinction loses some credibility when one considers that SWA (the allocator) answers to the same Cabinet Minister as the regulator.

12) Listing of important agency documents and reports

The primary sources of information on the ministry's activities are:

Annual reports of the Saskatchewan Department of Environment and Renewable Resources 2005 – 2007

<http://www.publications.gov.sk.ca/deplist.cfm?d=66&c=507>

Annual Report of the Saskatchewan Ministry of the Environment 2007.

<http://www.environment.gov.sk.ca/ministry-overview/>

Performance Management Plan for the department and the ministry.

<http://www.environment.gov.sk.ca/ministry-overview/>

Annual Provincial Water Quality Reports 2002 – 2007. (SWA website)

<http://www.swa.ca/>

Saskatchewan's Safe Drinking Water Strategy 2002. (SWA website)

<http://www.swa.ca/>

Laing, Robert D. *Report of the Commission of Inquiry: into matters relating to the safety of the public drinking water in the City of North Battleford, Saskatchewan*. Regina:

Queen's Printer, March 28, 2002

Supplemental information supplied via:

Email letter from Donna Johnson, Director of Finance, Saskatchewan Ministry of Environment, July 28, 2008.

Email letter from Amanda Vindevoghel, Ministerial Assistant, Office of the Minister of Environment, July 31, 2008.

Saskatchewan Ministry of Agriculture (SMA) Organizational Overview

1) Saskatchewan Ministry of Agriculture (SMA) Head Office:

Walter Scott Building
4085 Albert St.
Regina, SK
S4S 0B1
Phone: 1-306-787-5140
or 1-866-457-2377
Website: www.agriculture.gov.sk.ca
email: aginfo@gov.sk.ca

2) History

Saskatchewan has approximately 65 million acres of land devoted to agricultural production, of which 338,778 acres are irrigated. Saskatchewan has more farmed acres than any other province in Canada. The province has had a department, or ministry, of agriculture since it entered confederation in 1905. Since agriculture is an area of joint federal-provincial responsibility there has also been a significant amount of involvement on the part of federal agencies in the management and development of agriculture in the province. Federal involvement has included the administration and marketing of homestead lands from the 1880s until 1930, and major drought assistance commencing in 1935 in response to the drought of the 1930s. Federal/provincial co-operation continues today through the joint funding of business risk, crop insurance and emergency assistance programs. Following the 2007 Saskatchewan Provincial Election the name of the Saskatchewan Department of Agriculture and Food (Sask. Ag. and Food) was renamed the Saskatchewan Ministry of Agriculture (SMA).

3) General mandate

The mandate of the Ministry is to foster a commercially viable, self-sufficient and sustainable agriculture sector. Working with individuals, businesses, communities, and governments, the Ministry is to assist farmers and ranchers, encourage higher value production and processing and promote sustainable economic development in rural Saskatchewan.

SMA's Vision Statement

"A thriving agricultural sector that contributes to an enhanced quality of life for all Saskatchewan residents."

4) Legislative authority

SMA administers 44 provincial legislative acts and a substantial number of related regulations. Authorities administered by SMA which are relevant to adaptation to climate variability and climate and water management include:

- The Crop Insurance Act
- The Farm Financial Stability Act
- The Irrigation Act 1996
- The Pastures Act
- The Provincial Lands Act (joint responsibility)
- The Soil Drifting Control Act

5) Mandates applicable to water, water stress, and climate

SMA administers several programs in areas related to climate and environmental issues.

Crop Insurance

Saskatchewan Crop Insurance Corporation (SCIC) operates from a head office in Melville, SK. The program insures field crops against losses due to climate events such as drought, flooding and early frosts and pest infestations. Crop insurance is funded through producer premiums and cash contributions from the federal and provincial governments.

Business Risk Management

The province and federal government jointly fund the federally administered AgriStability business risk program. While AgriStability funds producers for losses due to economic factors such as low commodity prices, the income averaging system which forms the basis of income support can also compensate producers for a portion of losses due to climate impacts not entirely covered by Crop Insurance. Administration of the Saskatchewan portion of the AgriStability program is being relocated from Ottawa, Winnipeg and Regina to Melville Saskatchewan over 2009–2010.

Irrigation

Under the irrigation Act, SMA is involved in the promotion, development and sustainability of irrigation agriculture. It is also involved in irrigation research and development and infrastructure operations and maintenance. In 2005–2006, provincially owned and operated irrigation infrastructure was transferred to SMA from SaskWater, which had managed the province's irrigation projects since 1984. The PFRA also owns and operates irrigation infrastructure in the province, but plans to divest itself of irrigation management by 2017. SMA also supports the Irrigation Crop Diversification Committee, a producer organization funded primarily through check-off revenue.

Farm and Ranch Water Infrastructure Program (FRWIP)

FRWIP was established in 2008 as a joint federal-provincial response to a three year drought affecting some 65 municipalities in the southwest of the province. The program is cost shared; 60% of the funding is provided by Agriculture and Agri-Food Canada and 40% is supplied by the province. The FRWIP assists producers in developing new water infrastructure such as community wells and shallow-bury pipelines, primarily for livestock watering and domestic farmstead use (crop irrigation activities are excluded). Approximately \$29 million has been budgeted for the program which has been extended into 2009. It is noteworthy that this project was delivered by SMA as opposed to SaskWater, the province's Crown water utility.

Environmental Farm Planning

The Environment Chapter of the federal-provincial Agricultural Policy Framework (APF), administered in conjunction with the federal PFRA: identifies soil, water, air and biodiversity as the major areas of focus for producers. Saskatchewan's agri-environmental programming encourages producers to assess their current production activities and to utilize management practices that enhance their environmental stewardship. The major program in this area is the Environmental Farm Plan (EFP) project. Producers are encouraged to participate in EFP activities, and are often supported financially to undertake environmentally-friendly projects. Projects include practices that enhance source water quality such as sowing grass on the slopes of drainage ditches. SMA also supports the development of soil conservation practices such as zero-till farming.

Crown land management

SMA's Lands Branch administers a community pastures program that is similar in most respects to the system operated in the province by the PFRA. Community pastures emerged in the late 1930s as a strategy for preventing soil erosion due to drought induced soil drifting on cultivated land. SMA also administers approximately 6 million acres of Crown owned grazing lands, which are included within the 54 provincial community pastures or are leased to individual producers and producer groups. Cultivation is often restricted on leased grazing lands due to their propensity for erosion or their value as wildlife habitat.

Water resource protection

SMA is responsible for authorizing the development of intensive livestock operations. Since these operations, which include hog barns and cattle feedlots, can have an impact of water resources, agencies such as SWA and SME are often consulted during the approval process. SMA's annual performance plan indicates that one of its goals is to monitor the relationship between agricultural activities and source water quality in accord with the province's Safe Drinking Water Strategy.

6) Accountability and reporting

SMA operates according to the protocols and accountability requirements of executive government. The various branches within the Ministry (e.g. the Lands Branch,

Livestock Development Branch) are managed by either Directors or Assistant Deputy Ministers who report to the Deputy Minister. The Deputy Minister reports to the Minister who is responsible for the direction and management of the Ministry and for accountability in the Legislature. The Ministry reports to cabinet and the legislature through its annual performance management plan which forms the basis of its annual budget and its annual report.

Saskatchewan Crop Insurance Corporation (SCIC) is a Crown Corporation managed by a cabinet appointed five-member board and general manager. SCIC is considered to be a quasi-independent branch of SMA. The SCIC budget and policies are subject to SMA oversight and Chair of the SCIC board is also the Deputy minister of Agriculture.

7) Global budget and staffing

2007–2008 Budget

The Ministry of Agriculture's 2007–2008 budget allows for \$301 million in expenditures and revenues of \$55.6 million. Crop Insurance and provincial contributions to AgriStability constitute the two largest budget items at \$104 million and \$118 million respectively -- together these two risk management programs constitute approximately 74% of the total SMA budget.

A substantial increase in the value of insurance coverage was made available to producers under the 2008 Saskatchewan Crop Insurance Corporation Program. The dollar value of insurance coverage was increased from a provincial average of \$86 per acre in 2007, to \$128 per acre for 2008. As a result, the Saskatchewan Government committed an additional \$25 million to cover the province's share of premium costs.

The Ministry administers a number of cost shared programs with the federal government in addition to Crop Insurance and AgriStability. The \$29 million 60/40 cost-shared Farm Water Infrastructure program, noted above, being a case in point.

The largest source of income for SMA is the \$29.5 million in revenue earned from the leasing of Crown land and community pasture fees (SMA administers approximately 7.2 million acres of Crown land).

Staffing

The Ministry employs 522.6 FTE employees in its departmental operations. Another 326.5 FTE employees are employed by Saskatchewan Crop Insurance. Staffing levels at the Crop Insurance offices are expected to increase by up to 100 employees over the course of 2009 – 2010 as administration of the Saskatchewan portion of AgriStability is devolved to the province.

8) Water, water stress, and climate related budget and staffing

Saskatchewan Crop Insurance Corporation

Crop Insurance essentially constitutes a response to climate variability and stands as one of the most prominent and costly (\$104 million for 2007-2008) efforts by the provincial government in the area of adaptation to changing climate conditions. As noted above, 326 FTE employees staff the Crop Insurance Corporation. Crop Insurance has recently hired a climate specialist to provide climate predictions for actuarial purposes.

AgriStability

It is difficult to separate the portion of AgriStability payments that are made due to the impacts of climate such as drought, early frosts, or spring flooding as opposed to payment triggers related to agricultural commodity price fluctuations and increasing input costs. That said, it can be assumed that a portion of AgriStability payouts to producers are influenced by climate conditions. As noted above, the province plans to contribute \$118 million to AgriStability for 2007–2008. Currently there are no SMA employees involved in the administration of AgriStability. However, by the close of 2010, the province expects to be employing approximately 100 program administrators.

Irrigation

The Irrigation Development Branch of Saskatchewan Agriculture, manages the provincially owned irrigation systems in the province. The Branch also supports Research and Development through participation with the PFRA in the operation of the Canada Saskatchewan Irrigation Development Centre (CIDC) at Outlook. SMA also provides support services to the Irrigation Crop Diversification Corporation (ICDC), which is essentially a producer organization funded by a check-off. The researcher was unable to locate documentation to indicate what SMA spends in total on its irrigation activities or how many staff are involved in irrigation management and promotion.

9) Activities related to water and climate/climate change

In relation to the three areas of inquiry and interest identified for the major agencies reviewed SMA measures up as follows:

- 1) SMA does not have a specific climate change plan, but its Crop Insurance and risk management efforts do contribute to the resilience of prairie agriculture in the face of climate variability. It is, however, unlikely that Crop Insurance and AgriStability are capable of sustaining producers through the severe and prolonged droughts anticipated under some climate change scenarios. As noted above Crop Insurance has recently employed a climatologist to assist in its planning exercises.
- 2) SMA does not have a specific hydrometric drought plan or long-term drought strategy. Its current Farm Water Infrastructure Program is a reactive ad hoc measure in response to

three consecutive years of drought in the south west of the province. However, as noted above in section #8, SMA is heavily involved in dealing with agricultural drought through the Saskatchewan Crop Insurance Program.

3) SMA has engaged in a modest amount planning and activity related to sustainability and conservation. Irrigation research has the potential to encourage more efficient use of water. A watershed awareness initiative has emerged from the Environmental Farm Planning process.

The Farm Safety Net -- Crop Insurance and AgriStability

In its 2007–2008 Performance Management Plan, SMA indicated increasing producer participation in Crop Insurance and AgriStability was a Ministry goal. Increasing premiums and declining coverage had reduce producer participation in Crop Insurance to just 66% of field crops and 12% of forage acreage in 2006 - 2007. The Ministry indicated that it was adjusting premiums and coverage in 2007–2008 which it expected would increase participation. Producer participation in AgriStability while 92% in 2006 -2007 had slipped from 96% the previous year. The multi-year averaging system was making it less likely that livestock producers would see the program as a viable source of support for 2007–2008.

Irrigation Activities

SMA manages and maintains provincially owned irrigation infrastructure. This includes structures like intake pumps, pipelines and delivery and drainage canals. It also participates with PFRA in the Canada Saskatchewan Irrigation Development Centre (CSIDC) at Outlook, SK. The CSIDC conducts research into new crops and applications systems and operates demonstration projects. The CSIDC also involves producer groups such as the Saskatchewan Irrigation Projects Association and commodity groups in its activities. SMA actively promotes the expansion of irrigation agriculture in the province. Currently only approximately 338,000 of the province's 64 million acres of farmland is irrigated. However, irrigation accounts for the largest use of water in the province, exceeding the volume of water used by the province's industries and urban centres.

Farm and Ranch Water Infrastructure Program (FRWIP)

While SMA is managing the \$29 million in federal-provincial funding over two years for this drought response initiative, it is not providing technical or engineering assistance. Producers wishing to construct infrastructure such as community wells and shallow-bury pipelines are required to locate and hire private sector service providers.

Environmental Farm Plans

Environmental Farm Plans are voluntary self-assessment tools used by producers to raise awareness about environmental risks and opportunities on their operations. As part of their EFP, producers develop their own action plans, to identify management practices that help reduce environmental risk on their farms. Producer projects are

eligible for funding under the program. The EFP process is funded jointly by PFRA and SMA.

Watershed Awareness Initiative

The Watershed Awareness Initiative (WAI) was introduced in 2008, it is presently funded by both the federal and provincial governments. It is anticipated that funding will be available into 2013. Even though the WAI is a new program, it has been influenced by other environmental initiatives such as Environmental Farm Plans (EFPs) and Agri-Environmental Group Plans (AEGPs) in the province.

The WAI is intended to build on the momentum and lessons learned from Saskatchewan AEGPs. The primary objectives for the WAI are to increase watershed awareness as well as the capacity of locally based groups to develop and manage new and mature AEGPs within rural Saskatchewan. The AEGPs stand to both dovetail with and overlap SWA’s watershed advisory group process.

Focus on delivery for the WAI is on increasing watershed awareness and the effectiveness of a group plan that all producers and stakeholders in a particular watershed can relate to and identify with. Producers within a watershed are the primary target, with awareness initiatives directed towards the local level by targeting groups such as Agriculture Development and Diversification (ADD) boards, Rural Municipalities (RMs), existing watershed groups and smaller sub watersheds within larger watersheds

10) Partnerships, relationships and overlapping jurisdictions

The table provided below describes the relationships that the agency named on the left has with SMA.

AGENCY	TYPE OF RELATIONSHIP	DETAILS OF RELATIONSHIP
Saskatchewan Watershed Authority (SWA)	Regulatory with some overlap with respect to SMA’s Watershed Awareness Initiative	SWA regulates source water allocations for SMA irrigation projects and intensive livestock operations (ILOs). Both SWA and SMA are encouraging the development of local watershed groups.
Saskatchewan Ministry of Environment (SME)	Consultative and Collaborative	SMA consults with SME regarding the establishment of ILOs. SMA supervises the Environmental Farm Plan program and also operates within the parameters of the Safe Drinking Water Strategy.

PFRA (or AESB, Agri-Environment Services Branch as of April, 2009)	Collaborative with some Overlap	SMA and PFRA cooperate in the delivery of numerous federal-provincial joint funded projects such as the EFP program. SMA makes use of PFRA Drought Watch Data for Crop Insurance Planning. Both PFRA and SMA operate irrigation projects and community pastures.
SaskWater	Legacy Relationship	SMA now operates the irrigation projects formerly managed by SaskWater. They also share some water delivery infrastructure.
Agriculture and Agri-Food Canada (AAFC)	Collaboration and shared funding with some overlap e.g. certain activities of PFRA.	SMA and AAFC jointly fund a number of projects and programs such as Crop Insurance, AgriStability, the FWIP, the EFP process etc. Quite often the PFRA acts as the delivery agency for AAFC programming in Sask.

11) Conclusions and other items of note

The farm safety net programs available to Saskatchewan producers constitute an asset on the province's adaptive capacity balance sheet. That said, the level of resilience they provide does not ensure sustainability for producers should they be confronted by protracted (two or more years) and severe climate events such as drought.

SMA's community pastures and irrigation promotion activities are examples of building long term adaptive capacity. The pastures militate against drought induced soil erosion. And irrigation is regarded as the optimal solution to drought where soil and climate conditions are suitable.

The 2008–2009 Farm and Ranch Water Infrastructure Program will enhance adaptive capacity in south west Saskatchewan by extending the time that some livestock producers can withstand drought. The FRWIP is a reactive ad hoc program conceived in response to three consecutive years of severe localized drought. The program did not arise from an established planning foundation, because SMA, like every other government agency involved in water management in Saskatchewan, does not have a drought plan or a climate change adaptation plan.

Environmental Farm Plans and the Watershed Awareness project are efforts to enhance environmentally sustainable practices in agriculture – protecting ecosystems and source water. While effort has been focused on livestock production, and zero till farming, the impacts of crop nutrient, herbicide and pesticide run-off remain the elephant in the room.

12) Listing of relevant agency documents and reports

AgriView, SMA's electronic newsletter

http://www.agriculture.gov.sk.ca/Agriview_February_08_11

Saskatchewan Ministry of Agriculture

www.agriculture.gov.sk.ca

Crop Insurance Act (chapter C-47.2), Crop Insurance Regulations (C-47.2 Reg1) Crop Payments Act (C-48), New Crops Insurance Program Regulations (FFS Act, chapter F-8.001 Reg8), and Irrigation Act (I-14.1), Irrigation Regulations (I-14.1 Reg1) are available at www.agriculture.gov.sk.ca/legislation/.

Environmental Farm Plans and AEGPs <http://www.saskpcab.com/efp/index.php>

Saskatchewan Crop Insurance website: www.saskcropinsurance.com

Saskatchewan Crop Insurance Fund

http://www.saskcropinsurance.com/programs/2008/ci_fund.shtml

The *Irrigator* is published by the Irrigation Crop Diversification Corporation (ICDC)

http://www.agriculture.gov.sk.ca/Irrigator_April_08 and,

<http://www.agriculture.gov.sk.ca/Default.aspx?DN=056b892b-7d3b-4acd-96a1-9b139694fc14>

Saskatchewan Ministry of Agriculture Annual Reports (1997-2008)

<http://www.agriculture.gov.sk.ca/Default.aspx?DN=f70cdc21-8334-4e27-87cf-13033447fca8>

Saskatchewan Ministry of Agriculture Performance Management Plans (2004-2008)

<http://www.finance.gov.sk.ca/performance-planning/reports/>

SMA report on the history of agriculture in the province

<http://www.gov.sk.ca/Default.aspx?DN=5e78fa0e-4a3f-41f6-b93e-e01d7b5f607f>

The Watershed Awareness Initiative (WAI)

<http://www.saskpcab.com/watershed/index.html>

SaskWater Organizational Overview

1) SaskWater Head Office

200-111 Fairford St.
Moose Jaw, SK
S6H 1C8
Phone: 1-888-230-1111
Website: www.saskwater.com

2) History

SaskWater was established as a Saskatchewan Commercial Crown Corporation in October of 2002. A previous version of SaskWater had been established in 1984 as a non-commercial Crown corporation, which had a water resource management role and a utility section that provided services to irrigators, farmsteads, industry, and municipalities. In 2002 the utility function and the source water management/regulatory functions were split. The utility section kept the name SaskWater and became a Commercial Crown corporation. The regulatory/resource management area became a Treasury Board Crown under the name Saskatchewan Watershed Authority (SWA).

Two events featured prominently in the public mind in conjunction with the 2002 re-organization. One was the failure of a controversial commercial potato production venture established by SaskWater – Spudco. The Spudco failure may have encouraged policy makers to reconsider the advisability of having both the regulator and the utility arms operating under the same management. It also provided weight to the argument that the utility wing should operate according to sound business practices as a for-profit venture. The second event was the 2001 contamination of the City of North Battleford's domestic water supply by *cryptosporidium parvum*. Government reaction to the report of the *Laing Commission of Inquiry* (March 2002) into the North Battleford problems suggested a need for the province to rethink all of its water management policies to ensure greater public safety. Subsequently, in 2002, the province developed a Safe Drinking Water Strategy which restructured SaskWater – creating SWA and the new version of SaskWater, and also determined the roles that would be played in water management by other government agencies such as the Ministries of Environment and Health.

3) General mandate

SaskWater's mandate is to provide safe drinking water and environmentally safe wastewater utility services to municipalities, industry and rural pipeline associations. The corporation achieves this using a variety of methods. It often constructs, owns and manages delivery systems (pipelines) and treatment plants and sells water and wastewater services to municipalities and other customers. Alternatively the corporation assists municipalities with designing their own systems. The corporation also provides training for certified plant operators and provides operators to municipalities lacking the ability to

hire trained local staff. The corporation does not have monopoly status for any of the services it provides, and only 44 municipalities out of nearly 500 have engaged it to provide them with water or wastewater services to date. As a Commercial Crown, SaskWater is required to offer its services on a full-cost recovery basis that also allows for the profits required to assist with corporate growth and financial stability. The corporation's ability to develop regional solutions to municipalities is seen as an area where fulfilment of its mandate appears most promising.

4) Legislative authority

SaskWater operates under the authority of the *Saskatchewan Water Corporation Act* (Chapter S-35.01 of the Statutes of Saskatchewan, 2002 and subsequent amendments in 2004 and 2005)

5) Mandates applicable to water, water stress, and climate

Virtually 100% of SaskWater's mandate involves the water and wastewater delivery activities identified under its general mandate. The corporation has a sustainability policy that identifies the importance of conservation in its management of water. The corporation views water rates that reflect actual costs as a means to achieving more optimal use of the resource. It encourages its municipal customers to assess rates that reflect costs and has made efforts to identify leaks in water delivery systems. The corporation's communications unit periodically engages in promotional campaigns designed to encourage conservation. There is no function, however, identified within the corporation for dealing with the implications of climate change, such as drought relief strategies.

The corporation's mandate in certain respects involves responding to various forms of water stress. At present this involves acquiring customers, primarily municipalities which are facing challenges in delivering safe, quality water to their residents, as well as wastewater services. SaskWater has been actively involved, for example, in assisting communities with inadequate supplies of high quality potable water. The community of Gravelbourg, for example, is challenged by the low quality of water in the reservoir which provides the only reasonably accessible source of supply available. SaskWater has been studying and implementing technological solutions to improve treatment of the reservoir water. Ultimately, a significant portion of the costs incurred to find a solution will be passed on to the rate payers in the community.

6) Accountability and reporting

Ultimately, operational decision making authority rests with the corporation's share holder, Crown Investments Corporation of Saskatchewan (CIC) and its minister, who is in turn responsible to cabinet and the legislature. CIC appoints the ten member board of directors and the president of the corporation, although currently (as of July 2008) one board member must be the nominee of the corporation's union, the Communications Energy and Paperworkers local 802. The corporation reports regularly to CIC, and

annually to CIC and the public through its Annual Report and Water Quality Report. Corporation executives also report to the legislature as required by the Crown and Central Agencies Committee.

Prior to the 2007 Saskatchewan Provincial Election, SaskWater and the Saskatchewan Watershed Authority (SWA) shared a president. Following the election, that individual was relieved of his duties as SWA president, and was appointed Chair of the SWA Board. He retained the presidency of SaskWater. This arrangement perhaps offers some continuity for SWA as its new president settles into his position. It does, however, tend to discount the idea held by some that SWA was separated from SaskWater in 2002 to ensure that there is an arm's length relationship between the agency which regulates water from an agency that sells/delivers water.

Prior to the fall 2007 election, SaskWater also reported to a cabinet minister "responsible" for the corporation – that was in addition to its obligation to report to Crown Investment Corporation (CIC) and its Minister. Technically the legislated obligation was for the corporation and its board to report to CIC and its Minister. In practice the Minister responsible was involved in many corporate activities such as public announcements and representing the corporation in the legislature and at the Crown and Central Agencies Committee. The Minister "took the heat" for SaskWater's performance in the legislature on issues such as the failure of Spudco, but technically had no administrative authority over the corporation. There were instances when directives from the minister responsible for SaskWater were in conflict with the policies of its Board of Directors. In one instance familiar to this researcher, the Minister's office won out – and a Board policy was overridden. The issue of overlapping ministerial accountability was resolved after the 2007 election; there is no longer a different minister responsible for each specific commercial Crown – they now all report solely to CIC and its Minister.

SaskWater rates not subject to review

SaskWater's rate changes are not subject to review by the Saskatchewan Rate Review Panel. SaskPower, SaskEnergy and SGI Auto Fund must all submit rate changes to the panel for review. SaskTel is exempted due to regulatory overlap with the CRTC, and STC is virtually considered to be a non-profit operation, providing a public service that will never make any money. One possible rationale for the lack of rate oversight is that SaskWater's lack of monopoly status requires it to work in a competitive market environment.

Reports

SaskWater's Board submits an Annual Report, Performance Management Plan and Water Quality Report (for SaskWater systems only) annually to CIC. It reports Precautionary Drinking Water Advisories and Boil Water Orders and service interruptions to its customers directly and through postings on its website and by telephone. This reporting requirement is the same requirement imposed on all rural communities responsible to deliver municipal drinking water, and falls under Saskatchewan's environmental legislation.

7) Global budget and staffing

2007 Revenues and Expenses

SaskWater's gross revenues for 2007 were \$19.6 million, expenditures were \$20.2 million, providing for a loss of \$477,000.

2006 Revenues and Expenses

SaskWater's gross revenues in 2006 were \$18.5 million, expenses were \$18.2 million resulting in a profit of \$352,000 (the only profit achieved by the corporation since its inception in 2002).

Revenue shortfalls

With minimal new business coming on stream for SaskWater over the past few years there is a danger that under the corporation's cost of service model, revenue shortfalls will be made up entirely by increasing charges to existing customers as opposed to cutting operating costs. Operating costs include maintaining employees dedicated to marketing, engineering and construction. With no new customer contracts to spread these costs over, existing customers pay for these, possibly redundant, functions. This could result both in a situation whereby municipal rate payers could be hard pressed to meet the higher water costs, and could result in considerable resentment among some customers. As noted above, SaskWater is not required to submit rate changes to the Saskatchewan Rate Review Panel.

Staffing

SaskWater has approximately 100 employees, approximately 35 are based at the Moose Jaw head office, with others operating from 11 other communities across the province. The largest group of employees is involved in operating water and wastewater systems, together with engineering and construction staff they constitute the vast majority of the corporation's employees. Non-management employees are members of the Communications Energy and Paperworkers Union Local 802.

8) Water, water stress, and climate related budget and staffing

All SaskWater staff are employed at functions related to its central mandate as a water and wastewater utility business. All its expenditures are also tied to that activity. There are no staff members or job functions devoted to activities related to managing the impacts of climate change. There is staff time devoted to sustainability issues, that typically involve promoting conservation and leak detection. However, these activities are peripheral to the regular activities of the employees involved.

9) Activities related to water, water stress, and climate/climate change

Three issue summary

In relation to the three areas of query and interest identified for the major agencies reviewed SaskWater measures up as follows:

1) SaskWater has no specific plans policies or activities directly related to climate change – although it might be argued that it is prepared to entertain providing services to municipalities and others who are affected by climate change and wish to become or are SaskWater customers. When SaskWater builds a facility such as the Fort Qu’Appelle wastewater treatment lagoon it looks at the past 15 year climate record to determine capacities.

2) SaskWater has no specific plan of action for dealing with severe drought, other than to offer its services for sale to communities, businesses and individuals who might be impacted by drought. However, the delivery of secure high quality water supplies to rural communities could be argued as building of adaptive capacity and increased drought resistance for those rural communities who sign on and are willing to pay for this service.

3) SaskWater has engaged in modest levels of conservation and sustainability promotion activities. 100% of the corporation’s activities are related to its mandated role as a water utility. There are no specific plans, policies or activity related to climate change and its impacts, such as drought. The corporation’s crisis management planning is tied exclusively to safety/health issues and equipment breakdowns. There is, however, some activity related to water conservation. SaskWater has operated a few modest educational programs for students in its customer communities that focus on conservation and the protection of the resource. The Operations Division engages in monitoring activities that can assist in leak detection. And it is argued that the cost of service principles being developed by the corporation will promote conservation through pricing structures.

10) Partnerships, relationships, and overlapping responsibilities

SaskWater’s principal partnerships are with its municipal and private sector customers. It is also involved in relationships with other provincial government agencies which were initiated under the 2002 Safe Drinking Water Strategy. The inter-relationships are summarized under the table provided below.

AGENCY	TYPE OF RELATIONSHIP	DETAILS OF RELATIONSHIP
Municipalities (44)	Customer-seller. SaskWater is not a monopoly Crown therefore municipalities are able to utilize their own resources or engage private firms to provide services similar to those offered by SaskWater.	Water and wastewater system construction and management; operator and remote monitoring services; operator training; assistance in obtaining infrastructure financing and project planning.
Private Corporations (19)	Customer-seller	Provision of raw and potable water and sewage

		treatment.
Rural Pipeline Assns. And individual rural customers (52)	Customer-seller	Provision of raw and potable water.
Ministry of the Environment	Regulatory – the Ministry regulates and monitors certain activities of SaskWater.	Authorization for new projects. Monitoring of water quality and the serviceability of wastewater systems. Issuing of PDWAs and Boil Water Orders. Ability to shut systems down for environmental or health reasons.
Ministry of Health	Regulatory – the Ministry can intervene in the operation of systems when it suspects there is a public health concern.	The shutting down and re-commissioning of water and wastewater systems due to public health issues. (such an intervention has not occurred on a SaskWater system since at least 2002).
SWA	Regulatory with some partnering. Until fall 2007 SaskWater and SWA had the same President. Their head offices are in the same building in Moose Jaw and they continue to share some administrative functions such as payroll and IT support.	SWA regulates the drilling of major wells and access to surface water resources. Therefore, SaskWater requires authorization from SWA for certain projects and makes use of SWA data on the status of potential sources of supply when available.
Federal Government (often through the PFRA)	Partnerships SaskWater is frequently involved in projects which involve a variety of funding sources available through the federal government or programs that have joint funding from the federal government, the province and municipalities or other water users.	These funding opportunities change over time. Recently the Canada Saskatchewan Infrastructure Program provided support for some projects managed by SaskWater. The PFRA often represents the federal government in these projects, especially if they relate to rural water pipeline projects.
Other Public Agencies	Various partnerships and collaborations. Project funding is an area of SaskWater’s activity that	Provincial agencies such as the Ministry of Municipal Affairs may be involved in the provision of funds to

	involves a high level of interaction between agencies.	municipalities for SaskWater projects. And some collaboration has occurred with the Ministry of Agriculture in relation to irrigation systems.
Private Sector Service Providers	Business Competition and Collaboration	Officially SaskWater works to maintain a collaborative relationship with private sector engineering firms and often involves them in its projects. Nonetheless there are situations where SaskWater and private firms compete for the business of municipalities.

11) Conclusions and other items of note

SaskWater has not devoted measurable resources to planning for the impacts of climate change. Indeed it has no substantial planning in place to deal with the one potentially disruptive climatic event Saskatchewan is already familiar with -- drought. There is no drought proofing strategy in plans and there is no official planning in place that would direct SaskWater's efforts should a severe sustained drought occurs in the future. The corporation has, however, officially adopted a sustainability policy that recognizes the importance of water conservation, and conservation initiatives would no doubt form an important component of a drought related water crisis. Initiatives in this regard emanate from the 2004 Green and Prosperous Saskatchewan initiative of the provincial government which required Crown Corporations to consider sustainability in their overall planning.

One reason for the lack of significant climate change or drought planning could be the fact such initiatives do not form an element of the corporation's legislative mandate as per sections 5 (a) and 5(b) of the *Water Corporation Act* which read:

5 The mandate and the purposes of the corporation are the following:

- (a) to construct, acquire manage or operate works;
- (b) to provide services in accordance with any agreements that it enters into pursuant to this Act.

Notwithstanding its legislative mandate, the corporation is typically responsive to a host of policy initiatives requested or ordered by CIC. These include, for example, the requirement to hire an Aboriginal Advisor to the President; participation in the Grad Works (student employment) program; utilizing local suppliers of products and services where possible; etc. If so instructed by CIC or its Board of Directors, SaskWater would no

doubt direct resources to planning and activities that involved consideration of the implications of climate change. Given SaskWater's experience in developing regional water systems it could undoubtedly play a role in developing province-wide strategies for dealing with regional supply shortfalls in the event of certain climate related supply crises.

The importance of the regional water systems strategy to enhancing adaptive capacity in response to climate change, suggests SaskWater should be included in wider discussions related to climate change and water management such as the Integrated Water Management Committee.

12) Listing of Relevant SaskWater documents and reports.

Note that besides customer brochures and other pamphlets in support of marketing SaskWater has not published public reports or substantial commentaries on water issues.

SaskWater Annual Report. (2001–2007) These are typically tabled in April each year and also include a Water Quality Report which describes the performance of the corporation's water systems with respect to quality affecting substances. These reports are available through SaskWater's head office.

<http://www.saskwater.com/MediaCentre/PublicationArchives.asp?type=Publications2007>

The Saskatchewan Water Corporation Act. Chapter S – 35.01 of the Statutes of Saskatchewan.

<http://www.qp.gov.sk.ca/documents/english/Statutes/Statutes/s35-01.pdf>

Hansard: for SaskWater's appearances before the Crown and Central Agencies Committee of the Legislature at various times over the 2005-2006 period.

<http://www.legassembly.sk.ca/committees/Archive/25L/CrownCentralAgencies/Verbatim/050421CC.pdf>

<http://www.legassembly.sk.ca/committees/Archive/25L/CrownCentralAgencies/Verbatim/060322CC.pdf>

Laing Robert D. *Report of the Commission of Inquiry: into matters relating to the safety of the public drinking water in the City of North Battleford.* Saskatchewan. Regina: Queens Printer, March 28, 2002. This is the report which SaskWater and SWA both note when describing the impetus for the 2002 reorganization. (SWA website)

<http://www.saskwater.com/MediaCentre/PublicationArchives.asp?sub=subPublications&type=Publications2002>

Saskatchewan's Safe Drinking Water Strategy 2002. This is a slim promotional document available on the SaskWater website as well as the websites for SWA and the Ministry of the Environment.

Various internal documents may be of interest such as the corporation's Sustainability Policy and its most current Marketing Strategy.

<http://www.saskwater.com/MediaCentre/PublicationArchives.asp?sub=subPublications&type=Publications2002>

Prairie Farm Rehabilitation Administration (PFRA) Organizational Overview/ AESB-Agri-Environment Services Branch ²

1) PFRA Head Office:

408–1800 Hamilton St.
Regina, SK
S4P 4L2
Phone: 1-800-667-7644
Website: www.agr.gc.ca

2) History

The Prairie Farm Rehabilitation Administration, most often known as PFRA, was established by the Government of Canada in 1935 as a federal response to catastrophic drought in the prairies. The organization was created to address drought and climate stress affecting Canadians, the agriculture sector and the environment of the Canadian prairies. Its focus has always related to land and water conservation and agri-environmental sustainability. In the years since 1935, the PFRA has developed long-term relationships with agricultural producers and communities across the prairies. It has become the go to agency in many instances for farmers experiencing challenges due to drought. Over the course of its history PFRA has operated under the authority of various federal ministries. However, it has most commonly reported to the federal department of agriculture. As of today the PFRA operates as a branch of the federal department of Agriculture and Agri-Food Canada (AAFC). PFRA is undergoing a transformation, which began in 2008, from a prairie-focused institution led by a Director General located in Regina to a national institution led by an Assistant Deputy Minister located in Ottawa, and is currently referred to as Prairie Farm Rehabilitation Administration and Environment Branch.

3) General mandate

PFRA is a branch of AAFC. Much of the PFRA's original mandate continues to apply to its current activities:

To “secure the rehabilitation of the drought and soil drifting areas in the provinces of Manitoba, Saskatchewan, and Alberta, and to develop and promote within those areas systems of farm practice, tree culture, water supply, land utilization and land settlement that will afford greater economic security”
(Justice Canada, R.S. 1985).

² After roughly 70 years PFRA evolved into a national agency, and was known briefly as the Prairie Farm Rehabilitation Administration and Environment Branch. In April, 2009, the agency's name became Agri-Environment Services Branch, and remains a branch of Agriculture and Agri-Food Canada. AESB's mandate will be national in scope and remain focused on agri-environmental sustainability and innovation to promote a competitive profitable agricultural sector.

Throughout most of the history of PFRA, its projects have ranged from human resettlement in severely-affected drought areas, to extensive infrastructure development (dams, diversions, irrigation projects), to land use improvements (promoting soil conservation, expanding tree cultures, applied research for land and water resource issues). (Source: PFRA – A Brief History, Agriculture and Agri-Food Canada, 2005).

4) Legislative authority

PFRA operates under the mandate of its own specific Federal Government of Canada Act and also under the direction of Agriculture and Agri-Food Canada (Ag Canada). PFRA's operations involve considerable overlap with the statutory mandates of provincial agencies. Indeed, some observers may perceive that PFRA often operates beyond the jurisdiction implied by strict interpretation of its legislative authority and the constitutional jurisdiction of the federal government (with respect to water). However, as agriculture is an area of shared federal-provincial responsibility and water is integral to agriculture, PFRA's involvement in water is clearly supportable. Certain facets of PFRA's involvement in water issues stem from the fact that over the course of its history the PFRA developed capacities that the provinces lacked in response to major crises such as severe droughts. Having developed capabilities in the area of drought and water management, the PFRA continues to be active in areas where the provinces have constitutional responsibility. The provinces continue to cooperate with the PFRA and often rely on it for expertise and as a medium for information, expertise and the delivery of federal financial support. PFRA programming is mostly by shared Federal-Provincial programming and cost-sharing agreements.

5) Mandates applicable to water, water stress, and climate

The PFRA has a significant water management mandate. This is again because of its role in agriculture and the shared jurisdiction with the provinces. The PFRA owns and operates a number of dams, irrigation systems and associated works on the prairies. Other major PFRA programs, such as its community pastures and shelter belt projects, operate in accordance with sustainability and conservation principles that enhance water conservation and management and mitigate climate/water related impacts of drought such as soil erosion.

Over the course of its history, the PFRA has been focused on water stress manifested by drought. Recurrent droughts, some of significant length, have been the bane of prairie agriculture over the past century. PFRA has played and continues to play a leading role in monitoring, planning and management activities related to drought and drought-mitigation efforts

PFRA has developed climate monitoring and forecasting capabilities designed to facilitate decisions and planning related to climate related water stress events like droughts. PFRA currently appears to be far ahead of provincial water resource managers on this front. Indeed, drought-proofing and drought response initiatives have been a

major area of activity for the PFRA since its founding. Thousands of farm dugouts and wells have been constructed on the prairies with the encouragement and support of the PFRA. To a large extent PFRA has been responsible for considerable drought proofing/mitigation on the prairies. Thousands of farmsteads, that in the 1930s would have been without water during a severe drought, now have wells and dugouts capable of withstanding one or more years of drought thanks in part to assistance from the PFRA.

The various water and climate related programs, projects and initiatives currently undertaken by PFRA/Ag Canada include:

- National Farm Environmental Planning Initiative
- National Farm Stewardship program
- Community Pasture Program
- Prairie Shelterbelt Program
- Crop Cover Protection Plan
- Drought Watch
- Irrigation and Diversification
- Water Supply and Quality
- AAFC Water Infrastructure in Saskatchewan
- National Water Supply Expansion Program and past water development programs (the NWSEP 2001-2008 is an extension of the now defunct Rural Water Development Program)
- National Land And Water Information Service
- Gridded Climate Data
-

A reading of Canada's Report to the UN Commission on Sustainable Development on "Desertification" provides a good summary of how PFRA programming is related to drought.

(see http://www.un.org/esa/agenda21/natinfo/countr/canada/domestic_dd.pdf in the reference list below).

6) Accountability and reporting

PFRA is located within a recently created branch (year 2008) of Agriculture and Agri-Food Canada, The Prairie Farm Rehabilitation Administration and Environment Branch. This branch operates under its own Assistant Deputy Minister, one of the 10 assistant deputies reporting to the deputy minister for agriculture. The PFRA section of the Branch is managed by a Regina based head office, currently led by a Director General who reports to the Assistant Deputy Minister. Within PFRA there are seven directorates which report to the Director General. All of these directorates have some responsibilities and interests that relate to water management.

PFRA Directorates

- Strategic Alignment
- Ag-Land and Agroforestry (includes community pastures)

- Ag-Information
- Ag-Water
- Regional Services
- Environmental Programs
- International Partnerships

PFRA does not produce its own annual report. Its activities and plans are reported within the Annual Report and Budget of AAFC. However, reports on specific program and project activities and initiatives undertaken by PFRA are available electronically through the Ag Canada Website. Links to those reports are attached under heading 12 of this overview.

Local accountability

PFRA is accountable to the Federal Ministry of Agriculture. It is involved with local rural stakeholders on most of its land, water and environment program activities. Stakeholder involvement includes rural producers and Ag associations, communities, municipalities, environmental associations, academia and a broad range of provincial government agencies. PFRA has developed a stakeholder based committee structure that assists in the management of its community pasture system. These committees and PFRA's field offices in smaller centres, contribute to PFRA's overall close relationship with rural communities.

7) Global budget and staffing

The global budget for PFRA is in the range of \$65 million (\$45 million salary and \$20 million operational costs) Additional budgets are also provided for national corporate support of PFRA (e.g. Communications, Human Resources, Information Technology, etc.). Also, additional budgets exist for AAFC's National Land and Water Information Service and the Environment Bureau, both of which have had strong linkages to PFRA in the past and, with PFRA, are now part of the newly-formed branch.

Total Annual Program Budgets delivered by PFRA vary from year to year. Many of these programs are now delivered nationally. Most programs are cost shared with contributions from the federal and provincial governments as well as from the local participating clients.

Staffing

PFRA employs about 670 people with the vast majority working in the prairie provinces (about 20 staff located in non-prairie regions). Most non-management employees (technicians and administrative support) are members of the Public Service Alliance of Canada (PSAC), some professional staff (e.g. agrologists, engineers) belong to Professionals in Public Service (PIPS).

8) Water, water stress, and climate related budget and staffing

Water and climate related expenditures

Production of a detailed accounting of PFRA expenditures devoted to water and climate activities is beyond the scope of this summary project. This is essentially due to the reporting systems employed by PFRA and Ag Canada and due to overlapping responsibilities for different PFRA directorates and AAFC programs. That said, a number of impressions regarding the scope of expenditures in these areas can be realized by looking at the amount of staff time devoted to the area and the overall costs of projects and programs detailed under the Activities Related to Water and Climate heading (#10).

For the sake of illustration consider the following:

The PFRA staffing component which only includes climate, water management, and policy staff (noting that policy staff are not totally devoted to water and climate matters) amounts to 31.8% of PFRA's staff complement. If one could assume that those staff salaries averaged about the same as those of other PFRA employees, 31.8% of the global salary estimate of \$45 million results in the amount of \$14.3 million in staffing dollars devoted to water, climate and climate change.

But this is only part of the story. For example, it could be argued that because the Community Pastures and Prairie Shelterbelt Programs involve sustainability and conservation objectives that also assist in meeting hydrological objectives, a portion of their budgets (\$23 - \$30 million annually for PFRA Community Pastures and \$4 million for Shelterbelts) should be applied to any total that sought to include water and climate expenditures.

Similarly, PFRA manages millions of dollars of federal program and grant money for such environmental programming as the National Farm Stewardship program (\$58 million) and water programming such as the National Water Supply Expansion Program (\$80 million). (These are short-term programs lasting roughly 5 to 6 years)

Water related revenue

In Saskatchewan the PFRA charges irrigation water users on its South West Irrigation Projects. These projects irrigate some 16,000 hectares of land and bring in revenue of approximately \$350,000 annually. Unlike SaskWater, which is mandated to market its services at a profit, PFRA knowingly operates the Southwest Saskatchewan Irrigation project at a net loss, only recovering a percentage of the actual cost of operating and maintaining these structures. PFRA justifies the cost by recognizing that the project produces important economic benefits for the communities involved and as such is delivering an important public service for irrigation, municipal water supply and ecological benefits in a drought-prone prairie grassland region where water supplies are not secure without small dams, water control structures and canals.

Water and Climate Related Staffing

a. Climate personnel account for about 20 (3% of PFRA) personnel:

- located in Climate Monitoring and Forecasting and Climate Decision Support and Adaptation in the Ag Information Directorate - a relatively new group of technical experts with a climate science and GIS mapping focus

b. Water Personnel account for about 172 (25.7% of PFRA)

- located in the Ag Water Directorate (technical staff, largely engineers): 122 (18%)

- this mix includes Ag Water management, irrigation, drainage, crop diversification, care and custody of dams, geo-environmental, planning and operations, infrastructure and design, surface and groundwater, water quality, water supply and technology

- located in regions across Canada (technical/program delivery staff, largely a mix of engineers and technologists): 50 (7.5%)

- however, it should be noted that most water personnel are not 100% devoted to water tasks, and are required to contribute to a variety of environmental and administrative programming functions.

c. Policy personnel account for about 21 (3.1% of PFRA)

- located in Regina in Analytical and Strategic Planning Divisions, part of Strategic Alignment Directorate.

Not all staff listed above are located in the Prairies. However, in reality the regional staff and technical staff listed above from non-Prairie Regions only total 20 (3%).

Atlantic:	7
Quebec:	5
Ontario:	3
BC:	5

PFRA is currently undergoing organizational transformation by being merged with the National Land and Water Information Service (about 70 personnel) and Environment Bureau (about 20 personnel). The estimates listed above do not include these staff.

9) Activities related to water and climate/climate change

Three issue summary

In relation to the three areas of query and interest identified for all the agencies reviewed by the Institutional Adaptations to Climate Change project, PFRA measures up as follows:

1) PFRA is unique among the agencies reviewed for this report in that it has specific projects, plan, policies and activities related to climate change and its impacts on water management.

2) PFRA is engaged in activities specifically related to monitoring, forecasting and responding to drought.

3) A number of PFRA's activities include a focus on sustainability and water conservation. This has been the case since PFRA was first established.

Activities in detail

The PFRA stands out from other water management agencies with respect to adapting to climate change and climate variability as they relate to water management. PFRA has a long history of assisting agricultural producers with drought mitigation efforts such as providing funds and technical services for the construction of dugouts to store surface water on farms, dams for constructed reservoirs and rural water pipelines. PFRA was a key initiator of irrigation projects on the prairies and continues to monitor drought conditions through its Drought Watch program and to assist in drought mitigation efforts. Its irrigation, Shelterbelt and Community Pastures programs were in large part a response to drought conditions. Through its various programs and activities, PFRA has developed important networks and relationships in the agricultural community.

Water and climate activities are achieved mostly via shared Federal/Provincial/Producer or Ag Sector client programming, where each party contributes a portion of the cost for work of mutual interest. Some activities relate to soil and water studies, agricultural best management practices research, farm-practice and technology knowledge development, extension and outreach. Most activities involve partnerships and external contributions (in-kind and cash). Much of PFRA's programs have involved building adaptive capacity by constructing rural water infrastructure.

About 172 Ag Water Directorate staff and 20 Ag Information Climate Staff are involved in technical aspects of water and climate activities (although it should be noted that these staff also have other responsibilities). Both groups of people conduct technical work (e.g. applied research, water availability and water quality, rural water protection, enhancement and treatment, engineering for rural and agricultural water development, irrigation and water resource management, climate information research and knowledge dissemination, etc.) PFRA provides salary and operational costs for these technical functions separate to program budgets and program work.

A further 80 people (11.9%) are involved in client service programs. A further 150 people (22.2%) are involved in regional services. At times, these staff will be involved in water and climate activities (technical support and/or program support).

Several key long-standing activities/programs exist that directly stem from the severe droughts of the 1920s and 1930s. These have links to climate and water:

Southwest Saskatchewan irrigation projects

These are owned/operated and managed by PFRA, with a portion of the charges recovered by the Government of Canada. These water management responsibilities include the care and custody of dams and water supply projects under Federal jurisdiction in the prairies (Saskatchewan). Included in this are 33 earth dams and 11 diversion works. The irrigation infrastructure delivers water to irrigate about 18,200 hectares of land in southwest Saskatchewan. (A brief historic review of PFRA water development and infrastructure is provided in The Encyclopedia of Saskatchewan).

Community Pasture Program (CPP)

Livestock producers bring their cattle to graze on pastures managed by AAFC-PFRA. These lands are sensitive lands that were taken out of production after the severe droughts of the 1920s and 1930s. The CPP achieves a number of environmentally sustainable objectives, such as the curtailment of soil erosion. Water related aspects of CPP management include efforts to sustain the ecological health of riparian areas and wetlands and the storage of water in managed reservoirs and dugouts.

Prairie Shelterbelt Program

The PFRA operates a \$4 million (annually) shelterbelt program which distributes trees on the prairies, primarily to farmers. It maintains that the current program has become a significant ecological goods and services agri-environmental program with multiple benefits. These benefits involve water/moisture conservation to preserve a natural prairie grassland ecology on lands sensitive to soil erosion (and not suitable for farming), which by extension is related to drought and water management.

Other programs

Since 2003 and as of the year 2006-07, over \$58 million was spent on budget items related at least in part to water, under the existing *National Farm Stewardship Program* (with over \$48 million spent by Federal contributions). These expenditures occurred since program inception in 2003 under the Agricultural Policy Framework (and gave PFRA a national presence).

In addition to regularly budgeted projects, additional Federal expenditures occurred under the *National Water Supply Expansion Program*, estimated to total about \$80 million since program inception.

Note: The above national programs were initiated in 2003 under Canada's *Agricultural Policy Framework*, which will terminate in March 2009 and be replaced by the new national *Growing Forward Policy Framework*. Prior to these programs, PFRA participated in other water programming mostly focused on the prairies. These included water infrastructure and irrigation projects and soil and water conservation programs, the *Rural Water Development Program* (which was not extended when the *Ag Policy Framework* was signed), and many other agricultural land and water environmental programming.

Integrated water management

PFRA is participating in a multi-agency Saskatchewan committee (as co-leader with the Saskatchewan Watershed Authority) which is attempting to streamline interagency efforts to manage water. SWA views this committee as a likely place to start for Saskatchewan agencies to develop long-term drought and other climate related strategies. There have been no reports issued by this committee to the public as of August 2008. PFRA always works closely with provincial departments (especially agricultural, water and environmental departments) in every province where it is active.

10) Partnerships, relationships and overlapping responsibilities

The following chart illustrates the interagency relationships involving PFRA and other water governance agencies and water users.

AGENCY	TYPE OF RELATIONSHIP	DETAILS OF RELATIONSHIP
Prairie farmers	Supportive – PFRA programming (technical, financial) supports drought proofing, water development and irrigation projects, and promotion of beneficial agricultural practices for soil and water conservation and environmental protection.	PFRA operates community pastures, a shelter belt program, irrigation projects, and has been providing assistance toward on-farm dugout, well and rural water pipeline construction for decades. Current programming advocates Ag water conservation and environmental protection.
Agriculture and Agri-Food Canada (AAFC)	PFRA (AESB as of April, 2009) is a branch of AAFC.	PFRA/Environment is one of 16 branches within Ag. Canada reporting to its own Assistant Deputy Minister.
Environment Canada	Collaborative with Overlapping Objectives and Activities related to climate monitoring.	Research and data are shared, and both agencies strive to meet environmentally sustainable objectives.
Saskatchewan Watershed Authority (SWA)	Collaborative/Regulatory With Overlapping Activities related to hydrology assessments and monitoring.	SWA makes use of data collected by PFRA (and vice versa). Both agencies participate on committees such as the Integrated Water Management Committee (as co-leaders) and the Prairie Provinces Water Board. SWA will have regulatory authority over certain PFRA projects. Similar relationships exist with Manitoba Watershed Stewardship, Alberta Environment, and Alberta Agriculture).
Saskatchewan Ministry of Agriculture	Collaborative with Overlapping Activities	PFRA provides data related to drought. Both agencies are involved in drought

		related programs, both manage irrigation works and both have community pasture systems.
SaskWater	Collaborative – and funding source for SaskWater	Often involves PFRA’s role in managing federal financial contributions to various water projects.
Sask. Environment	Modest level of collaboration	Joint participation on certain committees and discussion groups.
Municipalities	Administers financial support	PFRA delivers and monitors federal programs that assist municipalities in developing water projects.
Integrated Water Management Committee	Co-Leader with SWA	PFRA along with SWA and other water management groups have been meeting periodically for over a year.
Prairie Provinces Water Board	Participant/facilitator	PFRA provides information and facilitates the activities of the Board.

11) Conclusions and other items of note

PFRA makes a significant contribution to the management of water resources on the Canadian Prairies. It continues to be active in irrigation projects, water infrastructure development, and in monitoring and improving water supplies for agriculture and communities. It is clearly the leader among agencies operating in Saskatchewan in the area of water related climate monitoring, and drought mitigation/prooing. It surpasses other agencies operating in the province with respect to staff dedicated to climate monitoring activities related to water supplies and management, although the present water staff are increasingly directing their efforts more towards environmental programming and less to water development.

The historic drought adaptation and rural water infrastructure and management achievements of PFRA is somewhat remarkable given that in comparison to other agencies which are active in water management on the prairies, PFRA is lacking in statutory authority over water. It is interesting to consider whether this situation exists by design or by default. Clearly in the 1930s when PFRA was established, the provincial governments on the prairies lacked the fiscal capacity required to respond to drought conditions. The PFRA assumed a leadership role at that time in developing capabilities and providing important services. It would appear that there has been little incentive over past decades for the provinces to relieve the PFRA of responsibilities and funding

contributions, which the provinces at times did not develop the capacity to provide -- especially when the federal government is willing to cover the costs.

If the federal government should ever decide to withdraw from rural water and drought mitigation/adaptation activities, where it has minimal constitutional responsibility, by significantly reducing the PFRA's mandate or not supporting its balanced land and water strength, it would certainly leave a hole in the capacity of provincial water governance agencies to monitor and respond to climate and other critical issues affecting water supplies and use on the prairies. Clearly, Saskatchewan government agencies currently lack certain capabilities that are resident within the PFRA (e.g. DroughtWatch). These would include expertise in dealing with drought and community relationships built over a decades long history of involvement in adaptive prairie water management issues.

12) Listing of important agency documents and reports.

a. Strategic Direction Document:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1187364968774&lang=e>

b. National Environmental Farm Planning Initiative:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181579114202&lang=e>

c. National Farm Stewardship Program:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181580600540&lang=e> \

d. Community Pasture Program:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1183491574124&lang=e>

(Business Plan: http://www4.agr.gc.ca/resources/prod/doc/cpp/docs/Plan_e.pdf)

e. Prairie Shelterbelt Program:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1180103439791&lang=e>

f. Cover Crop Protection Program:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1195499399002&lang=e>

g. Drought Watch:

http://www.agr.gc.ca/pfra/drought/cliprof_e.htm

h. Irrigation and Diversification:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1185555062287&lang=e>

i. Water Supply and Quality:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1187702145201&lang=e>

j. AAFC Water Infrastructure in Saskatchewan:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1185815190852&lang=e>

k. National Water Supply Expansion Program:

<http://www4.agr.gc.ca/AAFC-AAC/display-afficher.do?id=1181583909525&lang=e>

l. National Land and Water Information Service:

http://www.agr.gc.ca/nlwis-snite/index_e.cfm

m. Gridded Climate Data:

http://www.agr.gc.ca/nlwis-snite/index_e.cfm?s1=n&s2=2007&page=12-07

n. Canada's report to the UN Commission on Sustainable Development, entitled "Canada – National Reporting to CSD-16/17 Thematic Profile Drought and

Desertification” submitted to the United Nations:

http://www.un.org/esa/agenda21/natlinfo/countr/canada/domestic_dd.pdf

Website dated March 2008 reporting on Canada’s activities on Domestic Drought and Desertification . Most activities reported relate directly to activities undertaken by PFRA. CSD 16 Review Session was May 5-16, 2008 and CSD 17 is scheduled for May 4 -15, 2009.

Other Documents/Literature

Gray, James H. *Men Against the Desert*. Saskatoon: Western Producer Prairie Books, 1967.

VII APPENDIX 2: INTERVIEW SUMMARIES

Appendix 2 Contents

Saskatchewan Watershed Authority Interview Summary.....	116
Saskatchewan Ministry of Environment Interview Summary.....	154
Saskatchewan Ministry of Agriculture Interview Summary.....	182
SaskWater Interview Summary.....	194
PFRA Interview Summary.....	210
Irrigation Proponents Interview Summary.....	239
Water Advisory and Advocacy Groups Interview Summary.....	258
Environment Canada Interview Summary.....	291
Saskatchewan Research Council Interview Summary.....	298
Prairie Provinces Water Board Interview Summary.....	305
Focus Group Comments.....	308

Saskatchewan Watershed Authority Interview Summary

Process:

Seven interviews conducted in 2007 – 2008.
Interviewers: Polo Diaz and Margot Hurlbert

THEME 1 SUMMARY FOR SWA

ROLEWATER

The official mandate

The respondents who spoke about SWA's mandate, reflected an appreciation of the corporation's role that essentially coincides with descriptions provided in the corporation's public documents.

.....the watershed authority was given a mandate for source water protection. In other words what can be done on the landscape that can help improve water that comes to our lakes and river systems prior to treatment by communities. We are responsible of allocation of water and we have a number of provincial assets, projects like the Gardiner Dam and Qu'Appelle Dam on the South Sask. River are owned by the province and we on behalf of the province operate and maintain those systems so that we have a supply in water quality improvement and mandate... (SWA1 Sec. 0 Para. 49 – 55.)

However, as one respondent noted, when SWA was established legislation was not created or adjusted to provide SWA with the ability to enforce measures to protect source water quality.

... the watershed authority was given no new legislation around source water protection. This legislation really was primarily driven by the water management legislation it had from the old SaskWater act. Its mandate was defined as including source water protection but it has no legislative responsibilities in source water protection. So really legislative responsibilities in terms of controlling pollutants to the stream are handled elsewhere in environment and agriculture and food....I think it is a bit of a problem. (SWA 2 Sec. 0 Para. 5 – 8.)

Another respondent noted that while SWA undertakes certain initiatives related to water quality protection and enhancement, such as organizing watershed stewardship groups and producing watershed management plans, its legal mandate primarily involves managing “quantity” (supply and allocation) much more than managing “quality”, which rests primarily with the Saskatchewan Ministry of Environment (Sask. Environment).

I think it's safe to say the authority is responsible, very clearly, for quantity management of water, so ensuring that raw water availability is addressed or considered for people that either individuals, communities and industry that type

of thing -- agriculture is one of them it's clear in the legislation and current government it's a quantity... responsibility. Quality has always been a little bit of a struggle... I guess given the task of ensuring watershed protection through the authority, but if you read in our legislation there is very little in the legislation that really talks to what we should or shouldn't be doing about water quality it just says we should be responsible for watershed protection which in my mind has a great deal to do with water quality however there is a whole raft of people and agencies that are involved with water quality... (SWA4 Para. 39 - 42.)

Lack of authority

According to respondent SWA4, SWA's mandate involves monitoring and mapping surface and ground water resources. This reflects other respondents' comments regarding the concentration on "quantity" as opposed to "quality". A current activity relating to the concern with "quantity" is a ground water mapping project that involves a partnership between SWA and the Saskatchewan Research Council (SRC). There is some question as to SWA's ability to influence certain projects that may impact source water quantity and quality. Other agencies such as Sask. Environment and the Ministry of Agriculture can play a role in the approval of projects with potential to affect source water quality. This is illustrated in the following exchange between an interviewer and respondent SWA5.

We don't have the power [to approve major developments]. That rests with Sask. Environment. But I would suggest that if we have comments going back, saying, whoa, this is a bad idea, we got problems here. Then, they will go back to the developer and say, 'here's the watershed authority's comments, there's major problems'. You have to address these comments. They wouldn't say no, they would say, address these comments. And I guess if they couldn't address the comments then they probably wouldn't get the go ahead. In most cases, in those bigger projects, they've got the resources to engineer the solutions. The other part that is very similar to Sask. Environment's process is Sask. Agriculture and Food. They do the same thing. They submit project proposals to Sask. Environment and the Watershed Authority. So we will comment on intensive livestock operations. They are a little different. They view them as comments and they do not see themselves as under an obligation to, for their consideration.

Interviewer 1:

So if somebody wants to set up a huge hog operation, the proposal could come through your desk, you could say no, and then Sask. Agriculture could say well what the heck, everything that is good for the [industry] is good for Saskatchewan, so let's go ahead.

Respondent SWA 5:

That could [happen], they could disagree with us. They could do that.

A comment by SWA4 posted under the sub-node COORDLOC indicated a lack of authority on the part of SWA to deal with possible groundwater contamination due to oil and gas well construction activities since the authority to grant well licenses resides with the Saskatchewan Ministry of Industry and Resources.

I1: So is that process of approvals with oil companies going through Sask Industry and Resources and Sask. Environment does that have repercussions on your mandate to protect source water?

R1: Well ok approval of the licenses for water usage is through us. All the approval of the oil or gas well construction is through SIR. So your question does that impact on our ability to be able to protect? Possibly from a ground water prospective but not really from a surface water perspective. (SWA4 Sec.0, Para. 197 – 219)

Areas of greatest activity and concern

Respondent SWA3 provided comments about the areas of activity that have become a focus for SWA. These include SWA's role in the management of farmland drainage, wetland conservation, and flood control. Some important challenges were identified including the scope of drainage problems, and the lack of resources required to monitor and police unauthorized activities. The respondent noted that efforts to preserve wetlands as well as the need to protect lakeshore developments were often inter-related. The challenges presented by lakeshore resort and recreation developments was recognized as an area of growing concern heading into the future. Regardless of official mandate requirements and efforts to become more active in sustainability and community involvement activities, the greatest focus of activity for SWA (according to respondent SWA3) has been dealing with (reacting to) drainage and flooding, most recently flooding at Fishing Lake and alkaline contamination of Lake Lenore. These two flooding problems have received considerable attention in the media and from politicians. By way of comparison efforts to deal with drought in Southwest Saskatchewan have been managed by PFRA the Ministry of Agriculture and the Rural Municipalities with minimal SWA involvement (SWA will no doubt be providing permits for water allocation under the drought relief programs.)

...historically, one of our major problems has been around the agricultural drainage activities and conservation of wetlands. That's been a major issue and continues to be a major issue, with the government really not being able to come down with a set direction and policy of where they would like to go with this agricultural drainage thing... agricultural drainage has been primarily a tool of farmers to make better more effective use of land in many cases marginal land...Now with the importance being placed on wetlands there is a desire to curb the drainage... now the issues [are] say Fishing Lake and Wallsey [sp?] Lake which [involve] current flooding problems of cottage subdivisions which are closed basins...And there is a perception that drainage is a contributing factor to the high runoff in those watersheds because they are closed systems and the lakes

build up over time. So now the provincial government is taking a stand on drainage in those watersheds but that has not been the traditional reason for why people have been opposed to drainage. But now it's more of a manifestation, affecting suburban recreation interests. ... So drainage, in this province, is probably the biggest water management problem that we have got... Alberta and Manitoba, Manitoba have similar problems but we have got twice as much agricultural land as Manitoba and Alberta put together. (SWA3 Sec. 0 Para. 184)

Advisory group roles

Three respondents (SWA3, SWA6 and SWA7) reported on the status of the watershed advisory groups, operating under the auspices of SWA. Given the concerns expressed, the longevity and efficacy of these groups is uncertain.

Respondent SWA3 described the lack of any legislative authority in place to support the creation of the various watershed stewards groups established by SWA, but optimistically indicated they would continue functioning following the completion of their initial phase of activity. (SWA3 Sec. 0 Para. 149-168.)

Respondent SWA6 noted the lack of core funding as well as legislated responsibilities as challenges related to the efficacy of and continuing operation of the stewardship groups. (SWA6 Sec. 0 Para. 117 – 189.)

Respondent SWA7 described the watershed stewards as community stakeholders who could play a role in monitoring issues, stating priorities and provide feedback to SWA. This respondent also described in detail the process involved in setting up the stewardship groups and providing them technical expertise, support services, and funding to, among other things, produce watershed assessment reports/plans. SWA facilitated the creation of the watershed stewards groups by identifying which community agencies its staff saw as representative of various community/stakeholder interests. In a sense the selection process was a top down-measure controlled entirely by SWA.

It is noteworthy that both respondent SWA7 and the interviewer were confused regarding the two different types of advisory established by SWA. The confusion on the part of the respondent perhaps says something about the clarity of the policies that inform the establishment and operations of the various agencies and authorities involved in water governance. This relates to the next point considered which is the push toward developing an integrated water management model.

Quest for integrated water management

For over a year SWA along with other federal and provincial water governance and management agencies has been involved in discussions about rationalizing and streamlining water management activities. SWA respondents see their organization co-leading this initiative (under an “integrated water management” committee) with PFRA. Issues such as minimizing duplication of effort and placing various responsibilities under

the auspices of the most appropriate agencies have apparently been on the table. It appears nothing of substance in the way of a public paper or document reporting on the process has yet been produced. Respondent SWA2 spoke to the need for integrated water management and some of the challenges involved in achieving it.

... in the ideal integrated water management world there would be a provincial process, a watershed based process and a national process. Nationally there is work underway about whether they need water issues go to the Canadian Council of Ministers of the Environment generally. One of the problems though is water isn't always a minister of environment issue. In Manitoba they have a department of water conservation or think water stewardship or something they call it. So the minister of environment doesn't handle water in Manitoba ... (The Canadian Council of Environment Ministers) are looking at creating not a totally new ministers' council but (pause) I'll call it a bureaucrats committee. The idea is still being worked out but specifically on water issues. (SWA2 Sec. 0. Para. 28-30)

COMMNEED SUMMARY

For SWA, responding to community need can involve adjudicating between communities with conflicting interests. This is clearly the case with respect to the drainage conflict mediation. It is reasonable to assume that a severe or sustained drought or perhaps a source contamination crisis could limit supplies and require the regulator to make decisions about which communities' needs had priority over others. Respondent SWA1 touched on how SWA would prioritize allocation in a crisis situation.

Respondent SWA1's response reflected a common sense appreciation that domestic consumption would trump irrigation or industrial needs in a serious supply shortfall situation.

I think generally we'd say that the use of water for domestic purposes in other words for individuals or communities has got the highest priority for us then we start to break it down as to what makes the most sense for what water is available but human consumption is the highest priority for us and always want to protect that. (SWA 1 Sec. 0 Para. 96 – 98.)

This hardly seems adequate. Obviously meeting domestic needs such as drinking, washing, fire protection, and toilet flushing would trump the needs of irrigators and potash mines, or one would hope so. However, one might ask should other domestic uses such as lawn, park and golf course watering; car washes, swimming pools and water parks, supersede the needs of irrigators and industries. One would hope these sorts of questions get addressed by policy makers and stakeholders before we are actually in the crises that force their consideration.

Community involvement (watershed stewards groups)

Respondent SWA6 viewed the establishment of watershed stewardship groups as an indication that SWA is endeavouring to bring community stakeholders into the water management process. The stewardship groups allow SWA to provide community stakeholders with technical information on water issues. They also allow the stewardship groups to reflect how the communities involved might like to see the information applied.

As noted above under the ROLEWATER heading, there are questions about the future and efficacy of these groups due to their lack of long-term core funding. Respondent SWA6 touched on the issue of the groups' lack of legal authority, indicating that the groups themselves have chosen not to incorporate under the Watershed Associations Act, which might have provided them with the potential to gain a certain level of control as well as the potential to raise revenues. According to SWA6, the stewardship groups have chosen not to be involved directly in governance at this stage of their development, preferring to incorporate under the *Non-Profit Corporations Act* rather than the *Watershed Associations Act*.(SWA6 Sec. 0 Para 26-27)

If SWA6's assessment of local appreciation for more global issues, such as the impact of climate change, is accurate -- there is no assurance that community perceptions will provide the perspective required to inform long range planning related to climate induced water stress. The following excerpt from the SWA6 interview reflects this concern:

They said just because it's a hot issue in Regina or Ottawa, doesn't mean it's a hot issue here. Climate change is an interesting one. I was thinking that if you actually asked them how many actually believed that climate change is actually occurring, I'm not sure you'd get 50% believing that. The other part of that is that even of the ones that say climate change is occurring, how many would say this is a result of man's actions? It's interesting how low that might be. Sorry, to answer your question a little better, it's that they see this [the stewardship group] as a way into controlling their own destiny, where they didn't feel they had that control before. And it was sort of, they didn't see any other method to do this. They are so small in voice when it comes to just the urban municipality, or the rural municipality, or just individual First Nations ... (SWA6 Sec. 0 Para. 26 – 72)

THEME 2 SUMMARY FOR SWA

STRESS summary

There is considerable overlap and interrelationship between comments placed under the STRESS and MANAGE nodes. Readers may wish to consider the two nodes as one in the same for interpretive purposes.

The respondents identified 4 areas of water stress that the authority deals with on a fairly regular basis.: 1) allocation related stress; 2) flood stress; 3) drainage stress; 4) drought stress.

- 1) Allocation stress (also related to drought stress)

Monitoring and adjusting Lake Diefenbaker levels and downstream flows from the Gardiner and Qu'Appelle Dams are a major responsibility for SWA. Three major cities acquire water from this system as well as most of the province's irrigators and a number of potash mines. Stress can increase as a result of things such as periodic drought in Alberta. In addition, SWA manages reservoirs and streams in southwest Saskatchewan, SWA decisions about managing allocations to the U.S. and allocations to local farmers can be challenging. SWA's allocation activities can be driven by seemingly less urgent community needs, such as the need to keep levels high enough in Saskatoon to allow for water sports activities. (SWA1 Sec. 0, Para. 87 – 90), (SWA1 Sec. 0, Para. 132 – 134),

SWA1 also mentioned the need to take the ecology into account when determining allocations. This point was only rarely made in the interviews and when it was it related primarily to wetland drainage issues. Minimum flow requirements to sustain healthy aquatic ecosystems in rivers and streams is not yet well-understood, and experts advocate that much more work is required to better understand this issue, which is often referred to as in-stream flow needs.

We are allocating to ensure that new users are protected and new use can be accommodated within this and still provide a level of flow water to protect the ecology as best we can to so we have that balancing going on. (SWA1 Sec. 0, Para. 192 – 198)

SWA1 also touched on the lack of legal authority/policy that provides a formula for mediating ecological and community needs.

Int.2: and you kind of outlined how you do this allocation between ecology and users and what's going to be available, is there a policy that tells you what to allocate for ecology, what to allocate for industry, and what to allocate for consumption?

R: Not a written policy to the public at this point. We are endeavouring to develop an instream flow requirement here but we have not done that yet. essentially what we are allocating is up to a max of 50% of the anticipated median year of flow so some believe that that does provide some level of protection of the ecology and others believe that that is not enough. but that is where we've been to this point and we are looking at this policy to see if can be altered in some way. SWA1 Sec. 0, Para. 136 – 154 under the node LEGAL)

The following exchange with SWA5 illustrates SWA's role and authority in managing allocation related stress with respect to ground water.

R: Ok. So lets say the user, just for simple numbers, is entitled to use 1000 cubic decameters, they have a license for 1000 cubic decameters. But we can put and we have put conditions on a license providing you can use that, providing the water level doesn't drop below an elevation of 300m in

the aquifer. You know, they've done their investigations. They've calculated, they will draw their water levels down that much and that's all fine. It looks good. We still, any hydrogeologist has to make assumptions. It's inherent in the work we do. It's inherent in any of our formulas, there are assumptions in those formulas. Geologically, we are making interpretations and we recognize that. So, ok, they've done this investigation, they've predicted that at the production well there will be 30 m of drawdown. We've reviewed the work and it looks good. But we recognize there are assumptions. Where we think it is high risk and high demands, we can still put in, ok, you think it is going to be 30 m, if it drops more than 35, obviously we've missed something. And we can put a condition in that approval saying you can't drop below that which means as you approach that, you are going to have to throttle back your pumping. And we can put things in like at certain point you actually have to stop pumping, or...

I1: Is it possible for you to do that?

R: We have done it. (SWA5 Sec. 0, Para. 98 – 108)

2) Flood stress (also related to drainage stress)

Many of the comments provided in this summary indicate that the major “hot button” issue challenging SWA in 2007 was flooding at Fishing Lake and the Humboldt district (Lake Lenore). The challenges were heightened by high levels of media and political attention. Some comments by SWA respondents indicate that they see some water level issues as unavoidable natural occurrences, as well as the result of poor zoning or permitting practices from the past which SWA had little or no control over.

We are responsible. If there is a natural event and there are no controls on a lake system I'm sorry, but that is the way it is. But we will try to help to give some guidance on ways to help as to how you would adjust your activities because of this event. But we've got a number of lakes and river systems with man made controls difficulties, for picking up in the last couple of months Fishing Lake near Foam Lake... (SWA1 156-194)

3) Drainage stress (also related to flood stress)

SWA's role in managing drainage issues involves the corporation in two ways. Firstly, the corporation is involved as the technical/hydrological expert to determine natural water flows and the impact of changes made by people, primarily farmers. Secondly, SWA serves a conflict mediation role by investigating concerns and adjudicating disputes from the perspective of the hydrological expert. SWA2 described the corporation's role in drainage management and the issue of overlapping authorities.

... We do a lot of conflict management in the watershed authority especially around drainage. I don't see if there's a policy change that would come to the governance group with individual conflicts no one else wants and will continue to be ours. But where the governance would help is a number of agencies have interest in drainage, agriculture, ourselves, environment and fisheries and oceans if they happen to effect fish habitat. (SWA2 137 -143)

4) Drought stress

For SWA, water stress due to drought is manifested in its allocation activities. For example, SWA3 and SWA4 noted that low levels on Lake Diefenbaker can cause problems when intake systems for irrigators lack the levels required for adequate supply. (SWA3 Sec. 0, Para. 125 – 135), (SWA4 Sec. 0, Para. 122 – 138). In the southwest of the province SWA employees are challenged by drought-induced complications to their allocation activities.

We have, conflicts might be to strong a word, but challenges and one of the challenges for our regional manager in Swift Current is to manage some of the water shortage in some of the southwestern streams. They are highly allocated for the water that's there and that means that in a certain number of years there is not enough water to meet all of the allocations so of course the communities the cities and towns have a firm allocation. They get the water they need. But basically, part of his task is to work out with the groups how they are going to share the shortage which they are used to doing because it is a common occurrence. It happens very smoothly but it happens smoothly because of a significant ongoing effort by the staff to make it happen smoothly. (SWA2 137 – 143)

MANAGE Summary

SWA respondents consider flooding to be the most challenging water stress issue that they are currently dealing with. Flooding certainly occupies more of their attention than drought. Flood stress requires SWA to mediate drainage disputes between farmers and deal with cottagers' complaints about lake levels. SWA did not have major involvement in mitigating drought conditions for farms from 2002 - 2008, other than responding to its effects on Lake Diefenbaker levels. One possible reason for SWA's lack of involvement in farm related drought management is that (other than the irrigation districts it supplies directly) it lacks the capacity to deal with widespread drought – the role it seems is left to agencies with greater interest and experience in the area – such as PFRA and Sask. Agriculture.

Respondent SWA3 noted the tendency of policy makers to be reactive in their approach to water management as opposed to taking on long-term planning initiatives. SWA3 also identified a flaw in the way water management in the province was restructured in the 2002 Safe Drinking Water Strategy. SWA3 stated that drinking water management should be a function of the water management agency's activities. A reasonable interpretation of SWA3's remarks might be that drinking water issues were the central

focus of concern in 2002 and other areas of water management have essentially been left out of the main stream of the policy planning process.

...You always need a crisis to get attention and it [a crisis] gets political attention. North Battleford got lots of political attention but it never really manifested into anything new. Three and a half million dollars was really the money that got put into water and most of that went into drinking water. From the politicians' perspective, SWA was part of the drinking water strategy which is upside down from any place else. Drinking water should be a part of the water management strategy. Now they are just starting to change their thinking so it just shows you that they were kind of behind the times in terms of thinking about water...I think in terms of the demands for information, for data, for quality analysis, you know we've had some recent flooding problems the last two years in the east-central part of the province so now there are people realizing we don't have data, proper forecasting capacity in some of these places. So we are getting resources to deal with those problems and that will translate into benefits. It always seems to be an issue, the ability to get funds and defend the need for funds. (SWA3 Sec. 0, Para. 125 – 135)

The following exchange with SWA4 indicates a hint of cynicism with regard to the reactive nature of policy making around water in the province.

I2: It's interesting of the responses of government it's very reactive in the last minute.

R1: Well who knows maybe somebody's been thinking about it and that was the king pin that went out and knocked the gears into motion I don't know but from our lowly position it didn't seem that anybody was listening to us anyway. (SWA4 Sec. 0, Para. 302 – 312)

Drought

SWA4 indicated controlling water levels on Lake Diefenbaker and the Qu'Appelle system constituted its response to the drought of 2001. SWA managers realized that climate was affecting supplies on the South Saskatchewan River. SWA's response to these circumstances was limited to adjusting flows from reservoirs and did not emanate from a drought strategy –since the province doesn't have one. (see - SWA2 Sec 0, Para 129 -135). Respondent SWA4 alluded to an interesting facet of perceptions about drought in Saskatchewan. For many decades people in the southwest have dealt with the impacts of drought. Since the mid-1930s the PFRA has been implementing drought-proofing initiatives in the southwest – prior to SWA's creation and continuing to today. It would seem from SWA4's comments that drought did not receive significant attention from provincial policy makers until it started affecting people in other parts of the province who had not had decades of experience adapting to it.

The example that really came to light was in that 99 - 2003 period. We could see what was happening in southeastern Alberta with the lack of moisture. You could

see it coming eastward. And we kind of start hollering out of the southwest, 'we've got to start thinking about it some to a degree'. I have a problem saying drought protection I think drought protection happens a long time before the drought gets there. In any event you always have to do something about optimizing things during a period of drought but nobody really listened to us very much. Kind of, 'oh yeah'. One dugout finally went dry on the east side of the province where people were not used to drought, it was total catastrophe. Then drought programs hay programs everything starts to role into place. We've been in a drought for 2 years already so we function. People in the southwest function without help for 2 maybe 3 years one occurrence on the east side of the province somebody ran out of water. Never happened before, they're not prepared there. (SWA4 Sec. 0. Para. 302 – 312.)

Respondent SWA4 also discussed drought preparedness, indicating that the southwest of the province was in reasonably good shape since drought-proofing activities had been undertaken in the past in response to drought of three to four years duration.

I would say we would be better prepared to manage it in the southwest than we would be else where. Largely because you're talking about 5 to 10 year drought and I'm saying we've probably already experienced 3 to 4 year droughts. There has been a certain amount of drought proofing, proofing is a poor word, but drought mitigation activity that has already been put into place. We've probably have more reservoir storage in the southwest at least as a whole relative to the quantity of water that's yielded from there thaw then any other area of the province. On the South Sask I think we're not perfect. We're not in perfect condition to say that we could we could mitigate the events around. I think from an inter-provincial perspective PPWB is looking at some climatic work to do some predictions on what future flow needs flows maybe. (SWA4 Sec. 0, Para. 294 – 300, under the node STRESS)

Note to Reader: In 2008 the province announced a federal-provincial cost shared plan to assist agricultural producers in the south west of the province to develop infrastructure projects such as community wells and shallow-bury pipelines in response to three successive years of drought. The program has been extended into to 2009 with a total of \$29 million budgeted for the two years of the program.

Crisis management responding to political pressure e.g. Fishing Lake

A number of respondent comments emphasized the prominence of flooding and lake level management in SWA's activities. The following exchange underlines the importance that politics and controversy can have in driving the corporation's agenda.

Int.2: So its not scarcity, its surplus that has been the issue?!

R: Definitely complaints to politicians about water levels when they are low or when they have been high but the only thing I can see close to court action are when they have been flooded when they are high.

(SWA1 Sec. 0 Para. 1156-194)

It would appear that angry cottagers, along with their political representatives, are driving SWA's agenda to a much greater extent than issues such as concern about the long term impacts of climate change. Planning in relation to climate change doesn't really show up on the corporation's radar. It is interesting that the bill for efforts to fix the Fishing Lake problem (as identified by SWA3) exceeds the amount of federal and provincial money dedicated in 2008 to providing water to drought stricken livestock producers in the province's south (\$12 million). The following two interview excerpts illustrate the water stress that SWA faces with respect to fluctuating lake levels.

...cottages are being flooded and farmers are being blamed for draining water off their agricultural land for production. So we have a conflict there and the announcement yesterday is that there will be an outlet produced to hopefully reduce the flooding and solve some of the conflict as well. (SWA1 Sec. 0 Para. 156-194)

You get so much investment out there and high valued property [lakefront homes] and people who have some influence at the political level involving some of this stuff so it's getting attention. Hence, the Fishing Lake thing, they are spending about 30 million dollars over some 250 cottages. Don't ask me my opinion on that. (SWA3 Sec. 0. Para. 191 -197)

Regularly regulating allocations and drainage conflict

SWA's day to day activities revolve around more than contending with water levels at Fishing Lake. The corporation's mandate requires it to manage water allocations and investigate and adjudicate drainage disputes. Drainage disputes and allocations are thus areas of water stress that SWA regularly contends with, as noted by respondent SWA1.

...on the drainage side we have legislation that if it is a private process then we will investigate and if we find that water is coming off [and] damage is created we can actually close those works we have that responsibility. On the water supply side if a person is actually taking water that is not allocated to that person we can shut them down. (SWA1 Sec. 0. Para. 248 – 258)

This is echoed by respondent SWA2.

We do a lot of conflict management in the watershed authority especially around drainage. (SWA2 Sec. 0. Para 137-143)

Managing/encouraging community feedback

There appears to be a disconnect between SWA's intentions with respect to the establishment of the watershed stewards groups and the ability of the stewardship groups to obtain the core funding required to survive as viable organizations. Volunteer groups without a source of funding or empowerment to make decisions may not be sustainable groups. In addition, there is some question as to the ability of the groups to have any

meaningful involvement in water management as they have no legal authority or powers assigned to them. According to SWA7 (Sec. 0, Para. 53), the groups themselves have rejected the idea of becoming quasi-governance bodies.) One can almost sense frustration on the part of the interviewers, who seemed to be reaching for information that would define the role and purpose of the groups in a way that made sense. Based on the information provided by the respondents, it could be argued that at best the stewardship groups have served to heighten local community awareness about watershed management issues and have perhaps provide some local insights to SWA. Indeed, watershed plans and source water protection plans were produced on behalf of stewardship groups. These plans were compiled with technical and advisory support from SWA and other government agencies. It could be argued that very similar reports could have been produced independent of community input. Criticism might be expected from those who argue that the process involves little more than setting up water chat groups. Based on the interview responses, SWA personnel involved in the process see value in it and would no doubt be reluctant to describe the effort as mere window dressing despite its shortcomings. What is not clear is how increased awareness by stewardship groups will lead to newly-imposed watershed protection/conservation activities or water management decisions, taken either by the government agencies or the watershed groups.

Respondent SWA7 described the decision making the watershed stewards groups have been involved in regarding their future roles. According to SWA7 the groups have been reluctant to evolve into formal governance agencies with legal and taxation powers..

And pretty much hands down they would like to have something that is at the very least arms length from government. Based on that they have been encouraged to organize in an incorporated entity of some sort or some sort of formal or legislated fixture so that they can in fact disperse funds, be recognized for proposal writing and the receipt of grants and funding to do various pieces of work. (SWA7 Sec. 0. Para. 53.)

The fundraising capability noted above involves the pursuit of grants for specific projects. It does not address the ability to acquire core operational funding, and assumes that grants for projects are available, or may eventually become available some time in the future, which may not always be the case. Respondent SWA7 described funding options for the stewardship groups.

...a couple of years ago the Saskatchewan Watershed Authority announced that they would be providing some seed funding, this is not intended to completely fund the entire entity once the plan is formalized, once that set of yellow pages is formalized. Rather, it is money to help them get started. It is money to help them incorporate, to develop a name, to begin as seed funding so that they can go to other entities and say if you require 50 cent dollars we have that, that kind of a thing and build on that. That funding has been increased. And there is a complicated formula within the watershed authority that determines the amount of money to a ceiling and that each of the watershed areas may be eligible and will

get if they complete the plan and work through to having a final workable plan that has been validated and vetted. (SWA7 Sec. 0. Para. 53.)

It appears that the stewardship groups will eventually be required to engage in their own fundraising activities, be that chasing after grant monies or raising the dollars they need to obtain matching funding from sources that may or may not be available. One is left to assume that if the groups fail in their fundraising efforts it will be reflected in their level of activity and may indeed diminish their capacity to continue operating.

Respondent SWA7 indicated that one of the stewardship groups has obtained funding support from an organization called Water Wolf, which in turn receives funding from Western Economic Development and Diversification. WaterWolf.org is a non-profit company with funding from MidSask Regional Economic Development Authority and the federal government. WaterWolf is undertaking a long-term development planning approach in the South Saskatchewan River Watershed, and considering water, economic development opportunities, and environmental protection need in the South Saskatchewan River Basin near Outlook..(SAW7 Sec. 0. Para. 55.)

Integrated Water Management

SWA participates in an Integrated Water Management Committee (IWMC) which includes representatives from various federal/provincial water management and governance agencies. SWA sees itself as co-leading the IWMC process with the PFRA. (SWA2 Sec. 0, Para. 99 – 107) The existence of the committee points to concern that water governance involves many agencies, overlapping jurisdictions and responsibilities, and the potential for duplication of effort and confusion. The IWMC has made no public information made available regarding its deliberations. The IWMC is a response to water management challenges. One respondent mentioned that the committee is where discussions about a drought strategy for the province may develop. Respondent SWA2 describes the motivation behind establishment of the IWMC as follows:

It's envisioned as trying to bring all the parts of water management together, realizing that water is challenging to manage because many different agencies and governments have an interest and a role in water. When we start adding it up, we get three major federal agencies and probably a dozen ones with less significant roles. And have a dozen provincial agencies that have significant roles in looking after water. And that always has the potential for some arms of government to really be working at cross purposes to other arms of government. (SWA2 Sec. 0. Para. 12 – 16 & 24 – 37)

SWA2 also described the rationale behind the inclusion of federal agencies in the integrated water management process.

So we are looking for a system; first to bring it together provincially and; secondly recognizing the large role the federal government plays, even though water is constitutionally provincial. Agencies like PFRA have historically been very significant in water management in the province and Environment Canada

has very significant roles in hydrology and being part of the Prairie Provinces Water Board and inter-provincial issues. So by bringing them in, hopefully, we will have a common vision and... (SWA2 Sec 0, Para 18 -22)

Respondent SWA2 also made comments that suggest the thinking and motivation behind the establishment of the IWMC was somewhat obscure. (These comments were originally posted under the sub-node COORDPRV.)

I've been struggling down this road for a year or half or something wondering why did we start [the IWMC process]? It hasn't been triggered by any single issue like a conflict between departments or something. [We are] going down this for several reasons. One, I think is we look for models and ways to improve and there are literature examples from other places that suggest integrated water management is the direction one should go,. I know there is a national decision to promote integrated water management and we've been reading about this wondering what it means and thinking how could you apply these concepts in Saskatchewan. (SWA2 Sec. 0, Para. 99 – 107)

Advisory Committee

SWA has a 19-member advisory committee (not to be confused with the stewardship groups) According to SWA2 this committee is informing SWA's participation in the IWMC.

... initially we will use that advisory committee not only for watershed authority business but as also for integrated water management, for issues that are coming up there. (SWA2 Sec. 0. Para. 34 – 37.)

Comparative management

Assessments of water management practices in search of 'best practices' can require an appreciation how things are done in neighbouring jurisdictions. SWA2 had the following comments on water management elsewhere in Canada.

... other provinces have different approaches. You know Alberta has Water for Life. They have taken a somewhat different approach. They have created -- first they developed it provincially without involving the federal agencies in development. They then created a water round table that has the federal government added, provincial government added but also NGOs, municipalities and First Nations. So they have involved everybody. It appears to me to be a relatively slow process to deal with issues and I am not sure that they have been doing it long enough to form a firm judgment on how well it works. Other provinces have developed fairly comprehensive water strategies but they haven't consciously tried to integrate with the federal government and are not doing it from what I have been able to see. So I think we are perhaps unique in trying to integrate federal and provincial agencies together from the beginning of the strategy development and see that as how we are going to work together. SAW2 Sec. 0. Para. 47 -49)

Respondent SWA3 discussed why neighbouring provinces have (allegedly) devoted more substantial resources to water management than Saskatchewan has.

I guess Alberta has traditionally (well since the 1970s) has put a lot of resources into water...they have got resources. They used to dedicate a large part of their heritage trust fund into water. So they have always seen water as a priority in Alberta. ...in Alberta and water was an issue [in elections] and in Saskatchewan it was grid roads. Water has never had a high profile in Saskatchewan and we have never had any really serious issues, it's been kind of in the middle of the road, problems every so often but we have never had Alberta's economy in the south and in the north is very much tied to water but resource ends development in the 70s was irrigation, trying to diversify their economy by an emphasis on agriculture so they put a lot of money into irrigation development. So now they are basically out of water there to allocate anymore it's become truly a precious resource but they need to put more effort (pause) they can translate that into direct economic benefit. In Saskatchewan, we can't translate that economic benefit. Manitoba has gone through much more serious flooding than we have in recent years so that has commanding attention for more money into that kind of water management both from the federal government and from the province. So I think, so as we move more to having some issues with water supply and water quality we are under funded for what needs to be done in comparison to what's being done in other provinces but we really haven't had the issues to really drive that. (SWA3 Sec. 0, Para. 125 - 135

ORGCLEAR Summary

Comments collected under this node pointed to two processes which tend to reflect SWA's efforts to learn from experience. Some discussion of the watershed stewards groups was placed under this node. Perhaps the assumption behind this is a general appreciation that has grown up in governance agencies and policy developers that policy should be informed by stakeholder feedback. Two respondents provided comments to the effect that the creation of SWA and its subsequent evolution as an agency are the result of a major learning experience the province went through as a result of the cryptosporidium parvum contamination at North Battleford.

And then through that the Justice Laing commission and out of that were recommendations that a number of things happen. One of which, the Watershed authority or an entity such as this be formed and another that efforts be conducted to involve local communities in watershed protection and sound management. Out of that it was identified I believe within the organization that planning would be key that some of the main tenants of that planning would be community based, would be consensus building and consensus based. (SWA7 Sec. 0 Para. 105 – 144.)

This theme was touched on again in the following exchange:

I: So the process here more or less involved the decision by the Saskatchewan government to initiate the watershed protection plan.

R: Yes, as a response to the Battleford's inquiry. (SWA6 Sec. 0 Para 35 -48)

While this perception is somewhat widespread, its technical accuracy is debateable. It is probably correct to assume that creation of the province's Safe Drinking Water Strategy was a response to the North Battleford problem and the Laing Report. It is also correct that SWA's creation as a stand-alone agency, separate from SaskWater, formed a part of that strategy. However, absolutely nothing in the *Laing Commission Report* itself suggests that the province create the new SWA or dismantle the old SaskWater. The report does refer to best management practices, and best practices at the time included managing water by watersheds. This practice existed, at the conceptual level at least, within the provincial water management framework (which was established years before the drinking water disease outbreak).

One of the management challenges confronting SWA and the other organizations involved in water management and governance in Saskatchewan is a lack of clarity regarding the responsibilities of each agency. This can result in confusion among the various stakeholders including communities and the wider public. The lack of role clarity can also be viewed as the source of duplication of effort as well as inter-agency "buck passing". Because of the broad nature of water, some issues will not relate to solely one agency or may not be perceived to be under the jurisdiction of any specific agency. It might also be argued that a lack of clarity over roles can result in some issues not receiving the attention they deserve since there is confusion about who is responsible for addressing them. Efforts to develop an integrated water management process indicate that within the mix of officials and agencies involved in water governance themselves see a need to address the issue of clarity and coordination.

The following exchange with respondent SWA7 points to the frustrations that emanate from Saskatchewan's multiple agency water management system. (This exchange was originally located under the node STAKEMEDIAT.)

Int 2: There is an item in here about one water governing agency or one stop shopping in respect to addressing all issues related to water.

Res: Yes.

Int 2: So that there be one lead agency for all aspects of water?

Res: That recommendation is placed to be fine tuned. It is based on an expressed frustration among all of the 4 watershed advisory committee representatives of those saying that when they need approval to do something with respect to water, make any changes with respect to water they think they have like 5 agencies to go to but it may in fact be 6 or it may in fact be 4 or 5 places within one agency that they would have to go to. So there has been an express frustration that help us

out, work with us a little bit more so that it is easier for us to do the right thing. We want to do the right thing. You guys want us to do the right thing. Don't make it so difficult. So it is a process type of thing. And that wording will be clarified and very much changed. This is an initial draft of an amalgamated plan. Now that wording will be changed to reflect exactly what they want.

Int 1: *You said that this is one of the most common frustrations?*

Res: *Yes it is. (SWA7 Sec. 0, 191 -227)*

ORGFLEX Summary

SWA4 discussed the need for flexible programming and stakeholder input that results from Saskatchewan's huge area and differing climate situations such as those that exist in the southwest.

R1: I think that we're going down that route. To do with some of the watershed planning that's occurring what that's doing is bringing a lot of stakeholder input into the mix. We haven't as government probably done as much of that in the past as what we should have. In our experience with some of the southwestern watersheds you need to have your water use strategy tuned to what people need in the area. Somebody from Regina or where ever if they don't have any of the input of the local interest in what is needed for water I don't know how they make their decision. (SWA4 Sec. 0, Para. 261 – 267)

One interview excerpt was posted under this node for the SWA respondents. It contained comments from SWA7 regarding the way the organization responds to needs of various groups represented on the various stewardship groups.

SWA7 mentioned the decision taken by First Nations to withdraw from the stewardship committee process.

As far as First Nations we had very good response at the start and there was quite a strong interest actually and then I received a letter that said notification that this may in fact be perceived as a conflict of interest therefore you know. So that is accepted. They are always welcome and I provide the information on a regular basis to them. So that is where that is right now. (SWA7 Sec. 0, Para. 239.)

SWA7 had the following comments regarding the organization's relationship with municipalities:

... I think it is fair to say that a good lot of rural municipalities support this effort. They see the value in it. They understand that planning statements and zoning bylaws may change and that would directly impact them and they want to be a part of what those changes are, at least have a say. We have encouraged them the representatives taking the information that is discussed at meetings back to their

constituents and talking about, keeping them apprised and informed as to discussions. And if there is anything that the organization is particularly concerned with their representative could certainly bring them the following meeting and talk about it and that would be put on the agenda. We act as facilitators. We act as the process organizers. We act as the guides. (SWA7 Sec. 0 Para. 239)

THEME 3 SUMMARY FOR SWA

CLIMAVAR Summary

SWA's 2006 – 2007 Annual Report states that the corporation's founding was an outcome of the application of the Province's 2002 Safe Drinking Water Strategy. Comments provided by four of the SWA respondents indicate that as things stand, more needs to be done in the way of long-term water management planning. This would include the development of a "vision" for water in the province, and strategies for managing challenges presented by climate variation such as droughts and floods.

Respondent SWA4 spoke to the need for a vision for water in the following exchange:

I2: A couple of questions: do you think that the Saskatchewan needs a water vision (Water for Life) [An Alberta water program] do you think this province is missing that? Both at the level of government and the level of public?

R1: I think we need a water vision. I'm not saying we've done everything Alberta is doing. In some instances we've not and some instances we're ahead ...I agree we do need a strategy for water and in fact it might be more than just provincially. Maybe it needs to be regional we share rivers particularly South Sask. coming from Alberta going through Saskatchewan heading to Manitoba so I think yes we need that. (SWA4 Sec. 0, Para. 261 - 267)

Respondent SWA2 describes the lack of a drought or drought proofing policy, and indicates that the efforts of the Integrated Water Management Committee may be a step in developing one. SWA2 also mentions the challenges presented by flooding, another area of climate related water stress which currently constitute a major area of concern for SWA (flooding issues are described above under MANAGE SUMMARY). Another point touched on is the tendency for SWA to find itself acting more as a crisis manager than forward planner.

... Saskatchewan doesn't have a drought response strategy overall. If one was going to develop one, which inside this integrated framework would be an excellent place to do that. So that improves our ability to deal with drought and flood risks in my mind and both are issues that we anticipate becoming more common due to climate change... The joke is we don't have a drought strategy because when there is drought everyone is too busy responding to it to deal with a

strategy and once its raining no one needs a drought strategy. Perhaps its very hard to put together an overall drought strategy. (SWA2 Sec 0, Para 129 -135)

The above comments are echoed in the following exchange with SWA3, which also identifies the prominent role played by the PFRA in managing drought and drought proofing on the prairies.

Int 1: What about drought? I know that there are not a lot of certainties about climate change but there are some problems with climate variability that I think are relevant to your agencies. I guess that drought is one of them. Do we have a provincial approach to drought?

Respond: No.

Int 1: Some people claim that which just sort of have a reaction approach which is not an approach at all is it?

Respond: No and that's very true. I think we still do have a reactive approach. You know the major drought impacts that we have gone through since the 30's, I think have been more of an agricultural drought impact than a hydrological drought. We have water supply shortages and issues in some places. But over the past number of years there has been a lot of effort. The PFRA has been very good in terms of their programming and getting deep wells. So there has been some drought proofing along those lines. (SWA 3 Sec. 0, Para. 107 -123)

SWA3 also commented on the reactive nature of the corporation's response to climate related water stress. "... it really has to come down to an ad hoc approach to deal with the situation at the time." (SWA3 Sec. 0, Para. 145 – 147)

Respondent SWA4 commented on drought preparedness. His/her use of "we" with respect to the southwest may imply a general community readiness, since SWA has played a more minimal role in drought-proofing prairie agriculture than PFRA, for example. The comments regarding the South Sask. River relate directly to SWA activity.

I would say we would be better prepared to manage it in the southwest than we would be else where. Largely because you're talking about 5 to 10 year drought and I'm saying we've probably have already experienced 3 to 4 year droughts. There has been a certain amount of drought proofing, proofing is a poor word, but drought mitigation activity that has already been put into place. ...On the South Sask. I think we're not perfect. We're not in perfect condition to say that we could we could mitigate the events around. I think from an inter-provincial perspective PPWB is looking at some climatic work to do some predictions on what future flow needs flows maybe. (SWA4 Sec. 0, Para 294 – 300)

CLIMACHANGE Summary

If the purpose of this research exercise is to determine how institutions involved in water governance are dealing with climate change, this section of the interview summary should be of major importance. That said, the comments collected are few and brief in comparison with those collected under other nodes.

Given the challenges SWA has in planning around climate variability, it is not surprising that strategies for dealing with long-range issues such as climate change are not well developed. Indeed, they are essentially non-existent.

Respondent SWA1 commented on the dearth of climate change research being initiated directly by the corporation.

.... we are not doing direct research. Obviously we are relying others to provide that type of input. But we realize as an allocator of water, as a forecaster, and a planner of flood and drought expectations that might come out of the availability of water. We have to keep on top of what researchers and others are finding. So we are endeavouring to put into our water models if you want to call them that, what might be the impacts. (SWA1 Sec. 0, Para. 87 – 90)

SWA2's comments with respect to planning for climate change and variability involved the challenges of dealing with conflicting or incomplete information. SWA2 mentions that past data may not be sufficient. However none of the respondents indicated efforts were underway to acquire information or engage in research that provides forecasts and projections

We're having some challenges to decide how the water supply is actually going to change under climate change scenarios. The only thing I feel confident in saying for sure is its going to be warmer and that should mean more evaporation. Even for that one I was absolutely surprised to read recently that, while its been getting warmer, the evaporation rates don't seem to be going up so far which is actually good news. Anyway, it will be warmer and it is therefore not safe to assume that past data will tell us what the future data is going to be for water. ...The general assumption is we're going to have less runoff coming of down the Saskatchewan River but ecosystems are really complex. (SWA2 Sec. 0, Para. 12 – 16)

Respondent SWA3 also reported the absence of strategic planning related to climate change, and in contrast with the above comment from SWA2, argues that relying on past data is more appropriate than looking at forecasting models.

Int 2: I'm going to change direction a bit. Our project relates to climate change. And climate change as you know relates to having greater variability in water, either in flooding or droughts. Do you know if SWA, in their strategic planning, do they kind of take into account what might be happening with climate change and variability?

Respond: *Not yet. We certainly are aware of the need to address climate change. The problem is that we don't really have anything substantive that we can draw on to say this is how we should be dealing with climate change... I think most people would still say, we are still better off to look at the last 25 years as the best indication of what's going to be in the next 25 years than we are to try and postulate some kind of climate change result I guess....So the long answer is yes but not in any quantitative way.* (SWA3 Sec. 0, Para. 103 – 105)

THEME 4 SUMMARY FOR SWA

DATA COLPRI Summary

According to SWA1, SWA has approximately 300 monitoring sites in the province. (SWA1 Sec. 0, Para. 214 -496) SWA4 indicated that there are 72 well sites in the province where SWA monitors ground water levels.

SWA4 indicated that some of the research being done by SWA in conjunction with the Saskatchewan Research Council in the southwest of the province is as advanced as any similar research being undertaken anywhere in North America. (SWA4 Sec. 0, Para. 104 – 106)

The hydrological information collected by SWA for groundwater, whether obtained via primary collection or from secondary sources, includes the following types of information:

Geologic information, describing the sediments encountered during the drilling process. The water levels, aquifer test information. When someone completes a well, lets say a community completes a well, part of their investigation, they have to do tests on that aquifer to determine the characteristics of that aquifer and that will go into the reports and so that is in our information system, in our library, most of our reports. (SWA5 Sec.0, Para. 27 – 47)

DATA COLSEC Summary

Respondent SWA4 indicated that monitoring of flows on the South Saskatchewan River is done by Environment Canada.

Flow for the river is actually monitored by Environment Canada and then the procedural calculation to determine what was the total quantity to begin with what was consumed in Alberta what went on to Saskatchewan what went on to Manitoba has also done mechanically by Environment Canada but on the basis on the input from all 3 provinces so there is a set of procedures really that have been established over the years since the 60's essentially to try and come up with a standard format in determining portion between the provinces. (SWA4 Sec. 0, Para. 110 - 114)

According to SWA3 the Prairie Province's Water Board also relies on federal sources for information (one assumes this is Environment Canada's water quality and water quantity data for inter-provincial or international trans-boundary water flow).

...most of the Prairie Provinces Water Board [data collection] is all done by the federal government. So they have long term stations in 12 locations: at the Saskatchewan-Alberta boarder and the Manitoba-Saskatchewan boarder. That's primarily their contribution to water quality monitoring. SAW3 Sec. 0, Para. 45 -47)

Respondent SWA1 indicated that SWA works in consultation with Alberta Environment to gain an understanding of conditions in the watersheds they manage that flow into Saskatchewan. This would include information on things such as snow pack conditions. (SWA1 Sec. 0, Para. 92-106)

SWA1 described how SWA's data collection process makes use of information provided by private well drillers. However, the SWA2 comments provided below, under DATACOLNEED, indicate that while a significant amount of data is being collected, it is not necessarily being assessed or interpreted.

The biggest part [of groundwater data] is coming in from the drilling industry... the driller's log database, it's a requirement, we have legislation that requires when a driller completes a well or test hole, they are to submit a record to us. Same with electric logs. It's an electronic tool used to take measurements in a test hole. Part of regulatory, there are also similar records submitted through our regulatory process. The water level stuff - we operate a network of, I think we are at 72, observation wells. These are wells purpose built to monitor water levels scattered around the province. We have 72 of those [another respondent said around 80]. We have those records, obviously. We also require water levels to be submitted as part of our regulatory process for industry and municipalities. So that is essentially the sources of information. Perhaps studies done by ourselves, research council [SRC], PFRA, you know, academic studies, we may get those records and those go into the system too. (SWA5 Sec. 0, Para. 27 -47)

DATACOLNEED Summary

Respondent SWA2 expressed concern with the amount of ground water monitoring being conducted by SWA.

I know it is an issue in the watershed authority's mandate where groundwater is a really good example. We have a groundwater observation well-network that has just under 80 wells in it. By comparison Manitoba has 500 or something and Alberta have a couple hundred with another 150 sort of that are shut down but they could reactivate. The wells are in place; they just are not monitoring them. Rural Saskatchewan has a significant dependence on groundwater. One of the areas that I personally am worried about is [that] groundwater responds slowly,

but it will respond, to changing climate and changes in precipitation and so on. We depend on a long data record on things like these observation wells to be able to see if any changes are happening in the groundwater and in truth in most of the province the network isn't good enough to tell us. (SWA2 Sec. 0, Para. 113 -115)

Respondent SWA4 indicated that the glacial nature of Saskatchewan's geology presents problems with respect to monitoring groundwater.

Some of the comments are entirely correct. We probably don't know a lot about all the quality and all the quantity of water in Saskatchewan. But that's somewhat symptomatic of our geology as well. In order to map geology in the province of Saskatchewan I don't know how many test holes one might be able to find because our geological make up is glacial, so we've got a real muddle of stuff happened out there and we don't have aquifers that are continuous. [it is] very difficult to map unless you're doing something very site specific. (SWA4 Sec. 0, Para. 104 – 106)

Respondent SWA1 indicated that while there was annual data available for water used by urban centres such as Outlook and Saskatoon, and for industrial users – from the South Saskatchewan system, SWA lacks adequate data for the amount used by irrigators.

Some of the other withdrawals are some of the short-comings. I'll say irrigation systems. We know theoretically what they can take because of the pumping capacity and this sort of thing but we are not following up as of yet on the actual withdrawals. So far we are short on that actual consumption part of those types of user and we are trying to improve that and we are working with the irrigation industry to try and improve that. (SWA1 Sec. 0, Para. 112 – 118)

SWA2 described other areas where adequate data was lacking and how DATANEED and DATAACCESS issues can be interrelated.

Sometimes the biggest problem in sharing information... is simply getting it into a form that is easy to share. Unfortunately often the data that is collected is backlogged because there is not enough staff time to get into approved or accessible form. So that's one issue. ...There is not enough on hydrology and groundwater. We require well-drillers to give us electric logs (I don't know a lot about what they are) ... We have lots and lots of electric log data from well-drillers filled away but not looked at ... Staff time has prevented having everything in tip-top shape. (SWA2 Sec. 0, Para. 121 – 127)

DATAACCESS Summary

Apparently much of the data collected by SWA is publicly available on its website. (SWA1 Sec. 0, Para. 214 -496). But, there is nonetheless some data that is stored in other areas and not publicly posted. A considerable amount of data pertaining to the South Saskatchewan River is held by the Prairie Provinces Water Board.

The Prairie Provinces Water Board has probably the best collection of water quality data but that resides strictly in their database so people have to come to the board to get the water quality information. The next step is to kind of integrate all of the available information into one database which hasn't happened yet. (SWA3 Sec. 0, Para. 41 -43)

SWA2 indicated that concern over inappropriate use of data can sometimes be a concern that militates against its release to the public.

Sometimes there are issues with scientists worrying about someone else misinterpreting their data. So there are periodically issues with that as well and things like ... you took this data and drew a conclusion from it that is not actually a valid conclusion and that bothers scientists from all agencies. Sometimes that's an issue in sharing information as well. But I think that is quite resolvable through the governance model. (SWA2 Sec. 0 Para. 121 – 127)

SWA3 described efforts to develop universal data indicators as a means to overcome a barrier to interagency data accessibility.

So there is a move [to standardize indicators]. Alberta has do some work on theirs. There is a national indicators group that has provinces and the federal government working together on it. So there is a kind of joint working monitor. I think eventually people will have the same indicator but not yet. Indicators don't seem to be in widespread use yet anyway. (SWA3 49 -51)

A lack of effort by federal agencies was cited by one respondent as a barrier to greater data acquisition. This comment seems to underline the reliance that Saskatchewan puts in federal agencies to fill water management roles, despite the fact water is essentially a provincial responsibility. (A cynic might wonder whether to call this an instance of buck-passing whereby a provincial agency passes responsibility for something it has jurisdiction over to the federal government. Or alternatively, an area where an overly intrusive federal government has invaded an area of provincial jurisdiction. However, the key point may very well be that one level of government is never truly on its own, and even with water data, the notion of managing water by “shared jurisdictions” becomes an operational challenge.

...Natural Resources of Canada, through the Geological Survey of Canada, should have a role. That is a little bit of a bone I have to pick that I'm going to be bringing up in Ottawa. I have a meeting there in October. At this point, Saskatchewan is the only province the Geologic Survey of Canada has not done a groundwater project in since they started working in groundwater. They were out of it for many many years. They got back into it back in the 1990's and they still haven't done anything in Saskatchewan. (SWA5 Sc. 0, Para. 286 – 289)

Note to Reader: Natural Resources Canada (NRCan) manages a national ground water mapping program (see: http://ess.nrcan.gc.ca/gm-ces/index_e.php). Of additional

interest is the fact that NRCan is the federal department responsible for the “adaptations” aspects of climate change, and undertakes national studies on climate change impacts and adaptations, and is promoting regional adaptation collaboratives (initiatives):

http://adaptation.nrcan.gc.ca/index_e.php NRCan is also the home of the National Hydro Network: <http://www.geobase.ca/geobase/en/data/nhn/index.html>

THEME 5 SUMMARY FOR SWA

FINRES Summary

SWA respondents indicated a number of areas where they would like to see additional financial resources applied. But as SWA3 commented, this is perhaps the norm for government agencies. A major concern identified was the need for additional staff resources to monitor water inventories, collect and assess data. Apparently this is both a financial issue as well as something that is affected by a lack of skilled people available to fill positions.

Respondent SWA3 described the corporation’s need for resources as follows:

.... It always seems to be an issue, the ability to get funds and defend the need for funds... We could definitely use more resources... like our mapping program, it's at a slow pace. We're doing two NTS map sheets a year. And you know, depending on whether we are getting funding from the federal government next year, if we don't, we are down to one map sheet a year. There are 22 map sheets to do in the province, 22 or 23. I would like to accelerate that. I would like to expand our observation well program. And regulatory, I think we need to spend more time reviewing the information that we are getting in. It's one thing to require monitoring, but someone has to be looking at it. So that's a challenge for our staff to try to keep on top of that....(SWA3 Sec. 0, Para. 125 – 135)

SWA6 identified the provision of core funding for the stewardship groups as an area of concern. SWA6 indicated that it was inappropriate to burden the watershed steward groups’ co-ordinators with the task of fundraising. It appears that SWA6 assumed the task of fundraising on behalf of some of the stewardship groups.

We want not to worry or have a coordinator running around looking for money for themselves. This is just dumb. We can't do that. And in the case of the SSR, I have tasked myself to look for the money for the coordinator. I specifically went and brought Harold Martins [a member of the South Saskatchewan River Watershed Stewards group] to a council meeting with the city of Saskatoon and they committed 20 or 25,000... each community is being asked, depending on size and RM on size, to put in a little bit of money. Meaning 500 to 1000 dollars, or even 100 dollars in case of little villages. Now there is a little bit of a short fall. The initial budget for core funding for the coordinator is 110,000 and I think we are...I notice that federal and provincial governments don't normally have

programs that do that sort of thing [provide core funding]. (SWA6 Sec.0, Para. 169)

SWA6 identified a different problem in relation to the Souris stewards group. Perhaps as a result of the support this group received from the federally-supported Water Wolf group funding is not their biggest challenge – but rather finding suitable people to work in the watershed neighbourhood. (SWA6 Sec. 0, Para. 114 161)

NEEDRES/TECHRESOURCES Summaries

The comments identified for listing under these two nodes were almost identical. Resources identified as technical in nature were tied to staffing issues which in turn can be related to financial resources.

SWA1 discussed the difficulty in finding skilled employees.

...we are short of human resources and difficult in some cases to backfill human resources when there are vacancies to get the right skill set because we are in competition with the private sector and other provinces. (SWA1 Sec. 0, Para. 288 – 294)

In the following exchange, SWA5 describes the scarcity of hydro-geologists in the province:

I: So there's probably more you can do with your information to understand the usages and weather changes and the information you had.

R: Oh yeah. absolutely. As I was saying, we've essentially got the only hydro-geologist with the government right now. There is one individual at the research council now, but. There's a number of projects that we would really like to do, that I think are important, so that's a challenge, to try to see if we can get these projects off the ground with our existing resources. (SWA5 Sec. 0, Para. 353 - 363)

THEME 6 SUMMARY FOR SWA

STAKEISSUES Summary

A substantial amount of the coded transcript appears under the STAKEISSUES node. However, the bulk of that text was also included under nodes dealt with earlier in this summary, notably ROLEWATER and MANAGE as well as in the SWA overview document. I have assumed it would be redundant to repeat discussion at length here. There is nonetheless some information provided under this node heading that does not appear elsewhere.

Information unique to this section includes SWA2's discussion of the various groups that are involved in the Advisory Committee established under SWA's legislative mandate (not to be confused with the stewardship groups). (SWA2 Sec. 0, Para. 83 - 87)

SWA2 also provided comments on the Integrated Water Management (IWM) committee, including the thinking behind its establishment. The comments leave one wondering how solidly formed the objectives behind the IWM for Saskatchewan are, and the potential for the process to affect future policy development.

I've been struggling down this road for a year or half or something -- wondering why did we start [the IWM process]? It hasn't been triggered by any single issue like a conflict between departments or something. One [reason behind it], I think is we look for models and ways to improve and there are literature examples from other places that suggest integrated water management is the direction one should go,. I know there is a national decision to promote integrated water management and we've been reading about this wondering what it means and thinking how could you apply these concepts in Saskatchewan. (SWA2 Sec. 0, Para. 99 – 107)

Similarly comments made regarding the watershed stewardship groups leave one wondering how well thought out that process is. These groups lack a secure core funding mechanism; they lack the authority of any sort of legislative mandate; and it appears that there was no plan ever considered that might give them an extended lifespan.

The comments provided below point to a lack of clarity in planning for the stewardship groups.

But we haven't developed a formal process to consult with all of the watershed committees as they evolve. That may be something that needs to happen as we go forward. I'm not sure. The problem with consultation is that it all takes time and costs money on both ends of the consultation process. (SWA2 Sec. 0, Para. 55 – 67)

I guess they [the stewardship groups] have been kind of out of the loop here in the last couple of years, but I guess you know the committees have been set up to develop the plans and now they are going an even rotation phase in some of the watersheds and those groups are sort of staying in place so I think they are still playing an advisory role in terms of implementing the plan that was developed and then dealing with the other issues that come along. So they will have hopefully a longer term role if the rotation continues. (SWA3 Sec. 0, Para. 149 – 169)

STAKEMEDIAT Summary

Many comments that might fit under this node heading have already been dealt with under overlapping headings such as STRESS and MANAGE. For example, SWA's

drainage related activities often involve managing and mediating demands of various communities impacted by water stress. For the sake of brevity, only comments that are unique to this node will be summarized here. The two comments provided give an indication of how SWA officials view their role in mediating community conflict related to water issues.

Respondent SWA5 described mediation efforts sometimes undertaken in relation to authorizing a water allocation for a potentially controversial project. While SWA may not be the agency with full authority to approve something such as a proposed intensive livestock operation, if water is not available the project would not proceed. It appears that decisions about when to open the process up to the public are somewhat up to the discretion of SWA officials.

...we can require advertising of a project in local media. We've gone [to] open houses, public meetings. We try to look at various forms but you know, small project, you want to develop a small scale intensive livestock operation that is going to use maybe, 20 cubic decameters. We are not going to require advertising for that in all likelihood unless we get a lot of concerns expressed by some local residents. Then ok, we say, let's just advertise this just to make sure everybody has an opportunity to provide input. (SWA5 Sec. 0, Para. 134 – 144)

Respondent SWA6 indicated that his/her role involved “smoothing the waters” so to speak, as opposed to operating as an “expert” planner.

I1: Okay and this is maybe one of the tough questions. Are you a planner, or a facilitator?

R: I personally would say I'm a facilitator. I'm not a planner. I think it is not within human kind not to have your own interests at the table and helping that. I mean, we all come from our own background experiences. I come from a law enforcement background and a farming background now, and you know, I think I can empathize with a lot of things in the farming community and that sort of thing, and I try to keep up with things, but I'm really more a facilitator. I try to help them. And the biggest thing is that I try to make sure that conflict is resolved and they get really to the heart of the matter as far as what the issue is, without all the fuzzy noise that surrounds it. (SWA6 Sec. 0, Para. 23 -25)

THEME 7 SUMMARY FOR SWA

ACCAOUNTAB Summary

As a Treasury Board Crown, SWA technically reports to that body (see SWA Overview document). It is interesting that respondent SWA1 sees the organization as being accountable to the Minister of Environment. This is perhaps because that minister may typically be the member of cabinet who is given responsibility for representing SWA in the legislature. It might also be because SWA does several millions of dollars of

monitoring and reporting work for the Ministry of the Environment each year. It might also be due to the fact that the Deputy Minister of the Environment has typically been the Chair of SWA.

Our accountability is to the minister of environment, if you are looking at that level of governance. We have a board of directors, a three-member board, all deputy ministers of government. We have an annual report that is tabled in the legislature. (SWA1 Sec. 0, Para. 296 – 302)

Respondent SWA2 addressed the issue of agency accountability in connection with the approval of something like an intensive livestock operation. Sask. Environment, Agriculture and SWA might all play a role in the approval of new hog operation. The question posed by the interviewers was, who would be responsible for stopping a hog barn project if it threatened to pollute ground water, adversely affecting a neighbouring community? An interesting facet of such an issue might be that while SWA's official mandate gives it responsibility for managing water quantity and quality, SWA has no legal authority to regulate water quality.

I think in a court of law, it would probably be the government of Saskatchewan and would probably include both ourselves and Ag and Food, probably with most responsibility being Ag and Food, particularly if they did not follow any recommendations that we submitted. There would probably be still some joint liability but I'd think that most of it would rest with Ag and Food. And, the same case exists again, with Sask. Environment. You know, we have this mandate for water quality protection but we don't have all the regulatory tools. Some of those regulatory tools rest with other agencies. (SWA2 Sec. 0, Para. 274 - 227)

EVALPROG Summary

There was very little transcript content collected under this node heading. The SWA Overview document provides some background on the annual surface water quality report that SWA produces on behalf of the Ministry of Environment. Also, as a Treasury Board Crown, SWA is required to file a Performance Management Plan annually in conjunction with the provincial budget. The corporation's Annual Reports include a review of performance results based on the previous year's plan.

THEME 8 SUMMARY FOR SWA

COORDFED Summary

Respondents described the Integrated Water Management Committee as an important new effort in coordinating the activities of federal and provincial agencies. The following comment by SWA2 recognizes the important role PFRA has played in water management and the need to have them at the table.

So we are looking for a system [integrated water management] first to bring it together provincially and secondly recognizing the large role the federal

government plays even though water is constitutionally provincial. Agencies like PFRA have historically been very significant in water management in the province and Environment Canada has very significant roles in hydrology and being part of the Prairie Provinces Water Board and inter-provincial issues. (SWA2 Sec. 0, Para. 22)

The following comment from SWA2 indicates that IWMC process is far from written in stone and there are still questions about how the committee's efforts might be translated into policy.

The federal government is making a significant contribution in developing this [IWMC] as well but it has been recognized from the start that water is provincial and this will be a provincial cabinet item not a federal cabinet item. The federal agencies will sign in perhaps simply voluntarily. We've tossed around the idea of a federal-provincial agreement but we haven't developed that idea. It's not absolutely necessary to make it work but might have merit so we may decide to pursue that. (SWA2 Sec. 0, Para. 99 – 107)

SWA3 indicated that national water agreements promoted by the federal government look to provincial environment departments as partners, which may not be the most appropriate agency to be dealing with in Saskatchewan.

They [federal officials] come into Saskatchewan and they are not sure who they should work with. So they are working with environment but in terms of setting water quality networks it really should be the authority [SWA] that's having the most input on that. So environment will involve us then in those discussions but they are still the lead on it. So a small province, it's kind of frustrating that they have never been able to get their act together in terms of dealing with the water quality issue. (SWA3 Sec. 0, Para. 19)

SWA3 also discussed problems with the approach taken by federal officials when working toward a national water strategy.

Well I guess in my experience they really confirmed the views I had going into it in the sense that I saw again several times where the federal government was working on a water strategy and they will you know come up with their own ideas and their own programs, the things that they are interested in. And they will come up with a water strategy and then they will come up with the idea that now they need to go talk to the provinces about a national water strategy which is all about what they want to do instead of going out there and recognizing that it is the provinces that have the primary role in water. The feds never want to take a back seat position. That's why we don't have a national water strategy. (SWA3 Sec. 0, Para. 244)

Fisheries and Oceans Canada (DFO)

The federal Department of Fisheries and Oceans was the subject of negative commentary. The DFO is responsible for the management of inland navigable waters and fish stocks which can involve it in the construction or management of waterworks. A dispute over the destruction of beaver dams by RMS resulted in a DFO official appearing at the provincial legislature to charge the provinces Environment Minister. The fact the fisheries officer was wearing a handgun opened the department to ridicule.

COORDPROV Summary

A number of the issues related to provincial coordination have already been discussed under the nodes ROLEWATER, MANAGE etc. Only responses unique to this node or which provide a unique insight into issues discussed earlier are provided below.

A number of comments posted under this node described the confusion, or lack of clarity that results from having so many agencies involved in water management in the province. SWA3 identified Environment's authority over water quality and overlapping involvement by agencies such as PFRA as contributing to a lack of role clarity. It would appear that integrated water management is as much or more of an issue between provincial agencies as it is a matter of integrating provincial and federal activities.

Overlapping roles

I'm not sure how much of a problem it is. I guess from our perspective as the provincial water manager we have sort of a mandate to ensure people have access to water and we basically have the legislation. We do the licensing of ground water and surface water. So from our perspective, it's a matter of resources that we have got. It's okay to have these multiple agencies involved in some of these activities. But everybody is doing for their own perhaps narrow purpose or whatever purpose that they want. The PFRA don't have a legislative role, it's just something they take on and do and sometimes it can be compatible with what we are doing and useful to us and other times it's not because it's directed strictly for their own purposes. (SWA3 Sec. 0, Para. 85 – 86)

SWA3 also discussed how having different agencies involved in the approval process for projects that might impact groundwater could be a problem (this issue was discussed under ROLEWATER).

Int 1: so if they have to do an environmental impact assessment of water sources it would be then up to Saskatchewan environment. That would be their task to do it? Or is it up to you?

Respond: *No, if there is a water quality aspect in environmental assessment that would be in terms of reference would be set by environment and assessed by environment and again they would ask for our input and advice on it.*

Int 1: *But in this case you are still in full charge of the issue of water quantity?*

Respond: *Yes (SWA3 Sec. 0, Para. 31)*

More confusion today

In the following exchange SWA3 indicated that when SaskWater was created in 1984, the idea behind it was to have one agency responsible for the bulk of water management in the province – and as of today we have moved away from that idea.

Int 1: *In fact there seems to be several agencies dealing with source water protection at the same time.*

Going back to the days of SaskWater in 1985[sic] when it was set up it was set up as the one stop shop for water. At that time there were about 6 agencies and they took water responsibilities out of them and put them into SaskWater. But the one thing that wasn't put into SaskWater was the water quality function. At that time environment was quite small and so it was almost a logistical thing. They left water quality with environment to keep that organization with part of its mandate intact. But the intention was to try to round out the whole water management agency aspect was to get water quality put into SaskWater. That never happened. So there continues to be a confusion with who has lead responsibility on matters pertaining to water quality in the province. (SWA3 Sec. 0, Para. 17 -19)

There were differences in the degree of concern that respondents attached to the confusion that results from so many agencies managing water in the province. SWA4 for example didn't think it was an issue that had people complaining very loudly (SWA4 Sec.0, Para. 56 – 58)

On the other hand SWA6 made the following comment in relation to the degree of confusion.

Now it's potentially part of one of the frustration points was the number of agencies that actually still deal with water in the province versus dealing with one. I mean, even the regional health boards deal with water. (SWA6 Sec. 0, Para.223 -225 under the node LEGAL)

Provincial IWMC

SWA2 reported that getting interagency cooperation between provincial groups was integral to the development of IWM.

So we want to bring it all together. So basically our first goal is to get provincial agencies to work toward common goals and agrees that this is our vision so we

don't have say agriculture heading off with irrigation strategy that.... It would be a big use of water that's totally out of sink with what the watershed authority has envisioned for water use and producing conflict. So we are looking for a system first to bring it together provincially... (SWA2 Sec. 0, Para. 22)

Status of integrated water management within the province

SAW2 indicated that action was planned at the cabinet level to deal with issues coming out of the IWMC process. It could be that the provincial election in the fall of 2007 temporarily derailed the process. However,, when the appointment of the former Deputy Minister of Environment as President of SWA was announced in the late fall of 2007, press reports indicated one of his key tasks would be to develop a new water strategy for the province.

Well, and essentially we are well into the process and we are doing two things. We are creating a strategy that we are supposed to bring to cabinet this fall. It will have two components. One is a governance process that lays out how federal and provincial agencies will work together and the other is a more traditional strategy of goals, objectives and actions that we see need to be done to address water management needs over the next several years. (SWA2 Sec. 0, Para. 24 - 37)

COORDLOC Summary

There were two schools of thought on involving local communities and governments in water management. SWA3 described the challenges related to dealing with literally hundreds of urban and rural municipalities. For SWA6, the more local involvement obtained the better.

Many government agencies would say that there are too many RMs as well to deal with. Anyway the problem with them being small, I think increasingly what government is looking for is trying to put more responsibility onto local government to deal with some of these issues. (SWA3 Sec. 0, Para. 222 -228)

My personal vision? I think almost all aspects of water management. From even to, I think within 20 or 30 years we will even see legislative authority around water control and complaints and drainage I think, moving the decision...I am an advocate of moving decisions, of moving decisions to the lowest level possible. (SWA6 Sec. 0, Para. 203 – 227 under node COORDPROV)

SWA3 provided insights into the roles of central agencies such as SWA and municipal governments. He/she indicated that it isn't always the case that the RM wants to be the regulator.

Yeah, I can imagine it is a challenge for them [RMs] and that's both a problem of their capacity and ability to be set up to be getting information from government agencies but it is also a problem of how agencies relate to them. Many

government agencies would say that there are too many RMs as well to deal with. Anyway the problem with them being small, I think increasingly what government is looking for is trying to put more responsibility onto local government to deal with some of these issues. And they are very small and it's very difficult for them because of just the practicalities of, you know your councilor and the RM is your neighbor that's doing this development and it happens time and time again that people get preference. It happens with big government why wouldn't it happen with little government? But it's harder with RMs because you basically know everybody in the municipality and it is more difficult to take on more strict administrative policy, a regulatory responsibility. So RMs never want anything to do with drainage because they don't want the responsibility of having to tell people to shut their drains and what not. Just from a practicality point of view (SWA3 Sec. 0, Para. 228)

SWA2 provided some insight into the rationale behind the way watershed stewardship groups are structured.

We also have thought about if and how we would bring in the people other than federal and provincial governments and have concluded for now at least to consult with municipalities and NGOs and first First Nations and so on as opposed to trying to bring them into the governance table. The reason for starting that way is partially simplicity; getting federal and provincial agencies working together seemed like an adequate challenge for the first part. Secondly but also you can bring in somebody like SUMA and invite them to the table to represent the municipal sector but . (SWA2 Sec. 0, Para. 24 – 37)

Flooding zoning

SWA3 described how municipal zoning regulations were causing SWA major problems in the Fishing Lake neighbourhood.

Well, in that case of safe building elevations, that's a government relations role. We provide our information to government relations and they are supposed and they are supposed to work with government to see what they can connect us that way. I work with them. But with local government, it's a capacity issue. I mean they are small budget wise and make it geographic wise. So for the most part they don't have the capacity to take on any of these roles and deal with some of these issues. (SWA3 Sec. 0, Para. 222 -226)

COORDINTER Summary

Very few comments were collected under this node heading. However, comments regarding the roles of federal and provincial agencies appeared under other nodes.

PPWB

SWA provides the province's representative on the Prairie Provinces Water Board and is therefore involved in discussions and planning that pertain to the quantity and quality of

trans-boundary waters and related data, which is collected for the PPWB by Environment Canada's Canada Water Research Centre.

THEME 9 SUMMARY FOR SWA

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10 SUMMARY FOR SWA

REDVUL Summary

No comments were posted under this node.

THEME 11 SUMMARY FOR SWA

LEGAL Summary

Comments were provided regarding the legal capacities SWA has and doesn't have. For example SWA1 indicated that the corporation lacks a clear policy or legal mandate to safeguard the ecology when making allocations. (SWA1 Sec. 0 Para. 136 -154)

Drainage conflict

SWA1 indicated that the corporation has the capacity to intervene in drainage and allocation conflicts. (not mentioned is that drainage conflicts can be appealed to the Water Appeals Board)

R: On the drainage side we have legislation that if it is a private process then we will investigate and if we find that water is coming off damage is created we can actually close those works we have that responsibility. On the water supply side if a person is actually taking water that is not allocated to that person we can shut them down. SWA1 248 – 258

Changes on the horizon?

SWA2 was less sanguine about the corporation's current regulatory powers and indicated changes are forthcoming.

The enforcement provisions are weak, the allocation conditions could be improved, we've been working on drainage and new wetland policies we are developing which will require legislation to change. So we are developing a fairly significant set of amendments to the Watershed Authority Act. We also have a hydropower act that is really obsolete and we are going to fix that as well. Some of this legislation has sort of sat there not getting a whole lot of use. Like the hydropower act, there hasn't been a new hydropower dam in a long time so there were policy objectives when the act was written that really don't apply now and

some details that are in it are really obsolete. Anyway, we have been reviewing our objectives, the whole piece of legislation and have identified a number of areas where the legislation can be improved and can make us more effective. That is not directly related to integrated water management but obviously the philosophy of IWM is what we are trying to consider as we are looking to put forward the proposed amendments but we'd be putting forward amendments even if we weren't doing IWM because they are quite necessary. SWA2 155 -163

SWA2's comments regarding the need for legislative changes were echoed by SWA4 who stated the corporation was lacking in allocation legislation, "ecological refinement of allocation process would be good". (SWA4 Sec.0, Para. 221 -229)

The legislation doesn't currently require that we allocate sustainably and I think it should. I think we should be bound as civil servants so that we can only make allocations that are considered sustainable...right now....our legislation would let us approve allocations that would actually dry out aquifers like they are doing in many places in the US where they don't have very good groundwater legislation... Our act doesn't really give any good penalties. Our act allows us to cut off the water but we are never going to cut off the water in a barn full of livestock. Its not a viable nor, an except in the last resort are we going to tell somebody like Weyerhaeuser pulp mill that they can't have anymore of our water tomorrow and they have to shut down. The cost to society is too big or having a whole bunch of cows dying of thirst is not really a public relations coup. So the legislation needs a few other tools to encourage compliance. SWA2 165 – 169

Ownership of shores and beds

Another issue of legal concern brought up by SWA2 involves the ownership and control of shorelines and lake and stream body beds.

Yeah, and then there has been nuances of things around ownerships of beds and shores of water bodies that's been traditionally been in legislation and we are more increasingly getting pressure to do things that require us to give ownership over to someone else. So there is a need for reexamination of some of the traditional things that have been legislation, well that aspect's been in legislation since 1895. Increasingly, we are wondering whether it needs to be that way. So that would be a part of water regulation. SWA2 216.

Challenges regarding penalties

SWA4 indicated there is a need to make penalties meaningful and enforceable. He/she also indicated that SWA is currently prosecuting a summary offence case (possibly its first) utilizing a prosecutor assigned by Sask. Environment. (SWA4 Sec. 0, Para. 245 – 259)

One example is the ability to make an order, if the individual doesn't carry it out we can carry out the work or shut the project down or whatever the case may be. The cost that we incur we have to try and some how recover from that individual

which is difficult, lengthy and costly, and probably not really worth the time. So what we're looking at maybe some type of administrative penalties that are a little more direct influence a little more timely influence the other one that we have available is summary conviction again that's a long drawn out process to make that work . (SWA4 Sec. 0, Para. 197 -219)

THEME 12 SUMMARY FOR SWA

OTHERLIM Summary

No comments were recorded under this node.

Saskatchewan Ministry of Environment (SME) Interview Summary

Process:

Five interviews conducted in 2007 – 2008.

Interviewers; Polo Diaz and Margot Hurlbert

Interviews saved in IMargo

THEME 1 SUMMARY FOR SME

What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLEWATER Summary

Respondent E1 indicated that “all pieces of Saskatchewan Environment (SE) impact water quality” and made a comparison with Saskatchewan Agriculture and Food (Ministry of Agriculture). Both agencies oversee land use practices that can affect water quality in a major way, such as the management of industrial effluents. (E1 Sec. 0, Para. 50 -74) Respondent E2 described the scope of the ministry’s mandate by pointing to the Environmental Protection Act that requires it ensure the environmental protection of land, air, water, plants, and animals including man. (E2 Sec. 0, Para. 115 – 119)

Respondent E2 also discussed how its mandate translates into action with respect to the Environmental Assessment Act, which is just one of the 19 pieces of legislation SE administers, albeit one of the more important pieces in the mix.

The Environmental Assessment Act’s short title I think it sometimes misleads people about what the act is about because the full title is ‘an act respecting the assessment of the impact on the environment of new developments’. So we are about the impacts. Second, everybody has their own sense of what the environment is. Our act lays it out by definition, it may not be my personal definition but this is how we have to administer. It says “Environment means air, land and water, plant and animal life including man. (E2 Sec. 0, Para. 113 – 115 STAKEISSUES)

Regulating drinking water and wastewater

E1 stated that, more specifically, SE is involved in the following water related activities:

- 1) The regulation of drinking water quality with a “piece” of the department devoted specifically to setting standards and monitoring drinking water treatment plants and source water quality.
- 2) The regulation and monitoring of municipal wastewater systems “...there is a very strong connection between effluent flowing into the system and from the same system being taken into drinking water.”

Respondent E1 also described the high level of accountability that SE requires of municipalities, indicating that the *Laing Report* and North Battleford's cryptosporidium parvum problem helped trigger a more rigorous approach. (The respondent does not mention the criticism levelled at the ministry itself in the *Laing Report*.) E1 also states that encouraging full cost recovery for water and wastewater system infrastructure has become a component of the government's water management policy. Thus since 2002, the financial management and taxing practices of municipalities are seen as a component of environmental management.

...we have gotten a pretty good handle on that program [drinking water quality] over the last five years for sure. We built that program up and have a pretty rigorous regulatory system. We have also pushed it out in terms of public accountability. We require public accounting at the local level. We have encouraged the communities to look at full cost accounting in terms of what the costs are to make sure that they have dollars to come back in and sufficiently recapitalize. So we make sure that they are building recapitalization into their costs and those kinds of things. And there was a time earlier, let's say pre- North Battleford, pre-Walkerton, where drinking water was considered to be, well it was important, it didn't seem to be as important as it should have been by communities out there and I think by everybody really. And people were accessing water for prices that just didn't make sense. In particular in rural Saskatchewan, they were paying very little from a utility perspective for the water... There were many communities that had very poor levels of treatment and that's improved very substantially. A lot of dollars have flown into it ...coming from government at the federal, provincial and municipal levels. And those dollars have started to build those plants up. We have required it from a regulatory perspective, there is no choice. (E1 Sec. 0, Para. 50 -74)

Respondents E1 and E5 both commented on the level of responsibility being "pushed out there" to the municipalities with respect to drinking water and wastewater management since North Battleford, allowing that the department still develops and monitors regulatory controls.

...we have required them [municipalities] to publicly report on their drinking water quality. We require that their operators are fully certified and that they have a continued education component. There are so many pieces where we have pushed that accountability out there but we still have to have those regulatory controls in place. (E1 Sec. 0, Para. 50 – 74) see also (E5 Sec. 0, Para 97 – 99 COMMNEED)

Respondent E1 suggests (see above) that monies from senior levels of government have been made available to assist municipalities in meeting the financial demands of the post-North Battleford regulatory world. It is unclear at this point in the research to know whether the funding available has been sufficient to meet community needs. Other comments offered by the SE respondents indicate that despite the potential for penalties,

some communities have been allowed to operate substandard water treatment systems under quasi-permanent boil water advisories (orders?).

We have inspectors that go out on a regular basis ... We ensure that the inspections are done consistently so that the regulations are applied equally across the province, depending of course on the systems. And by putting our regulations in place, we have also made the operators and the owners of the systems accountable in that if you don't meet these standards you will be charged or your system will be shut down. We'll put drinking water boil water order in place, which has been quite effective When we very rigorously applied that the local communities then have to buy bottled water or boil their water. They have very quickly gone to their local governments and said this is unacceptable, we want this fixed. Local governments say to the people, well that means the rate that you are paying is going to have to go up, we are going to have to capitalize this over. And that's all happened. So the rates have increased substantively. So when I talk about accountability it really is shared. (E1 Sec. 0, Para. 50 – 74)

Respondent E4's comments point to the role SE plays in helping communities access the financing required to meet the criteria established under the Safe Drinking Water Strategy and SE's criteria for wastewater treatment.

There have been a number of improvements in funding programs that Canada and the province have initiated for improvement of infrastructure, water infrastructure improvements being one of them. Saskatchewan Environment participates in a decision making committee for grant programs such as Canada Saskatchewan Infrastructure Program which is done [completed] now, Canada Saskatchewan Municipal Rural Infrastructure Fund, which is still going, and so one of the things that you do there is that you establish an application rating scheme and for example in the past when we had a precautionary drinking water advisory or if there was a community that didn't meet minimum standards that got a high score on their rating scheme so they were more likely to get funding for their improvements. (E4 Sec. 0, Para. 29 – 41)

Source water protection

SE is involved in source water protection. This includes preventing source water pollution through SE's regulation of municipal landfills and spills of hazardous products. (E5 Sec. 0, Para. 151 – 171 COMMNEED) Respondent SE1 stated that SE's role involves investigating "spills" that threaten groundwater and has the capacity to level penalties.

We would get into any spills, you know the asphalt as spilled into Wascana lake here this spring when it went through the Regina ... surface run off outlets. We were the ones investigating that and ensuring and laying charges where necessary those kinds of things. (E1 Sec. 0, Para. 144 – 154)

Respondent E1 indicated that protecting source water also involves other government agencies. This is the case with respect to intensive hog operations, which are often viewed as posing a threat to ground water. SE1 indicated that SE would cooperate with Sask Ag. In the case where a hog operation was polluting groundwater but “would definitely take the lead.” (E1 Sec. 0, Para. 144 – 154)

Respondent E4 elaborated on the roles of various agencies involved in source water protection, noting SWA’s quantity monitoring along with the following:

Sask Environment would work on that through permitting for effluent discharges be it from a municipality their wastewater, or from an industry there’s a few industries in Saskatoon that discharge directly to the river... well for discharges for things like closed pulp and paper plants, Weyerhaeuser in Prince Albert so there’s a variety of manners and well call them permits, permit to operate or permit to discharge. Environment also permits the use of pesticides in and around water bodies through Aquatic Uses Control permits, Environment deals somewhat with permits for aquatic habitat disturbance shore line alterations. So those are our roles, Agriculture and Food works on source water protection by improving agricultural practice. By working with farmers, right. Government Relations works to improve source water quality through funding infrastructure improvements so it’s not just one agency. Some have a mandated legislated role Environment and SWA but others have a very strong interest in it. (E4 Sec. 0, Para, 107 – 113)

Respondents E3 and E4 commented on overlapping responsibilities for source water protection, particularly between SE and SWA. Notwithstanding those comments, respondents from the SWA interviews seemed much more attuned to, and concerned about, the division of responsibilities for water within government. They noted that their legislation ostensibly gives them a wide responsibility for water, but that in practice SWA is focused on source water quantity, while SE deals with quality concerns. E3 recognized that beyond the area of drinking water quality, water is primarily a SWA responsibility. Nonetheless, he/she indicated that SE still participates in activities led by SWA such as the IWMC (E3 Sec. 0, Para. 66 -78)

The following comment was in response to whether changes should be made to the way source water protection is administered.

There certainly would be some advantages to incorporating some aspects of what SWA does directly with Environment or maybe we need to take the water out of Environment as set it over there and pick one it doesn’t really matter which to me. But that’s simply the way it’s organized here. (E4 Sec. 0, Para. 29 – 41)

Similarly, respondent E2 noted the areas of overlapping interest and responsibility when source water is threatened.

Respond: *Environmental Protection Branch would be heavily involved. The conservation officers would be heavily involved. Depending on the circumstance, SaskWater [SWA] would be involved, health could be involved. So there is a whole bunch of potential players...* (E2 Sec. 0, Para. 93 -95)

There appears to be some concern within SE about the potential for public confusion regarding the roles of the various agencies involved in water quality monitoring. This comes out in the following exchange:

R: *Yes, surface water and water quality. Sometimes water samples were sent to the provincial lab, sometimes to Sask Research Council for analysis. Interestingly enough, that analysis was actually used more by Saskatchewan Watershed Authority than Sask Environment. I guess I'm not sure how that all washes out but that's the truth.*

I2: *Ok. And those results, do you share them with the local communities as well?*

R: *Well you know it's funny, I collected those samples for a number of years and the local guy didn't know the ramifications or importance of those until I became involved with that watershed advisory committee, at which time they were sharing the results with the committee. But you are absolutely right, the residents of western Saskatchewan, like Leader area, they wouldn't know what was going on in their river. I was somewhat astounded as well.* (E 5 Sec, 0 Para. 37 – 67)

Interest in the need to streamline water management and deal with issues such as overlapping interests and responsibilities has encouraged SE to become involved in the multi-agency Integrated Water Management Committee (IWMC).

We're working with Sask Watershed Authority, Government Relations, PFRA, Environment Canada, Executive Council, and a number of other agencies to develop an integrated water management framework for the province and that's something that's happened in other jurisdictions so really the way I look at it, it's a broadening of the Safe Drinking Water Strategy to include water quantity, water conservation, and other water related initiatives and coordinate that across federal and provincial governments - and that's just not within, within the main provincial agencies. (E4 Sec. 0, Para. 29 – 41)

Evaluating development

The Ministry's role in approving certain development projects based on their environmental impact which by extension involves concerns for source water quality protection. Respondent E2 described that role as follows:

Our role is to ...allow development to proceed provided that there are adequate environmental safeguards. And because our duty is to look at the impact, this is how we assist in that safeguarding. So it is not up to me to decide whether we should have oil and gas extraction. It's not up to me whether or not we should

have a new reservoir built. It is up to me and my crew to say, given that this proposal goes, ahead what do we need to do to ensure that the environment is protected and the community is protected and the social, economic and cultural conditions that influence it. Because that is part of the conditions, we know that we will be sacrificing something from the environment is that going to impact the environment. (E2 Sec. 0, Para. 115 – 119)

The following quote elaborates on SE's approval role.

But as we are structured today, is their adequate environmental protection? We know there is going to be some loss. There always is. There is a footprint. Is that footprint in balance with the community benefits? And that's all based on what the community tells us and...what the proponent has laid out tells us about the impacts, the technical people talk about the impacts. The people who are on the economic side will tell us about economic advantage. The community will tell us about community life. That's where we end up. (E2 Sec. 0, Para. 121 – 127)

Assessing climate and climate change

The SE respondents indicated that the department has a modest climate monitoring and assessment capability and is involved in activities that are intended to mitigate the production of greenhouse gasses. Less developed, is the department's activity related to adaptation to climate change.

Respondent E3 stated that SE is involved in numerous initiatives under the province's new Green Initiatives plan. He/she indicated that the Green plan lays out 81 "commitments" many of which are related to dealing with climate change and CO2 emissions. Work in this area includes SE's involvement with PARC and the IWMC. (E3 Sec.0, Para. 66 - 78)

The exchange provided below deals with adaptation issues. It is noteworthy that respondent E2's comments regarding Fishing Lake assume that farmland drainage is the causal factor. Respondents from SWA seemed less prepared to blame drainage as the sole contributor to high levels – perhaps adding weight to the argument that unusually high snow and rainfall were involved. It should be noted that responsibility for the challenges at Fishing Lake actually fall under the purview of SWA.

Int 1: We are expecting a lot of extreme weather events, drought for example. They are predicting that there are going to be for a longer period of time and they are going to take place more often. And the opposite too. We may have some torrential rains, all that is going to affect the quality of the water. So I imagine that somehow you will have to change your system in order to deal with these things.

Respond: Absolutely, Fishing Lake that whole flooding situation. Most of that is around land use practices, draining the lands and not retaining the water, ditching it and running it out as quick as you can. Those are the kinds of land use

practices that we have to stop, in particular around climate change adaptation, we have got to start to build capacity for the land to store that water and not run it down stream and get any of those kind of flood situations. But it's not just the floods we are trying to protect, it's the whole idea of retaining that habitat and that diversity on the landscape which we have lost. (E1 Sec. 0, Para. – 176 – 186)

COMMNEED Summary

SE's post-North Battleford water quality mandate was to ensure that residents of all Saskatchewan communities were provided with safe drinking water. This effort required many communities to make changes in treatment plant operations and make infrastructure improvements. As a result the ability of some communities to access the financial resources required to make the improvements prescribed by SE also became an area of community need that had to be addressed. It would be interesting to survey municipal officials to determine whether their assessment of efforts to obtain funding for infrastructure improvement reflect SE's interpretation of how accessible funding support has been.

[some municipalities] had difficulties with the funding so we ensured, working with our federal counterparts, that the infrastructure monies that were available (broad infrastructure money) were made available for drinking water and waste water and those kind of projects. So maybe the road that they wanted to build might not get built the first year that they have to update their drinking water system. It's still a decision that local governments make but because we had the regulations in place, because we would issue the advisories we limited in a sense, if they wanted to get those advisories lifted, they had to update, change and upgrade both their operators and update their systems. So that's where they spent their money. Now do we have every problem solved? No, of course there are always problems but we have come a very long ways. (E1 Sec. 0, Para. 96 – 102)

The following comment from E1 suggests that communities needed to re-think attitudes about the value of water as a result of the new regulatory environment established under the Safe Drinking Water strategy.

[SaskWater] will bring in a pipeline and will supply you. It's going to cost you. Gee you were only paying ten dollars a month for your utility bill before. What do we pay here in Regina, approximately 160-180 every three months... We are paying substantively in Regina. It was a big wake up call for some of these communities in terms of gee your going from 10-20 to 60-70 a month but guess what? Now you have clean water, you can attract investment, you can attract businesses to come in, etc, etc. And they didn't have that before a lot of them. (E1 Sec. 0, Para. 116 – 126)

Community consultation

The following comment describes public consultation processes engaged in by SE. It would be interesting to know whether public consultation was employed in the development of the Safe Drinking Water Strategy given its impact on communities.

Do we ever actually get out to talk to general public about very general stuff? Not very often but the public has organized themselves into various interest groups or interest groups that they support and those interests come forward...On any major policy piece we do public consultation, land use planning and any of those things. A huge component is public consultation, we can't do anything anymore without, which is the way it should be in terms of the public. (E1 Sec. 0, 275 – 320)

Respondent E5 commented on community involvement in water management policy through the recently created watershed advisory groups. These groups were established by SWA and have had some SE participation, apparently not enough in E5's opinion.

The Watershed Authority calls together people from different departments to this provincial meeting to address the local concerns. I was very upset at the apathetic response of my own department, Saskatchewan Environment. I would go there as a conservation officer, but other technical people that should have been there never attended the meetings. Similarly, the Department of Health seldom attended the meetings. And, other government departments were equally apathetic. So we are talking about the local people being apathetic, but certainly a lot of the government departments were...(E5 Sec. 0, Para. 181 – 187)

THEME 2 SUMMARY FOR SE

What past water stress has the institution faced, managed and mediated, and how?

STRESS Summary

In this researcher's estimation, the major instance of water stress affecting SE in its history was probably the cryptosporidium parvum contamination of North Battleford's drinking water. The province's principal response to this incident was the Safe Drinking Water Strategy (2002). The strategy required major changes in the way that SE and municipalities manage drinking water. Some of the challenges that came with implementing the strategy have been discussed earlier in this summary. SE's monitoring and inspection capacities were enhanced and new responsibilities were placed on the municipalities. As noted under COMMNEED and ROLEWATER, the new water quality regimen caused financial stress for some communities. (see E5 Sec. 0, Para. 227 - 233)

Source water contamination is another facet of water stress that SE deals with. Respondent SE5 noted the challenges of getting community consensus around improved landfill and wastewater system management and the need to devote financial resources to source water protection. (E5 Sec. 0, Para. 227 – 233)

MANAGE Summary

As noted above SE's drinking water quality branch was expanded in response to the requirements of the Safe Drinking Water Strategy of 2002. Apparently SE officials also got involved in assisting municipalities in accessing financing for making infrastructure improvements to their water treatment and wastewater systems.

The following quote provides an indication of the sophisticated feedback system that has been developed under the Safe Drinking Water Strategy.

The system we have set up even monitors the pharmacies. There is a system in place through Health that we developed whereby if a pharmacy has a certain run on diarrhea medicine, that gets in to us much quicker than it would have otherwise...we will become engaged very quickly and say, what can it be? It might be a barbeque where the hamburgers are bad, it could be the drinking water plant, it could be so many different things but we have a system in place to look at that... We have as good a system in Saskatchewan as there is anywhere in the country, in many cases better. The drinking water management system we have in place now, both from a regulatory side and at the community level as well. Now there are still money issues. There will always be capitalization that has to happen out there. It is a never-ending story. (E1 Sec. 0, Para. 112 – 114)

Another area of proactive management adaptation has been SE's assumption of a leadership role in dealing with climate change issues.

Respondent E1 noted SE's prominent role on the climate change file but also indicated that dealing with climate change is a government-wide responsibility.

We know a lot more about it [climate change] so we have to lead government along with other agencies. I see SE as a major leader in government on this. The energy strategy that was just released by government speaks to climate change and it speaks to climate change adaptation. And if you get into that at any level of detail you will see that there are multiple departments now involved in the climate change file. We have SaskPower moving us to florescent light bulbs and SaskEnergy doing a lot of work [supporting adoption of efficient home furnaces etc.]. We have got Saskatchewan Property Management looking at energy efficient buildings and green procurement. The two major documents are the Energy Strategy and the Green Strategy both of which have come out of government in the last six months. Both of those documents speak to government wide approach to this. (E1 196 – 198 COMMNEED)

ORGCLEAR Summary and ORGFLEX Summary

SE is involved in the two major areas of focus for the IACC project, water management and climate change. The ministry has focused considerable effort on drinking water and

wastewater management. SE indeed demonstrated a capacity to adapt in response to water related health crises.

Walkerton was the major wake up call. That is where we started to institute changes by the time we got to North Battleford, we already had a lot more staff and inspectors. Had started to introduce very rigorous protocols, in terms of how the inspections were done.... Post- North Battleford, our risk aversion is much less. In other words we didn't give communities nearly the time. If there was an issue, we instituted a boil water advisory. We didn't just wait for an incident and then issue and order. (E1 Sec. 0, Para. 86 ORGCLEAR)

Managing and protecting the province's water resource effectively depends on acquiring knowledge and experience and putting it to use.

...a number of departments, ours included, along with Agriculture and food and others are becoming much more attentive in terms of land use practices and the need to protect source water. It is the same thing around protecting our ground water or aquifers. We do a lot of work with industrial development and any of that kind of thing. One of things we look at is aquifers and how much cover is over the aquifer and what are the potential impacts for discharges into the aquifers. The Regina Landfill is the perfect example. (E1 88 – 94 ORGCLEAR)

Note: Regina's current landfill has polluted groundwater sources that the city formerly relied upon for a portion of its drinking water supply.

Clarification of the relative importance of the various threats to source water is also an evolving process. For example:

...some people will tell you the ranching industry is a big problem. But I wouldn't go that far. They are concerned about cattle, for example, with watering in the river, but that wouldn't be my concern. I guess my concern would be things like the impact of the farming chemicals. That would be one of my concerns. Farming practices have certainly changed over the last 25-50 years – substantially. And we are putting all sorts of chemicals into the ground and what effect is that having on our groundwater? That would be my biggest concern ... (E5 Sec. 0, Para. 79 – 83 COMMNEED)

SE has also been active on the climate change file. It is noteworthy that there has not been much emphasis on dealing with the linkages between the two areas of focus. For example, SE has not fully developed an adaptation or mitigation plan for climatic threats to water availability, although it has done some work on the promotion of water conservation.

SE officials have insights into the “two ways” that they have to “come at” climate change. One way being efforts to mitigate the impacts of global warming through measures such as CO2 emission reduction. The other way involves adaptation to the

impacts of climate change, an area which has had minimal attention. (E3 Sec. 0, Para. 80 – 108) Respondent E1 stated that the situation need to change, and soon.

As we start to feel climate changes impacts, we have to change what the standards are out there and what our permitting requirements are in terms of protecting the environment we have all the authorities we need to do that and we do that now. (E1 Sec. 0, Para. 164 – 166 ORGFLEX)

Conservation initiatives can be considered a form of adaptation according to respondent E3. While the concept of conservation may be well understood, it does not appear the SE has any significant conservation initiatives underway, other than supporting cost recovery for new municipal infrastructure projects.

You're using less water, using different kinds of faucets and other water saving devices. There is going to be a problem with the water in the next little while, and sure, even though you're doing it for conservation, in a way, it's helping to adapt. Initially you just focus on mitigation, but a lot of the things you're doing, even though the focus is mitigation, are helping you to adapt. (E3 Sec. 0, Para. 217 – 255)

THEME 3 SUMMARY FOR SE

Does this organization plan for water/climate stress and how?

CLIMAVAR and CLIMACHANGE Summary

Front-end and back-end strategies

SE has climate specialists on staff and has been thinking about climate change. (E1 Sec. 0, Para. 176 – 186) Officials are aware of being involved in a battle on two fronts or “ends”: 1) mitigation – reducing harmful emissions and practices that are driving climate change, and 2) adaptation – responding to the impacts of climate change that are already occurring and planning for those that might be expected. Respondent E2’s comments tend toward the impression that SE’s appreciation of climate change issues has not necessarily been translated into a lot of action.

Is it [adaptation to climate change] in our minds when we look at these things? Yes. What are we able to do about it? At this point in time not very much.... We anticipate climate change is going to occur and that there is going to be environmental change. To be honest, we are at our infancy in doing this. The issues that keep coming to my mind in the most forthright manner are forestry and water usage. Forestry because there are all sorts of things happening, like concern with pine beetles... With the water one, again I like to attack at two ends. The back end I'm not so sure what we can do besides ask the question have you considered if you don't have as much water ten years from now what are you going to do? At the front end, which is what we are about, we are about the planning is what have you done to maximize water conservation? That's where

we are at in our process now I think. It's looking at that front end with regard to water conservation. We know that climate change will likely result in less water being available in the prairies. So there are two responses, how do you change when we get there and what do you do to slow the rate at which we get there. For instance, we are seeing a lot more companies being preemptive, coming to us and saying 'we are putting in a new recycling technique instead of using the former technology we have to use fifty thousand gallons a day of make up water because we lose so much to the environment. We are going to turn the cycle now we need 10'. We are encouraging those sorts of things. That is basically our approach at present. The back end, if you have only half as much water how would you respond? What is your back up plan? So we hope it gets them thinking about their future if they already haven't been. A good company can usually answer pretty quickly. But it's more about making sure about what we can do on the front end. (E2 Sec. 0, Para. 199 – 217 ORGFLEX)

Respondent E1's comments regarding recent flooding at Fishing Lake come in the form of a dual "back-end front-end" approach to climate related water management issues. The comments also say something about the multi-agency concern over the issue, since SWA has been the agency most prominently involved at Fishing Lake. As noted in a previous section, E1 appears to view the flooding as a drainage issue, whereas for respondents from SWA the jury is still out as to whether the finger should be pointed at drainage or increased precipitation – or both. (E1 Sec. 0, Para. 176 – 186 CLIMAVAR)

Respondent E3 indicated that how SE and other agencies of government view the relative importance of front-end vs. back-end approaches to climate change has influenced the amount of funding and attention provided to various activities.

...I'd say the majority of the funding has been for mitigation, not that adaptation is not important. I think that adaptation is important. Most people realize that, but one of the things they wanted to do was to see how much they can do to reduce greenhouse gas emissions. And I think at one point a few years ago the view was, 'if we get into adaptation, we'll give up on the mitigation stuff'. I don't think that's the rationale now. ...a lot of the stuff is focused on mitigation but there are also a lot of new initiatives related to adaptation. Most people realize by now that climate change is happening, it will continue to happen. There is probably nothing you can do at this point in time. You do everything you can do to reduce greenhouse gas emissions it will still continue for a while, and so you have to adapt, you have to live in the new climate era. So, I think this is why we begin to focus on adaptation, and we haven't, like the government is going to be spending a lot of money just in the PARC research alone. I think before we were providing \$125,000 to Park for research, and now in addition to the \$125,000 we will also be providing another \$500,000 over the next four years, which is 2 million dollars. (E3 Sec. 0, Para. 80 – 108)

Respondent E3 also indicated that many government agencies are already engaged in climate change adaptation whether they know they are or not.

A lot of people, a lot of departments wouldn't say, hey, we're doing this for adaptation, but they are nonetheless doing a lot of adaptation at this point. I mean, agriculture is doing adaptation, Highways and Transportation is doing adaptation, if you asked them why they're doing it, they wouldn't say because we think climate change is going to happen or it's a problem, but if you know the kind of problem they have to face, building the culverts and highways and so on and bridges and so on, even dams. Because of what's been happening, they realize they have to do something different, and they are doing a lot. I think health is also doing a lot. We, you know, we've got West Nile Virus and things like that, they wouldn't tell you it's for adaptation, climate change, but, yeah, adapting to climate change. (E3 Sec. 0, Para. 80 – 108)

The roles of education, research, and planning

Respondent E1 maintained that to achieve success in adapting to climate change it would be necessary to engage in research, public education, and planning efforts in support of both front and back-end activities.

[Public education is required] for people to understand that we are going to have to adapt. But that also means that we still have to control what we are currently doing. We can't continue to emit. Some people have said, 'well if its already here then I guess what the hell? I'll leave my air conditioner on and I'll run my four cars'. We have to get the message out that no you are going to have to adapt but your adaptation costs and the impacts are going to be so much greater if you don't turn that air conditioner off and maybe walk a few times as opposed to driving. So there is that side.... We have to do the research and the science. For instance, we deal with species and in the broader piece. When you look at water and you are also looking at protecting animals and plants. As the climate changes, how is the landscape going to change? What does that mean and what are we going to do?... [there will be] trade-offs and very difficult choices to make..., you'll never have all the information...(E1 Sec. 0, Para. 172 – 174)

With respect to the need for watershed and land use planning E1 said:

I include watershed planning with land use planning -- but it is not as narrow as just a watershed. You have to look at all of your geography...We are getting there. We are creating those [watershed advisory] groups and we have dollars flowing into that process. But its going to take us a long time for us to take those studies and really apply them in a holistic integrated fashion... [once achieved] that will move us so far down the road in terms of adaptation....We have to be able to take those studies and apply them down in the more southern part of the province where it is much more difficult because you've got land practices that have been going on for a 100 years. You've got multiple land owners, multiple interests, way beyond what we deal with on a piece of Crown land in the north. So how are we going to figure out how to get everybody sitting down and saying what do we think this going to look like in a 100 years and what do we have to do

now to adapt. So those are the more difficult discussions to have and the fact that we work closely with and do fund parks over at the U of R and some of those kinds of groups and support conferences and having those kinds of discussions is very important but I believe we have to get much further much faster into this holistic planning, looking at all of the different pieces. (E1 Sec. 0, Para. 172 – 174)

The role of climate change denial

Obviously one of the concerns of researchers investigating the capacity of agencies to respond to climate change is whether the leadership of the agency believe that climate change is indeed happening. For instance, one of the SWA respondents indicated it was of little practical use to review climate models that predicted the impact so global warming since there was so little certainty about their reliability. The following exchange indicates that climate change denial is not an issue at senior level of SE.

Int 1: We have been told by people in other agencies that climate change is not an issue for them basically because there is no certainty about the potential impacts of climate change. So in those terms they prefer not to think about that. I had the impression that in the case of SE, there is another perspective here. Is that right?

Respond: Absolutely no question. It wouldn't matter who you talk to in the department here. Certainly at the senior level you will find the story wont change. (E1 Sec. 0, Para. 188 – 194)

The following exchange extends questions about the extent of climate change awareness from within SE to other agencies, the media and the public.

Int 1: So when you have to deal with other agencies, do you think that they also share your concern and your approach to climate change ?

Respond: Well are they as well informed [as SE]? I guess in a sense because we do this for a living it's a little different in that we know a lot more about it so we have to lead government along with other agencies. I see ourselves as a major leader in government on this. But if you look at the energy strategy that was just released by government, it speaks to climate change and to climate change adaptation. And if you get into that at any level of detail you will see that there are multiple departments and crown agencies now involved in the climate change file. You know we have SaskPower moving us to florescent light bulbs and Sask Energy doing a lot of work, we have got Sask Property management looking at energy efficient buildings and green procurement. The two major documents are the Energy strategy and the Green strategy both of which have come out of government in the last six months. Both of those documents speak to government wide approach to this. Now are there some doubters out there? I'm sure there are. I don't think there is any file where there wouldn't be. But I think many of the agencies have moved further in the last 18 months then they would have in the last 18 years in terms of where we are going. So I think we have obtained a much

stronger commitment now from those agencies than where we were before. And I don't think that is going to change due to a whole bunch of things such as the Green Strategy development which has happened over the last two years in government. We led that. That really got a lot of other departments very significantly involved. It's a matter of just the headlines in the media, now how climate change has been high lighted and then you start looking at the extreme weather events that have occurred and people are starting to say maybe there is a connection. And of course there is the government and the political will for government to also respond to that and of course governments respond to what people want. So governments are responding because people want government to take action on this file and move us forward. They want somebody to lead, to say what do we need to do here. I think any government, I don't care who it is, they'll respond. You see that federally and provincially as well. (E1 Sec. 0, Para. 196 – 198)

In assessing the Saskatchewan public's acceptance of climate change forecasts due to global warming, respondents from both SWA and SE have indicated that in some parts of rural Saskatchewan there seems to be minimal concern.

No, that's not on the local people's radar at all, I'd say. You are right there. It's primarily got to be a local thing. You know, well it's a 'show me' thing. Like, even climate change, even at Leader, it's certainly hotter, but is that due to climate change or is that due to micro-issues, that kind of thing. (E5 Sec. 0, 201 – 207)

THEME 4 SUMMARY FOR SE

What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

DATA COLPRI, DATA COLSEC, DATA COLNEED and DATA COLACCESS Summary

It is interesting that far less concern was expressed on the data front by SE than agencies such as the PFRA and SWA. It is correct that SWA collects much of the primary surface and groundwater data utilized by SE. However, SE is responsible for doing hundreds of inspections and assessments of municipal water treatment plants and wastewater facilities annually. SE maintains a data management system called Saskatchewan Environment Environmental Management Systems (SEEMS). SWA officials have access to SEEMS data and can store SWA data with SEEMS. (E4 Sec. 0, Para. 51 -97 FINERES)
Respondent E3 noted that an important development in data assessment is the indexing of climate change vulnerabilities that PARC is conducting. (E3 Sec. 0, Para. 217 – 255)

The comments of respondent E1, provided below, summarize the data collection relationship between SE, SWA and Environment Canada.

Respond: *It's jointly done. The quantity is done by the watershed authority, 100% of the quantity side. The quality side is jointly shared with the watershed authority. They do a lot of the work. The pieces that we have kind of retained, but even this we share with WA is where we've got national stations that are kind of part of the national monitoring system. So Environment Canada has a monitoring system across Canada that they kind of manage and each jurisdiction feeds into that....There are 25 [?] sites in Saskatchewan that we [SWA ?] monitor a number of times every year. We submit that data in the major system, North Saskatchewan, South Saskatchewan and the systems that are inter-provincial in nature. We would monitor those sites, jointly between SE and SWA, we are responsible for dealing with federal government on that national picture [some of that responsibility is passed on to SWA which represents Sask. on the Prairie Province's Water Board]. The national ones we deal with, we are kind of a lead although SWA certainly delivers some of those. Any of the smaller ones that are around watershed management, local type water quality studies, research, and those kind of things the watershed authority does. (E1 Sec. 0, Para. 242 – 248)*

THEME 5 SUMMARY FOR SE

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES Summary

As with most any agency of executive government, officials seldom obtain all the funding support they request in their annual budget submissions. That said, there was an instance where an SE official noted some controversy over possibly inadequate funding. The comments below note that SWA undertakes surface water monitoring on behalf of SE. SWA receives several millions of dollars in payment for this service annual, but nonetheless sees the support provided as less than adequate.

SWA has been doing SE's surface water quality monitoring and has been somewhat critical of Environments' efforts in the water quality monitoring field. We have faced repeated reductions and reorganizations, which have affected our ability to support monitoring activities. And so maybe their criticisms is well founded...I'm working on an order in council for a contributory agreement with the Feds to help fund our surface water quality monitoring efforts because now we're really relying on spare time that staff have which isn't in abundance to do this and we're trying to coordinate it across a number of agencies as well. So we're in a bit of a difficult position now to sustain that but hopefully with influx of some federal money we'll be able to hire a full time technician to do the monitoring for us. (E4 Sec. 0, Para. 51 – 97)

NEEDRES Summary

Respondent E1 made some interesting comments regarding a lack of financial and research resources. He/she maintained that a perceived lack of resources should not be an excuse for doing nothing.

Respond: We have resources to get us started. Do we have sufficient resources to deliver it in the fashion that I have just described? No we don't. But will we ever have those resources? Probably not. Its going to be more a matter of awakening the public and all of the various agencies to these issues and then coming up with a approaches that are going to have us all go down that road. I think part of the challenge is we can't be waiting to look for the perfect solution. If we wait that long it will be too late. It's a matter of taking those kind of incremental steps and taking some risk in terms of not knowing what we are really going to accomplish. In some cases, from a definite perspective, but we are going to have to take those steps anyway. (E1 Sec. 0, Para. 188 – 190)

Respondent E3 was impressed with the level of resources and attention that have recently been applied to water management and climate issues.

I have to say that I have never seen as much resources poured into a plan as we have recently so I think there's probably a good chance that.... (E3 Sec. 0, Para. 189 – 199)

By way of contrast respondents from SWA seemed to feel that following the flurry of activity surrounding the Safe Drinking Water Strategy financial support was waning.

TECHRESOURCES Summary

Nothing under this node

THEME 6 SUMMARY FOR SE

Who are the institution's stakeholders, how do the stakeholders relate to the institution, and how is their input incorporated into the institution's management and decision making?

STAKEISSUES AND STAKEMEDIAT Summary

The scope of SE's mandate and activities require it to deal with a wide range of stakeholders within the provincial government, the federal government and the wider community.

Respondent E1 summarized the range of stakeholders and also indicated how and individual or group might approach the ministry. The following stakeholders were identified

- the minister for SE

- MLAs and MPs
- SWA
- the media
- citizen advisory and lobby groups such as;
 - o fish and wildlife organizations
 - o individual municipalities
 - o SUMA and SARM
 - o farmers
 - o First Nations
 - o environmental groups
 - o companies and industry associations
- etc. (E1 Sec. 0, Para. 275 – 320 COMMNEED)

Municipal stakeholders

As noted earlier, considerable stakeholder mediation and support was required when the new post-North Battleford drinking water and wastewater regimens were put in place. (E1 Sec. 0, Para. 96 – 102)

Respondent E1 described the sorts of issues and processes that arise.

Respond: Their mayor will call our environmental protection officer to come and say we have got a problem with a landfill. Or I'll get a call we'll go out to meet with a mayor who needs money to build a water treatment plant what can you do about it. Those are very regular. Aboriginal groups, First Nations, Metis groups all the time as well. (E1 Sec. 0, Para. 310 - 314)

Industry stakeholders

Respondent E1 indicated that industry is generally cooperative but sees the environmental process as too slow.

...there is lots of cooperation and in many cases industry wants to do the right thing. More recently, they have developed a better understanding of the impacts on the environment and the need for full-cost accounting in terms of the types of work that they do. In many cases industry is well ahead of us in terms of what our requirements are. They are always wanting to ensure that it gets through the process, not wanting to bypass the process but wanting to get it through quicker. Wanting to ensure from an economic side that they can still make the project economically viable. (E1 Sec. 0, Para. 156 – 162)

Skepticism with review process

Some communities and members of the public are skeptical of the environmental review process, sometimes assuming that the process is biased in favour of industry.

Respond: The Sand Hill was different. So I hate to rest my case on that because it probably is the first time we have gotten into sort of a regional assessment. Something that was targeted at looking at cumulative effects and there was

skepticism I think. I can't prove it but that is my sense of it from talking to people. There was skepticism about the whole process. (E2 Sec. 0, Para. 109 – 111)

Respondent E2 commented at length on the processes involved in the approval of development projects. The comments served to illustrate the due process and fairness built into the setting of criteria and the evaluation of proposals.(E2 Sec. 0, Para. 155 - 182)

Agri-business

The establishment of intensive livestock operations such as large hog barns is an area where SE shares responsibilities with the Saskatchewan Ministry of Agriculture and SWA. Respondent E2 outlined how this, sometimes controversial, process unfolds.

Respond: But you mentioned livestock, that was an issue that the branch [Environmental Protection] and the department and government struggled with a number of years back it became a moving part of the agriculture initiative. So best practice guidelines were established around intensive livestock operations. The department of agriculture was basically tasked with okay a project comes in, does it fall within the guidelines. And if so, our people review it, but it's pretty straight forward. If however they exceed them, then they come back to us and our process is initiated. Key in those guidelines, amongst other things was odor, this was not a priority, but there was odor, there was water consumption, effluent disposal, and in some cases people were also quite concerned about traffic, trucks to product you know getting livestock in and out and what have you. Feed. You know all of those ancillary things. So those were addressed in these documents but as you can appreciate people have desires and they bring forth their plans and they don't all necessarily line up. (E2 Sec. 0, Para. 37 – 43)

Development vs environmental protection

Respondent E2 described the tension that comes with mediating between protecting the environment and allowing for economic development. He/she indicated that the legislation SE operates under requires it to consider the social, economic and cultural conditions that influence the life of a community when making determinations about whether a development should proceed.

So yes there is a tension that is often produced. Our role is to ... allow development to proceed provided that there is adequate environmental safeguard. And because our duty is to look at the impact, this is how we assist in that safeguard. So it is not up to me to decide whether we should have oil and gas extraction. It's not up to me whether or not we should have a new reservoir built. It is up to me and my crew to say, given that this proposal goes ahead, what do we need to do to ensure that the environment is protected and the community is protected and the social, economic and cultural conditions that influence it. Because that is part of the conditions, we know that we will be sacrificing something from the environment is that going to significantly impact the

environment. On the other hand what are the social benefits?... (E2 Sec. 0, Para. 119 STAKEISSUES)

Under the system described very few projects are entirely rejected. When changes to project proposals occur it is often due to the expression of public concern.

There has only been a handful, very few projects that have not gone forward period full stop. There are a lot of projects that were significantly modified because of public input. And that's the key, the public being there because to the people on the outside might not realize that it is the public. They say oh the politicians made this decision. (E2 Sec. 0, Para. 129 – 131 STAKEISSUES)

Public input

Respondent E3 indicated that major strategies undertaken by SE have involved public/stakeholder input. One might ask whether this was the case with the Safe Drinking Water Strategy?

We've always involved people in any big strategy we have developed. For the Green Strategy, we had a number of the localities where we went out and made a presentation and talked to stakeholder groups and invited them. I think they went to about eight or nine different cities and towns to talk about the climate change strategy. We have a stakeholder advisory committee on climate change, it's about 45 or 50 different representatives of different organizations that we talk to before we do these things, so, yeah, government has always gone out and talked to people when they are doing these major strategies. There has been stakeholders involvement. We have an advisory committee, the Public Education Outreach, advisory committee, climate change, Climate Change Saskatchewan, so there have been involvement.. (E3 Sec. 0, Para. 122 – 124 STAKEISSUES)

THEME 7 SUMMARY FOR SK ENV

To whom and how is the agency accountable?

ACCOUNTAB Summary

Accountability considerations for SE include the systems required by executive government such as annual performance management plans produced in conjunction with the production of the provincial budget. There are also accountability and reporting systems that operate within the organizational structure of SE. The accountability system that deals with water quality and wastewater treatment requires hundreds of municipalities across the province to conform to SE's regulatory and reporting standards. Certain accountability processes involve collaboration with other agencies such as SWA. There are also efforts underway to develop national standards for water and emissions.

These various forms of accountability have been provided as headings for the representative accountability comments of respondents that follow below:

Budget process and prioritization

Probably the primary [accountability] vehicle is our budgeting process where we lay out on an annual basis what our plans are for the following year and how much we think it is going to cost. We do an annual environmental scan, which lays out in particular the external factors, weather, climate change and everything that's happening out there and what the impacts are... We take the budget proposals that you'll get from all your different business lines and then we run them through risk assessment. And the risk assessment is a fairly rigorous process looking at different levels of risk. In a sense, it is one tool that we use to examine each one of those proposals and say ok from an environmental risk perspective which scores high, climate change is of course one, particularly in the last three years, that is high up in there... That's how we do all of our program development and then of course it gets assigned and then it gets right down into the individual work plants that are then accounted for. (E1 Sec. 0, Para. 275 – 320 COMMNEED)

Internal SE planning/reporting

The directors submit the proposals. Directors and executive directors depending on the business line. And then we have a central policy planning group and our budget group and they jointly facilitate the environmental assessment process. You bring all of the actors in and you have a big discussions and you ask what's the social and political risk and the environmental risk and you score it accordingly. (E1 Sec, 0, Para. 275 – 320)

Community accountability

As noted earlier, SE requires communities to meet certain standards for drinking water, wastewater and things such as landfills.

We built that program up and have a pretty rigorous regulatory system. We have also pushed it out in terms of public accountability. We require public accounting at the local level. We have encouraged the communities to look at full cost accounting in terms of what the costs are to make sure that they have dollars to come back in and sufficiently recapitalize. (E1 Sec. 0, Para. 58)

There are indications that despite the fact most communities have managed to meet SE's standards, some haven't. This seems, in certain instances at least, to be related to the fiscal capacity of smaller communities to improve their infrastructure. It would appear that measures have been taken to soften the impact of strict enforcement of the regulations on these sorts of communities. There are indications that the further in time we get from 2001 and the North Battleford problems, the less the emphasis on water issues has become. Indeed, officials from SaskWater have complained that by going soft on enforcement, SE has reduced SaskWater's capacity to attract new customers.

So for example, a given village or town, pick a town, doesn't meet the standards, that is their choice and they choose to not meet the standards to save money because they can't afford it and they haven't had a drinking water problem. I'm not sure why the province needs to be afraid of a lawsuit from the residents of the town. And as such, if the people vote in a plebiscite or something that they are going to go ahead with the drinking water, you know, take that risk, that is their choice. (E5 Sec. 0, Para. 97 – 99)

And furthermore

You know, all we have done up to date is order boil water advisories, which is just an advisory. We haven't really undertaken any active enforcement because they haven't followed through on their legislation anyway. (E5 Sec. 0, Para. 97 – 99)

I2: So you just issue a boil water advisory and then after that Sask Environment doesn't do anything?

R: Well that's to my knowledge. I know there have been charges laid for water issues but primarily it's one of falsifying records and things like that, where an operator is, I think there has been one or two instances where local town guys are saying, well here is our readings, and they are lying about it, and so charges are being laid in that regard. You know, if a community continues to not follow the guidelines, and I'm just not sure, I haven't heard of any enforcement action taken.. (E5 Sec.0, Para. 101 -111)

And also

The water talk, provincially, has certainly been quiet in the last two or three years. I mean, it really has kind of shriveled up as far as the enforcement or the concern about enforcement or the concern with meeting the standards. I don't know if that is in fact reality or just my perception. But it just seems to me that concern has lessened somewhat. (E5 Sec. 0, Para. 113 – 119)

Overlapping accountability

Yes, we have the same minister [as SWA] and our deputy minister is the chair of the board of directors for Sask Watershed Authority so there is a direct reporting relationship between Sask. Watershed Authority and Sask. Environment. But at the same time the two agencies do operate semi-independently... We need to, in my view improve, our interaction in planning efforts with Sask Watershed Authority and that's part of the deal behind the watershed the safe drinking water strategy and the new framework [IWMC] we're working on. (E4 Sec. 0, Para. 152 – 185)

Regulatory standards and tools

Right now through the Canadian Council of Ministers the Environment were trying to collectively come to an agreement on how to best manage the development of national standards. And so through for our things like permits to operate for a let's say a coal fired power plant -- do they generate any CO2. What are going to have to do in terms of dealing with CO2 emissions. So we'll see an evolution of that right now with our clean Air Act I think is like 25 or 30 year old so that's one of the ones that needs to be rebuilt and we need bring these new ideas or new concerns forward. (E4 Sec. 0, Para. 152 – 185)

EVALPROG Summary

Only one entry was posted under this node. It dealt with evaluating the success of the watershed advisory groups established by SWA. (E5 Sec. 0, Para. 147 – 149)

THEME 8 SUMMARY FOR SK Env.

In what networks does this institution operate and how?

COORDFED Summary

Federal money is often required to fund infrastructure projects.

SE has some influence over the distribution of federal and provincial funding to assist municipalities in improving their infrastructure to meet new water and wastewater standards.

The way it works right now is the federal government puts in money. It's kind of a one third, one third, one third funding. Federal puts in a third, province puts in a third, there is an application process that is done on an annual basis where communities then apply and say they are willing to put in a third here is the project. We look at those projects. We are part of the review committee. We are not the major ones. Government relations are the granters of money to local governments we work with them on committee... E1 Sec.0, Para. 104 – 110)

Developing national standards

Sewage effluent standards and systems upgrading

Saskatchewan is leading Canada through the Canadian Council of Ministers of the Environment in developing a national strategy for wastewater effluent. I'm actually chairing that group. It will involve anywhere from 10 to 14 billion dollars in terms of bringing the systems up to date across the country. The reason that that is so important is because we get much of water from Alberta and you are downstream from somebody and you know where the effluents go and you want to make sure that effluent is treated appropriately before it hits the water systems. So we work very closely with Alberta and Manitoba in terms of if we have a spill into a system... (E1 Sec. 0, Para. 128 – 130)

Developing national emissions standards

On climate change we are working very closely with federal government on that whole federal air emissions framework that they have announced on climate change, through the Canadian Council of Ministers of the Environment. Our minister sits on the council of ministers, our deputy sits of the deputy ministers, I sit on the next one down which is policy planning committee... (E1 Sec. 0, Para. 228 -236)

Overlapping jurisdiction with the federal fisheries and environment departments

There used to be more overlap with Fisheries and Oceans than there is now. There are two areas of overlap that would fit into this area. Environmental assessment is one. Fisheries and Oceans is one. And Environment Canada to a certain degree in terms of the air emissions as well, although we are the direct connection with industry. Fisheries and Oceans, their connection is primarily with habitat. (E1 Sec. 0, Para. 228 – 236)

Feds can be slow to respond

The federal system is far more bureauratic far more cumbersome and tends to take longer. So we often find ourselves ready to respond and we have to sit and wait and with all our people who do that are trying to urge the feds along. (E2 Sec. 0, Para. 184 – 195)

Changes in government and the election cycle can frustrate programming

Respondent E3 as well as respondents from the PFRA discussed the challenges that arise when programs related to long-term projects are disrupted by a change in government or limited by the fact that governments tend to think in terms of four year election cycles. The problem with this is that short-term thinking may not be suitable for dealing with the impacts of climate change expected decades into the future.

Under the last Liberal government, we had deals with them to do certain things. They funded different projects. Of course when the Conservatives came in, they decided to put a new, hold everything. Evaluate everything, see where it's going, and then make changes...(E3 Sec. 0, Para. 157 – 167)

COORDPROV Summary

The summary for ROLEWATER overlaps with much of the interview content that was listed under this node. As respondent E2 indicated SE deals with environmental issues on a wide front that involves virtually all agencies of the provincial government (e.g. health and SWA). E2 stated that one of SE's important areas of activity is "interfacing with other departments". (E2 Sec. 0, Para. 31 – 32)

As noted earlier there is considerable overlap and collaboration between SE and SWA, enough to encourage questions about the potential for an alternative structure.

There already is a very high degree in integration between [SE and SWA] in work and in funding issues and so forth. It's already there. Why is it separated? I think you have to look at the history of how they have evolved. Is it functioning now? Yes. Could it be more functional? Yes. Could an increase in efficiency and functionality be achieved in the current structure? Yes. Could it be achieved if they were to be amalgamated? Yes. See even inside environment, when you look at water environmental protection does certain things around water. We have the fisheries people who do certain things around water. So it is departmentalized. Yes. We have different labels hung on all those compartments. (E2 Sec. 0, Para. 223 – 235 STAKEISSUES)

Collaboration with SWA and other provincial water groups

As noted above, SE is closely associated with SWA. It participates in the IWMC and has sent representatives to watershed advisory group events. (E1 Sec. 0, Para. 128 – 130) and (E1 Sec.0, Para. 200 – 222)

There are circumstances when SE's mandate to protect the environment coincides/conflicts with the mandate of other agencies such as Sask. Agriculture.

If there is someone causing pollution to a water body we can certainly go out and do something about that through an environmental protection order but typically when you start talking about an agricultural operation we'll talk to Sask. Watershed Authority or Sask. Agriculture and Food because they for example regulate intensive livestock operations they (Sask Agriculture) are the primary regulator. (E4 Sec. 0, Para. 104 – 105)

COORDLOCAL Summary

SE respondents commented on the importance of community involvement in relation to effectively managing the province's water resource.

Importance of local involvement

I1: I guess I am asking you about the capacity of this local government come together and make some consensual decisions about how to resolve problems.

R: Well, again, I don't think, local governments can come together and move towards a common goal when they sense an issue or a matter of urgency. And again, I think about again, around Leader there, ugh, I'm going to get off topic, but to use an example, is the regional landfill. You know, for a number of years, well Saskatchewan Environment even, we had a little bit of a public meeting there one time, talking about implementation of a regional landfill and all these communities buying into this. The local communities weren't buying into it at all.

Now, it's being resurrected by the local communities because now they see the benefit. Now they see the urgency that they can't administer their own landfills and there is problem for them financially and so, when there is an issue, I see them being able to pull together and reach consensual agreement. (E5 Sec. 0, Para. 227 – 233)

Watershed advisory groups – value and challenges.

Respondent E4 is supportive of SWA's watershed advisory group process, seeing it as an important way to establish community input and awareness.

What I see as the biggest advantage of local watershed planning committees is increases awareness locally of water quality issues it gets people in the area thinking about it how to protect it. It leaves an them an idea of better of what needs to be done or what has been done and what could not possibly be done in the future. It gets them involved and they really become advocates for positive change. But I think its' it would be difficult for some watershed committees that are, lower Souris for example fairly small area limited population sort to speak and no financial resources for these watershed planning committees to carry that stuff out but I mean they can't. (E4 Sec. 0, Para. 132 – 146)

COORDINER Summary

The federal government plays an important role in coordinating inter-provincial water management activities. For example, the PFRA plays an honest broker role through agencies such as the Prairie Provinces Water Board.

Monitoring inter-provincial flows

“Environment Canada has a monitoring system across Canada that they manage and each jurisdiction feeds into that.” (E1 Sec. 0, Para. 2242 – 248)

Inter-provincial water issues

Issues related to flow allocation between the provinces fall under the jurisdiction of SWA. However, SE is concerned with the quality of water flowing into Saskatchewan from Alberta.

There are concerns about what Alberta is contributing in terms of their herbicides and pesticides because, as I mentioned, Saskatchewan, right at the border, is showing that what is coming into Saskatchewan is higher [in contaminants] than what is leaving Saskatchewan. (E5 Sec. 0, Para. 78 – 93)

THEME 9 SUMMARY FOR SE

How will things change for this institution as climate/water stress changes?

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR SE

How does this institution relate to rural community vulnerability?

REDVUL Summary:

No respondent comments were reported/listed under this node.

THEME 11 SUMMARY FOR SE

What legal instruments are relevant to this institution's day to day operations?

LEGAL Summary

Respondent E3 indicated that developing regulations for things such as CO2 emissions is challenging since standards are being developed nationally and provincially, which can be somewhat confusing. (E3 Sec. 0, Para. 201 – 215)

Another issue noted was the “reluctance” of the Ministry of Justice to file charges for environmental offences.

We have environmental legislation on the books but, you know, 95% of that legislation, before any offence can be undertaken, or prosecution can be taken, it has to go through Department of Justice. And, there is a real reluctance by the Department of Justice to move forward with prosecution when somebody is caught violating the laws (E5 Sec. 0, Para. 223 – 235)

THEME 12 SUMMARY FOR SE

What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

OTHERLIM Summary

A comment from respondent E3 was enlightening in regard to who is leading the charge on addressing climate change issues. He/she was the only respondent to identify the important role played by senior politicians (cabinet) in assigning priority to the climate change file. (E3 Sec. 0, Para. 126 - 163)

Despite all the talk about recognizing the importance of including communities in the policy development process, community members are not always interested in participating. Respondent E5 indicated that one of the positive elements of the watershed

advisory groups set up by SWA was that they actually managed to get people involved. Previous attempts had apparently not been as successful.

“The Watershed Authority was trying, trying, trying to get feedback from the local people and it was like pulling teeth...” (E5 Sec. 0, Para. 163 – 167)

It is interesting that the role of municipalities has not received more recognition from the respondents. The municipalities are heavily involved in water management. If one were to tally up the various resources (human, financial and capital) that the province’s cities devote to water management, it would probably compare rather well with the efforts of provincial and federal agencies.

Saskatchewan Ministry of Agriculture (SMA) Interview Summary

Note: prior to the 2007 Saskatchewan Provincial Election the Saskatchewan Ministry of Agriculture (SMA) was entitled Saskatchewan Agriculture and Food (SAF). When the Ministry is referred to in its current context the abbreviation SAF will continue to be used.

Process:

Two interviews (3 respondents) conducted in 2007.
Interviewers; Polo Diaz and Margot Hurlbert

THEME 1 SUMMARY FOR SMA

What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLEWATER Summary

Adaptation and mitigation

Respondent SAF1 indicated that the ministry does not have a significant water governance mandate. However, as he/she noted. The ministry is involved in some water management activities such as irrigation. In addition, the ministry is engaged in assisting certain “sectors” in adapting to changes in water availability

We do some fairly significant programming for drought mitigation, we're very aware that water is our limiting resource for agriculture in this region. (SAF1 Sec. 0, Para. 7 – 36)

Proponents for intensive livestock projects

SAF is heavily engaged in the approval process for new intensive livestock operations (ILOs) such as cattle feed lots and large hog barns. Respondent SAF1 described the intersecting role of the Saskatchewan Watershed Authority (SWA) in this process. Interestingly the respondent incorrectly referred to SWA as SaskWater. This was a rather common error among respondents from other agencies such as Saskatchewan Environment. It tends to support the assertion that there is still public confusion related to the reorganization carried out under the Safe Drinking Water Strategy. There seems to be greater clarity about which agency provides water use permits (SWA) and which agency looks out for the water supply (the chance that the ILO could pollute ground and/or surface water supplies), is it SWA, SE, or SAF? Apparently SAF has the final say (it issues the permit) but observers might be excused for not immediately grasping this fact.

We certainly encourage proponents when their picking sites to recognize water availability will be critical and so don't locate where you can't find water or can't access water easily we encourage them to look at locations for a variety of reasons access to energy and access the road system we have a particular

responsibility they need a permit from us in terms of protecting the water supply. They make an application to use and we have engineers go out and look at all the characteristics of the land and we protect the water supply where ever they are locating so we do have that interface. (SAF1 Sec. 0, Para. 7 – 36)

SAF1 also described the maze of organizations that can be involved in the approval of an ILO.

*When we get an application from an ILO it's actually referred to 5 or 6 organizations. It will be referred to government relations for planning, heritage for a heritage assessment. It will be referred to Sask. environment for their assessment. What it does it gives the equivalent to an environmental assessment but not inside the environmental assessment its it's own specific assessment. It goes to SaskWater [SWA], to RMs for their approval so it casts quiet a wide net. **At the end of the day we [SAF] have to sign off for a permit.** (SAF1 Sec. 0, Para. 7 – 36)*

Environmental farm plans

The Environmental Farm Plan initiative is a new proactive exercise that encourages individual producers to implement environmentally-friendly management practices. The sorts of activities encouraged include protecting water sources from contamination from livestock wastes or agricultural chemicals. This is a joint federal-provincial project managed by SAF and PFRA. The process provides producers with information as well as funding support for the implementation of mitigation measures.

We actually have a fairly involved environmental farm plan process that we're doing with all farmers that are prepared to do it. It's voluntary at this point. They do an environmental assessment on their farm and the intent is that we identify all the environmental problems on their farm. It could be very thing from watering holes to is your livestock operation affecting a water shed, to are you storing your fuel properly. I mean what happens if you're fuel tank springs a leak and the ideas they do this environmental farm plan and they start looking where they need to do mitigation or protection or whatever. There is some funding that's available with that and we're actually negotiating we're talking to the federal government because we want to strengthen that. One of the things we want to try is strengthen the link between the environmental farm plan and where we put our resources to help them. They haven't always picked their highest priority. (SAF1 Sec. 0, Para. 7 – 36)

Irrigation

Prior to the 1980s, SAF (along with PFRA) managed certain irrigation projects and encouraged the expansion of the irrigated agriculture sector. In the 1980s the infrastructure components of the province's irrigation activities were transferred from SAF to SaskWater. In the 1990s SaskWater's attempt to expand the irrigation sector by setting up a potato industry resulted in a controversial business failure (SpudCo). In 2005, SaskWater returned the last of its irrigation activities back to SAF.

Respondent SAF1 described these developments as follows (note the incorrect use of SaskWater):

Spudco was a SaskWater driven project when they had more of a development role, they were responsible for irrigation from the 80s. We originally had irrigation then it went to SaskWater and it came back totally to us in the last year or two. Because SaskWater's [SWA] mandate is to overall all supply demand and water policy, and more of a mandate in the urban supply or supply for people (SaskWater). We've now got responsibility for irrigation, some responsibility for delivery from a certain point to the irrigation farmers because it's interrelated. We are also tied in community water supplies just because the canal supplies both. (SAF1 Sec. 0, Para. 54 – 74 COORDPROV)

SAF2 described the intersecting mandates of SWA and SAF in irrigation.

The allocation comes from the watershed authority, but the utilization comes from us in terms of ensuring it's efficiently utilized. Let's say that a farmer gets an allocation of 12 inches or 18 inches per acre. He's got an allocation from society that says you have got water available. Then it comes to us to try to ensure that the water is used as efficiently as it can be. (SAF2 Sec. 0, Para. 27 – 69)

SAF's irrigation activities include an engineering side that delivers water to irrigation districts and assists individual farms in adopting irrigation. The ministry is also involved in promoting irrigation through efforts such as new crop development in cooperation with the PFRA through the Canada Saskatchewan Irrigation Development Centre at Outlook, SK. (SAF2 Sec. 0, Para. 25) Respondent SAF1 noted that "in-fill" has been slow in areas where irrigation is viable, meaning that the farm population has been slow to adopt irrigation. In addition there has been a reluctance by government to make the necessary infrastructure investments.

I suspect if we every got to a new major irrigation project it would kick back into some other process for a whole variety of reasons one of which would be environmental impact but I suspect the other big ones' would be the cost benefit of it we have not seen an appetite by government to put back some huge dollars into irrigation projects in recent times. (SAF1 Sec. 0, Para. 54 – 71)

COMMNEED Summary

Respondent SAF1 provided comments on the factors influencing community sustainability. He/she indicated that increasing farm size was in most cases more critical than water supply infrastructure.

One thing that I thought was interesting was the vulnerability of rural communities to climate related impacts on water resources and this was interesting thing because we are seeing lots of fundamental changes in rural

Saskatchewan. But it's more to do with just how the world is evolving the farms are getting bigger if you ask me if farms were at the size they should be to be capturing most of efficiency economic efficiency's that could be we might be talking 10,000 farmers in Saskatchewan not 40,000 or 50,000 and is this putting lots of pressure on rural communities, most of them are dying because of it. If you read Stabler's stuff picking the communities that are going to be sustainable and the rest that are dying. You just need to drive down the highway and you see it. There are lots of communities that are dying. I think if you went out to the communities they would tell you it's those sorts of structural economic changes that are happening that's going to kill them long before water issues kill them. They've got their water issues too, but if you asked them to rank what their biggest problems are, water would be important to them but it would be well down even if they could secure a safe water supply they're still not going to be sustained and that's going to be the challenge. (SAF1 Sec. 0, Para. 265 – 299 STRESS)

THEME 2 SUMMARY FOR SMA

What past water stress has the institution faced, managed and mediated, and how?

STRESS Summary

There were very few comments listed under this node. It can be assumed that much of the ministry's interest is focused on climate issues, after all agriculture has always been subject to the vicissitudes of climate. Irrigation development in the province has been about mitigating the impact of water shortages.

MANAGE Summary

Crop Insurance is probably the greatest area of public expenditure in Saskatchewan related to climate variability and by extension, climate change. Under the program compensation is paid for losses due to drought, flood, early frosts, etc. SAF1 indicated that Crop Insurance is the major response to drought, followed by water supply issues where assistance can be provided for dugouts and wells, often in cooperation with PFRA. Another area of support includes herd retention programs to assist livestock producers affected by drought. (SAF1 Sec. 0, Para. 168 – 202)

ORGCLEAR Summary

Respondent SAF2 described the advances in irrigation practices from flood to pivots. (SAF2 Sec. 0, Para. 83 – 135)

ORGFLEX Summary

Nothing under the node

THEME 3 SUMMARY FOR SMA

Does this organization plan for water/climate stress and how?

CLIMAVAR and CLIMACHANGE Summary

The respondents indicated that Saskatchewan farmers and the provincial government have always been attuned to climate variability, and that historically a lot of effort has gone into mitigating the impacts of climate on crops and incomes. However, this fundamental form of climate awareness does not translate directly into an appreciation of sustained global climate change and the potential for greater extremes or entirely new patterns of variability. It is only recently that the implications of climate change have started to appear in ministry planning.

Respondent SAF1 provided comments regarding the role of government in ensuring society adapts to climate change.

The market system can not work like in this. You have to regulate this because the market system doesn't work and it's the same whether it's low flush toilets or cars or anything else, the idea that you put up the price of gas and it will some how ration it, for you and I it cost us 1000 a year to drive your SUV rather than 500 it's not enough of an incentive to change it so people don't. I think if saying that there is a finite supply of oil and that we need to conserve it now we should have a much higher price and the only way to get it is through government action but can you get elected on that platform? It's highly unlikely. (SAF1 Sec. 0, Para. 265 – 299)

Climate change is just now appearing on the policy agenda

SAF1 stated that the ministry is in the very preliminary stages of coming to grips with climate change. Much of the effort to date is at the awareness building level. Crop Insurance officials have just recently incorporated climate change into planning exercises. And the ministry has dedicated a staff person to monitoring climate change issues. SAF1 indicated that the federal-provincial Agriculture Policy Framework is currently being reviewed and that “there is every expectation that there will be a climate change component included” in the new policy framework. (SAF1 Sec. 0, Para. 118 – 118)

Front-end and back-end strategies

We're trying to understand what how much is agriculture is contributing to greenhouse gases because we're part of the problem, but we're also part of the solution through carbon sequestration. Society is saying to everybody, if you're part of the problem you have to be part of the solution. But there is another part of it that says knowing that we have these climate changes coming and lots of uncertainty around it, what can we do with our sector to adapt to changing climate? We're trying to understand the implications for rainfall, for example. I

think we're adapting our research programs to try and do that. We're getting the sense that we'll be wetter in the spring a lot hotter in the summer. Do we need to change to winter crops? An very interesting article in Scientific America has suggested that agriculture needs to change from annuals to perennials, and maintain the root structure to better maintain the moisture. We also have to look at the appropriate risk management programs, crop insurance programs, to help producers deal with it. We're at the initial stages of a lot of this, other than we know we've always been a dry land region and water has always been our limiting factor and so a lot of what we've been doing for years is related to moisture use whether it's continuous cropping or securing water supply I think what all the evidence suggest that its going to become more critical for us in the future. (SAF1 Sec. 0, Para. 120 – 122)

Implications for irrigation

Respondent SAF2 stated that the prospects for Agriculture remain strong in Saskatchewan, and even better than in Alberta, since Saskatchewan has significant reservoir capacity. (SAF2 Sec. 0, Para. 257 – 263) He/she also claimed that the technology can be improved and the only thing holding back irrigation expansion will be the willingness of producers. (SAF2 sec. 0, Para. 75 – 79 CLIMAVAR)

THEME 4 SUMMARY FOR SMA

THEME 4. What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

DATA COLPRI, DATA COLSEC, DATA COLNEED, DATA COLACCESS Summary

Respondent SAF1R2 described how the collection and dissemination of the data required to inform ministry decisions is inchoate.

We certainly have a huge research fronting component. We're just in the infancy with building relationships with other agencies departments to try and share information in terms of inner government and intra governmental. We work pretty heavily with the federal government, Ag Canada and PFRA, in terms of drought issues which ties into climate change. With respect to water governance issues we work with the provincial agencies. We are affected by the energy and climate change strategy plan [Green Initiatives] that's just come out this spring. ..We have an internal research section which is now focusing more on mitigation [front-end] particularly on carbon sinks and new crop variety... (SAF1R2 Sec. 0, Para. 124 – 128)

Respondent SAF1R2 also indicated that some of the ministry's activities related to water governance are "a function of our changing mandate as a department", which now includes the management and approval of ILOs. This has caused the ministry to engage in new data collection exercises.

We're at the mercy right now of other data bases. We're trying to get data from Sask Environment and SaskWater [SWA] that they've collected. It's never been our mandate until recently. (SAF1R2 Sec. 0, Para. 231 – 247)

The extended mandate has required SAF to engage in activities one might assume should fall under the auspices of SWA or Sask. Environment. Respondent SAF1 described a data collection exercise in the Rama-Buchanan districts where a new intensive hog operation is raising concerns about the pollution of Good Spirit Lake.

We have monitoring wells there and are now starting to build the data... What we have is bits and pieces of data. It is probably fair to say if we were doing it again we would have something a little bit more rigorous with long-term and time series data. (SAF1R2 Sec. 0, Para. 231 – 247)

The comment from SAF1R2 which follows indicates that there is enough confusion about which provincial agencies have the required data such that officials cannot readily describe where the required data might be located – at least not off the top of their heads. And again we see an official naming SaskWater when he/she should be naming SWA.

*I don't know where it sits now in terms of the split [the reorganization under the Safe Drinking Water Strategy]. I think SaskWater [SWA] maintains the wells data base, and has done so for a number of years. That's the historical data on water quality at well sampling depths. I think traditionally perhaps they were on that side of it and Sask. Environment was responsible for surface water data. But again that's my opinion; that's my educated guess where that split happened. Where it is at today I can't say. (SAF1R2 Sec. 0, Para. 252 – 257
DATACOLNEED)*

THEME 5 SUMMARY FOR SAF

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES Summary

Financial issues were described in relation to: 1) resources available to the department; 2) the financial aspects of irrigation development; and 3) the financial resources employed through crop insurance.

With respect to point 1), there was some general discussion regarding the lack of a comprehensive historical data base for water quality in the province. It was suggested that

this was in part due to sporadic funding commitments from government. (SAF1R2 Sec. 0, Para. 252 – 257 DATACOLNEED)

With respect to point 2) , respondent SAF2 provided a description of how costs are shared in irrigation delivery.

On private irrigation it is all paid by the farmer. If he is going to build a dam, he builds the dam. He puts the pumps in the river. He channels a slough. He does everything. Private irrigation is all farmer. On project irrigation the project works are developed by government. Where a project work is established, the farmer will hook on to take water. His works will start where the project supply ends. And, there are different fees for different projects to enable the farmer to participate in a project. (SAF2 Sec. 0, Para. 167 – 247 CLIMAVAR)

NEEDRES/TECHRESOURCES Summary

See: data gathering functions as noted above under DATANEED.

THEME 6 SUMMARY FOR SMA

Who are the institution’s stakeholders, how do the stakeholders relate to the institution, and how is their input incorporated into the institution’s management and decision making?

STAKEISSUES Summary

The following comments provided by SAF1, describe the lack of awareness and interest in climate change among agricultural industry stakeholders in Saskatchewan.

It’s fair to say that we don’t get invited to stake holder groups to talk about climate change. But it would be my observation that a lot of the farm groups have not reached the position where they’ve engaged in this in a big way... (SAF1 Sec. 0, Para. 148 – 150)

Issues around irrigation expansion

As noted earlier in this summary irrigation in-fill has been slow to develop. In the following passage SAF2 describes the efforts being made by federal and provincial stakeholders to increase uptake.

When the project was being developed, if you agreed to irrigate, that pipe went by you. There was a link made available for you. Your cost started the minute you put a pipe on to their valves. That is when there was funding available from a federal-provincial agreement which really encouraged irrigation. With that not being available now, the people who operate the works would say that the pipeline is there if you want, you pay and you can hook on to it. [the line may be miles away as opposed to adjacent to the farmers’ property] So it costs the

farmers more to actually access to the works. So that means that a farmer probably won't come a couple of miles to access that works. Should the public conveyance works be extended a couple miles and several farmers enjoy that, then it becomes more feasible for the farmer. The province is currently developing an irrigation development strategy/. The federal government is looking at the same thing. Both the provincial and federal government have been very involved in irrigation development over the last century in various capacities. So all levels of government are looking at how we might proceed with irrigation, should we proceed, how we manage existing projects, there is very much debate right now. (SAF2 Sec. 0, Para. 167 – 247)

As primary stakeholders in irrigation, farmer participation is essential to increasing irrigation activity. SAF2 provided further elaboration on the barriers to irrigation expansion.

I mean, there's no demand. A farmer could hook on to the infrastructure from one of these works and grow wheat for the rest of his life. We don't tell him what to do. That doesn't happen, typically. When the farmer is investing the money, especially in the pivot and well, he's starting to spend 70, 80, 90 thousand dollars, and then depending on where he's getting power, it could be more than that. He is not going to continue to grow a crop that doesn't realize a better return. So they start looking at, for example, in these intensive projects, canola, beans, potatoes, try timothy hay. Cereals are still there definitely, as I mentioned even the potato farmer wants it in the rotation. But we don't have to encourage them. What we try to do, both from a CSIDC and provincial perspective, is pursue other crops, other options, demonstrate...(SAF2 Sec. 0, Para. 167 – 247)

Respondent SAF2 provided some interesting comments regarding the attitudes of producers from the southwest regarding water shortages. One assumes that irrigators in the Outlook neighbourhood would not be as accepting of shortages as those in the southwest.

I2: And in terms of shortages, farmers haven't been faced with water shortages.

R: They have in the southwest, but that's the nature of the bean. They know that some years they get one flood, some years they get two, some years they don't get any. So they face shortage and they understand that. But then again, a lot of those works were developed with federal and provincial dollars so that the farmer didn't pay for the works. He's more willing to accept shortages. Clearly where a farmer is paying a significant amount of money for the works on an ongoing basis, shortages become a real issue. And since the water has always been available here, there's been ample, there's been no shortage. (SAF2 Sec. 0, Para. 283 – 327)

STAKEMEDIAT Summary

Environment vs. development

SAF is involved in the debates surrounding the potential impacts of development on the environment versus the need to provide economic development to sustain the rural economy. It is of course debatable whether SAF is an entirely objective honest broker in mediating these conflicting tendencies.

I1: what happens when there is some contradiction in terms of society goals, I mean some of the typical issues is economic development versus environment

R1: You get into very interesting territory for a whole variety of reasons. ILO's are probably an example there are lots of views on ILOs among citizens not only here but across North America, around the world. And there is some unique environmental challenges. I think at the end of the day we sort of hang our hat on trying to be as science-based as we can because it is hard to do anything else. We try and regulate and operate with as much science as we can to make sure we're doing it in a safe manner.

I2: Do you ever have to get in and mediate when there is disputes over whether an ILO is going in?

R1: We generally would not mediate if we got into that we would tend to send it off to justice for the mediation services because they are trained mediators (SAF1 Sec. 0, Para. 206 – 218)

THEME 7 SUMMARY FOR SMA

To whom and how is the agency accountable?

ACCOUNTAB Summary

Nothing not already mentioned under the node.

EVALPROG Summary

Nothing under the node

THEME 8 SUMMARY FOR SMA

In what networks does this institution operate and how?

COORDFED Summary

Both the federal and provincial governments are involved in water management for irrigation purposes in Saskatchewan. There are some irrigation districts managed solely by the province and some operated by the PFRA, as well as the CSIDC which is operated

jointly by PFRA and SAF. The respondents made numerous comments describing SAF's collaborative relationship with PFRA and PFRA's role in irrigation projects in the province. (SAF1 Sec. 0, Para. 74 – 84)

Yeah and we have a very good working relationship... We love having PFRA here because we've got a good working relationship. They're doing a lot of stuff here that we wouldn't be able to do if we were having to fund it ourselves and so we really like having them here. (SAF1 Sec. 0, Para. 86 – 102)

The same cannot be said regarding SAF's take on the federal department of Fisheries and Oceans (DFO). Similar attitudes about DFO were provided by respondents from other provincial agencies and the PFRA who viewed DFO staff as overzealous. Respondent SAF2 related a story about a DFO officer who showed up armed at the provincial legislative building to issue a warrant on a cabinet minister.

Yeah, with guns. There's an infamous story within the civil service about an armed DFO officer going to the leg. building to serve a warrant on the minister, which of course raised all kinds of parliamentary procedure questions on whether they would send a sergeant at arms to arrest this DFO officer showing up at the leg with a gun. But they had a reputation of being very heavy handed and not working with people. (SAF2 Sec. 0, Para. 25)

COORDPROV Summary

Overlap

As noted earlier in this summary, there is considerable overlap in jurisdiction between provincial agencies in the area of water management. This was noted in connection with the ILO approval process which involves several agencies. SAF is responsible for issuing the permit for an ILO but several agencies have input into the process. In other summaries, such as the SWA summary, we noted the fact that SWA lacks the ability to charge an ILO that is contaminating source water – that role falls to Sask. Environment. Although, SWA does provide the ILO with its water allocation permit. That said it seems odd that Environment is not the agency that issues the go ahead permit for an ILO. (SAF1 Sec. 0, Para. 15 – 24) see also (SAF2 Sec. 0, Para. 27 – 69)

COORDLOC Summary

Nothing was posted under this node. However, there was a lot of discussion under COORDPROV about the relationship between irrigation officials and particular RM councils, apparently there is overlapping membership between SK Ag staff and some councils. (SAF2 Sec. 0, Para. 392 – 351 COORDPROV)

COORDINTER Summary

Nothing was posted under this node.

THEME 9 SUMMARY FOR SMA

How will things change for this institution as climate/water stress changes?

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR SMA

How does this institution relate to rural community vulnerability?

REDVUL Summary

There was nothing posted under this node. However, we know already that SAF is delivering a drought assistance program, is encouraging irrigation expansion and operates Saskatchewan Crop Insurance.

THEME 11 SUMMARY FOR SMA

What legal instruments are relevant to this institution's day to day operations?

LEGAL Summary

See the comments by SAF1 under the CLIMAVAR/CLIMACHANGE summary. SAF1 describes the important role of government regulation in dealing with water and climate stress mitigation. (SAF1 (1) Sec. 0, Para. 290 – 292)

THEME 12 SUMMARY FOR SMA

What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

OTHERLIM Summary

On confusion – people from environment talked about how smoothly everything worked while continuously calling SWA SaskWater.

See (SAF1 Sec. 0, Para. 247 -257 ACCOUNTAB) he/she isn't sure which agencies are doing what.

SASKWATER INTERVIEW SUMMARY

Process:

Three interviews conducted in 2007.
Interviewers; Polo Diaz and Margot Hurlbert.

THEME 1 SUMMARY FOR SASKWATER

What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLEWATER Summary

Respondent SW2 discussed the history of SaskWater, indicating that a provincial organization that performed similar functions existed as far back as the 1960s. He/she indicated that prior to the reorganization of water management functions under the Safe Drinking Water Strategy of 2002, SaskWater's mandate did not require it to earn a profit from its utility activities. In 2002, the new SaskWater was established as a Commercial Crown Corporation with a full cost recovery mandate and profitability goals.

SaskWater has been around since the 1960s..... the original SaskWater was the Saskatchewan Water Board and it was created when the irrigation districts were created. And then the Saskatchewan Water Board was folded into SaskWater in the 1980s, when the province amalgamated a number of water related functions, like the environmental parameters regarding quality standards, and quantity issues. So for a period SaskWater was the regulator but also had a utility arm. And that utility arm was purely there to provide water to consumers. At that time it wasn't necessarily charging for the full costs of supplying water. It was actually subsidized by the Treasury Board for the most part. (SW2 Sec. 0, Para. 47 – 61)

The SW respondents indicated that there are many agencies involved in water management in Saskatchewan. However, the bulk of the province's water management activities are shared by just four agencies.

There are four agencies significantly involved with the water at the provincial level. SaskWater, The Watershed Authority, The Department of Environment and the Department of Health. SaskWater is a Crown Investments Corporation (CIC) Crown, so our holding company is CIC. So, in many ways we're no different then Trans Gas, Sasktel, SaskEnergy, those sorts of agencies. (SW1 Sec. 0, Para. 68 - 155)

Notwithstanding the similarities between SaskWater and other Crown Corporations, SW1 also indicated that there are important differences. SaskWater is a new type of Crown Corporation, operating under a somewhat different mandate than the older Crowns. SaskWater's mandate requires it to offer its services to communities and

industry in a competitive environment and with out the massive public investment behind it that backed previous Crown enterprises.

We are what I call, the third wave of Crown Corporations in Saskatchewan. Originally the monopoly Crowns that were given and exclusive franchise, next the nationalized or partially nationalized Crowns like the potash industry, and now Sask Water, which is really told, just go out and sell your stuff. You know, that is all they help you get, if you can convince the people to buy it, fine, if not, too bad. So it's a different crown model. (SW1 Sec. 0, Para. 68 -155)

SW1 described the types of customers the corporation has and the nature of its wholesale supplier relationship with them. He/she indicated the corporation has industrial customers such as potash mines and the Saskferco fertilizer plant as well as communities such as Melfort. He/she noted that the delivery of water to communities ends at the community boundary and that the municipal government is responsible for delivering the water to consumers' doors. SW1 was careful to describe the commercial activity as the delivery of water as opposed to the sale of water. Respondent SW3 indicated that the distinction has a lot to do with guarding against the negative reactions to the idea of selling water. He/she stated that when the bills go out to customers, charges are typically, at least in part, based on the volume of water consumed.

The following exchange deals with the nature of the commercial relationships that SaskWater has with communities as customers or prospective customers.

I1: Now if a community needs to do some improvement to their water treatment infrastructure, it is you....?

R: We can do that for them, if they wish. Now they obviously have an option. In Saskatchewan they really have two options - they can do it themselves or they can come get us to do it for them. (SW1 Sec. 0, Para. 68 -155)

I1: Let me see if I understand this, if a community needs to build a water treatment plant, you people will come and do it for them, but they need to pay for That?

R: Correct. We do it by supplying them with water. We are not a builder, we are a utility. You can get engineering firms to build you water treatment plants, not an issue, but the only reason we are in there helping build is so that we can run it and deliver the product. You know, we are the service provider, not the builder. So in sort of engineering terms its sort of designed to build own to operate. That is sort of what we do. (SW1 Sec. 0, Para. 68 -155)

COMMNEED Summary

SaskWater was re-established as a Commercial Crown in 2002 ostensibly for the purpose of assisting communities in meeting the requirements of the Safe Drinking Water

Strategy. Its mandate is all about meeting community needs. However, given the challenges the corporation is having in growing its business it is debatable as to whether it is meeting the expectations of the mandate. The respondents related growth challenges to the profitability requirements of the mandate and the reluctance or inability of municipalities to make use of SaskWater's services. The situation suggests a number of possibilities. Perhaps the Safe Drinking Water Strategy has essentially succeeded and most municipalities have found solutions that did not require assistance from SaskWater. Alternatively, perhaps there are communities which have not made major system improvements due to affordability issues. This could be the case if the Saskatchewan Ministry of Environment's (SE) enforcement efforts have not been as rigorously applied as was imagined in 2002.

Respondent SW1 indicated that SaskWater's marketing plan targets communities larger than 500 in population. And that it provides communities with access to capital and expertise. One is left to assume that communities under the 500 person target are expected to find solutions elsewhere on their own.

We see our target market as really being communities between 500 and 5000 in population. These are the communities that can probably best make use of us. Because what we provide to those communities is on one hand, capital dollars. The residents have to pay, but at least there is capital there [and costs can be amortized over extended periods of time]. There are all sorts of challenges for communities to raise significant amounts of money with small population bases. The other thing that we provide them, that they aren't able to provide themselves, is that, as a larger organization, we have the knowledge infrastructure in place. Whether it's certified operators or it's engineering specialists, all the things a small community couldn't have on staff itself, or would have to outsource to an engineering firm. So that's where SaskWater can be helpful to them. Do they find the cost a barrier? Absolutely, yes they do. Because in terms of water prices in the province, we are probably in the top twenty percent. My line is, 'we don't sell Wal-Mart water.' You know, we have a small customer base that is widely dispersed and therefore it is expensive to do. Will that change a little over time? Yes, it will but it will take time. (SW1 Sec. 0, Para. 68 -155)

Apparently communities regardless of size always have the option of developing their water infrastructure "themselves". One would assume that if they lacked the requisite expertise they would hire the services of private sector experts.

We can do that for them [provide water or services], if they wish. Now they obviously have an option. In Saskatchewan they really have two options - they can do it themselves or they can come get us to do it for them. (SW1 Sec. 0, Para. 68 - 155)

SW1 indicated that cost and attitudes are the major barriers that communities face with respect to improving their water and wastewater infrastructure. This is undoubtedly

reflected in the fact that SaskWater has attracted few new municipal customers over the past four years.

...there is a real challenge in terms of pricing. Because what a lot of people see is that water is, or should be, a free resource. It's natural in the environment so therefore it should be free. People then confuse that with what it costs to actually transform it from its natural state to something that is consumable, or that can be consumed without causing all sorts of other grief... Obviously the history in Saskatchewan has been that the price of water has been cheap. Now an agency like ours comes along and we have to re-coup all our costs plus profit from it. So its not so easy for them to afford in many cases. (SW1 Sec. 0, Para. 68 -155)

The following exchange indicates that in addition to pricing issues there is concern among some municipal officials that the regulatory regime expected under the Safe Drinking Water Strategy has not materialized.

Int 1: And is this working? Are the rural communities really buying the service from Sask Water?

Respond: No, essentially sales have stalled because they can't afford it.

Int 2: But what do they do when they can't afford it?

Respond: We really don't always know. I think when a new water strategy was put into effect in 2002; the assumption was that the new regulations would require communities to come up to standard and many have. But its no secret that some municipalities that have spent tons of money upgrading their systems are a bit ticked that Environment now seems to be backing off on enforcement. I know the Fort Qu'Appelle Town Council felt this way when a number of neighbouring communities backed out of a regional wastewater project with Environment's blessing. (SW3 Sec. 0, Para. 62 – 71)

The possibility that full-cost recovery and profit issues were a factor in pricing SaskWater's services beyond the level that municipalities were willing or able to pay is reflected in the following exchange:

1: Why? Why was it decided that you people have to produce a profit? ...

R: In 2002 when SaskWater was formed the government was confronted with, the near impossibility of being able to fund the upgrading of all the water infrastructure in the province. So therefore it created an agency that could be helpful if those people wanted to help themselves by paying for it. But the government, at that time, had very little money available for pouring into, what was a significant infrastructure deficit. And the deficit remains to this day. (SW1 Sec. 0, Para. 68 -155)

Another factor limiting SaskWater's growth may have been the assumption that senior levels of government would assist with the cost of system upgrades. In some cases funding support was indeed made available. But it appears that there is no universally accessible program available on a consistent basis.

I2: So prior to 2002 the province had provided money and had done infrastructure projects as part of government.

R: Ya, but it's always been ad hoc and it's always been minimal. You know, and it's never been well coordinated, I don't think. It's been, you know, a combination of federal monies that have come in, provincial monies that have been pushed almost into matching federal monies and then a distribution system which is more like a lottery. What happens is that communities sit back and hope to win the lottery, rather than saying, "well this is something we need leadership, we need to change how we think about things to do this." So they sit back and when they don't get the grant they continue to sit back. (SW1 Sec. 0, Para. 68 -155) see also (SW3 Sec. 0, Para. 62 – 71)

Respondent SW1 maintained that even though SaskWater operates on a for profit basis, it still offers Saskatchewan communities a better priced service than a private corporation would be likely to offer. Indeed, according to SW1 there is little incentive for major private competitors to enter the Saskatchewan market place. It should be noted that while a major company such as EPCOR has not entered the Saskatchewan market – the respondents indicated there are Saskatchewan-based private engineering firms that compete for the water business of municipalities with SaskWater.

What we consider profitability is probably not what a private corporation would consider profitable. If that was the case, if we had to act exactly like a private enterprise, we wouldn't be in Saskatchewan. There is not enough profit to generate out of those small communities. So we don't have any competition because nobody wants to come here because there is not enough money to extract from that size of population base. You might get a for-profit water company to come in to handle a community like Moose Jaw, they might come in there, but more likely Regina and Saskatoon. That would be the smallest. Too small a market, too far away. When a company that is situated in Texas or something looks around, Saskatchewan is just not on the radar. (SW1 Sec. 0, Para. 157 - 167)

The SaskWater respondents indicated that the development of regional solutions for meeting community water needs was an area the corporation had some experience with. The practice of supplying several communities from the same quality source with one, instead of several, treatment plants made good economic and environmental sense. They indicated that the same principles could be applied to new wastewater systems. However, the corporation faces challenges in establishing regional systems. One of the major barriers is that often not all communities in a region see the need to upgrade at the same time. Respondent SW1 described the impact of local politics on new project planning.

When we approach a community, quite quickly a division will occur within the local political structure between those who want to go in that particular direction and those who want to stay in the past. And that is, you know speaking about governance, you can call it leadership as well, but it is a significant issue. It's compounded when you get more than one community that needs to work together and should work together because the regional solution can help with climate change, can help with all sorts of things.... (SW1 Sec. 0, Para. 68 -155)

Farmers in a number of areas across the province have developed their own regional water solutions through rural pipeline associations. Some of these associations obtain their water from SaskWater. Others have developed their own sources of supply. It is interesting that SaskWater has entered into agreements with these associations that recognize utility management practices that are different from those identified in SaskWater's official mandate and its support of cost of service pricing. With respect to some rural pipeline associations, SaskWater has recognized the principle of cost equalization and the benefits of having certain utility services offered by a monopoly supplier. These alternative arrangements were described by SW3 in relation to rural pipeline associations.

Sask Water is supportive of the concept behind rural pipeline associations. Many of them are customers of ours. In fact when an association hooks onto one of our main supply lines, SaskWater gives them a monopoly over new rural hookups in their municipalities. In order to make these associations work, they have to have a critical mass of participants. We all know what rural Saskatchewan looks like. You run a main supply pipeline across the countryside, what are the chances that everybody lives right next to it? Not much. So in order for the pipeline associations to work they have to attract people located at varying distances from the main line. If you had to charge the guy who is six miles away from the source line for what his connection actually cost, he probably wouldn't join up. So the people in the neighbourhood typically say, 'look, we have got this many potential members. They calculate that the average cost would be so much if everyone in the area joined up and they attempt to average things out. That way, assuming lots of people in the neighbourhood hookup you have a good chance of reaching a point where most everyone is getting a pretty good deal. (SW3 Sec. 0, Para. 19 – 21)

Respondent SW3 indicated that supply logistics and a community's growth potential have an impact on their capacity to make use of SaskWater's services.

In Saskatchewan communities' water needs can be so different because of things like distances to source. You know there are parts of this province where you can drill wells till you are blue in the face and you aren't going to get any good water -- where the treatment costs are incredible. Maybe it's feasible to build pipelines but from how far? On the other hand there are nodes of development where the corporation believes there is potential for population growth. Where there is a

good chance that the infrastructure will eventually pay for itself -- like Warman near Saskatoon or White City and Emerald Park near Regina. It makes better business sense to invest in infrastructure for a growing community than in a community that might not even exist in a couple of decades. (SW3 Sec. 0, Para. 392 – 406)

Respondent SW3 suggested that assuming a community was in decline and therefore not eligible for assistance in obtaining quality water could be a sort of self-fulfilling prophecy.

I think there is a relationship between a rural community's need for water and its ability to survive. You don't know which comes first: the chicken or egg. But I think part of what prevents action is that governments don't want have to go out and pick the winners and the losers. And I think there is wide unspoken agreement that many of those communities are going to disappear whether it is because of lack of water or other factors. For many of them poor tasting drinking water or having to use bottled water for drinking is probably the least of their concerns. Population decline and things like that are bigger worries. Really you see very few communities totally without water right now, some farmers in drought areas have run out, some places haul water. There are a few communities that have got poor water: some First Nation's communities have terrible water, but virtually everyone has domestic water. (SW3 Sec. 0, Para. 392 – 406)

THEME 2 SUMMARY FOR SASKWATER

What past water stress has the institution faced, managed and mediated, and how?

STRESS Summary

As was noted under COMMNEED, SaskWater has been frustrated in meeting the needs of many communities. The following exchange indicates the linkage between SaskWater's re-establishment in 2002 and the revitalized commitment of the province to ensure communities have safe drinking water.

Int 2: But how do the policy and regulations from North Battleford relate to the creation of Sask Water?

Respond: I think the idea was if you are going to tell these municipalities that you have to meet certain standards Sask Water would be there to help them meet them.

Int 2: For a fee.

Respond: For a fee. That's the tricky part there isn't it? (SW3 Sec. 0, Para. 126 – 136)

Respondent SW3 indicated that SaskWater faces the stress of delivering/marketing its services in a competitive marketplace.

Int 2: *Who are your competitors in the province?*

Respond: *Oh, we are supposed to have a cooperative relationship with the Saskatchewan consulting engineers association in that we make use of the services of firms that belong to that association quite frequently. They subcontract on SaskWater projects. But it is conceivable that they could assume all the profitable business if SaskWater wasn't around. We can sugar coat it as much as we want but yeah we are competing. We are competitors. And we are a better choice for municipalities because we will commit to staying and operating what we build and since we are a public agency we are generally more responsive to community concerns by virtue of the political process. Where private engineers can build it, cash the cheque and be gone. (SW3 Sec. 0, Para. 167 – 182)*

MANAGE Summary

Nothing posted under this node

ORGCLEAR Summary

Nothing under this node

ORGFLEX Summary

Nothing under this node

THEME 3 SUMMARY FOR SASKWATER

Does this organization plan for water/climate stress and how?

CLIMAVAR AND CLIMA CHANGE Summary

Respondent SW1 noted the relationship between the development of regional water systems and expansion of the capacity of communities to adapt to or withstand drought.

A few years ago there seemed to be a concern for what I would call drought proofing. You know, how do you drought proof a community? One of the ways is that you secure their water supply. How do you do that? A lot of times you have to go to the source and because maybe the water tables are dropping...if you have a community of significant size you have to go to surface water, and this often works best under a regional scenario where a number of communities share the cost. (SW1 Sec. 0, Para. 68 -155)

Respondent SW2 maintained that all SaskWater projects are planned with climate variability in mind. The corporation looks at climate records over the past decade or longer. Apparently long-term projections based on climate change models based on global warming assumptions are not employed – the data considered is primarily historical.

When we upgrade our systems and when we develop new systems climate variation is generally taken into account. The engineers work hand in hand with the Saskatchewan Watershed Authority to ensure that the quantity of water required will be available. Drought and wet cycles are taken into account. At this point in time SaskWater doesn't have anything specific with respect to models that take climate change into account. It is something that we're working towards as a formal policy. But again when we do build we do build facilities and stems that take long-term variability into account. We project out over the long-term and that includes drought and that includes possible change in climate, or population or all those other factors because you want to make sure your systems are sustainable over the long long-term. ... (SW2 Sec. 0, Para. 67 – 72)

SW3 responded to questions about the adaptive capacity of government in the face of major climate change, indicating that finding solutions was frustrated by a lack of money and vision.

No, I think it is all primarily funding issues. Who is going to pick up the tab? Well, that's not entirely correct, you know some of it is about a lack of vision too. For example, if we are facing a climate change crisis due to CO2 induced climate change or whether it is like Dr. Sauchyn has said about how we can expect these periodic horrible droughts that can last for decades? One of those comes around and a lot of communities will be gone. Well, if we get another one of them what is in place to deal with that? Nothing. How will that change even agricultural production here? Is there a need to look at moving water south? Probably. And probably in a major way if we want to sustain some sort of agricultural production and communities? Or is that too huge and expensive an issue for us to ever expect to cope with? We have to determine whether we want to sustain communities? Do you sustain an industry because without the industries you don't have the communities? Do we move a whole bunch of water from the north and potentially harm ecosystems just to sustain agricultural production that doesn't pay anyway? I don't know? These are big things for people to get their minds around. (SW3 Sec. 0, Para. 408 – 435)

THEME 4 SUMMARY FOR SASKWATER

What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

DATA COL (all sub nodes) Summary

Respondent SW2 reported that SaskWater collects data in three areas: 1) the quantity of water delivered to customers is measured, 2) the quality of source water is measured before treatment, and 3) the quality of water produced by plants is monitored.

We need to know and understand how much sediment is in the water what type of quality parameters are in the water so we know how to adjust treatment requirements for the system. We monitor quality and how much water is being consumed. Every community is metered, every industrial customer is metered. We also do sample points across the system so we sample at the raw source, we sample the treatment plant, we sample various different locations along the pipelines. (SW2 Sec. 0, Para. 370 – 383)

THEME 5 SUMMARY FOR SASKWATER

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES Summary

Financial need is reflected in two ways. First, the corporation's mandate requires it to be profitable. Secondly, communities often lack the resources required to purchase SaskWater services. As noted under COMMNEED, there is confusion and concern regarding the availability of funding from senior levels of government to assist municipalities in improving water and wastewater systems. At present, in the absence of substantial growth, SaskWater meets its budgetary requirements by raising rates to existing customers.

We don't always know if prospective customers will have access grants. We know that their systems have been evaluated and that many of them need or will need work. And SaskWater is in a tough position because it has been mandated to grow, but to make money while growing. But a lot of communities are waiting. There is a notion out there I think that it is a senior government responsibility and there are communities that think sooner or later somebody is going to recognize this. O maybe we will get a change in government and maybe the new government will be are more receptive to the needs of rural communities because their base is in rural Saskatchewan and perhaps they will do more. Who knows? But there are communities waiting saying, 'no we aren't going forward just now, there is going to be some public money available at some point, or we are maybe we will be able to latch on to one of these grant programs. and I don't think Environment has been that rigorous in enforcing the rules lately so that reduces urgency. (SW3 Sec. 0, Para. 120 – 124)

Respondent SW2 maintained the fact that grant programs are directed at individual communities instead of on a regional basis, diminished the capacity of SaskWater to encourage regional solutions.

One of our pet peeves is that there's less emphasis on regional development. For example, grants are assigned to municipalities but there isn't a requirement for municipalities to try and work together in a regionally-based approach. There's no incentive for regionalization or cooperation between municipalities. The funding arrangements are all ad hoc. They may talk about trying to encourage regionalization but there are no incentives put in place. They've improved some of their instruments. Government Relations has put in full cost policies. There's not many at full cost policies but they've put in pricing policies for the municipalities. This means that municipalities have to be more accountable for their pricing of their utilities. Again I don't know how well it's working at this point because it was just implemented. I know there's probably things in there that they need to tweak, like the fact that municipalities need to be fully accountable for their pricing so they need to have full cost pricing in place or else how do they recover their capital on their systems to keep them sustainable. But again I can't speak to that yet because it's a new policy that's been put in place so you have to monitor to see how well it's doing. (SW2 Sec. 0, Para. 298 – 302)

NEEDRES/TECHRESOURCES Summary

Nothing under NEEDRES node.

Nothing under TECHRES node.

THEME 6 SUMMARY FOR SASKWATER

Who are the institution's stakeholders, how do the stakeholders relate to the institution, and how is their input incorporated into the institution's management and decision making?

STAKEISSUES Summary

The SW respondents identified financial issues as well as public awareness of the value of water as two areas of stakeholder concern.

There is a real challenge in terms of pricing. Because what a lot of people see is that water is, or should be, a free resource. It's natural in the environment so therefore it should be free. People then confuse the availability of raw water with what it costs to actually transform it from its natural state to something that is consumable, or that can be consumed without causing all sorts of other grief. So we are challenged with educating people. Obviously the history in Saskatchewan has been that the price of water has been cheap. Now an agency like ours comes along and we have to re-coup all our costs plus profit from it. So it's not so easy for communities to afford in many cases. (SW1 Sec. 0, Para. 102)

STAKEMEDIAT Summary

The SaskWater respondents recognized value in the development of regional systems but indicated they were not always easy to establish. Getting communities onside requires mediation. SW2 used the metaphor of “hockey wars” --- where neighbouring communities had intense sports rivalries to illustrate the challenges involved in getting them to work together.

There are lots of inter-community conflicts. We call them hockey wars. We try our best to work with the communities, but ultimately it's their decision whether they want to go with the regional approach. The regional approach is a better way to provide water services. We try as best as we can to mediate the process but ultimately if a community doesn't want to sign on we can't force them and we don't want to because it's their choice. (SW2 Sec. 0, Para. 298 – 302)

THEME 7 SUMMARY FOR SASKWATER

To whom and how is the agency accountable?

ACCOUNTAB Summary

Respondent SW2 described areas of financial accountability that concern SaskWater. First, the agency is accountable to CIC to operate according to certain principles. Secondly SaskWater is responsible to its customers to ensure rates are charged fairly and that one customer is not subsidizing others.

9% is the rate of return typically expected of a Crown utility, so that takes all our customers in as a whole. Our past pricing practice used to be based on the type of customer. But we've decided to reassess how we assign our costs to customers. That's what we're working on right now. The rate of return is for the utility as a whole so for some customers we meet the rate of return and some customers we're not meeting the rate of return. For some customers we actually are losing money and that's just because of we're still transitioning into a commercial Crown. (SW2 Sec. 0, Para. 298 – 302)

The corporation has recently begun monitoring customer satisfaction through a formal survey. According to SW2 the first survey indicated a high level of customer satisfaction with respect to reliability of supply and water quality. (SW2 Sec. 0, Para. 31 – 43)

SaskWater is also accountable for meeting provincial drinking water and wastewater system guidelines which are regulated by the Ministry of Environment.

We actually have a policy in place where we meet and exceed water quality because we don't want to be in those situations. But again we do come into situations where we get precautionary drinking water advisories and that's because we are upgrading and when we do an upgrade on a system we often depressurize the pipeline. When this happens, Environment will automatically

issue a precautionary order. Customers typically have enough water supply storage on their system to be able to handle that shut down for a short period of time. (SW2 Sec. 0, Para. 31 – 43)

EVALPROG Summary

No comments were posted under this node.

THEME 8 SUMMARY FOR SASKWATER

In what networks does this institution operate and how?

COORDFED Summary

SaskWater's most common form of involvement with federal agencies is related to grant programs. Many of the grants available to communities for water and wastewater infrastructure improvements have some level of federal support. Some of these federally supported municipal projects are being managed or constructed by SaskWater. These projects will have to meet a variety of federal criteria, which are monitored by the PFRA. (SW3 Sec. 0, Para. 120 – 124)

COORDPROV Summary

The number of agencies and overlapping responsibilities for water management in Saskatchewan is a concern for SaskWater. This is particularly in relation to communicating with the public. There continues to be confusion among the public with regard to which agency is responsible for which facets of water management. Coordination issues also arise in relation to communities seeking financial support for projects. (SW3 Sec. 0, Para. 175 – 181)

Respondent SW1 described the range of provincial agencies involved in water and wastewater management. These comments are located under the ROLEWATER heading. (SW1 Sec. 0, Para. 68 – 70)

Respondent SW2 indicated that SaskWater continues to receive calls from members of the public who do not realize who is responsible for regulating water quality. And also that there are municipalities which are not sure who does what.

There are a lot of communities that are still confused about SaskWater. I think the reason behind it is that they didn't communicate it and they didn't keep communicating it when they should have kept communicating about the divergence of the roles. And partly the problem too is that we've retained the old name and as a part of retaining the old name it's created confusion (SW2 413 – 430)

Respondent SW2 noted that while SaskWater is subject to regulations enforced by SE, it also has the opportunity to have input into the setting of standards.

We do provide input. This is partly because we have a lot of expertise in house we have a lot of experts that have dealt with quality issues for a very long time. Again it's just as an input ultimately the standards are decided by the regulators.
(Sw2 Sec. 0, Para. 341 – 343)

COORDLOC Summary

Nothing was posted under this node. However, virtually everything posted under nodes such as COMMNEED is related to relationships with local communities. Indeed, SaskWater's customers are primarily local communities. Therefore virtually everything SaskWater does in the area of customer relations could be classed as coordinating activities with local government.

COORDINTER Summary

Nothing posted under this node. SaskWater has minimal involvement with out of province agencies.

THEME 9 SUMMARY FOR SASKWATER

How will things change for this institution as climate/water stress changes?

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR SASKWATER

How does this institution relate to rural community vulnerability?

REDVUL Summary

Nothing under this node – possibly in error see all the comments located under COMMNEED

THEME 11. SUMMARY FOR SASKWATER

What legal instruments are relevant to this institution's day to day operations?

LEGAL Summary

Nothing of significance was listed under this node. Contract negotiation and administration are SaskWater's main areas of legal concern.

THEME 12 SUMMARY FOR SASKWATER

What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

OTHERLIM Summary

Attitudes about the value of water have been noted by respondents from other agencies (SE and SWA) as barriers to the improvement of water management in Saskatchewan. For SaskWater this is manifested in price setting and attracting customers.

Pricing has been our number one constraint and we're aware of that. But part of the challenge with pricing is that fact that water has been under priced consistently across the country. Water is also under priced in Saskatchewan so when you're trying to benchmark your prices, given that the water itself is under valued, it's a challenge. It means that there's a lot of education required about the value of water. And there's a lot of education that needs to go on to explain why costs are so high. Water utilities are the most highly capital intensive utilities out there. That's a well-known benchmark and studies that have been done across the map with respect to water utilities. As well, if you take a look at the extend of rate increases that have been happening across the province lately I think if you look at it we're actually really not that far off. (SW2 Sec. 0, Para. 262 – 264)

Respondent SW3 maintained that there has been an ideological shift in the way the provincial government perceives its role in the delivery of essential utility services. He/she argues that people expect services to be delivered today, similarly to the way they were delivered in the past. They have not been on the same page as their governments since the 1980s. The province has not been prepared to undertake massive infrastructure expansion utilizing its own financial resources. For water, the burden continues to be carried by municipalities which have less revenue generating capacity to solve big problems than senior governments.

When the Douglas government decided to electrify rural Saskatchewan it spent the public money required to put the power grid in place and build the required generating capacity. Then, and this is possibly oversimplifying it, that system was given to Sask Power. The government essentially said, 'there you go, you have a turn key power system. Try not to loose money. It would be nice if you made a little.' Equalizing costs across the province was a goal. People who lived far from the power plants would not be denied service or bankrupted by having to pay initial infrastructure costs. When the Devine government decided we needed to have a natural gas grid throughout rural Saskatchewan the government paid for it and then turned it over to SaskEnergy to operate. Again that's probably oversimplifying it. But now there is a whole new political environment where SaskWater is mandated to pay as it goes. There is no big picture vision in place that says we are going to provide water across this province. Good, safe, clean

high quality water. We are going to regulate it. Government may say that is what's going on, but the reality is that there is no mechanism in place to pay for it. So what's that all about? Part of it is about leaving the load on the municipalities. A lot of the systems that were put in place originally now are wearing out. Growing communities are challenged with upgrading their systems but it is much easier for Regina to do that than a Kindersley. The problem today may be too big for the municipalities. What happens if we get that big terrible drought? Or when global warming really kicks in? There is no way municipalities can deal with that. It a big problem and the big governments need to play a bigger role. (SW3 Sec. 0, Para. 85 – 90)

Prairie Farm Rehabilitation Administration (PFRA) Interview Summary / Agri-Environment Services Branch³

Process:

Seven interviews conducted in 2007 – 2008.
Interviewers; Polo Diaz and Margot Hurlbert

Interviews PFRA1, PFRA2, PFRA2H, PFRA3, PFRA4 (2 respondents), and PFRA5

THEME 1 SUMMARY For PFRA

What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLE WATER Summary

Historic roots of the role

PFRA respondents described their corporate history and an appreciation of how the original mandate has been extended over the decades up to today. The establishment of the head office on the prairies (originally at Swift Current and later Regina) and the organization's early acquisition of technical expertise contributed to its success. They also described the influence of constitutional jurisdiction and the mandates of other departments such as Environment Canada (EC) and Agriculture and Agri-Food Canada (AAFC) on their role.

PFRA3 and PFRA4 both provided overviews of PFRA's origins, development, and current role.

The following passage is representative of both sets of comments:

When we were created in 1935 it was by a Federal Act of Parliament that was attempting to address severe climate, water and agricultural issues after the droughts of the 20s and 30s. Our organization was created ... to help producers with soil and water conservation. I think what was unique is that the federal government department was headquartered outside of Ottawa and [was] strengthened by having technical capacity in agronomy and engineering around new practices in agriculture and appropriate types of water development for rural people... I think the autonomy of the branch [given its ability to provide technical solutions] was pretty much a given. In today's climate that is less so. We have in the past always been in different departments...I think that we are firmly

³ After roughly 70 years PFRA evolved into a national agency, and was known briefly as the Prairie Farm Rehabilitation Administration and Environment Branch. In April, 2009, the agency's name became Agri-Environment Services Branch, and remains a branch of Agriculture and Agri-Food Canada. AESB's mandate will be national in scope and remain focused on agri-environmental sustainability and innovation to promote a competitive profitable agricultural sector.

entrenched in the Department of Agriculture right now but it poses a problem for us in that our 1935 Act on water and agriculture soil conservation still applies to PFRA but it doesn't apply to the department... so we are always being questioned by the department as to why we are working on water.(PFRA4 Sec. 0, Para. 11 – 17) See also: (PFRA3 Sec.0, Para16)

Interagency relations/roles (federal)

There is some overlap in the mandates of PFRA and Environment Canada requiring collaboration between the two agencies. PFRA4 stated that the organization will continue to emphasize its environmental role into the future and that it is already involved in activities that recognize environmental concerns related to water. As the Organizational Overview for PFRA indicates, PFRA is currently located within the PFRA/Environment section of AAFC.

...the principle priorities for water within the federal government would rest with Environment Canada... in reality inside our own department the management (especially when it comes to policy) is principally established in Ottawa...The department of agriculture is an economic department and PFRA has always kind of dabbled in more environmental issues. But we do that from the perspective of trying to ensure that the agricultural economy has and maintains a healthy natural environment. And with the new Agricultural Policy Framework we are trying to ensure that the environment role is recognized... the concept of getting involved and actually building projects that are involved with water development and water management- based issues, is not that common in the federal government... (PFRA4 Sec.0, Para. 11 -17)

PFRA2 indicated that “push back” from EC could be an issue when PFRA embarks on environmental initiatives.

There is no question about it but we are also getting pushed back as to how far we can invest in this. Like how are we going to get complementary role to EC but not do EC's job because treasury looks at us and says hold on is that your mandate? So what we do well is we are providing a general public service and it is needed and it has got to be there and we are not going to go away with that. That is the competitive advantage we have. But we now have to step back and do something PF doesn't do well. PF traditionally has never done economics well. They are used to single solutions. You build a dam or you do this or you do that. (PFRA2 Sec. 0, Para. 164)

PFRA4 described PFRA's movement into a new water quality role. He/she mentions the influence Agriculture Policy Framework (APF) has in enhancing the importance of environmental sustainability in agriculture.

That already exists as a result of the agricultural policy framework and I think in regards to some of farming practices and agricultural best management ... practices to achieve environmental protection. We are moving into realms around

water quality that we never did do in the past and we deliberately did not do that in the past because water was a provincial mandate and not a federal mandate... We moved into water quality as a conscious decision in 1993 (prior to this our focus was more water supply by being involved in water development work). And it looks to us that we will likely have the chance to grow this new water quality phase of our work partly because we see citizens, urban and well as rural, being concerned about water quality.... (PFRA4 Sec. 0, Para. 56 – 58)

Role of Fisheries and Oceans Canada

For example, the federal government controls waters that cross inter provincial boundaries international boundaries and set the guidelines, federal government got in water quality basically through the back door of the fisheries act which is probably one of the more powerful pieces of environmental legislation in Canada it is a very, very powerful act and the problem with implementation of the act is it's not implemented uniformly across Canada.... some of the fisheries officers are zealots. (PFRA1 Sec. 0, Para. 49)

Constitutional jurisdiction

PFRA4 commented on the constitutional considerations that affect the agency's role.

...because of this federal provincial tension around who has the responsibility for natural resources and water I sometimes think that the federal government backs away from an obvious federal role because water is a provincial mandate. And I think that that is sometimes is a disadvantage to the federal government. I understand that there are roles that we have to fulfill around, for example, the fisheries and navigation and environmental aspects but I also think that there are larger roles that the federal government could play that would not be contradictory to this constitutional tension that we run into all the time. (PFRA4 Sec. 0, Para. 161 176)

Role relations with the provinces

Respondents indicated that relationships with the provinces were generally positive. (PFRA1 Sec.0, Para. 54). However, comments presented later in this summary indicate that for a time there were some tensions between PFRA and SWA attributed to personalities. Respondent PFRA3 indicated that PFRA was viewed as a reliable arbiter of water issues between provinces and within provinces. Its expertise and willingness to assist in areas where it might lack statutory authority were generally appreciated.

And of course PF's primary role for water management has been as an honest broker providing good quality technical information and sort of a sustained presence and that is probably going to become, I am assuming, I am surmising, but that may become a greater role as the pressures across those three provinces grow demand for water. So I cant say it is but it has got potential. (PFRA3 Sec. 0, Para.164)

Water management roles in Saskatchewan

PFRA1 had a positive view of the water management roles of SaskWater and SWA.

The structure we have in Saskatchewan right now probably isn't that bad and they have the Watershed Authority responsible for appropriation and licensing. They have the utilities managed by SaskPower, Sask Ag and Food basically looks at primarily at irrigation and rural water supplies and that's not a bad in terms of managing the current situation. (PFRA1 Sec.0 Para. 41) see also - (PFRA1 Sec. 0, Para. 205)

PFRA5 described the interagency cooperation that is occurring around irrigation development in Saskatchewan through the Canada-Saskatchewan Irrigation Development Centre (CSIDC) based at Outlook, Saskatchewan.

CSIDC is a partnership, we work under an agreement between PFRA, Sask. Ag. and Food, ICDC, which is our industry R&D group, the irrigation projects association industry group and we have an agreement under which the centre operates. And the mandate is research, and demonstration and education so our role here then is to provide research and provide a facility to do that and staff to do that. Then we interact with our partners around the demonstration activities that go on around in the irrigated areas and the tech. transfer stuff. So we are involved in all those aspects of it. And the centre, it's a focus, it's a partnership, it's a place where people can come and view things, look at things so international people can come here and see how irrigation works in Canada. It's an opportunity for training for producers to see new crops and try new things. (PFRA5 Sec.0, Para. 7 – 11)

Comments on the large number of legislated roles in water management

There must be 18 or 20 pieces of legislation in Saskatchewan. And if you asked me to name them I couldn't do it... Federally there are three main acts that I've had to work with transportation act, navigable act, and fisheries. And when you overlay all those over top of all the provincial regulations some guy that's trying to build a small dam to irrigate a 100 acres can go through all kinds of hell. One of the things that PFRA did was help the guy to get through all of that plethora of legislation and regulation it doesn't have to be the PFRA but there always is a role for some organization to work with the people who are developing water supplies or managing water supplies to help them through that particular process. (PFRA1 Sec.0 Para. 45)

Need for or a greater national perspective

The comment provided below reflects the notion that in the area of data collection, there is confusion and lack of inter-provincial consistency that needs to be resolved.

I think in Canada we are going to eventually have to bite the bullet and do something on a national perspective .We're not going to do that by setting up

some kind of government structure to manage it. It will start by setting up some type of institute that concentrates on data collection. For example we don't know enough about ground water and we aren't comprehensively developing water supply analysis and demands studies and scenarios of climate change and it will be largely data collection and research and I think that people can buy that. And that will evolve into some kind of management. (PFRA1 Sec. 0. Para. 49)

COMMNEED Summary

PFRA respondents recognized that addressing community needs requires communications and relationship building between management agencies and the community. Respondents indicated that historically PFRA has always had a strong connection with the rural community having acted as a welcome problem solver and service provider for decades. Indeed as comments provided later indicate, PFRA has lately become less involved in providing assistance to individuals, and more involved in assisting communities and groups. Whereas PFRA was formerly involved in assisting individual farmers develop their water supplies, it is now more well disposed to assisting a group of farmers build a community pipeline. That shift in priorities is reflected in the following comment:

There still is assistance to communities. But maybe to agree with your point to some extent, the assistance to individuals is drying up primarily by design in that there is for the most part adequate rural water supplies. The thinking now is that if a person wants to improve that then that's the cost of doing business. The government can help communities when many, many people benefit but the individual that type of thinking has changed with respect to what governments should do. (PFRA3 Sec. 0, Para.20)

The comment “there still is assistance” may reflect the notion that since the 1980s senior government financial assistance to municipalities has been declining and that this is part of a trend in off-loading responsibilities onto local authorities.

The brokerage role, described earlier, extends to assisting community in wading through the various agencies and programs that might assist them in meeting their challenges. A vision for the integration of water management and community development was provided by PFRA5, who saw the untapped potential for irrigation available with Lake Diefenbaker as a potential economic driver for the province. (PFRA5 Sec. 0, Para.42 – 52)

The brokerage role

The second thing is the brokerage role that that I've talked about. The PFRA will help the producer, or a community, get through the plethora of government regulations. For example, if it's an individual producer we'll actually help him get through the compliance for the Canadian environmental assessment act and so on. So our staff tends to smooth out a lot of bumps in the road. We're there

somebody can actually talk to people and that's probably one of the biggest strengths that PFRA has is that we're there. (PFRA1 Sec. 0, Para. 85 MANAGE)

The PFRA's brokerage role extends to helping Saskatchewan residents deal with provincial legislation and agencies.

They have a job to do [provincial water management agencies] that basically the people of Saskatchewan have told them to do by passing that legislation. The problem is the interface and the ability of the communities to comply with the type of information they need for the licensing and like I said that's the role that PFRA fills... (PFRA1 Sec. 0, Para. 213 MANAGE)

Need for stakeholder involvement

PFRA5 addressed the importance of having stakeholder input into the activities of the CSIDC and water management in general. He/she also acknowledges the community input role of Saskatchewan's watershed stewards groups.

It is very important for us to have irrigation and commodity group involvement here. Like they are partners of the centre. So strong producer groups are good for us.... I think the watershed advisory committees will do some of the same kind of work. They will fight among their selves about their issues and then produce their position which now people can negotiate and interact with so same thing. (PFRA5 Sec. 0, Para 252 -270 MANAGE)

The level of stakeholder group organization was identified as a factor which may have a role in the lower level of irrigation activity in Saskatchewan when compared with Alberta.

We are different [in Saskatchewan] than Alberta because pretty well most of Alberta's is in irrigation districts. About 40% of our irrigation is in districts. 60% of it is just individuals pumping out of water sources with their own pumping units which is again a challenge from the organizational perspective because the district has an organizational structure. The individuals, they are on their own... (PFRA5 Sec. 0, Para. 42 – 52)

A vision and committment re- the untapped potential of Lake Diefenbaker

I'm sure you have heard the numbers about the three-and-a-half percent inflow we are using for irrigation and we are loosing more in evaporation. These are true numbers. This is the opportunity we have here and I think this is what has frustrated [individual's name] and I over the years in terms of how do we help because we firmly believe that this could be a driver for the province. So how do we make this happen? And both of us have worked much of our lives to see this happen. And you'd like to see it happen. (PFRA5 Sec. 0, Para. 42 – 52)

NOTE: A description of the “underutilization” of Diefenbaker is contained within (PFRA5 Sec. 0, Para. 42 – 52). There might be something of a contradiction between respondent PFRA5’s vision for expanding irrigation from Diefenbaker and the potential, noted by other respondents, for increased drought stress on the South Saskatchewan River.

Complications arising from the wide array of community/local organizations involved

PFRA5 described the logistical issues that arise when planning water management initiatives due to the various groups involved in the process.

The irrigation district itself is super imposed on that [municipal boundaries] and it has its own jurisdiction too. So you have got a lot of different administrations to deal with. If you wanted to develop transportation, I can get through my RM because we have agreed to this. Now the next RM , ‘well no we want you up here or we want you down here’. Those are the logistical issues that you have to deal with and that means a lot of negotiating. It means a lot of work. It’s usually the same people that are doing all these things and after a while they get played out. (PFRA5 Sec. 0, Para. 130 – 149)

PFRA1 described how the attitudes of local groups do not always lend themselves to integrated water management.

For example, in the 1980s I remember the City of Weyburn let farmers take water out of the reservoir for domestic use. Domestic use was fine and livestock, filling dug outs was a ‘no’. And it wasn’t that there wasn’t enough water. There was enough water. We built the dams we knew how much water was there. It was the perception that people were taking water and possibly leaving the city in a shortage situation. The city engineer has retired and we build pipelines off that plant like crazy. (PFRA1 Sec. 0, Para. 243)

Preparing communities for catastrophic events

PFRA1 also identified a need for planning and measures to predict and mitigate the impact of catastrophic climate events on communities. He/she cited the flash flooding in the Vanguard district in 2000 and indicated that if this sort of rainfall event had occurred in the highly populated municipality of Corman Park it would have been even more disastrous.

...had it happened in Corman Park [the heavy rainfall event] you have got a national railway system, national roads going through there, you have the richest RM in the province. If you were to look at the map of all the wells in that region it makes it black. There are so many wells so the [affect on] water quality would have been amazing. Economic impacts would have been amazing. So building on some previous research that (individual’s name) has been doing and I have been doing, the question we asked ourselves is how do you help decision makers who

are handling water management issues? Design their infrastructure to be able to maintain economic growth for the future and sustainable social and environmental sustainability in the face of known impacts whether it is increased demand, like sort of a creeping demand like (indecipherable) or a creeping supply curtailment like a drought or these really sharp discrete extreme events can do an awful lot of damage. (PFRA1 Sec. 0, Para. 23)

THEME 2 SUMMARY FOR PFRA

What past water stress has the institution faced, managed and mediated, and how?

STRESS Summary

PFRA was created in response to climate and water stress and has been involved up to today in dealing with these issues.

Respondent PFRA3 noted the historical roots of the water/climate mandate.

Well, even before my time, PFRA was created in 1935 as a federal response to the drought and depression at that time. And the role of the organization at that point was to reclaim the severely eroding and eroded lands and put them into an alternate use. (PFRA3 Sec. 0, Para. 16)

Respondent PFRA2 encapsulated the organization's water related activities today as follows:

Water quality issues, maintenance of infrastructure systems for long-term growth. (PFRA2 Sec. 0, Para. 11)

Dealing with drought stress

Respondent PFRA4 provided comments on the challenges of dealing with drought stress and the reactive nature of the response. He/she indicates that better data systems that could offer greater predictability would be helpful.

I think in general, when droughts hit like that they come so quickly and almost so unannounced it is very difficult for an organization to provide immediate relief. What usually happens is people realize that they have run short of water, programs are retooled to provide short term assistance. So the immediate response might be: can we make pumps available to deliver water to an area of need on a short term basis and that would be done. We might retool some of the approvals in our existing water programs to allow more people to build wells or construct dug-outs but of course a dugout won't be helpful that actual year. It's going to be in subsequent years where it might help. The well possibly could be if they could tap into the water but there is a time lag. And because of the time lag

for getting these things done the drought is usually over by the time you get the infrastructure change addressed. What would be more interesting in the future is if we may become, I don't know if its possible, better equipped to anticipate when drought would actually occur to actually kick these programs in sooner if possible. ... (PFRA4 Sec. 0, Para. 83 – 101)

A question that arises when considering the reactive nature of the drought response of government is whether crises are required to get the attention of the public and policy makers. Is it the case that once the crisis is over, there might be a reluctance to provide resources for a problem that does not presently exist. The problem might arise again but that might be years away, after the life span of current governments. PFRA4 mentioned a proactive program, which was abandoned in 2001. Perhaps this was a reflection of the reactive, crisis-driven model that governments tend to rely on. PFRA4's comments point to the fact that despite the tendency of government agencies to be reactive, PFRA has indeed played a proactive role for decades in building "resilience" in the face of climate variability.

...for major catastrophic drought it is a reactive approach but the corollary or opposing argument could be our whole programming around water [which] is not "reactive" but "anticipatory" to build capacity and resilience against the effects of drought. Historically, up until 2001 PFRA had a Rural Water Development Program that allowed a certain expenditure per year across the three prairie provinces to enhance water development and that was a repeating program year after year after year. That program ended in 2001... (PFRA4 Sec. 0, Para. 83 – 101)

According to PFRA4 the Water Supply Expansion Program, which apparently replaced the program which ended in 2001 is also coming to an end. Policy driving some projects related to drought-mitigation now flows from the APF and has the potential to be short-term in nature.

So our long term programming was replaced by short term Agricultural Policy Framework programming throughout the duration of five years. Whether or not that is renewed will depend on the policy and government of the day. But the argument sometimes from the departmental perspective is if you are providing funding year after year after year to drought proof the prairies with water development, how come its not drought proof when the drought hits? Well the reality is, you can't deliver water to dry- land crops with these types of programming. These programs will help you provide water for your farm, perhaps for your cattle but it is not able to provide water for drought affected dry-land and crops which are outside the potential irrigation zones. (PFRA4 Sec. 0, Para. 83 – 101)

Anticipating supply stress challenges

The need for forward planning and mitigation measures is touched on in the following comment.

One of the big questions that we are starting to ask ourselves ... if you have this river system where you have got Alberta pretty much over utilizing its south Saskatchewan components ... in a high demand year. And we have got historic variability plus we have the added blip of this potential climate change variability, how can we start to help inform the various provincial agencies on long term infrastructure and demand management? We are not saying we do but that would be an intermediate product. What are some of things that we are going to have to put in place to help us with that? (PFRA2 Sec.0, Para. 23)

PFRA1 indicated that a certain amount of allocation stress is likely due to supply stress driven by extended drought.

It's always been periodic and local the trouble is the frequency is increasing now and as the demands go up there isn't as much water around from the agriculture perspective it will be along time before the types of situations we saw in the 1980s go away. Where you're going to see the big conflicts, the conflict between say irrigation and domestic use and industrial use and so on. I mean irrigation is probably the biggest consumer of water in Canada if not the biggest. (PFRA1 Sec. 0, Para. 235)

MANAGE Summary

Attitudes about water management in the face of climate change

PFRA1 provided some general comments dealing with public attitudes toward water management and how they don't reflect the changing realities of the water supply situation in North America produced by climate change. The respondent entered the realm of a widely held Canadian taboo, suggesting that Canada might play a role in solving problems on a continental basis.

I guess I see it more of an evolutionary process. In Canada, Canadians have been blessed with so much water that they take it for granted, particularly in eastern Canada...people recognize that it's important but they never got behind or put a concerted effort into managing water collectively. ..One of things that I used to say a few years ago is in order to actively manage water you have to teach Canadians the value of water the importance of water.... One of the senior policy advisors [in Ottawa] looked at me and said, 'Water supply that's not sexy we'll never be able to sell that it's not important'. I said, 'not important [because] you live in Ottawa... Think about a guy in Saskatchewan that has to haul water for 500 head of cows 365 days a year. So your perspective changes, depending on availability. And Canada is such a big country and have got so much water that in a lot of areas they just don't understand the importance of managing the water. We're going to jump from the way that we manage now, going to a continental-wide [view] with a climate change approach... If you look at USA they are really

out of water in the southern states and we're going to be part of the solution. I'm confident of that. The question is, how do we become part of that? ... I question trying to expand irrigation and [in view of?] climate change. And I'm making the assumption that climate change is real. 30 years from now we'll be getting into the benefits of expanded irrigation but what's going to win out [in] the competition for water - domestic use or the competition for water for irrigation. I mean those kinds of things I've thought about over the last couple of years.
(PFRA1 Sec.0, Para. 24)

Alternative management approaches

PFRA3 commented on the system employed by Manitoba to obtain grassroots involvement in water management. The Manitoba model appears to offer advantages that Saskatchewan's watershed stewards system lacks.

One of the models that I am surprised hasn't been replicated across the prairies is the Manitoba Conservation Authorities. There is a body there that is very grassroots, it has taxation authority and it manages the watershed. ...(PFRA3 Sec. 0, Para. 150)

Respondent PFRA5 indicated that SWA's watershed steward's project was a positive step in developing grassroots involvement.(PFRA5 Sec. 0, Para. 252 – 270)

Management style and goals of government reflected in management of water and climate issues. PFRA2 stated that the current federal government has taken a more proactive approach to solutions to the challenges faced by prairie agriculture with respect to drought. He sees this as a departure from past practices.

It has generally been caused by a stir from the people who are impacted, the farmers going through the political process the MP then starts to get involved or the MLA if you are in the province and that starts to generate a response and the response has been traditionally based on the time and the circumstances of about the drought. So looking proactive is a fairly new concept and it is not easy to do.
(PFRA2 Sec. 0, Para. 19)

PFRA2 commented that managing community relations was integral to dealing with water management challenges. He/she said, "when a crisis hits isn't the time to start to have a good working relationship. You get into in advance...It doesn't build overnight. You can't go at the last minute and say I want to work with you, let's trust each other."
(PFRA2 Sec. 0, Para. 340 – 348)

Applying resources to planning

And I guess you can take the argument that if there is a limited amount of money then you should balance it out a little more. I guess my point is that I don't think

that governments or institutions are spending enough money on preparing.
(PFRA3 Sec. 0, Para. 186)

Value of water

Respondent PFRA2 noted that one of the issues involved in getting the public to appreciate the need for new water management frameworks was the lack of appreciation for the value of water. (PFRA2 Sec. 0, Para.193) Strategies such as cost of service pricing models are being employed by water utilities such as SaskWater to attach a dollar amount to use, in part as a means to encourage conservation. The Alberta model which attaches financial value to water use for irrigation was viewed as a model worth considering.

ORGCLEAR Summary

It could be reasonably argued that organizational clarity requires a vision for the organization's role going into the future. Respondent PFRA3 provided some suggestions for how the organization could help meet climate challenges.

Yeah, but I would think the role of PFRA on the ground would be to do both help them [prairie communities/ag. producers] adapt and mitigate any acute damage that they might have.... a future role for PFRA could be to expand our community pasture program. In the marginal areas where there is hardly enough precipitation now, to grow crops on a sustainable basis, cultivated crops. There may be a very good opportunity for PFRA to be the instrument of change with respect to saying that could be cutting into a larger drought tolerant grasses etc and serve the cattle industry. I'm just thinking out loud but that would be not inconceivable for us to do. (PRFA3 Sec. 0, Para. 44)

Respondents indicated a sense of clarity with respect to the relationship between prairie geography and attitudes about managing drought stress. As one moves west across the Palliser Triangle there is a greater “affinity” for changes in water policy. (PFRA3 Sec.0, Para. 128 MANAGE)

Predicting drought is not an exact science

PFRA operates a Drought Watch information system that monitors drought conditions across the prairies. However, the system has weaknesses with respect to predicting drought.

That's an operational reality of our agency. It's kind of like tracking the weather though, when the worst situation hits the reality of that situation is obviously worse than any of that previous tracking could have anticipated. And you can find through the Drought Watch a bit of a tracking of where levels are being depleted but you don't know when that next rain is going to come and when it might top up your supplies. (PFRA4 Sec. 0, Para. 83 – 101)

Climate change could necessitate changes in management practices

It's possible I suppose that if climate change causes more extensive change in precipitation and weather patterns that perhaps the dry land region of the prairies will need to take a look at more aggressive means of adapting, which could mean planting certain types of crops and perhaps changing their methodologies. (PFRA4 Sec. 0, Para. 83 – 101)

ORGFLEX Summary

While drought mitigation might still be a somewhat more reactive process than PFRA officials might like, the agencies actions in response to specific drought crises reflect a considerable degree of ingenuity and flexibility. This is indicated in the comments reported above for PFRA under the heading STRESS – Dealing with drought stress. (PFRA4 Sec. 0, Para. 83 – 101 ORGCLEAR)

As respondents noted under earlier headings, one of the ingredients in PFRA's early successes was the adaptation of new technologies. Being flexible and innovative toward adopting new developments continues to drive developments at the CSIDC.

We started out with a lot of flood irrigation which is not water use efficient. Most of that now is out of line cannels with pipe lines or line supply cannels with centre pivots, low pressure. So the water use efficiency around Lake Diefenbaker is pretty good right now. Alberta's is too; they have changed a lot. But again the history of the centre [CSIDC] here has been to try and perceive what is coming in the community. The corn work being a good example because we all talk about corn heat units over time we would want to see how that data is changing and how would that plug into some of the climate change model and predictions and what does that mean for cropping here and that is where the centre would have to come to grips with some of those questions. (PFRA5 Sec. 0, Para. 163)

Federal programs can lack or limit flexibility

Contradictory forces come into play when water management officials consider the need to consolidate some management functions nationally, such as data collection, and the danger that national programming can limit the flexibility required to meet regional needs.

I think the federal government could work to help facilitate identifying common issues across provinces and perhaps some common strategies to address those issues across provinces, while respecting the need for flexibility in the local regions. And that is something that Ottawa needs to understand too because national programs cannot be so confined or so broad ill or bribed or perhaps I'm sorry so broad that the unique flexibility that you might need in a specific region cannot be achieved. B because programs and activities its get, literally, watered down if they are it is too broad. So I do see a small role for federal government facilitation across provincial boundaries and around education and awareness and I don't think that the provinces would be concerned with that. The provinces will be concerned if the federal government tries to take responsibility away from

them but if the federal government can add value to what is going on provincially, I think the debate would go away as to who is responsible for what straight away. (PFRA4 Sec. 0, Para. 161 – 176) see also - (PFRA4 Sec. 0, Para. 78 – 81)

THEME 3 SUMMARY FOR PFRA

Does this organization plan for water/climate stress and how?

CLIMAVAR Summary

As noted on a number of occasions above, the PFRA has been dealing with the challenges presented by climate variability since its founding. Respondent PFRA2 touched on an area of concern that has emerged recently in relation to predictions that climate change could increase the potential for severe or catastrophic weather events. PFRA2 envisioned enhanced monitoring and planning as a way to prepare for such events (i.e. the Vanguard flood of 2001). (PFRA2 Sec. 0, Para. 23) see also - (PFRA2 Sec. 0, Para. 11)

Drought planning underway

Respondents indicated that work is underway on a couple of fronts to develop long-term plans with respect to drought. There is work being done on a national strategy which includes provincial water management authorities and Environment Canada. PFRA is also involved as a co-leader (with SWA) in a committee looking at Integrated Water Management. SWA officials contend that this committee is where they see a drought strategy for the province being developed.

We are trying to deal with issues related to policy. How does PFRA support the provinces to develop long term drought plans that effectively build on what the monitoring reporting that has been done both by the provinces and the feds. -- but also starts looking variation and adaptation and any pre-response so we can cut down the cost of these events but plus also improve our effectiveness. And a third area is, and we have been funded by NRCAP to do work like that. We are looking at the national Agriculture Policy Framework as it is emerging called 'growing forward' and looking at how can we do pilot studies with the provinces to start to implement this long term drought and extreme events planning. I think one of the interesting things from your perspective our course is the Prairie Provincial Water board. (PFRA2 Sec. 0, Para. 11) see also - (PFRA2 Sec. 0, Para. 19)

CLIMACHANGE Summary

PFRA has been at the forefront of dealing with climate change management; especially as they relate to water management for decades. Respondent PFRA3 described how drought-proofing or mitigation on farms was originally managed, and some of the challenges that arose.

When I look at what PFRA has done over the past, they have (drought-proofed is probably too strong a word) but they have made the rural areas more capable of withstanding droughts. As an example, our design for a dugout, when we first introduced it, it had to hold a two-year supply and that's a huge hole in the ground and most farmers even though they were getting a partial grant to pay for it would build it lower or smaller and then of course we wouldn't pay and of course there was a huge reaction to that. But over time it was proved correct because in a year of drought and there is no runoff and there is no water and if you have a two year supply if the drought is only one year you will have water for next year... (PFRA3 Sec. 0, Para. 36 CLIMAVAR)

PFRA3 also indicated that the PFRA's shelterbelt program has been a tremendous success and would prove valuable if a drier climate emerges. "...with tree cover to protect the landscape and to buffer the winds and to trap snow." (PFRA3 Sec. 0, Para. 36 CLIMAVAR) The PFRA's Community Pasture Program was another response to climate change, providing permanent forage cover and drought-resilient water supplies for livestock producers on marginal lands.

Currently, the PFRA's Drought Watch program stands as an effort to deal with drought events.

...another function that PFRA has done and is doing with respect to climate is that we have a relatively good drought monitoring system. We can provide early warnings with respect to impending droughts. At first, I didn't know if that was a useful thing to do or not but the appetite for the products we produce with respect to that climate monitoring is very, very voracious by the policy makers and that sort of thing. (PFRA3 Sec. 0, Para. 36 CLIMAVAR)

After touching on past and current drought management efforts, respondent PFRA3 commented on the new management issues presented by climate change.

Climate change per se is now just starting to be taken seriously...In Canada, we had the APF, Agricultural Policy Framework and that's coming to a close and so the discussions were what is the new APF going to look like. And the whole environment, climate change is getting a lot of ink on that and it's not so much in the projected program but they are looking at it from the policy level so from policy comes programs comes projects. So it would have been nice to have this done 10 years ago but it's being done now. And PFRA is a creature of Ag Canada so our programs and projects will probably become more aligned with environmental management and climate change. (PFRA3 Sec. 0, Para. 36 CLIMAVAR)

Respondent PFRA4 discussed the disconnect between public discussion of climate change and the actual willingness or ability of governments to respond to it. He/she is not convinced that the point has been reached where concerns about global climate change will be reflected in policies for prairie agriculture. Indeed, as respondents from SWA

indicated, there is no climate change related drought policy in Saskatchewan. (see SWA Interview Summary)

I think that there is a perhaps a reality within government agencies as viewing climate as a small 'p' political issue more than as a physical science reality. And people especially in the prairies in government organizations will talk about variability and probably wont ... see the agriculture sector as being exposed to climate [change] on a day to day basis... When they hear about climate change and they think about the political aspects of climate change where governments through out the world are suggesting certain things, that there are all kinds of red flags that go up in people's minds on what the impact will be. And it is almost as if it is such a big picture issue that they can't do anything about it anyways so they can only cope with the realities of climate variability that they are facing on a day to day basis because this is the immediate reality. I don't think that the government agencies that are working with the farmers themselves truly have established drought policies or climate change policies. Did we see more extreme events around floods and droughts over time? That will probably come over time and will be a slow process. (PFRA4 Sec. 0, Para. 83 – 101 STRESS)

In commenting on the under utilization of Lake Diefenbaker as source for irrigation respondent PFRA3 mentioned the need to have a long-term plan for climate change. As noted earlier, there are differing opinions -- Diefenbaker is under utilized vs. Diefenbaker is threatened by over allocation in Alberta and climate change.

If you wanted to get this province ready for climate change then have a long term plan of utilizing that water (Lake Diefenbaker] because that is what you are going to need then. ...I get upset when I see the lack of action on that golden resource.

(PFRA3 Sec. 0, Para. 186 MANAGE)

THEME 4 SUMMARY FOR PFRA

What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

DATA COLPRI Summary

PFRA2 provided the only comments recorded under this node.

So we came up with a five year strategy for our little unit that seems to work as an approach on this larger question you asked. We came up with what we call intermediate products, those are the science based products related to climate information to help people gauge probably in a drought if we are spatially where are we in a drought, what is the severity etc. Soil moisture conditions etc. We call those foundational products. Products that you absolutely need to make any high quality scientifically based decision. (PFRA2 Sec. 0, Para. 23)

DATAOLSEC Summary

No comments were listed under this node.

DATAOLNEED Summary

The need for additional data relating to climate monitoring, potential drought, and climate change came through in a number of the PFRA respondents comments. PFRA1 commented on the lack of groundwater data across Canada. (PFRA1 Sec. 0, Para. 28 -29) Those comments were echoed by PFRA4.

We are probably very uncertain as it relates to ground water data. And part of the reason is that basically ...groundwater aquifers have not been appropriately mapped or quantified for sustainable recharge and so on. There are a lot of unknowns there and that data should be gathered. In fact that item was addressed in the Water in the West report by Senator Tommy Banks. I think he used the phrase that the lack of information that the government has federally and provincially is “shocking”. (PFRA4 Sec. 0, Para. 119 145 COORDINTER)

Respondents noted a reluctance on the part of Saskatchewan government agencies to support some data collection initiatives.

A clear example of that is the Saskatchewan Research Council. When I was with the province of Alberta the SRC approached and said they really liked the model we were using for building weather stations. We were building them to more meteorological standards. They wanted to take the idea and try to sell it to the province of Saskatchewan... We were able to get PFRA on board and willing to contribute money. Saskatchewan Agriculture, even though they weren't paying the full cost said no they were quite happy with the ACE network which was a private group that had set up a series of weather stations that were basically no cost weather stations and offered its service. That company defaulted on their payment within 2 years and gone bankrupt and basically left the prairies because they weren't just Saskatchewan with nothing. PFRA2 Sec. 0, Para. 55)

PFRA2's concern for a lack of adequate climate and water data extended to interagency challenges involving Environment Canada. The lack of adequate weather reporting by Environment Canada was described. (PFRA2 Sec. 0, Para. 166)

...you certainly are put in a situation where you have a third world data collection system because of arbitrary decisions and so what you are observing here this is in our foundational category, we need these types of information and it wasn't being provided in a systematic basis and yet there is this major economic and social need for it. Al's worked very hard to find an interim solution and he has succeeded way beyond anyone's expectations for the cost really much lower and yet much higher quality. (PFRA2 Sec. 0, Para. 102)

According to PFRA2, support for increased data collection is a multi-agency concern. Crop insurance agencies, for example, are now seeking improved weather data. The Province of Alberta has acted by setting up 67 of its own weather monitoring stations. (PFRA2 Sec. 0, Para. 311)

DATA COLACCESS Summary

PFRA4 indicated that one of the problems faced by agencies looking for water and climate data is that it is collected by so many different agencies.

The other reality about the data is how we share it across provinces and because there are so many different agencies and because there are so many provincial governments as well regionally our water sources vary, our mandates for the provinces vary across the provincial boundaries. It would be ideal in a perfect world if some of these data banks were all in the same format and you could have access to that. (PFRA4 Sec. 0, 119 145 COORDINTER)

PFRA has faced challenges in acquiring data from Environment Canada. Data collected by EC has not always been formatted in the form PFRA would like to have it. (PFRA2 Sec. 0, Para. 104 – 106)

For example there was a recent ...

Department of Agriculture [data gathering] initiative in competition with Department of Environment initiative to try and do the same thing but slightly different paradigms. And we tried to work that out but it has not yet been fully worked out and those databases are not fully accessible yet. (PFRA4 sec. 0, Para. 119 – 145)

According to PFRA2 the situation is improving. (PFRA2 Sec. 0, Para. 108)

THEME 5 SUMMARY FOR PFRA

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES Summary

As might be expected of any government agency PFRA respondents indicated that financial resources were more scarce than they would like. Funding for additional staff and software development were identified by one respondent as an area that could use additional funding. (PFRA2 Se. 0, Para. 138 – 154)

Respondent PFRA3 indicated there was a tendency toward a reduction in financial resources available for large infrastructure projects.

When I say the money part has reduced ... I was talking about big money for infrastructure projects such as the South Saskatchewan river dam. And those projects have been built and even if we wanted to build something like that today with all the environmental and the red tape it's unlikely. So the millions of dollars that went into infrastructure is no longer required or needed. (PFRA3 Sec. 0, Para. 16)

As was noted under a previous heading COMMNEED there has been a shift in the distribution financial resources from individual farmers to communities, be they municipalities or associations of farmers that might be promoting a water pipeline project. (PFRA3 Sec. 0, Para. 28)

NEEDRES Summary

PFRA3 made the point that in some ways the need for resources and support from government has declined in rural areas of the prairies.

We used to be quite populous in the rural areas and we have shrunk. Over time with better roads better, communications systems, better farming methods etc, the population that we have in our rural offices has shrunk and will probably continue to shrink. The mode of doing business is changing and we can argue it one way or another whether it is a good thing or bad thing. (PFRA3 Sec.0, Para.16)

The need for resources delivered by the PFRA has also been influenced by the expansion of provincial capabilities, particularly in Alberta and Manitoba.

The second thing is that the provinces have increased their capabilities themselves particularly in Alberta. Manitoba...they have tended to have less reliance on the types of skill set that PFRA offers and they've had a tendency to want to do things more on their own. (PFRA1 Sec. 0, Para. 54)

Staffing

Respondents PFRA1 and PFRA2 commented on staffing issues. They expressed concern of the number of technical people who were retiring and the challenges faced in replacing them. Funding for the positions was not always a problem. One of the barriers was the difficulty in finding people from other parts of Canada willing to relocate in Regina. (PFRA1 Sec. 0, Para. 54) and (PFRA2 Sec. 0, Para. 156 – 160)

TECHRES Summary

As noted above PFRA2 commented on a lack of financial resources for software (PFRA2 Sec. 0, Para. 138 -158) He/she also noted that while Manitoba, Alberta, and B.C. were

adopting improved data collection/monitoring systems Saskatchewan was lagging behind in this area. (PFRA2 Sec. 0, Para.118)

THEME 6 SUMMARY FOR PFRA

Who are the institution's stakeholders, how do the stakeholders relate to the institution, and how is their input incorporated into the institution's management and decision making?

STAKEISSUES Summary

Among the issues related to this node are the PFRA's longstanding relationship with rural prairie communities. This is reflected in a concern for stakeholder feedback and involvement. It is also reflected in the brokerage or advocacy role, which PFRA plays on behalf of stakeholders (see COMMNEED). Respondents identified a recent trend, which has seen programming shift from a focus on individual farmers to a focus on stakeholder and community groups. There is programming that continues to involve individual farmers such as the development of individual farm environment plans, an APF initiative in which PFRA plays a role.

PFRA4 discussed the challenges that can arise when producers themselves are encouraged to implement policy.

What has been really interesting is that farmers themselves have been spending their own money and topping up the federal monies, provincial monies to do this. So we are seeing that farmers are very interested in protecting the environment and doing the right thing, but I think it comes back again always to an economic question. Farmers will adopt a best management practice if they can afford it. Farmers need to be economically viable before they can actually adopt best practices and sometimes they are related but they are not always related. So the question comes back to the department. Are we willing to pay more money or is society through governments and individual or we willing to pay more money to producers to protect natural resources if there is going to be a contamination risk? (PFRA4 Sec.0, Para. 23 – 29)

PFRA4 addressed issues around who should pay the cost of implementing environmentally sustainable policies.

And we can talk in global terms about protecting water in the natural environment but to what degree are we willing to pay the price? So if the city wants to get high quality water and they don't want any livestock waste to get into the rivers upstream, to what degree will the urban folk be willing to help the rural folk to ensure that it doesn't happen. It relates to regulations, enforcement, and public and private acceptance relates to of what is perceived to be and accepted to be best agricultural management as acceptable practices on the landscape. (PFRA4 Sec. 0, Para. 23 – 29)

PFRA4 also discussed the trade-offs that are involved when considering environmental protection and the economic needs of the agricultural community.

... I think that the bottom line for the decision made by the producer and possibly by the department is really economic. The tension between economics and environmental protection is a fundamental tension. No agricultural producer and no government will willingly want to contaminate the environment, nor promote development that is unsustainable. But the definition of sustainability relates to risk and management of risk. Some advocate zero-tolerance of any contaminant, which is not realistic. What is sustainable both from an economic and environmental perspective is a balancing act that societies and sectors like agriculture need to build a common mutual understanding of, applying principles of environmental sciences and economics and adopting good public policies. (PFRA4 Sec, 0, Para. 23 – 29)

PFRA4 also discussed the potential for the currently voluntary farm programs dealing with environmental sustainability to become compulsory in the future.

...our programs, which offer the Ag Sector money for cost sharing environmental practices, are purely voluntary. We are approaching this as an education program with producers, where they complete their own environmental farm plan. When they do, that they see where the risks are. They then have the choice to pick the protection practice that they think makes the best sense for them. They will make that choice as individuals and it's confidential as to what the beneficial practice might be. We started this program not wanting to finger point to producers and leaving the decisions confidential with them as to what practices they are actually adopting. What we don't know is that whether they are adopting the protection practices to address the highest risks...It would not surprise me to see programs like this change, if they continue to be accepted by farmers as well as by citizens, and we believe citizens want that. The future programs will likely need to change to protect the highest risk of agricultural contamination. Specific adoption practices are going to need to become more targeted. It's not happened to a high degree yet. (PFRA4 Sec. 0, Para. 23 – 29)

Importance of stakeholder groups

As noted earlier PFRA5 commented on the importance of input from producer groups and relationships with community organizations as integral to the role of the CSIDC. ... (PFRA5 Sec. 0, Para. 252 – 270) He/she also noted that the expansion of irrigation use had met with a mixed reaction from the agriculture community. Efforts are being made to encourage adaptation to new crops that would fit with irrigation.

When you want to look at other crops and you want to diversify it causes a lot of problems because many of these things are very intensive. You have to develop your own market. There is a different way of growing them. You need specialized equipment. There are risks involved with them. So it was a different thought

process. That is one of the things our centre has tried to identify. How do we encourage diversification [involving] value adding in the irrigated sector?... The attitudes are changing. But you know people knew how to grow wheat, our system was set up to grow wheat, and it's easy to do. When you are 50 years old on a farm and the costs that are involved in going into irrigation are a lot, I mean many of the people around here say irrigation is good but it's for my son. I'm 55. I'm 60. I don't want to start this now. I don't want to go into debt like that. It is for a new generation. (PFRA5 Sec. 0, Para. 54 – 66)

PFRA1 described the potential value of Saskatchewan's watershed stewards groups for providing grass roots involvement in water management. He/she did, however, identify problems with the way the groups are funded.

I think there is a lot of potential for them...The watershed authority [SWA] does not have a lot of money. ... you don't often get a lot of action unless you can provide some type of funding, it doesn't have to be a lot. In our case, PFRA ...seldom fund more than 25% and sometimes as low as 10 or 12% what is really needed if the watershed authority wants to make a big impact is to become more like PFRA in providing technical expertise. And a lot of our technical expertise... (PFRA1 Sec. 0, Para. 99)

STAKEMEDIATE Summary

As indicated under the COMMNEED node heading PFRA officials recognize that they play a brokerage/mediation role on behalf of the various communities and agencies involved in water management. (PFRA1 Sec. 0, Para. 85 MANAGE). PFRA is viewed as an honest broker between provinces and an advocate on behalf of those wishing to access programs.

PFRA1 spoke to the features of PFRA that contribute to its ability to play a mediating role.

First of all PFRA has people on the ground. They know the local situation. They have 22 locations spread across the prairies. And we generally have technical expertise... PFRA has been noted for coming up with practical solutions to problems, local problems. The second thing is the brokerage role that that I've talked about the PFRA will help the producer or community get through the plethora of government regulations for example if it's an individual producer we'll actually help him get through the compliance for the Canadian environmental assessment act and so on. So our staff tends to smooth out a lot of bumps in the road. We're there somebody can actually talk to people and that's probably one of the biggest strengths that PFRA has is that we're there. (PFRA1 Sec. 0, Para. 85)

Jurisdictional issues

PFRA has managed to meet the challenges that come with negotiating the maze of interlocking and overlapping jurisdictions and agency roles encountered in Canadian water management. Comments related to this facet of PFRA's role could also be appropriately placed under one of the COORD node headings.

... agriculture as you know is a shared jurisdiction both federal and provincial have roles in that. But the unique thing about PFRA, about our relationship with the provinces is that we really don't have a mandate other than a federal act to work on the land because the natural resources are owned by the provinces and so we have to be very, very careful about what we do and have the blessing of the provinces involved and for the most part we have. In general, I hope it's not just because sometimes we bring a cheque but I think we also bring some knowledge and value added. In my career, the provinces have always been regarded as partners essentially but partners that had to be respected and in some cases partners that had to give us a blessing to go forward. (PFRA3 Sec. 0, Para. 48)

THEME 7 SUMMARY FOR PFRA

To whom and how is the agency accountable?

ACCOUNTAB Summary

A description of the accountability structures within PFRA and between PFRA and AAFC is provided in the Organizational Overview for PFRA. PFRA1 provided an interesting reflection on the latitude formerly allowed to PFRA under its legislation. It would appear that in PFRA1's estimation the agency's role has become more restricted in recent years.

...fundamentally the act allows PFRA to do anything that results in economic security for the Prairie Provinces [and] water. In the words of the auditor general, 'my god maybe we should be asking what these guys can't do instead of what they can do'. And in the words of the principal auditor, 'my god you guys can build submarines as long as you tell Parliament if it creates economic activity so they think about that and they destroyed it. (PFRA1 Sec. 0, Para. 54)

EVALPROG Summary

No respondent comments were listed under this node.

THEME 8 SUMMARY FOR PFRA

In what networks does this institution operate and how?

COORDFED Summary

NOTE: The COORD tree node structure is somewhat difficult to apply to the PFRA. It would appear to be better suited handling responses from the officials of provincial organizations. For example, coordination issues arise involving relations between PFRA and other federal organizations. The COORDFED sub-node has been used by the researcher to reflect interagency coordination in the federal government and between PFRA and the provinces.

Jurisdictional issues

Coordination with the provinces, as noted earlier, involves carefully managing various jurisdictional considerations.

But the unique thing about PFRA, about our relationship with the provinces is that we really don't have a mandate other than a federal act to work on the land because the natural resources are owned by the provinces and so we have to be very very careful about what we do and have the blessing of the provinces involved and for the most part we have. (PFRA3 Sec. 0, Para. 48)

Indeed different approaches are sometimes required for different provinces.

Manitoba and Saskatchewan have always been quite welcoming of PFRA's services. And Alberta less so. Largely I think because Alberta has more wealth and sometimes they, quite rightly, may look at PFRA [as intruding] ... Alberta is more sensitive with respect to the federal provincial role. (PFRA3 Sec. 0, Para. 50 – 52)

Coordination issues also arise in relation to data collection and delivery between provinces and between PFRA and the provinces.

And our experience in working with just trying to get agro climate information product ... at the provincial level varies by province. There is no standard that you can apply across the provinces. Quebec wants to do it themselves, they are saving some money and they are going to build it and that is the way they like to do it, Alberta to some degree is the same way. We are finding other provinces are wanting to sit back and let the federal government become more involved in it. Some have varying degrees of interest. (PFRA 2 Sec. 0, Para. 39)

Saskatchewan relations

According to PFRA3, fewer challenges with respect to jurisdiction are encountered with Saskatchewan than some other provinces. In part because of the “large footprint” of PFRA in the province and the fact Saskatchewan is not as wealthy as Alberta and therefore more willing “to have somebody else pay”. (PFRA3 Sec. 0, Para. 60)

The experiences that we have had with the Saskatchewan agriculture department in particular have been one of, 'if we have to spend money we are really not that interested'. And I think they have, and I guess I can go on record as saying this, I think they have made some bad decisions when it comes to climate monitoring

and whether those decisions are going to rectify themselves but I don't think they are. Again I think they are maybe sacrificing durability and quality for price and I am not sure that I would agree with that approach. (PFRA2 Sec. 0, Para 51)

Two respondents noted that for a time there were frustrations for PFRA in dealing with SWA. These were attributed to issues of personal rivalry and jurisdictional jealousy that seem to have worked themselves out. (PFRA3 Sec. 0, Para. 76) and (PFRA4 Sec. 0, Para. 13 -21)

Honest broker role

As mentioned a number of times previously PFRA's "broker" role involves exercises in inter-jurisdictional coordination.

And of course PF's primary role for water management has been as an honest broker, providing good quality technical information and sort of a sustained presence and that is probably going to become, I am assuming, I am surmising, but that may become a greater role as the pressures across those three provinces grow demand for water. So I can't say it is but it has got potential. (PFRA2 Sec. 0, Para. 15)

Coordination of drought planning

The coordination role applies to the efforts of PFRA to assist the provinces in drought planning and collecting water and drought data. (PFRA2 Sec. 0, Para. 11) PFRA2 describes how the role might evolve.

And what we would like to do is have a self-selecting set of the provinces, maybe 2 maybe 3 work with the feds... growing foreword and come up with formal drought plans and a formal structure that links with federal partnership the monitoring, reporting, adaptation, mitigation and response elements at the provincial level down to the local governments. (PFRA2 Sec. 0, Para. 35)

Data management coordination

There seems to be considerable concern of the lack of comprehensive groundwater resource mapping across the prairies. This situation involves coordinating the activities of provincial and federal agencies.

For example, all the well logs ... One of the problems that we encountered was that there was no standardization in terms of how they [the various agencies] described a well. For example in the lithographic series they had 32 colors. So we had to come up with standardization. We had half a dozen ways to describe fracture till. So we worked with Natural Resources Canada and in actual fact we were supposed to pay Natural Resources Canada to do this. And they actually provided the resource and algorithms so that we could do most of the standardization electronically. When it came to the end Alberta Environment was very reluctant.... to become a player in terms of adopting standards. SaskWater

didn't want us to use any of their ground water data. Manitoba was fine with it.
(PFRA1 Sec. 0, Para. 89)

Coordination of cost shared projects

... most infrastructure projects involve three levels of government, federal, provincial and municipal. So depending on the programs that are in place, the municipality, yes is responsible [for its own infrastructure] but they'll get their money from various sources. Taxation, federal government, provincial grants. We have programs here [through PFRA] that will pay. The rural water program pays up to 30% of cost of small infrastructure projects so federally they canned the infrastructure program the province has capital grants gives the municipalities...
(PFRA1 Sec. 0, Para. 201)

COORDPROV Summary

No respondent comments were listed under this node.

COORDLOC Summary

NOTE: Many of PFRA's relationships with local agencies has been described previously under node headings such as COMMNEED.

PFRA's broker role has been discussed a number of times. Within that role PFRA assists local communities in coordinating infrastructure projects, helping find funding, etc.
(PFRA1 Sec. 0, Para. 201)

As noted earlier, PFRA's capacity to play this role involves 22 office locations across the prairies, its in-house technical expertise and its long-standing community relationships and networks.

The involvement of producer groups in the Community Pasture Program and the CSIDC's activities were described by PFRA5 as a means of meeting local needs. (PFRA5 Sec. 0, Para. 25 – 44)

COORDINTER Summary

Again many inter-provincial issues have already been discussed under other node headings. For example under DATAACCESS COORDFED the issue of data sharing between agencies was discussed. See also- (PFRA4 Sec. 0, 119 145 COORDINTER)

THEME 9 SUMMARY FOR PFRA

How will things change for this institution as climate/water stress changes?

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR PFRA

How does this institution relate to rural community vulnerability?

REDEVUL Summary

PFRA's role historically has been about reducing community vulnerabilities to climate related water issues such as drought.

A more current activity mentioned was PFRA's role in developing a national drought strategy.

The challenges presented today with respect to dealing with climate variability and water were described by PFRA2:

... we are also now starting to ask ourselves the question how do we effectively help people with planning for extreme events such as the Vanguard rainfall event. Water quality issues, maintenance of infrastructure systems for long- term growth. We are trying to deal with issues related to policy. How does PFRA support the provinces to develop long-term drought plans that effectively build on the monitoring and reporting that has been done both by the provinces and the feds? But also starts looking at variation and adaptation and any pre-response so we can cut down the cost of these events plus also improve our effectiveness.
(PFRA2 Sec. 0., Para. 11)

THEME 11 SUMMARY FOR PFRA

What legal instruments are relevant to this institution's day to day operations?

LEGAL Summary

Issues of constitutional jurisdiction colour the PFRA's approach to its mandate. Strict interpretations of its legal mandate could be limiting PFRA's ability to perform at an optimal level.

Well, I guess the one comment that I want to bring up is because of this federal provincial tension around who has the responsibility for natural resources and water. I sometimes think that the federal government backs away from an obvious federal role because water is a provincial mandate. A and I think that that is sometimes is a disadvantage to the federal government. I understand that there are roles that we have to fulfill around, for example. The fisheries and navigation and environmental aspects but I also think that there are larger roles that the federal government could play that would not be contradictory to this

constitutional tension that we run into all the time... The provinces will be concerned if the federal government tries to take responsibility away from them but if the federal government can add value to what is going on provincially, I think the debate would go away as to who is responsible for what straight away. (PFRA4 Sec. 0, Para. 161 – 166)

THEME 12 SUMMARY FOR PFRA

What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

OTHLIM Summary

A number of issues and ideas were discussed in the interviews that didn't necessarily lend themselves to categorization under the other nodes.

These included the following:

The Value of Water

As noted earlier this was touched on under (PFRA2 Sec. 0, Para. 193)

The role of political leadership

The new Integrated Water Management Federal-Provincial Committee is a concept that was solicited by the provincial government. So when the politicians actually want to act, the priority will fall into place.... But in this exercise they should consider how they will interact with the federal government and vice versa. When the politicians can agree on that, it will make the job of the civil servants far easier -- to actually start to share the data and deliver the programs in ways that are deliberate with true truly-shared mandates and responsibilities. I think the political will needs to be there. And water and climate and environment might be hot one day and not the next but these are issues that will always be facing us so the political will need to deal with these issues that are pervasive and ubiquitous [and] somehow need to be packaged into day to day operations. (PFRA4 Sec. 0, Para. 161 – 176 ORGFLEX))

The four year policy cycle limits long-range planning

Yeah, one of the problems is that we have to elect a government every four years and very seldom do you get long-term thinking or long-term commitments...The tension partly comes as to whether this will be a longer-term mandate or not. Because any environmental issue requires long-term investigative research and sustained programs that don't end. Five-year durations for environmental programs are too short and if these are not renewed when the policies shift after four or five years, we have to retool and put our priorities toward the next policy

mandate. That is just the reality of working in government. (PFRA4 Sec. 0, Para. 13 -21)

The ad hoc mind set

So the key thing right now is you are just starting to bump against water is no longer a slack variable. And so we don't have the institutional arrangements in place because we have never needed them. It was sufficient to just do an ad hoc response. The fact that we are in this room having this discussion is a sign that business as usual isn't working any more. And yet we traditionally aren't used to responding to issues in a proactive manner because we have always had the buffer of excess resources and in reality compared to the rest of the planet we do. I mean we could carry on like this probably for another 30 or 40 years if the external demands on the water remained static. (PFRA2 Sec. 0, Para 182)

IRRIGATION PROPONENTS (IRRIG) INTERVIEW SUMMARY

Process:

Four interviews were conducted with respondents from three agencies.

Agencies and respondents:

Canada Saskatchewan Irrigation Development Centre (OUT2 – 2 respondents)
Saskatchewan Agrivision Corporation (R3)
Saskatchewan Irrigation Projects Association (SIPA1)

THEME 1 SUMMARY FOR IRRIG

Theme 1 What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLEWATER Summary

CSIDC (Out2)

Role and history

Respondent OUT2 described the history, composition and role of the Canada Saskatchewan Irrigation Development Centre (CSIDC). According to OUT2, the Centre's origins go back to a PFRA irrigation demonstration project which was launched in 1949. This was a period when the Gardiner Dam (then known as the South Saskatchewan River Dam project) was still in the planning phase.

The attempt here was to demonstrate irrigation techniques way ahead of that [completion of the dam] so people could become engaged in the debate about the dam and what irrigation would do would, and have some understanding of irrigation technology at the time. (Out2 Sec. 0, Para. 21 – 25 R1)

In 1986, the province, through its department of agriculture, became a partner with PFRA in the Centre. "...because technology had changed from flood irrigation in 1949 to pressurized mainline sprinklers which is state of the art." Thus the centre again evolved to stay "a step ahead" of new developments. OUT2 indicated this was again the case when the Centre became active in preparing the way for new irrigation projects at Luck Lake and Riverhurst in 1998. At that time the Centre began to more formally include agricultural industry development groups and commodity groups within the scope of its development activities. (Out2 Sec. 0, Para. 21 – 25 R1)

At present the CSIDC is a partnership of the federal and provincial governments (PFRA and SAF) as well as two industry groups – Saskatchewan Irrigation Projects Association (SIPA) and ICDC ?? (which performs R & D functions). Less formal, but none the less important, relationships are maintained with various producer commodity groups (for various crops such as pulses or orchard crops etc.) According to OUT2, CSIDC is hoping

that the University of Saskatchewan will soon become more formally associated with the Centre. (Out2 Sec. 0, Para. 9 – 13 R2)

Respondent OUT2 commented on the importance of having producer group involvement at the centre.

It is very important for us to have irrigation and commodity group involvement here. They are partners of the centre. Strong producer groups are good for us because we can't go to every irrigation farm. (Out2 Sec. 0, Para. 256 – 266)

Respondent OUT describes the role of the centre as follows:

The mandate is research, demonstration and education. Our role is to provide research and a facility and staff to do that. We interact with our partners around the demonstration activities that go on around in the irrigated areas and the tech transfer stuff. So we are involved in all those aspects of it. And the centre, it's a focus, it's a partnership, it's a place where people can come and view things, look at things so international people can come here and see how irrigation works in Canada. It's an opportunity for training for producers to see new crops and try new things. (Out 2 Sec. 0, Para. 5 – 7 R1)

CSIDC (Out2)

Comments on the role of stewards/stakeholders

Respondent OUT2 commented favourably on the watershed advisory groups operating under the coordination of SWA.

I applaud the watershed authority. It should have been done 20 years ago. It is an exercise that has been needed for a long time. It's a very complex and difficult one to do. Now the question over that is I think it is a good start, what they have got with the seven watersheds that they have dealt with. They have now got a mechanism, some [advisory groups] will run with it and be aggressive, some will maybe peter out...(Out2 Sec. 0 Para. 252 – 254)

OUT2 indicated that the watershed advisory groups perform a service for SWA that is similar to the role of producer groups within CSIDC. They serve to focus and filter the concerns of many stakeholders into a less fragmented and more coherent voice. They also serve to communicate information back to a wider public.

I think the watershed advisory committees will do some of the same kind of work. They will fight among themselves about their issues and then produce their position which now people can negotiate and interact with. (Out2 Sec. 0, Para. 256 – 266)

AGRIVISION (R3)

History and role

Respondent R3 indicated that AgriVison is a somewhat unique not-for-profit organization that grew out of the Saskatoon Chamber of Commerce. One of Agrivision's major projects was the development of a *Fifty-Year Water Plan for Saskatchewan*.

The Agricultural Committee of the Saskatoon Chamber of Commerce were debating what the urban businesses could do to help farmers in the crisis that existed some eight years ago and does to a certain extent still. And so out of that we said we would develop an organization and proceed to attack what seemed to be the major impediments to the farming sector, the rural sector. Consequently, we took on a number of projects, and one of them was clearly the management of water in the long term, whether you approach it from a climate change perspective, or whether you just take it in the current situation, it's still a major problem. We went back to the 1972 [water] study by PFRA and used that as a basis for proceeding. At that time they had recommended twenty-four dams on the North and South Saskatchewan River system to manage the water, mainly to store water from the spring freshet and release it throughout the year to get even flows for both urban and industrial development and also for rural development with irrigation and so forth, and so that's how we got into it. We only tackle issues that involve transformational change -- issues that are going to have major impacts. This is because many times when you change one major impact like water a lot of other things will alter the course the same way. So that's who we are and how we got into the water development scheme. (R3 Sec. 0, Para. 8 – 10)

SIPA

History and Role

The Saskatchewan Irrigation Projects Association [SIPA] is a volunteer producer advocacy organization that was established in the 1990s (12 years old on date of interview). SIPA is governed by an elected board of directors and has membership representation from across the province. The group sees its role as one of consolidating industry positions and lobbying.

We see ourselves as representing the irrigation sector in the province with respect to policy decisions that governments whether federal, provincial, or municipal make in regards to water strategies and irrigation. SIPA is a new organization. Its only twelve years old. So we are just in the last few years becoming recognized as a legitimate voice on behalf of irrigation farmers in the province. (SIPA1 Sec. 0, Para. 8 – 10)

SIPA relationship with stewards

Respondent SIPA commented on the relationship between his/her organization and the watershed advisory groups.

I have gone to most of those watershed meetings for my own information but as well representing SIPA, just to see how things are formulated there, if in fact the decisions and policy that comes out of the stewards sort of coincides with what we see as SIPA's role. And by and large they do. We would like to see a bit more emphasis on irrigation development obviously which is a mandate of SIPA. We think that it would have a role to play in watershed stewards as well. From my reading, places in the world where they have taken care of the water are places where they have developed their water to good economic use in their country. (SIPA1 Sec. 0, Para. 5 – 11)

COMMNEED Summary

Agri-vision R3

Respondent R3 described the relationship between community stakeholder needs and the development of a long-term water management strategy for the province.

Some of this is driven by situations such as North Battleford when they had the contaminated water and similarly with the problems they've had on certain Indian reserves where the quality of water has been very questionable in recent years. So, that is one issue, simply pipelining water to the rural communities and of course you can't get industry in these small towns, because almost everything depends on water, and then the second thing is to expand the irrigated area and of course we have the existing irrigation areas in the Outlook area and Lucky Lake, but there are recent plans to regenerate the idea that was there originally, when Diefenbaker was first developed, to put water onto the west side of the river running north to Saskatoon. That involves about 350 000 acres of irrigable land. Now, there's another very important aspect to it and that is to increase the total water captured by Lake Diefenbaker so that you've got more water. Then you can push more water over the dam down through to the Qu'Appelle system to serve Moose Jaw, Regina, and some of the other rural communities. There's a great need for that. Now to get this extra water, what would have to happen is that there would be a dam, presumably about Smokey Lake Alberta which would raise the water level there sufficiently that you could go into what is an existing channel there that's, in terms the Vermillion Creek, it runs seasonally, and there's a direct channel all the way through to Diefenbaker so that you could divert some of the North Saskatchewan into, effectively the South Saskatchewan system and then sufficient water to add to the flow down to Regina and Moose Jaw and communities down in that area . (R3 Sec. 0, Para. 40 -42)

THEME 2 SUMMARY FOR IRRIG

THEME 2. What past water stress has the institution faced, managed and mediated, and how?

AGRIVISION (R3)

Institutional response to the fifty year water plan

Agrivision's long-term water plan was intended to provide a foundation for a water management strategy for the province. It would appear the Agrivision exercise and an earlier effort by the PFRA in the 1970s are among the only major planning initiatives undertaken since the Gardiner Dam was planned. The response of various stakeholders to the Agrivision plan says a lot about management responses to water stress and long-term plans that attempt to deal with it.

R3 stated that the public response to the plan was:

Generally good. Most people see it as quite logical and are enthusiastic about it, and certain institutional organizations such as the university here for example are quite supportive of the plan. But it did receive strong opposition from the Saskatchewan Environmental Party who are, resist any suggestion of dams. (R3 Sec. 0, Para. 26-38)

R3 indicated that among rural communities support for the plan was:

Very high, they support it because of the spin-offs mainly. In first place would be pipelines for rural water which is very much in the interest of rural communities, and the federal government by the way, and then of course to ensure enough water for irrigation because we have a great deal of un-irrigated land that are suitable for it. (R3 Sec. 0, Para. 26-38)

According to R3, some government agencies were not as supportive of the plan as others.

The federal government seemed to be quite interested through the environmental department. However the provincial government was not as interested at the time, they have some reluctance to develop irrigation and so forth because they view water as being of great significance for power, and so, the suggestions that a lot of water will be used for irrigation is not on their chart at the moment. (R3 Sec. 0, Para. 26-38)

ORGCLEAR Summary

Respondent SIPA1 maintained that one of the reasons that irrigation has not occurred to a greater extent in Saskatchewan is because of a lack of clarity and consistency in provincial government policy.

We kind of developed irrigation and then we quit for a while and then we develop a little bit more and then we quit. And there is no constant, continuous development that people can see that it is going to happen. Quite frankly if a government person said yeah we are going to develop this 100,000 acres over here people wont believe it until the pipe is in or the cannel is in. We have got to develop ongoing development policy. (SIPA1 Sec. 0, Para. 106 – 108 TECHRES)

And also...

Is there support from the grass roots? Yes, there is. But again, because of the history of irrigation in Saskatchewan people are pretty reluctant to get too involved, because they just don't think it is going to happen and until we start showing some real progress on irrigation development that's kind of the feeling that's going to stay out there. (SIPA1 Sec. 0, Para. 165 – 167 TECHRES)

ORGFLEX Summary

CSIDC

Respondents OUT2 and OUT2R2 described the evolutionary development of the CSIDC. The Centre has been capable of adapting to new conditions and needs over the course of its history. Since 1996, efforts have been made to include greater input and participation from producer commodity groups.

So for example, the herb and spice association, Saskatchewan Seed Potatoes Association, the Vegetable Grower's Association, all of those have been at this table and bring views. We had a meeting of the Canadian Cherry Producers around the table here because we have an orchard here and so we have made links with those producers. We say look here's a facility, you want to have a board meeting, use our boardroom and the way that is working now, commodity groups carry some weight so we work with them...You go back 20 years and commodity groups weren't as strong. But that's the model that's evolved. So 20 years ago, staff were all making contact with irrigators one on one within districts and doing it that way. So it is a lot more effective now because the groups are bringing their agendas and we are trying to coordinate that to the centre here and provide the work that they are interested in and that's the thing. (OUT2 Sec. 0, Para. 26 – 32)

SIPA

SIPA1 indicated the governments needed to exercise some flexibility by adapting policies to reflect the costs of irrigation and the spin-off benefits it provides to society.

The reason we think there is still a role for government to play because of the studies out of Alberta from 20 some years ago that looked at sort of the benefits of irrigation. And at that time 87% of the benefits that they could measure went to society as opposed to directly to the irrigation farmer so using that as an argument all of the costs associated with developing irrigation a good chunk of that should be paid out of the public purse because that's who's benefiting in the long term. That's a hard thing to get across and a hard thing for people to understand but they have to understand the spin off and the trickle down effect of establishing something to really understand that or believe it. Our SIPA's rule would be if you are developing an irrigation project the majority of the main infrastructure funds have to come from the federal government that is if it's a pumping station say on lake Diefenbaker that has to be federally funded, a main

cannel system and booster pumps or reservoirs or whatever is intake on that whole main lateral system has to be all totally federally funded just because they are the only people with the dollars that are able to do it. The province should then play the role in establishing laterals or maybe small pump stations off of these main cannels or pipe lines depending on what the situation would be. The province has to that. The have to supply highways and power. (SIPA1 Sec. 0, Para. 169 – 171 TECHRES)

THEME 3 SUMMARY FOR IRRIG

Does this organization plan for water/climate stress and how?

CLIMAVAR & CLIMACHANGE Summary

Agri-vision

Respondent R3 described past and current efforts to assist agricultural producers in adapting to climate variability.

There is no real drought program. We have certain relief programs, one of the most recent is the federal CAIS program. These programs are to relieve the economic fallout from drought or any other crisis in the country, but to say that we have a real drought program is not true. Now, again you can pick certain points out, for instance, researchers in the university here, particularly the crops people, are working with drought resistant plants and so forth, it's not completely ignored, but to say that we have a real drought program would be incorrect. The last drought program we had of any significance was the PFRA back in the 1930's, after the dirty thirties as we called them, when they moved farmers off the land and then created the PFRA pastures. I mean, that was sort of the last really major effort I could think of in that area. (R3 Sec. 0, Para. 136 – 142)

R3 was asked why the province lacked a comprehensive drought mitigation program. His/her response indicated that most effort seemed to be going into front end solutions such as limiting CO2 emissions as opposed to back-end initiatives that would deal with the impacts of climate change and/or variability.

The standard response of government, both federal and provincial, but mainly the federal government, is to say that we have some manmade problems in terms of greenhouse gasses and we're warming the climate up. I suspect it's more normal cycle than it is manmade. But never the less, we have this problem and they're chasing around worrying about CO2 and so forth, but precious little effort is given to saying ok, if the temperature rises by two degrees in the prairies, what's that going to be in terms of insects and diseases and yields and plants, or even the nature of the crops that are going to grow. Virtually nothing is being done about that, so, it's just, not the priority yet. (R3 Sec. 0, Para. 144 – 146)

R3 observed that Saskatchewan currently has a water problem, and that problem exists independently of additional stress that may or may not come about due to climate change. R3 noted a lot of media attention had focused too much attention on retreating glaciers, because the real issues of importance are winter snow pack and spring run-off and the need to capture and store that water. In response to the question “Did you take climate change into account when developing the 50 year water plan?” R3 stated:

Not very much, no, we dealt pretty much with just current water supply because whether we have climate change or whether the climate change ceases and we go into a period of calm or whether we go into a cooling period, we still have this water problem, and we have to deal with it. (R3 Sec. 0, Para. 148 – 150)

CIDC

The CIDC respondents indicated that climate change that involved increased aridity and provided more heat units would increase the viability of irrigation and the economic potential of the region that is and the regions that could be serviced by Lake Diefenbaker. “We are in the unique position to capitalize on some of the climate change aspects for irrigation in Saskatchewan from Lake Diefenbaker.” (OUT2 Sec. 0, Para. 145 – 161) What the CIDC respondents did not discuss questions about the long-term stability of the South Saskatchewan system in the event of reduced flows and excessive withdrawals in Alberta.

Right now let’s look at the Lake Diefenbaker area. That is really our expansion opportunity for irrigation. As Larry mentioned, we are consuming less than five percent, you know 3 and a half percent of the main annual inflow into Lake Diefenbaker. Most jurisdictions in the western U.S, and globally that number is 70-80%. Now the opportunity here I think around Lake Diefenbaker, with climate change, if we double that and we say instead of five % its 10% of the median annual inflow, even 20% we still have an opportunity to develop within that environmentally responsible climate change concept where as the other jurisdictions right now, who are using 70-80%, they are going to find they have over-allocated if climate change does what some of the predictions suggest it is going to do. So because we are working well within the resource base we still believe that the opportunity is there to irrigate. Now that is the development side of things. On the other side of the coin is, if climate change produces more variability, if it changes weather patterns, what impact does that have on livestock feed? What impact does that have on supply of commodities to processes that rely on it every year? Now we would suggest that irrigation has a role to play in that regard and Saskatchewan has the opportunity to develop more acres where Alberta is looking at efficiencies and limitations now. Manitoba hasn’t really got the infrastructure or the opportunity to develop it as much. (Out2 Sec. 0, Para. 145 – 161)

SIPA

SIPA1 concurred with the CSIDC respondents' impression that there continue to be opportunities to expand irrigation development in Saskatchewan. He/she described a tension between irrigation proponents and the environmentalists and conservationists who tend to oppose dams and the increased use of water for crop production. He/she indicated that the prejudice against irrigation extended into certain government departments. Again, as was the case with the CSIDC respondents, SIPA1 does not believe the South Saskatchewan system will be imperiled by climate change.

Int 1: You were saying that there were some people in Saskatchewan Environment that need some education?

Respond: Actually there's probably a lot of people in a lot of the departments that need a lot of education. I'll put it that way, as far as irrigation is concerned, I don't think they realize the potential that we have in the province. I'm not blaming them. They are doing their job and that sort of thing. But we have a tremendous opportunity with the water that we have in the province but we are not utilizing it at all really. (SIPA Sec. 0, Para. 70 – 76)

Int 1: But are the issues related to ignorance of the potentials or are they related to concern about the impact of irrigation, the environmental impact of irrigation, social impact of irrigation...

Respond: Yeah, probably both but I think we have to realize that the people promoting the conservation and the wise use of water and we are going to run out of it some time because the glaciers are melting and that whole aspect, they have done, they are much more organized than us on the side of wanting development are. So all we hear through the media and meetings is climate change is happening, global warming is happening and we are going to run out of water because the glaciers are melting so we are going to be running out of water here, which is far from the truth. Yes the glaciers are melting but they only represent in our case about three percent of the water that goes down the south Sask. system anyway so that's neither here nor there. That whole side, those people are much more organized and much more vocal and able to get their thoughts across to the public in general much more than we have. And we have done a poor job of even attempting to do that up until now. (SIPA Sec. 0, Para. 70 – 76)

THEME 4 SUMMARY FOR IRRIG

What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

DATA COLPRI Summary

Nothing was posted under this node.

DATA COLSEC Summary

SIPA

SIPA1 described a research project that was underway at the time of the interview as “*probably the most important thing that SIPA has done in the last few years.*” The project received funding support from the Canada Saskatchewan Water Expansion Program. It consists of a review of previous studies and data.

This study is going to bring all of that under one cover in a language that anyone can understand and provide us with a fact sheet that speaks to irrigation development and how it can benefit everybody in the province. So I think that will go a long ways to helping us with what we are trying to do. (SIPA Sec. 0, Para. 90 – 92)

DATACOLNEED Summary

Nothing was posted under this node, although the SIPA comment from above would probably fit here.

DATACOLACCESS Summary

Nothing was posted under this node.

THEME 5 SUMMARY FOR IRRG

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES Summary

SIPA

SIPA1 described the challenges faced by volunteer organizations, whose members are not paid to attend meetings or conduct the Association’s business. SIPA lacks paid support and technical staff. This is added ammunition for the critique of the efficacy of other volunteer stakeholder organizations such as the watershed advisory groups who are invited to participate in policy development but lack the resources to do so. SIPA operates through a modest membership fee based on 35 – 40 cents per acre that each member has under irrigation. (SIPA Sec. o, Para. 13 – 19 STAKEMEDIAT)

We are well-intentioned but we just don’t have the where with all to get the man power in place to be an effective lobby or educational group. And that is our biggest problem quite frankly. You can do so much as volunteer but there are big restraints to how much you can just do sort of free out of your own pocket. (SIPA Sec. 0, Para.82 – 88)

...There are a lot of other things that we should be doing that we are not... I think if SIPA could find a way of funding ourselves a little better I think that would be an area we could start looking at a little bit more. If you've got a person full time or part time at least looking after the affairs of SIPA and going to these various conferences and meetings and meeting people and getting to know who you have to talk to if you want something done on the government side or the research side. (SIPA Sec. 0, Para. 106 – 108)

NEEDRES/TECHRESOURCES Summary

Items posted under this node were moved to other node summaries.

THEME 6 SUMMARY FOR IRRIG

Who are the institution's stakeholders, how do the stakeholders relate to the institution, and how is their input incorporated into the institution's management and decision making?

STAKEISSUES & STAKEMEDIAT Summary

CSIDC

By virtue of CSIDC being a federal-provincial collaboration, its officials are frequently involved in consensus building. This is particularly the case when CSIDC seeks support from agencies within their respective governments. A project proposal, for example, has to comply with the policy guidelines and financial constraints of government at both levels. (OUT2R2 Sec. 0, Para. 206 – 246)

The CSIDC respondents commented on the setting aside of the original plans for the development of irrigation on the west side of the South Saskatchewan following the completion of the initial east-side projects. There was an exchange with the interviewers that sought to explain why development has stalled. (OUT2 Sec. 0, Para. 44 – 92) There was also some discussion of the overall social and economic changes and pressures facing rural Saskatchewan. (OUT2R2 & OUT2 Sec. 0, 104 – 108) (OUT2 Sec. 0, Para. 139 – 143)

Agri-vision

Respondent R3 discussed the problem of organizational inertia and the issue of short sightedness with respect to developing long-term solutions or for planning initiatives with a pay-off horizon more than four or five years away.

I: What do you think of the main limitations, are they related to government problems or, they are related to local people's problems.

R: Well, I guess people's vision sometimes are rather limited, they need to have something in the near future before they're prepared to put, extend their limited

energies and so forth in support, and so you need to have some water to manage before you have a management organization in the minds of the local people. I think that's the difficulties, is getting them started, and so forth. Now, of course, there are aspects of water management beyond, you now, irrigation and storing water and so forth, there are wetlands, control the wetlands and drainage and that sort of thing that lends itself to some local activity, but in Saskatchewan, of course, the local activity is so dominated by the Saskatchewan Agricultural, or Saskatchewan Association of Rural Municipalities, SARM. They're such a dominant force, and virtually all municipal activity comes through them. So it's difficult to set up a parallel or overriding system. (R3 Sec. 0, Para. 76 – 82 EVALPROG)

SIPA

As noted earlier, under the node MANAGE, respondent SIPA1, believes there is a need to better educate stakeholders and regulators about the benefits of irrigation as well as to address the concerns of conservationists. (SIPA Sec. 0, Para. 62 -64) (SIPA Sec. 0, Para. 70 – 76)

THEME 7 SUMMARY FOR IRRIG

To whom and how is the agency accountable?

ACCAOUNTAB Summary

The material posted under this node was moved to FINRES.

EVALPROG Summary

The material posted under this node was moved to STAKEISSUES.

THEME 8 SUMMARY FOR IRRIG.

In what networks does this institution operate and how?

COORD Summary

Water governance is widely distributed in Saskatchewan. This makes it very difficult to fit many of the respondent comments under the various COORD tree nodes. The agencies included in this summary have issues that involve coordination and mediation between multiple agencies from various levels of governance. That said, an attempt has been made to match respondent comments with the node that seems to best reflect their content. In a final summary we should consider dealing with them altogether within an interagency mediation collaboration and coordination category.

COORDFED Summary

CSIDC

CSIDC, as described earlier, involves an exercise in federal-provincial cooperation. (OUT2 Sec. 0, Para. 5 – 7) That said, Respondent OUT2R2 indicated that there were challenges in the relationship between CSIDC and Environment Canada.

Federally, I think the role is not clear sometimes. And I mean Environment Canada, just what they are doing and how we play into it. There is certainly some clarity needed federally. I know the federal agencies are trying to get the groups together to meet and discuss water... (OUT2R2 Sec. 0, Para. 206 – 246 COORDPROV)

Out2 also mentioned the importance for their agency to ensure its requests for federal support comply with the policy criteria and agendas of both federal and provincial agencies. This can perhaps be considered something of a barrier to more streamlined planning.

Somehow, you have to get consensus. Because if I don't get the federal priorities right, [a senior official's name was used here] is going to say 'No, that's not the federal role there'. So the trick is to try and keep our priorities in line. But remember we also have to meet the provincial priorities. So somehow this table allows you to work out some of those differences and try to strategically plan so that all people, and if you can work it out so that everybody gets their priorities met you are a whole lot stronger working together than you are at loggerheads or apart. (OUT2R2 Sec. 0, Para. 206 – 246)

Agrivision

Respondent R3 indicated the fifty year water plan met with greater resistance at the provincial level than at the federal level.

The federal government seemed to be quite interested through the environmental department, however the provincial government was not as interested at the time, they have some reluctance to develop irrigation and so forth because they view water as being of great significance for power, and so, the suggestions that a lot of water will be used for irrigation is not on their chart at the moment. (R3 Sec. 0, Para. 26 – 38 COORDLOCAL)

SIPA

Respondent SIPA1 indicated that his/her organization collaborates successfully with a number of federal agencies. For example, a major study of irrigation capacity in the province has received funding from CSWEP(?). There is also collaboration with the PFRA in coordinating an irrigation project in the southwest of the province. (SIPA Sec. 0, Para. 90 – 92)

SIPA1 also indicated that the relationship between the federal and provincial governments can have an impact on his/her organization's activities.

I know that there is money federally to do things like that [water resource studies] probably through western diversification [a federal program] and other places. I know the dollars are there. It's a matter of keeping the federal politicians and provincial politicians on speaking terms which hasn't been the situation for the last number of months in this province. That has to change one way or another because if they are not willing to sit down and talk about something and settle their past differences we are going nowhere. (SIPA sec. 0, Para. 173 – 175 TECHRES)

COORDPROV Summary

CSIDC

The following comments attest to the complexities of interagency coordination for water governance. It involves a coordination matrix with connections that run between all levels, federal, provincial, local, NGO and private sector governance.

...within each of the organizations there are also issues. We have the southwest, for example. There is an agenda there. PFRA is heavily involved with that. We are involved with irrigation, and with the irrigation section within PFRA. Irrigation also involves Sask. Ag and Food. There are issues around irrigation district administration. There are issues around engineering, and issues within that group. Each group has to deal with those issues. And so I guess the answer to your question is yes there are lots of issues not just between organizations but within organizations too. But every organization has to come to grips with the various issues and then agree that this is the way things are and this is how they meet with us then around this table. There is constant debate and dialogue. (OUT2 Sec. 0, Para. 206 -246)

Respondent OUT2R2 indicated that while it may complicate matters, it was nonetheless appropriate to have all the relevant stakeholders at the table. However, a clarification of roles might facilitate improvements in interagency coordination.

I think that by having a mechanism where you can bring the groups together to talk and try to plan and have an MOU that binds them together, is a far better way of doing things than doing them alone. (OUT2R2 Sec. 0, Para. 206 -246)

Int 1: Many of the tensions seem to be related to a lack of a very clear definition of the role of each agency in water governance.

Respond 2: Clearly.

Int 1: It kind of seems to suffer from too much governance.

Respond 2: Maybe. (OUT2R2 Sec. 0, Para. 206 -246)

Agrivision

Respondent R3 was critical of the roles assigned various provincial water governance bodies under the 2002 Safe Drinking Water Strategy.

I: *Do you think that the division of labor that we have between the Saskatchewan Watershed Authority, Saskatchewan Environment and SaskWater, in terms of the management of water resources, is that a problem for you?*

R: *Yeah, it was a mistake when it was done.*

I: *It was done in what, 2002, isn't that right?*

R: *That's right. It was a mistake and I have heard via the grapevine that the deputy minister of the day recognizes that he made a mistake.*

I: *Yeah, why do you think that it was a mistake?*

R: *Well, they saw problems and so they divided them up to give some specificity to their organizations and so forth, but it means that you've got two heads trying to solve problems, and that produces conflict. (R3 Sec. 0, Para. 84 – 102)*

I: *Do you think that there is a lot of overlapping?*

R: *Yeah, yeah, and it's just not structurally very sound.*

I: *What about the issue of coordination among government organizations? That's another area where many people have pointed out.*

R: *That's always a problem, each organization and now we're called ministries, they have their own mandate and responsibilities and the communication among them is generally pretty poor and very limited. (R3 Sec. 0, Para. 104 – 108)*

SIPA

Respondent SIPA characterized progress in dealings with provincial government agencies as slow. He/she also indicated tension with Saskatchewan Environment and other departments regarding the sustainability of irrigation.

Int 1: *How successful have you been in terms of lobbying the government?*

Respond: *we have made small steps in certain areas. Small steps regarding Sask Power. Small steps on things in crop insurance. Crop insurance as it relates to irrigation coverage at that sort of thing. But they are pretty tiny steps really. They are a long ways from where we want to get or want to get the government thinking. Those are two areas; well there are other smaller areas too in some of the irrigation development and the rehab work and infill work that the*

government is making. Again small steps but we need to get beyond the little things and get to something a little bigger. (SIPA Sec. 0, Para. 179 – 181)

Actually there's probably a lot of people in a lot of the departments that need a lot of education, I'll put it that way, as far as irrigation is concerned. I don't think they realize the potential that we have in the province. I'm not blaming them. They are doing their job and that sort of thing. But we have a tremendous opportunity with the water that we have in the province but we are not utilizing it at all really. (SIPA Sec. 0, Para. 70 – 76 COORDLOCAL)

COORDLOC Summary

CSID

Respondent OUT2 described the challenges of dealing with multiple and overlapping municipal jurisdictions. He/she also described how both volunteers and employees can be stretched thin by the time commitments that multi-agency negotiations require.

There are two RMs involved with one project, two different jurisdictions. The irrigation district itself is super imposed on that and it has its own jurisdiction too. So you have a lot of different administrations to deal with. If you wanted to develop transportation, I can get through my RM because we have agreed to this. Now the next RM 'well no we want your road up here or we want you down here'. Those are the logistical issues that you have to deal with and that means a lot of negotiating. It means a lot of work. It's usually the same people that are doing all these things and after a while they get played out. (OUT2 Sec. 0, Para. 139 – 143)

AgriVision

Respondent R3 indicated that his/her organization's 50 year water plan was well received at the local/municipal level and explained why.

I: What about the reception among rural communities?

R: Very high, they see it, because of the spin-offs mainly. In the first place there would be pipelines for rural water which is very much in the interest of rural communities, and the federal government by the way, and then of course to ensure enough water for irrigation because we have a great deal of unirrigated land that are suitable for it. (R3 Sec. 0, Para. 26 – 38)

R3 also described the prominent role played by rural municipalities and the difficulty in attempting to set up agencies that overlap with municipal jurisdiction.

In Saskatchewan, of course, the local activity is dominated by Saskatchewan Agricultural, and the Saskatchewan Association of Rural Municipalities, SARM. They're such a dominant force, and virtually all municipal activities come through them so it's difficult to set up a parallel or overriding system. (R3 Sec. 0, Para. 76 – 82)

COORDINTER Summary

CSIDC

Respondent OUT2 described various relationships the CSIDC has with agencies in neighbouring provinces.

There are two aspects of that. We work for Saskatchewan as CSIDC but we are also part of a network of centres in Alberta and Manitoba. We have got the Canada Alberta Crop Diversification initiative in Lethbridge and the Canada Manitoba Crop Diversification Centre in Carbury and ourselves. (OUT2 Sec. 0, Para. 15 – 19)

International coordination

The CSIDC respondents also indicated that their organization was involved in international irrigation projects in countries such as Egypt and Mexico. (OUT2R2 Sec. 0, Para. 186 – 188 COORDLOCAL)

Agrivision

Respondent R3 discussed the inter-provincial implications of a long-term water strategy for the prairies

The dominant thing there is the three provinces to share fifty-fifty-fifty, the water that flows of the mountains. The fifty percent that Alberta keeps back is taxed, in dry years, they are in some difficulties in meeting their requirements... And with the huge demands from industry in Alberta and the growing cities there, speaking of Calgary, Edmonton, and Lethbridge, they are scrambling for water supplies. There had been back in the Lougheed days, and I have heard it raised since, the idea of reversing the Peace River and bringing more water south from up in that area, up in the Lake Athabasca area. But that will meet a lot of resistance because you're talking about facing an interchange of water which is a no-no to many people's minds. (R3 Sec. 0, Para. 156 – 208)

SIPA

Respondent SIPA1 described the relationships and communication his/her organization has with irrigators in Alberta.

Int 3: Do you interact a fair bit with the Alberta irrigation projects association?

Respond: Yeah, they attend a lot of our meetings out here and we attend a lot of their annual functions in Calgary or Lethbridge.

Int 3: The scale of irrigation is much larger in Alberta. How do you wrestle with those contradictions?

Respond: *You go to meetings in Alberta and you look at the people at the trade show parts of it, as an example, and its all engineers and consultants and pipe dealers and the engineering aspect about monitoring a system that is already in place. You go to our annual meetings and we are still behind. We have got people talking about agronomy. We are still educating ourselves about how to irrigate. Alberta is trying to irrigate more with less, more acres with less water, becoming more efficient. It's a totally different scenario altogether, but it is really interesting going there because when we get to that same stage of development at some places in Saskatchewan we will certainly be able to draw on the expertise and the experience that they have in Alberta. (SIPA Sec. 0, Para. 149 - 155)*

THEME 9 SUMMARY FOR IRRIG.

How will things change for this institution as climate/water stress changes?

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR IRRIG.

How does this institution relate to rural community vulnerability?

REDVUL Summary

Nothing was posted under this node.

THEME 11 SUMMARY FOR IRRIG.

What legal instruments are relevant to this institution's day to day operations?

Nothing was posted under this node.

THEME 12 SUMMARY FOR IRRIG

What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

Nothing was posted under this node.

OTHERLIM SUMMARY

Four year election cycle

The impact of the four year election cycle is a recurring theme, raised by respondents from a number of agencies.

Respondent R3 discussed the problem senior governments have in dealing with long-term planning.

Well, I think that most people would describe it as the four year phenomenon, that is, unless it fits into the mandate in four years, they don't think about. Because they have to get re-elected and so it's the short term efforts that are most prominent in the eyes of the politician, and if you start talking about fifty years out, that has really no substantial meaning to an elected official. (R3 Sec. 0, Para. 132 – 134)

Along a similar vein, R3 alluded to the importance of long-term vision and the sequencing of steps required to encourage the expansion of irrigation.

Well, I guess people's vision is sometimes rather limited. They need to have something in the near future before they're prepared to expend their limited energies. You need to have some water to manage before you have a management organization in the minds of the local people. I think that's the difficulties, is getting them started.. Now, of course, there are aspects of water management beyond irrigation and storing water and so forth, there are wetlands, control the wetlands and drainage and that sort of thing that lends itself to some local activity. (R3 Sec. 0, Para. 76 – 82)

Water Advisory & Advocacy Groups (WAGS) Interview Summaries

--- for the following agencies:

South Sask. River Watershed Stewards (SSRWS)

- Town Mayor and SSRWS participant CAB1
- Town Mayor and SK/SSRWS participant R1
- SSRWS Chair R2

South Sask. River Basin Advisory Committee (SSRBAC)

- Member of South Saskatchewan River Basin Advisory Committee OUT1
- Partners of the South Saskatchewan River Basin participant & Meewasin Valley Authority official PSR1 & 2

Saskatchewan Environmental Society

SES1 & 2

Process:

Eight interviews conducted in 2008

Interviewers: Polo Diaz, Margot Hurlbert

THEME 1 SUMMARY FOR WAGS

ROLEWATER Summary

South Saskatchewan River Watershed Stewards (SSRWS)

Multiple community roles

One of the characteristics shared by the respondents from the SSRWS is that they wear numerous hats – they are each involved in a number of community activities. Two are currently town mayors, one is a former MLA. CAB1 is involved in three agencies concerned with water management. He/she is a participant in the stewardship group, the Mayor of a town which augments its water supply with water from Lake Diefenbaker, and he is a member of the Miry Creek Irrigation District association (an irrigation district and it was a government project when the Diefenbaker Lake was formed in 1968 and this association took over the irrigation project in 1977. Interviewees from other agencies indicated that rural people involved in community activities are often spread quite thin with a lot of time devoted to a variety of organizations. (CAB1 Sec. 0, Para. 36 – 59)]

The multiple roles suggest a number of questions related to local community involvement in water governance. Are the people involved in community leadership roles spreading themselves too thinly? Is their too great a burden being placed on the time and energy of a handful of people from communities with declining populations, and are they capable of dealing effectively with water issues given the demands on their time? Another set of issues revolves around what sorts of people are involved. Is involvement tied to

affluence? Does it require participants to be self-employed, or retired? Is it indeed the case that participants in governance activities are primarily male in rural areas? Answers to these questions might say something about the capacity of community activists to be involved in the input process. They might also point to the exclusion of some social groups from the input process, such as the poor or full-time employees.

Respondent CAB1 indicated that finding people to participate in groups such as the SSRWS was a challenge.

It seems to be hard to get enough interest and enough interested people in your immediate area. By immediate area, I mean within 100 or 75 mile radius. (CAB1 Sec. 0, Para. 25 – 34)

Respondent R1 described the scope of his/her involvement in water related organizations:

My other involvement is in the Watershed Authority on a provincial basis. I represent all of the urban municipalities at this provincial council. We are also involved locally in the local watershed, which is South Saskatchewan River Watershed West Section, whatever it is. And then there is the section around Diefenbaker Lake and then north, which includes Saskatoon to the, where the South Saskatchewan meets up with the north, just east of Prince Albert. And there is sort of three groups that are the watershed Authority people and then there is the group that is representative of each of the three and I serve on that as well. (R1 Sec. 0, Para. 18 – 59)

R1's use of "what ever it is", in the above quotation, to describe one of the organizations is interesting. It is possibly an indication that the province's watershed and basin advisory/stewardship activities and groups are lacking in conceptual clarity and identity. Indeed, for the researcher there is a challenge in sorting out the roles of the various players. This research demonstrates that a lack of precision over the specific names and roles of various organizations is common among water governance personnel, and stakeholders in the province. This may be due to actual confusion about roles as well as a tendency to unintentionally revert to using names and functions in use prior to the re-organization in 2002.

Role of stewardship/advisory groups

The interviewers asked CAB1 about the appropriate role for the SSRWS. Should be simply an advisory group, should it have regulatory and revenue generating capabilities?

To me, it is a big issue. I guess when I went in on this and started this, I thought we would be just an advisory board we were a link to what is happening on the ground here and we could advise to the watershed authority or whoever was there. And now I can see it evolving, especially with different groups within our group. I know the Outlook area people's needs are a lot different than ours are. We are very agriculture based here but they are looking at economic development, they are looking at recreation, they are looking at everything. And I

guess that I have a little problem with that in that I think we should be a little more basic than, I don't think we are an economic development group. (CAB1 Sec. 0, Para. 25 – 34)

Respondent CAB1 stated that he/she did not expect that the watershed advisory groups needed to be the sole, or major, decision maker on management issues such as water levels but they should at least be an important part of the decision making process.(CAB1 Sec. 0, Para. 25 – 34)

Respondent OUT1 stated that the watershed advisory system has been driven by SWA, in response to heightened concern over water issues in conjunction with Walkerton and North Battleford. Respondent R3 on the other hand indicated that earlier efforts in conjunction with irrigation groups and particular surface water sources pre-dated the SWA initiative. (OUT1 Sec. 0, Para. 110 – 112 STAKEISSUES)

Respondent OUT1 described the status of the SSRWS group in reference to other advisory groups from watersheds that flow into the South Saskatchewan River.

I'm a member of the interim board of directors [SSRWS] and that is made up of representatives from the three watershed advisory committees. And that goes from the Alberta boarder to the convergence of the north and south near Birch Hills. So it's all the South Saskatchewan River in Saskatchewan. We have two members from Saskatoon and then a scattering of members from along the river for the rest of the interim board....There are three small advisory committees but the governance in terms of actually implementation spending money is going to be done by the larger group by the water stewards. (OUT1 Sec. 0, Para. 5-11)

Respondent OUT1 explained that the SSRWS had an office in Outlook which provides administrative support to a specialist who does watershed planning and public education. He/she also described the educational immediate role and activities of the organization.

I think it's initially education about potential threats to the watershed and identification of existing problems. And when we get to that a little more strategic planning for the long term in terms of how we lay out the future so that the sustainability of the watershed is taken into account through any changes we make economically. So right now it is identifying problems and doing education. That will be the very first thing. But very quickly looking at strategic planning. (Out1 Sec. 0, Para 13- 23)

Respondent OUT1 indicated a preference for planning on a watershed basis as opposed to a process that relied on RM boundaries and existing political bodies. He/she also stated a preference for the Manitoba system which he/she believed was organized on a watershed basis and did provide for some regulatory power at the watershed level. This was argued to be preferable to Alberta where the respondent said:

Well in Alberta nobody has power but the province. They gutted everything. The only way that municipalities in Alberta can reject an ILO now is to declare their entire municipality a recreation zone, which some of them have done to keep the province out of their face because they never know what they are gonna do. They'll do it in the dark. So no yeah I think Manitoba is the model that we would find the most attractive. (OUT1 Sec. 0, Para. 427 – 445)

OUT 1 also provided comments calling for an expansion of the current role of watershed stewardship groups to include a taxing and revenue capacity. These comment (OUT1 Sec. 0, Para. 423 – 425 COORDPROV) are provided under in the STAKEISSUES portion of this summary.

How Stewardship Groups became established

R1

As noted above, SWA played a key role in organizing stewardship groups after 2002. However, SWA was not working from a blank slate. Community-based organizations had already been in existence dealing with water issues in some areas. Respondent R1 described how his community's involvement in a rural reservoir and pipeline project provided an institutional foundation for their involvement in the stewardship group. The creation of the stewardship group coincided with increased natural gas drilling in the Shakelton neighbourhood and concern over ground water pollution. (R1 Sec. 0, Para. 18 – 59)

R2

Respondent R2 provided interviewers with a summary of the history of farmers, ranchers and communities along Swift Current Creek to deal with watershed issues of mutual concern prior to the creation of the SSRWS. One might see a similar process whereby ground work was laid in relation to the Souris River group which was formed following a period of community focus on the watershed due to the construction of the Rafferty and Alameda dams and reservoirs. **Partners of the South Saskatchewan River Basin (PSR)**

How the Partners group got started and what it does

Meewasin [Weewasin Valley Authority] initiated Partners because we need that bigger picture so we set it up and got it going on its own. So we see ourselves as just trying to push the envelope kind of Partners is our window for example on the water world so we see the issues and try and respond both organizations try to respond and be one step ahead. (PSRI R1 Sec. 0, Para. 74 – 82)

The following is a paraphrasing of PSR1 R1's summary of the organization's activities:

The Partners to the Saskatchewan River Basin are a non-government not-for-profit organization. Their mission is to promote watershed sustainability. They have three main categories of activities. The first one being education lines. They

have a series of education materials that are available to families, schools, and groups. Some of the materials deal specifically with water: a Water Watchdog Program which gets kids out into the watershed and their looking at things like water quality invertebrates, doing some hands on activity. Secondly, they have a Click on Climate Program, designed to teach kids about climate change and it's influence on ecosystems and what they can do to help mitigate climate change and help monitor it. And most recently they have put together a board game called Wuffers Amazing Journey to the sea and it's designed to help to teach kids about the watershed the geography the basin some little bits about water shed health the culture just an over all big picture stuff. They produce a lot of communications materials, hold an annual conference. At last years conference they worked with a research group from the University of Saskatchewan talking about climate change in Saskatchewan, the whole science side of the study that's been done. PSRI R1 Sec. 0, Para. 11 – 13)

On basin level stewardship

PSRI R1 described the idealized role for the stewards in looking after local issues but maintained that a Basin level organization is required to provide a larger view.

...the policy making in the Saskatchewan River basin I think has changed so much and so much has been divested to steward local groups down to the grassroots. If they're going to be able to make good decisions they have to have the bigger picture. (PSRIR1 Sec. 0, Para. 20 – 26)

Saskatchewan Environmental Society SES

Respondent SES1 R1 provides a concise summary of the organization's water role.

I'm the water issues coordinator with Saskatchewan Environmental Society. We have a water issues program... I'll make a couple of observation about our work. We're trying to reposition thinking in Saskatchewan away from supply side solutions and I guess most away from supply side adaptations to climate change and towards demand side conversation efficacy and what people such as David Brooks have coined the soft path. And I guess I'd make a second observation in that as an environmental organization there are many interesting things about water but a couple stand out. One it's a nice issue to work on at least western Canada it's not a disaster that some of the environmental issues are. You actually feel like you've arrived on time and you can avert some the bigger problems but counter balancing that is the whole issue of climate change and because it is such a big and looming and unfolding problem on water so some days it feels like we're ahead of the curve, then we remember that significant climate change impacts could quickly move the curve and we'd be behind it. I guess it gives you some idea of our thinking and our focus. ... our target audience is sort of a mid level band interested informed citizens and then ranging through policy makers professionals in the public service and elected officials. (SES1 R1 Sec. 0, Para. 8 – 12)

SES has been around since 1970. It has an advocacy mission and sees a role for local communities in water management. It also sees itself as a countervailing force in opposition to the approach to water issues taken by Saskatchewan Agrivision in its *Fifty year Water Plan for Saskatchewan*.

We're doing some work on water conservation so in the future so it will be more local government that's more implementation issue but right now because the big issues are around wet lands conservation around Saskatchewan watershed authority act trying to push for more water conservation its all provincial government work. So we're trying it's sort of part mobilization part organization but we're trying to bring to bear a critical mass of progressive thinking on water policies to try and shift the discussion from sort of what Agrivision would have us do dam every river to something that is a little more sustainable. (SES1 Sec. 0, Para. 8 – 12)

COMMNEED Summary

Decline of rural communities and watershed governance

Respondent OUT1 described the general decline in rural population and communities in relation to water issues.

Well that opens a huge issue and when you are talking about governance whether we are talking about the watershed or rural governance capacity is the number one issue in rural Saskatchewan. The villages are virtually in free fall. They just stumble from one crisis to another whether it is water quality or collapsing infrastructure. There is no strategic planning, there's no thinking, there is no technical expertise. They have nothing ---most rural municipalities, same thing. You have a couple of grader operators, road machinery operators and you have one administrative person, with very little scales in terms of counting the beans coming in and the beans going out. It's not a full range financial analysis of the operation so the average rate payer doesn't even understand whether he has a good council or a bad council because he can't even get his hands on the facts to make that decision. So capacity is their biggest issue. So in the rural, you just sort of flop around and hope something shows up. The watershed people send some technical people to the table. The city sends someone. And there is just this sense of trust. Certainly what we are trying to do in our office and putting that other hat on is trying to build that capacity. The GIS lab we have been building is to build that rural capacity that they own but it is a slow process. (OUT1 Sec. 0, Para. 63 – 73)

Regional pipelines and community need

Respondent R1 described how a regional water pipeline system was providing water to a number of communities and farmsteads. SaskWater has advocated on behalf of regional water systems as a solution to the water challenges facing many Saskatchewan communities.

EK [Eston Kindersley] Water Pipeline, yes. It runs from Berger to Snipe Lake Reservoir and then from Snipe Lake Reservoir to Eston and then from the reservoir again to Kindersley. It's a pipeline about 60 km long. And then off of it comes a couple of what we call regional lateral lines that service rural Saskatchewan. One line has 130 customers and runs through Netherhill, Brock, Fiske, there's another little community in there that I don't remember. (R1 Sec. 0, Para. 18 – 59)

THEME 2 SUMMARY FOR WAGS

STRESS Summary

Intrinsic to the discussion of water stress in rural Saskatchewan is the more general malaise that is a product of the economic and social change facing agriculture and communities. This was summarized by respondent OUT1 in the COMMNEED section above. Water stress occurs within a context of economic and social stress in rural areas. The concerns specifically addressed by respondents with respect to water stewardship included water quality. There seemed to be a sense among rural respondents from other segments of the IACC survey that cattle producers were the focus of water quality concerns, and that this focus was somewhat unfair. Respondent R2 indicated that urban communities were responsible for negative impacts on the watershed.

The quality of the water is what we're most interested in, and that will reflect on how we treat the riparian area around it, and so, when you look at climate change, whether you believe in that or not, that isn't the issue for the committee, it's whether you're treating the environment that you're living in with respect. And to be quite honest with you, I have watched what large urban centers do and there isn't a hint of the problems created in agriculture that urban centers create. We, like I said, we live downstream, and it would be twenty miles at least of creek, and when I was a kid we'd wash these, we'd water the cows in the creek, you'd chop a hole in the ice and they'd come down there, drink, walk away, and you'd see these bugs floating down in the water. It was because they were releasing stuff out of the lagoons. So the residents downstream got mad, and we fought with the city all the time... I shouldn't say they didn't care, but they didn't do anything about it. So now what we have, in the city here, for example, is a twenty million dollar filtration system. In our monitoring, when you measure Ph, you're measuring the garbage in the water, and it usually comes downstream at about nine, sometimes a little bit more, sometimes less. Now, if it went through the city it would be a ten and a half, then now, with the filtration plant, it's down to eight. So, you know the pressure we put on is residents downstream, we pushed them into doing that. Now I live in town, and I have to pay for it too. But they should have done that a long time ago. (R2 Sec. 0, Para. 139 – 153)

MANAGE Summary

Respondent OUT1 described the sorts of management and planning issues that are confronting water governance in rural Saskatchewan.

Well part of it is certainly having a role in the land use planning to suggest things like should we have setbacks for intensive livestock operations from the river to better secure the quality of water in the river. We are at a stage right now when agriculture is consolidating and shedding labour. We are going into another price spike for Ag commodities and we'll shed more labour and the farm units will get larger. So right now we have a large measure of blank slate in terms of how we see development on the river valley so we can rethink the agricultural development and we can also rethink population density. How are we going to see rural residential development as there is an appetite for living out here and taking advantage of the river valley and that started to happen so we have a chance now to start to plan that out, hopefully in a sustainable way. (OUT1 Sec. 0, Para. 25-27 COMMNEED)

Membership organizations

Respondent PSRI R1 described management issues from the perspective of a membership-based organization (approx. 1,200 members). Members donate anywhere from \$5,000 to \$20 each on an annual basis. (PSRIR1 Sec. 0, Para. 279-295 ROLEWATER), The SES is also a membership-based organization that relies on member donations and considerable volunteer labour. Nonetheless, the PSR has been able to gain access to government grants for programs and projects.

ORGCLEAR & ORGFLEX Summary

Respondent R2 described the evolving status of the watershed stewards' perception of their relationship within the water governance system.

Well, we have set up the systems within that, that we monitor, that we require, no we don't require, we ask the Saskatchewan Water Corporation has the authority of the water. Here we have the PFRA which operates the facility [irrigation], so there is better coordination now between the PFRA, Saskatchewan Water Corporation, and the farmers on delivering, and that's what's improved it. It really isn't a law, it's just working together...Yeah, you're right. The establishment of the agenda for the, let's say a protocol, where you do things this way, that's what we're establishing, precedence to deal with it, and that's what we want to do on the South Saskatchewan River as well. We want to establish how it's going to run when we're not there. (R2 Sec. 0, Para. 120 – 137 ORGCLEAR)

THEME 3 SUMMARY FOR WAGS

CLIMAVAR & CLIMACHANGE Summary

Perceptions at the local level

Respondent CAB1 provided some insights into the perceptions about climate variability and climate change in his/her community.

I just think it is not a big enough concern with local people actually. I think they are so used to having droughts, not having rain. You know, to them it seems like the normal cycle of things and climate change is something that is out there down the road. You can't see it, you can't feel it. But I guess maybe you can feel it because we've had a really hot summer and we've had drought. You know, I think we've had more extremes in the last few years. It's probably going to come to the forefront here a little more as we go along. (CAB1 Sec. 0, Para. 159 – 179)

Respondent OUT1 described the skepticism in plainer terms:

It's slowly coming. They have been very resistant to it. It has been a very slow process. Every time it's cold out they say where the hell is global warming? Why is it 42 below today. Global warming is bull shit. (OUT1 Sec. 0. Para. 451 – 461)

Notwithstanding the skepticism, CAB1 described how a recent pattern of climate extremes was heightening awareness and demonstrating the value of the stewardship groups.

Yes. And that has happened to us here about, oh, maybe three times here in the past 25 years where we've had sort of a three year drought and the lake hasn't come up and we've had trouble pumping water and yes, in 2001 we had a real problem. We were almost to the point of a major emergency. So yeah, I think this watershed organization will give us some more information with what is coming down the road and we get a little closer handle on how they are dealing with climate change and water levels. And I'm not so sure climate change is a big deal. It's the normal pattern of droughts in this part of the world. (CAB1 Sec. 0, Para. 153 – 155)

Resilience

There is a general consensus among respondents that domestic water supplies for farm households and livestock watering have developed a drought tolerance of approximately two years. Respondent CAB1 maintained that this is not sufficient for sustaining agriculture in the face of severe and sustained drought, because the economics of agriculture will not permit severe or repeated crop failure (notwithstanding Crop Insurance and CAIS).

You have to realize that this is a moving target. I have farmed here, well, all my life, and things have changed so much in the last ten years, five years, even two to three years. They are just changing so rapidly that what you could describe as drought proof 15-20 years ago no longer applies. We're farming so much different now. Now you wouldn't be able to handle as long a drought as you probably could back, you know, 25 years ago. Because our inputs are higher, we are farming more intensively, and we need return on what we are doing and if we

don't get that return within a reasonable length of time then things are going to change. You are going to be gone.

I1: Yeah. We were talking to farmers in Hannah and they were telling us that they have already the capacity to deal with two or three years drought but any drought longer than that would be a serious problem for them.

R: Yeah. That is kind of what I am saying here too. Two to three years, two years and then the third year you are probably looking at something else. . (CAB1 Sec. 0, Para. 159 – 179)

Positions of the membership-based groups PSR and SES

Respondent PSR1R2 described the two facets of the Partners of The South Saskatchewan River Basin's role in dealing with climate change. First was its role in providing climate change education through its "Click on Climate" project and Secondly it's ability to see the –

bigger picture we don't have that ability and neither does even less the steward group in Outlook or the one in Hanna because they have an even smaller set of resources so it's really helpful to have someone that's steps back and says we've got bigger picture for you. (PSR1 R2 Sec. 0, Para. 74 – 82

The SES respondents demonstrated a higher level of theoretical sophistication than the other WAG groups. SES has identified the ecological threats posed by climate change and suggested strategies for adaptation. The concern for the impact of climate change on ecosystems was described in relation to wetlands. If drought temporarily dries wetlands, allowing for cultivation, in the absence of regulatory restrictions they will likely be cultivated and permanently altered.

If climate change interrupts food production we could see extremely high food prices and we could also see extremely high temperatures. That will get all the farmers out there with their tractors ripping up the wetlands and the high temperatures will evaporate off the water and we could see dramatically accelerated wetlands loss in Saskatchewan and we would of hoped that they would be very progressive in dealing with that and active in understanding that but is like talking to a government from the 1970s around wetlands conservation... There is a real reluctance to tell farmers there's going to be constraints on their ability to farm the land the way want to farm the land and drain sloughs and destroy wetlands tear done trees and fill in marshes. (SES1 R2 Sec. 0, Para. 38 – 48 ROLEWATER)

The following passage demonstrates SES's understanding of the contradictions that arise between proponents of growth (economic sustainability) and those who give a priority to ecological sustainability.

There are hydrological alternatives and economical alternatives. And that's where this gets a little difficult because the proponents of big supply measures give you best case scenarios not only on the hydrogeology but also on the economic side. You know, doubling this doubling that, doubling the population, doubling jobs. So in terms of the big alternatives just in terms of water supply it ranges all the way from water efficiency to conservation to soft path thinking and to really adapting what we do...the proponents of big dams would have us grow potatoes and pigs which is some of the highest water use food commodity in the world and one of the driest food productions places in the world and we think you should turn that around and say well if we can't irrigate more than maybe four or 5% in the province what kind of agriculture should we have in this province in the remaining 95% . (SES1 R1 Sec. 0. Para.74 – 101)

THEME 4 SUMMARY FOR WAGS

DATA COLPRI & DATA COLSEC Summary

Respondent R2 described the SSRWS efforts to obtain the data required to develop planning protocols. This involved hiring a watershed management specialist who applied national assessment standards to the process and worked cooperatively with the Saskatchewan Research Council to identify problems and areas where the system is healthy. (R2 Sec. 0, Para. 181 – 183) .Respondent R1 indicated that the organization did little primary data collection but utilized research done by other agencies. (SES Sec. 0, Para. 14 – 16)

DATA COLNEED Summary

Nothing appeared under this node

DATA COLACCESS Summary

Respondent OUT1 indicated that there was a tendency in Canada for agencies to insist on payment for their data, but that this was changing. This perhaps a hold over from the New Public Management thinking that dominated public policy thinking until recently.

The land use process has forced people to come to the table and say no. And then we go back to their political masters and say why aren't they playing? And there are federal geomatics people in Ottawa now, you can't get money from them anymore if you are not sharing your data. But it is moving from the Canadian model of pay for the data to the American model of the data is free and we are having to make that shift. So we are sort of caught in the middle of that so when we have a land use planning meeting they are more adversarial than the watershed meetings because we are able to say to the ILO people why aren't you telling us where they are and how big they are? Why aren't you giving us this information? Why isn't the power company telling us where the power lines are? We could go out and shoot every pole with the GPS but my God why do we have to do that? (OUT1 Sec. 0, Para. 284 – 286 COORDFED)

THEME 5 SUMMARY FOR WAGS

FINRES Summary

There is a significant difference in the capacity and relative success of the various WAGS to obtain funding. It would appear that the network connections and fundraising capabilities of a group's key staff people and members has a major influence on the level of funding a WAG can obtain.

Core funding

The watershed stewardship groups lack assurances that they will have consistent long-term funding for operations, research, public education and planning. Apparently the group was given \$50,000 in operational support annually over three years from SWA. The annual budget was \$130,000 in 2008. The SSRWS were expected (by SWA) to raise the funds required to meet their revenue shortfall.

OUT1....our initial budget is around 130,000. Now that's operation and one staffer. And everything else will be basically project based.

Int 3: What kind of duration do you have?

Respond: Three years. And at the end of three years one hopes, I think everyone is hoping we will have an entrenched program that people will love but I'm not sure that that is going to happen. (OUT1 Sec. 1, Para. 126 – 143 ACCOUNTAB)

Respondent PSR1 R2 indicated that Alberta seemed to be more generous to stewardship groups than Saskatchewan where the lack of core funding is a more significant problem.

...the Alberta government is in a situation where they can give more money to these groups to conduct their research and I think that has a very important role if you give money to a group for example the Alberta government gave \$150,000 to the Old Man [River]watershed group. Well, suddenly that pays for a staff person that pays for getting office space. Whereas in Saskatchewan the watershed authority [SWA] may give a group here a \$25, 0000 grant that wouldn't even pay for one staff person here so suddenly you're left in struggle for trying to find the money to do things... Non-profit non-government organizations need to have sufficient funding so they are not constantly struggling to pay for their own salary. You're not constantly in the drive to fundraise so that you have time to start doing some of the research time to start doing more of that outreach. For example I've talked to two Swift Current Creek watershed stewards and it's been a constant struggle for them to secure funding and you can't when you're spending a quarter to a 1/2 of your time writing out funding applications and doing follow up with them you can't really then do a lot of the source water protection stuff that you want to do because the time is just not there. (PSRIR2 Sec. 0, Para. 518 – 570 COMMNEED)

The PSR group appears to be much more successful in ferreting out grant money than the SSRWS. Apparently one of the key staff people with the PSR is a former SWA official who may have a wider network and familiarity with obtaining grants than his/her SSRWS counterparts. In addition, the PSR people have a funded base of operations through the Meewasin Valley Authority which provides operational fundamentals such as office space and staffing.

What Meewasin does is provide office basically technical Jennifer is an employee of Meewasin so we're able to provide her with the benefits that she would not get from a small little organization plus an office and a secretary and phones all those kinds of things. Which if you're scrambling for money and don't even have that it's very difficult. If you've got sort of a home and some sort of basic organization you don't have to worry about that it covers that but other than that she has to bring in part of her own salary and the rest of her staff and she's very successful. (PSR1R1 Sec. 0, Para. 160 – 174 ACCOUNTAB)

The PSR group has managed to locate \$300,000 in funding for just one of its projects whereas the SSRWS had to scramble to meet a \$130,000 total budget. (PSR1 R2 Sec. 0, Para. 28 – 48) That said, the PSR people still feel they are distracted by funding pressures.

We're always constantly looking for funding. Core funding to get the day to day activities and the staff time and stuff like that done it's a constant drive a constant drive constant asking and stuff like that. We're constantly looking at funding for the projects to get them printed and get them out there. It's a consistent; I probably spend at least a quarter of my time just on fundraising. (PSR1 Sec. 0, Para. 112 – 162)

Respondent R2 echoed the challenges presented by fund raising and the repercussions of a lack of dependable core funding.

Well, that is always a struggle, the coordinator is a fund finder, and that's always a stretch, it's not an easy thing to do. (R2 Sec. 0, Para. 215 – 219)

Respondent R2 indicated that the SSRWS had sought financial support from the private sector, but did not see this as a problem since the funding thus far had come “with no strings attached” from organizations wanting to be good corporate citizens he/she noted the important contributions received from Ducks Unlimited and indicated additional corporate sponsors were being sought.

R2 described various opportunities that were available from time to time to fund specific projects outside of basic administration costs.

Theses agencies come in, federal or provincial, and they say, well, here's the money to do this project, but they don't give you any money for administration, so

there's zero. The Ag Development Fund is one like that. Oceans and Fisheries are like that. So you have to get the money from elsewhere to pay the coordinator. They'll pay the person on staff to go do the work, because that's direct, but there's a certain amount of money needed to make the thing run [core funding]. Local municipalities are contributing, and you know what, it isn't our mandate, local municipalities shouldn't have to do that. (R2 Sec. 0, Para. 215 – 219)

Respondent OUT1 argued in favour of the grating of taxing or licensing authority for stewardship groups as a way to overcome financial problems.

As long as you are at the bottom of the food chain. If you don't have access to the tax base independently, you have no independence and you have no ability. Unless they absolutely said that three percent of the provincial budget will go directly to uninterrupted flow the watershed group, they get the money directly. If you are beholden to a tax authority they will always set their own agenda. And you'll find that right now in the education, other than the municipalities, the education boards are the only people who have access to the land tax. They have been told maybe they are going to get all of their money from the province. They don't want that because there goes their power. They have no power to tax, then they have no power at all. If you can't tax you can't find your own money. Rural municipalities, even though they are small and insignificant and lack capacity they always have that ability to say this is an important issue. We are going to tax the hell out of our people and make it happen. They can do that still. That is the one thing they have going for them. And that's something the water stewards will not have. (OUT1 Sec. 0, Para. 447 – 449 ROLEWATER)

Additional comments provided by OUT1 regarding funding issues as well as a regulatory role for the stewardship groups is provided under STAKEISSUES ...(OUT1 Sec. 0, Para. 423 – 425 COORDPROV)

Lack of transparency and consistency

Respondent R2 described how the lack of transparency and consistency in the way funding has been made to stewardship groups, particularly by SWA -- has disturbed some groups.

So when you sit down with a group of people you could say, oh, you're getting the money [and we're not]. I'll just give you an example, we got \$50 000 at the South Saskatchewan River and the Souris Basin group, I forget what it's called, but it's along the Pipestone, and all those rivers, creeks, they 're fighting with Sask. Watershed Authority to get their funding. And they've been in business a long time, so why should they have to argue with a bureaucrat about that. And when they found out we got ours, their eyebrows went up, you know. So what made us special? I have no idea, but, you know, what you do for one, you've got to do for the other. And we need a group to do that. I guess, I have no problem approaching the department for that, but we as a group, you'd have more clout,

and do it the same, don't fish with me and not with him, or whatever. (R2 Sec. 0, Para. 251 – 272)

How SES manages financially

The SES manages to maintain a base level of funding through membership fees and donations. However, it also seeks support from other agencies for particular projects. The SES respondents do not feel that government programs have the flexibility required to meet the needs of their organization.

We could use 10 times as much money that would be great. One of the things that is distressing to us is the way that money is given out in this process. We're working on far less than 100 thousand dollars a year to run the whole program, whereas the government is giving out money in 2, 3, 4 hundred thousand dollar chunks to study individual dams. I don't even think it's like a thousand to one funding so we could certainly use more money. On the other hand, compared to a lot of the other citizens organizations working on environmental issues it's pretty good funding and because we're a direct membership volunteer organization those 2 people leverage into a lot of volunteer work a lot letter writing a lot of pamphlet drops that you just couldn't if you had to pay for it would cost you 10s of thousands of dollars (SES Sec. 0, Para. 163 – 173)

NEEDRES/TECHRESOURCES Summary

Human resources at community level

As noted in ROLEWATER section of this summary there are challenges presented by the level of activity that community activists in rural areas are capable of providing. CAB1 reported that it was difficult to get people involved in stewardship activities.

Well, yeah, if I could answer that question I might be able to help a bit. I don't know why. It seems to be hard to get enough interest and enough interested people in your immediate area. By immediate area, I mean within 100 or 75 mile radius. (CAB1 Sec. 0, Para. 159 – 179 CLIMAVAR)

Respondent OUT1 described the human resources issues faced by small urban municipalities in meeting the water monitoring criteria set out under the Safe Drinking Water Strategy of 2002.

Interviewer 3: You mentioned that some of the water stewards' whole driving force has been Walkerton and North Battleford which was a direct spin off from drinking water issues. To what degree can you comment on the drinking water concerns of people within the South Sask River watershed?

Respond: It's a huge concern. But again they don't have the capacity to deal with it. The province said thou shall test thy water daily now go forth and do. And the little urban municipalities have no capacity to manage that so they get some local

and they send him off and have him spend 5,000 dollars having to take the courses and he gets home and tests water for three months, sees an add in the paper for one in southern Alberta that's paying three times what he is making here, gets in the car and buggers off and they do it again. We've got Macrorie over here, he's on their fourth one that they have trained. (OUT1 Sec. 0, Para. 328 – 334)

THEME 6 SUMMARY FOR WAGS

STAKEISSUES Summary

Keeping the extremists and special interests at bay

Respondent R2 described the amount of money his/her municipality had contributed to the stewardship process and claimed that there was value in being involved – if only to prevent outside non-local interests from dominating the process.

We put it in, in about a year and a half, about \$5000 into the, into paying people to go to the Outlook meetings and we dumped about \$2000 in the last eighteen months into the Swift Current Creek Watershed, so we contribute significantly in terms of dollars for representation on there and we've done that, there has been a willingness to participate, there's a number of reasons. We don't want extremists to be involved from either side, from either the, like, if you would call the Husky oil an extreme on the one side and the environmentalists, pristine environmentalists on the other side. We want a balanced approach to the development of the watershed. (R2 Sec. 0, Para. 45 – 49 COORDLOCAL)

The need for a revenue stream and regulatory capacity

Respondent OUT1 provided comments regarding the need for watershed stewardship/advisory groups to have a regular source of revenue and some level of regulatory capacity. The comments describe the role of the groups in water management as the respondent feels it should be as opposed to how it currently is. This is perhaps one of the more important prescriptive comments provided in this summary. It should be noted that not all participants concur with this widening of capacity including R2 and as described by respondents from SWA and reported in the SWA interview summary.

The governance piece, at the end of the day we need and we want some valley style authority in the river valley between Saskatoon, Gardiner Dam and in the lake area. And it needs to have its own source of funds. It needs to have a taxing authority. It needs to be able to tax somebody for something. They need to tax land or whatever. They have be able to get their hands on some money of their own so that they have independence. And that authority needs to be the one that judges how we do development right in the immediate part of the watershed that fronts on the water. And that is my goal, long term. The warm fuzzy stuff of the projects, that's all nice. But you need something with teeth that can enforce what they want to do. And I think the province is looking for that. They want some kind

of regional body to be a lot more aggressive about what we do and...(OUT1 Sec. 0, Para. 423 – 425 COORDPROV)

The problem of distance

Respondent CAB1 described the challenges presented by the long distances for participants in watershed advisory activities. And furthermore, that there were different priorities for different communities within large watershed areas.

I'm sitting here in Cabri, I'm 100 miles from Outlook but that is where our coordinator is situated and I've never even met him yet... So to me, it's just a matter of logistics. It's just too far away. The people there have so many different interests than what we do in our area that it's hard to make them compatible. (CAB1 Sec. 0, Para. 181 – 201)

Human resources at community level

The stretching of human resources in rural communities is, as noted earlier, another issue impacting the effectiveness of local involvement in watershed stewardship.

...I can see what is going to happen here. Our group is probably going to fall apart here because we'll have one representative from here and we are going to sit back and say, well he can do it...I know that, for myself, I am probably going to drop out of the group here. Just because of logistics of the thing. (CAB1 Sec. 0, Para. 181 – 201)

Changing role for municipalities

Another reappearing theme is lack of financial resources available to the stewardship groups. (CAB1 Sec. 0, Para. 181 – 201) Questions about whether resources could be more effectively utilized if local government could be rationalized through mergers of smaller Rural Municipal units into larger ones came up in the interview as well the challenges presented by the fact R.M. boundaries do not coincide with watershed boundaries. CAB1 said:

I don't believe in amalgamation just for the sake of amalgamation because there has to be some economic or financial benefit to it and I don't think that anybody has proven that in Health Care or education that amalgamation is a real money saver. But in RM's, I guess it actually is one of our major problems in this area [getting participation in watershed activities]. We have a real problem here. We've sent letters out to our local municipalities, I think there are four of them that we touch, more or less here, and there is only one that we really work with and we've done some work with them. The rest of them don't want to be part of the regional process. They want to do their own thing and have their own rules and regulations. (CAB1 Sec. 0, Para. 181 – 201)

Respondent OUT1 described how the role of Rural Municipalities and their revenue and expenditure streams have changed over time. Since R.M.s are the main organizational actors in non-urban centres in the agricultural regions of the province, their input in

watershed management appears critical if for no other reason that that is where community activists are most involved. However, the R.M.s are limited by the way their role has evolved – they lack the resources and conviction that they should contribute to the watershed management process.

My grandfather had the same seat at council that I have. He looked after the full range of civic responsibilities. Relief, looking after the unemployed, the education system everything. They were the government... And then Regina, in their wisdom in the 50s, 60's and 70's took most of that power away from the municipality and said no we will do that at the provincial level thank you very much. You look after the roads and buy the gravel. And that culture then became ingrained over the next 30 years so you have a sense around the table at most rural councils, that their jobs are about graders, gravel and roads and they just resent having to do anything else. So they must be conservative [about what they get involved with]. Most of them are spending 85 % of their budget on gravel and graders and that is all they talk about. Now the more progressive ones will be the ones who committed money to capital and health care or emergency service provision or actually maybe even spending some money on some strategic planning, although that is very rare. It's probably less than 10 %. And now the province has suddenly made up their mind that they would like to push it back out and let someone in the region make those decisions. And it's the capacity issue. First they have to overcome that culture of that's not our job. And secondly the only income that municipalities have is land tax and how much load can you put on that. They don't have any access to any other stable funding. Maybe this is far too detailed for what you are looking for. (OUT1 Sec. 0, Para. 39 – 45)

Another recurring theme to emerge under this node is idea that there is a certain amount of confusion resulting from the complicated mix of agencies involved in water governance in the province.

That same issue came up at our watershed group, and everybody in our watershed group, rural municipality people and town and village people were experiencing the same thing. It is a water related issue. You want to know who you are dealing with. Are we dealing with Sask. Health or are we dealing with Sask. Environment or are we dealing with Sask. Watershed? And I know as for the town, I believe that Sask. Environment make the rules that they monitor our water plant. But if we have a problem, it is Sask. Health that puts us on a boil water, so you just don't know who you are dealing with. (CAB1 Sec. 0, Para. 181 – 201)

CAB1 indicated that there were specific water management issues of concern to the watershed stakeholders in his/her district; primarily related to silting and water levels on lake Diefenbaker. This problem affected intake systems for community water systems and irrigators. (CAB1 Sec. 0, Para. 181 – 201)

Rural urban split

Out1 described the suspicion among ranchers that one of the central goals of the watershed management process is to limit cattle grazing and wintering along watercourses. There is a sense that other groups contributing to water degradation such as urban run-off, sewage discharge and fertilizer herbicide and pesticide run-off from cropland are getting a free ride because there is an inordinate focus on cattle.

Watershed Authority people, they have guided the process. The farmers at the table have been waiting for the other shoe to drop, they fully expecting that this was about kicking their cattle out of the river and they were waiting for it to get to that point. So they sat through three years of meetings waiting to hear. And we are finally there I think. We are starting to talk about what are some of the issues in the river, with issues of pollution in the river. But the good thing has been that the city of Saskatoon has been at the table consistently. And have continued to say higher quality of water in the river is a huge cost saving to us and if we can contribute finances to helping to keep the quality of the water high we are prepared to do that. So some of the farmers concerns about who is going to pay to pull my cattle out of the river, that seems to be the flashpoint. That's not the only issue we talk about but it is always I the background. And when we have an open house the ranchers show up in strength and to talk about it. (OUT1 Sec. 0, Para. 39 – 45)

Respondent OUT1 described tension due to the rural urban split in the electorate. As well as the sense that urban environmentalists and rural people interested in watershed management saw themselves at cross purposes.

Respond: Absolutely. Fear. That they are being driven by as they are politically they are being driven by the urban voters. We are in the middle of a provincial election which will be decided in the streets of Saskatoon not out here and they [the provincial government] know that. So there is that sense that they need to dialogue with these people. They want to be at the table and talk about it but there is certainly some fear and trepidation on their part.

Int 3: But at those types of meetings do you also have very specific environmental groups present? I'm thinking Saskatchewan environmental society-

Respond: they come to the open houses especially if they are in Saskatoon. We have had a number of open houses last fall. They have come to the rural ones. They were in Saskatoon. They will show up there and that is usually their form. They tend to not come out into the rural. They avoid the confrontation which is more likely to be found in the rural area. (OUT1 Sec. 0, Para. 39 – 45)

Boundaries: municipal vs watershed

OUT1 described the challenges presented by the fact watershed and municipal boundaries do not coincide.

But boundaries are everything. That is how you develop partnerships, that's how you develop cost sharing. And yeah it is very problematic but at least the

watershed boundaries are natural and make some sense. Most of our other boundaries are very arbitrary. My municipality's boundaries were drawn up so you could ride a horse to the meeting in a reasonable amount of time from any where in the municipality. That's why they were built. They are all 9 townships so 324 square miles so you can all ride a horse to the meeting and ride the horse home again. (OUT1 Sec. 0, Para. 39 – 45)

Problems with cost of service modeling

Respondent R1 described how new management models in government including cost of service modeling were making it difficult for rural communities to deal with water management issues.

And those utilities, sewer and water kind of things, are supposed to be able to pay for themselves. But the problem some communities are having, you get into a small village that maybe only has 20 or 25 people, and if they had the same problem, it would cost them the same. There is no way they could afford it. No way. And one of our concerns from a municipal level is that its fine to have these regulations and what not, but if you are going to make us do that, you have to help us too. Its not all, just go to the bank and sign your name and get money for it. It doesn't work like that. (R1 Sec. 0, Para. 113 – 129)

R1 described the water and infrastructure challenges facing one community in his/her neighbourhood.

The other situation, and this hasn't played out yet so I don't know how it's going to go. A community north of Kindersley which is very similar in size to ours, has not in their wisdom, done any setting aside of funds to upgrade their treatment plant, to do anything with their infrastructure, and right now they are facing the fact their water treatment plant has to be replaced which is going to be, probably 3 or 4 million, or they have no water supply. And then their infrastructure, their sewer and water lines are all in very bad shape and they have got continuous water breaks, sewer breaks in the community and I don't know how they are going to be able to afford it. Well I know they can't. And the regulation in the municipal act that govern how much money we can borrow, they can maybe borrow ten percent of what they need. But no more than that. There is just no way. So what is the alternative for them? They have one option that they can do where they can sell their utility to SaskWater and then SaskWater charges them and they pay by the month to pay all this back [at unaffordable rates]. (R1 Sec. 0, Para. 131 – 138)

An interesting sideline to these comments is the tendency described by respondent SW3 for some municipalities in a region to be unsupportive of communities seeking grants for infrastructure improvement.

If municipality A has saved for infrastructure upgrading (possibly through utility rate charges) and municipality B has not, A might argue that a senior government

subsidy to B is inappropriate since it rewards poor management, and is also unfair to A, since a portion of its citizens tax dollars are being used to subsidize B for not doing what the conscientious citizens of municipality A did for themselves. This can frustrate the development of regional solutions. (SW3 Sec. 0, Para. 161)

Specific environmental/regulatory issues

Respondent R1 provided an anecdote (possibly apocryphal) to illustrate excessive or overly zealous environmental protection. It involved regulatory intervention to keep lake levels low to protect a nesting bird. This apparently caused or threatened to cause a loss in electrical generating capacity. He/she also stated that it was important for SWA to attempt to keep lake levels relatively constant to prevent disruption of irrigation and community water intake systems. (R1 199 – 205)

Bureaucratic frustration

R1 also provided an anecdote that illustrates the way a local watershed committee was able to address a grievance that communities had with provincial watershed administrators.

In 1964, the Town of Eston and Town of Kindersley went together to build this pipeline. And so at that stage, to be able to build a pipeline you have to get all your easements and this sort of thing. In 2000, Environment wasn't going to renew our license because they didn't have a copy of one of the easements. They had a copy of it. They lost it. And this is the way bureaucracy is working. To protect our ass, we've got to withhold their license until they get us another one kind of thing. They weren't being apologetic or anything.And that is what took me to the table, to the very first watershed meeting that they had. We were talking about it. And when they realized that I was going to be vocal and wouldn't shut up about it, they issued the license. And we have since given them another copy of an easement that they lost. (R1 Sec. 0, Para. 229 -231)

Lack of will to change farming practices

Respondent SES1 R1 described the lack of enthusiasm among provincial regulators when it comes to regulating environmentally harmful agricultural practices.

when they realize dealing with that [harmful agricultural practices] would involve going out to farmers and saying we're not going to let you do as you want every time on your own land they [provincial regulators] back away from that very quickly and revert to an education campaign. It might work but I don't think it will. (SES1 Sec. 0, Para. 50 -56)

Education itself not enough

Respondent SES1 R1 discussed the need to develop sustainable supply and demand models for water use in the province that looked after ecosystems as well as the needs of developers and irrigators, who he/she argued tended to be focused on large projects, namely dams such as the proposed High Gate Dam on the North Saskatchewan River.

SES1 R1 stated that research and education by themselves are not the solution. Regulation would be required to achieve sustainability objectives.

I don't think education is enough I think as a society as a government we just need to make sure what we're going to do is effective and education isn't going to be effective. (SES1 R1 Sec. 0, Para. 235 – 238)

STAKEMEDIAT Summary

Procedural approach

Respondent PSR1 R1 described the position that the Partners for the South Saskatchewan River Basin dealt with the controversial proposal to build a dam on the South Sask. River in the neighbourhood of the Alberta-Saskatchewan boundary.

Partners advocates for the facts and processes. For example in Meridian partners did not say Meridian pro or con, they said this is the process you should go through these are the people you need to talk to and make sure they are consulted and these are the questions you need to ask. And because partners... (PSR1 R1 Sec. 0, Para. 190 – 205)

Local stakeholder inclusion

The following exchange deals with the value of having local input into potentially contentious environmental and water management issues.

Interviewer 1: You have had a lot of experience on both sides, government and local people. Do you think, in terms of the management of water resources, do you think that local people should participate somehow in the decision making process, government decision making process?

Respondent R1: Yes. Yes, I think it is vital. Because if they are going to do something that is going to affect the water supply to my community, like allowing gas wells to be drilled right next to the pump house or something of that nature, yes, vital. And another thing that concerns me, if there is a danger, and it is iffy that there is even a danger, like they could drill that hole right next to or through the aquifer right where we are and it is not hurt anything. But they can't tell us that it's that way. And so because they maybe can sell the mineral rights to that and gain some money for the coffers, do you put, I don't know how many people, we've got a thousand, Kindersley has 5, so and another couple thousand rural, you know, 8 to 10,000 people's drinking water supply at risk? So are you going to haul water in for us if this gets balled up? You know, you are at the mercy of what they might do. (R1 Sec. 0, Para, 233 – 235)

Respondent R2 described how local involvement in making management decisions is in particular aspects superior to the involvement of agencies whose officials are not long time permanent residents of the watershed.

We will ask Ducks Unlimited or Oceans and Fisheries or whoever to come alongside, that's not to exclude them, but in the long term, these people come and go, and the people that live there, they stay on and on and on, so somewhere along the line you have to have continuity, and today's a fad and tomorrow it's gone, and these people still live there, and you have to define what it is you're going to do, and that's why the governance was important to us, to establish how that would run. We're in a, and going back to the Swift Current Creek one, we're in the process of getting our plan together for the Saskatchewan Watershed Authority, and they will recognize us, we just have to knock on the right doors. (R2 Sec. 0, Para. 139 – 153 COMMNEED)

Respondent R2 described the watershed stewards group's efforts to build a consensus between communities and farmers/ranchers along the watershed. He/she also mentioned the importance that planning capacity meant to the process.

Yeah, they're the one's [Ministry of Environment] that have the rules and the hammer, they can do it. So, from that challenge of confrontation we built this [stewardship group] on the basis of consensus, we will not hit the city over the head. They, and hopefully, they won't do that to us. We want to talk about what issues there are, and come to a conclusion, and recommend to individuals and agencies what they need to do. We have, as it relates to agriculture, we hired a fella a year ago to do an agriculture environmental farm plan by groups, and we've had lots of responses. People are fairly open to that. They're not fighting it, so it's been a good relationship. He's an agrologist and he goes farm to farm and has meetings with them. (R2 Sec. 0, Para. 139 – 153)

Indeed, respondent R2 spoke to a brokerage or consensus building role for the watershed stewards which may be somewhat in contradiction with the regulatory role sought by OUT1. A new regulatory body is not necessary given existing authorities and the benefits of consensus or cooperative decision making within the stewardship groups..

I know that it would not take long for people in this committee to think that they were the bosses, and I don't want that. I think that they have lots of important things to do where law will be, law... start again, if we understand the law in the province, but understand what our responsibilities are, we could challenge that through the laws that are there, and we're not hesitant to do that. In our municipality we had a problem with intensive livestock pig operation. We don't have by-laws, we rely on the provincial government to do that. We know in fact the provincial government. that it was cleaned up right now. We didn't have to do it, and you know, I don't have to fight with them. I, we just identified it, and there it is. (R2 Sec. 0, Para. 243 – 251)

One of the Saskatchewan Environmental Society respondents described how the need to mediate between conflicting interests is a challenge for the provincial government – noting that the establishment of stewardship groups was a progressive step.

My sense is that government agencies are sort of being pushed from all sides there is a whole lot of conflicting messages coming into government. And hence government acts in sort of some conflicted ways the watershed base planning and governance model that they are rolling out right now is relatively progressive but the next time we speak with them it's almost like it's the 1970s all over again. (SES1 R1Sec.0, Para. 38 – 48)

SES1 R1 also noted the importance of building personal relationships with provincial officials.

Most of the work we do is with the watershed authority and the departments as a department they're not allies you really have to get into those organization and get to know individuals because it's really heterogeneous and a lot of it is built on personal relationships with people. (SES1 R1Sec. 0, Para. 189 – 199)

THEME 7 SUMMARY FOR WAGS

ACCAOUNTAB Summary

Stewardship groups developing democratic structure

Some watershed advisory groups in the province are lacking in clearly defined democratic accountability. Some advisory group participants are, however, selected from democratically elected groups such as municipal councils. Many of the groups were put together through an invitation process initiated by SWA. Some, such as the Swift Current Creek group had a core group in existence before SWA became involved and some have grown to include representatives from more groups. It appears that the groups established with SWA's encouragement are first described as advisory groups. Once the advisory groups have developed an initial watershed plan they are encouraged to incorporate. Most do so under the Societies Act and at that time may adopt the title Watershed Stewards or whatever else they might choose. Apparently the SSRWS board is currently considered an interim structure. R2 indicated that the founding bylaws for the SSRWS call for a set number of two to three participants from each municipality in the watershed to be appointed by those municipalities. What this might mean for groups such as Ducks Unlimited and the nature Conservancy which were involved in the advisory groups is unclear, but it appears they can be excluded. See the following comments: (OUT1 Sec. 0, Para. 423 – 425 COORDPROV), (OUT1 Sec. 0, Para. 5 -11), (R2 Sec. 0, Para. 21 – 37)

The Partners structure

The Partners of the South Saskatchewan River basin operate with a general open membership but appear to also involve some statutory requirements and also allow for invitees from other organizations.

There is a board of directors made up of a blue ribbon group from western Canada, the three prairie provinces and the two sort of set by laws, the statutory parts of that are Meewasin and federal government those two have seats on the board and they're really two of the core funders (PSR1 R1 Sec. 0, Para. 160 – 174)

On local authority in general

Municipal governments of course have some taxing powers and regulatory powers. But according to OUT1 the municipal councils are still subservient to provincial authority. While OUT1's analysis may be flawed in the sense that the province does not typically pull powers away from municipalities once granted, even though it has the constitutional ability to do so. One outcome of an analysis of municipal capabilities might be a more thorough consideration of their potential role in water governance. Urban municipalities are after all among the most significant users of the province's water resource.

Municipalities have a certain level of power. Most municipal councilors I find don't realize that they are a creature of the provincial government. The council can be wiped out by the stroke of a pen and it could be amalgamated made larger or smaller made to stand on your head. They are just a creature of the provincial government anyway. So the authority issue is huge and I'm not sure yet how much authority we are going to have at these watersheds to implement the watershed plan. I'm not sure that we will get to the point where we can say, over the next five years we are going to have watering facilities, and not to pick on the cattle all the time, we are going to have watering facilities out of the river for the cattle along the entire range and after that if you don't have a watering facility you are going to be fined. I don't know if we are going to go there. They keep mumbling about consensus building and we will all decide together that it's going to be warm and fuzzy. (OUT1 Sec. 0, Para. 101 – 104)

Perceptions about responsibility

In their fundraising efforts the stewardship group has endeavoured to convince municipalities that they are responsible or accountable for helping to fund the watershed advisory process.

Suppose there are 70 municipalities along the river that are directly affected. They are the ones that front on the river. They understand the river. Then you take the next layer back, they are still in the watershed but they have nothing to do with the river and they don't understand why they should pay. So they don't understand. This isn't my problem. Yeah, we are in the watershed but you are the ones on the river, you worry about it. It's not my problem. There are some of them who don't feel it is their business. So out of the 60 municipalities 28 sign on what do we do then? Do we continue to put the programs out and have them pay. (OUT1 Sec. 0, Para. 145 – 157)

Agricultural expansion may not always pay esp. in terms of Municipal taxation

There are also issues of responsibility and accountability related to intensive livestock operations (ILOs), irrigation and its potential expansion.

Agriculture is a strange idea, there's none of these things [ILOs] pay any taxes, that they will just be blossoming all over the place but there is huge resistance from the municipalities to have them because they are very expensive. They are very hard on roads. And you have them and they don't pay taxes, so everyone has

to subsidize them. And at some point you've really got a belly full of that. And we have got a belly full of these. And the same is true of irrigation. There is no extra tax on irrigation to pay their share and that includes the outrun into the river. So they don't pay any of that... They are paying for the water to put on the fields but they are not paying the full bill. They are not paying for road damage or the muck that is going back into the river. They are not recovering any of those extra costs and they don't like to talk about them. It's like your brother in law that is living with you and you just keep feeding him and he won't move out and he doesn't want to pay his share. And it's really quite problematic. (Out1 Sec. 0, Para. 201 – 206)

EVALPROG Summary

Nothing was recorded under this node

THEME 8 SUMMARY FOR WAGS

COORDFED Summary

PFRA supportive

Respondent OUT1 commented on the degree of cooperation that the stewardship groups obtained from the PFRA. *I will say the PF has been more forthcoming with data sets than any other agency we have dealt with. (OUT1 Sec. 0, Para. 284 – 286)*

Respondent R1 described the common sense flexibility of PFRA officials – how they were capable of colouring outside the lines to get things done. This is perhaps attributable to the PFRA's long tenure in water management on the prairies, the depth of the institution's understanding of rural issues, and its relationships with farmers and rural communities.

We know them [PFRA] and we work with them on the water west cooperative that we are involved with which is taking a pipeline from Kindersley to Fisk. Because 90% of that line is rural farmers, PFRA has paid for approximately half of putting that line in. Now when we did the EK, Eston and Kindersley pipeline in '64, they paid about 55% to put it in. Although Eston and Kindersley are considered urban, the condition was that if there was a farmer along the pipeline that wanted water we had to provide a tap for him to connect to. And because of that they got some engineering services out of it, plus the grant to pay for the thing, but they are very, if I was the mayor, as the mayor of Eston went to [official named] who is the local engineer for PFRA in [centre named] and said, I need this, whatever, because I am urban he would say, no I can't do it, but he's the kind of guy that wants to help and he would twist the thing around so it would qualify so they could help. That to me is a good government employee. (R1 Sec. 0, Para. 299 - 309)

COORDPROV Summary

Confusion about provincial agency responsibilities

Respondent CAB1's comments concerning the confusion that can occur do to the multiplicity of provincial agencies involved in water management are recorded under STAKEISSUES see (CAB1 Sec. 0, Para. 342 – 368). Those comments were echoed by R1.

It's a hassle. It's a hassle in that you've got to go to so many groups to do what you have to do. And from, as a municipal person, you always got to be aware about keeping your ear open for what each one of these things are doing because you never know where somebody is trying to sneak in the back door and do something that's, and you wonder where it's all come from. (R1 Sec. 0, Para. 255 – 271)

The perceived high cost of SaskWater services

Making use of the services ostensibly available for water infrastructure development through SaskWater is seen as difficult due to issues such as their pricing structure.

Oh my God man. You gotta have a cheque book to talk to Water Corp. They are worse than the phone company. Elbow took them on and they virtually bankrupted Elbow because they bought the water system from Elbow, which was good for the first three payments and since then they are like a slave. Water Corp does that for profit. Don't even kid yourself that this is some benign provincial agency that has come out to help you. They are in this for money, straight and simple and they pay well and they charge through the nose. So most of these villages run the other way when you say water corp. (OUT1 Sec. 0, Para. 356 – 358)

Rural urban split extends to the provincial government

Out1 described dissatisfactory relationships that have obtained between rural communities and the province as....

Hugely dysfunctional and part of the disconnect between the rural and the provincial government that you talked about, where the government is out of touch with the populace, when they try to amalgamate the municipalities and the municipalities fought it so vociferously, then the province said good enough, screw you, wiped out the planning department and cut the relationship between themselves and the small municipalities and just said you are on your own have a nice day. Enjoy. So the planners we have got in working on our land use plan, that is the first time we have seen planners in rural Saskatchewan in 20 years. It hasn't been happening. (OUT1 Sec. 0, Para. 366 - 408)

Respondent PSR1 R2 commented on the suspicion that exists between rural officials and representatives from the province and the cities.

And they are very suspicious of government I know at one point again I'll have to be very careful how this is worded but partners went to a group about a program

they were doing and it was a rural group and they were mad at the government and some how this was a government project being hoisted on them. It wasn't at all but it was just so much suspicion and fear and especially the RMs the small municipal governments we have more contacts with because at least they'll have some staff. The RMs we're finding really have a great deal difficulty even responding its more individuals in the RMs. (PSR1 Sec. 0, Para. 219 – 223)

COORDLOC Summary

Rural communities can feel isolated from each other, a function of distance and different interests is different regions.

Where we live here, and I guess if you look at a map, in South of the river and the west side of the province, that it seems like we are just left out of the process. It all happens in that Outlook area where all the irrigation is and that is what is happening, I think, with our watershed group because we are so spread out over the Alberta border to north of Saskatoon and I think its going to polarize right in that Outlook area and we're going to be, in our area here, left out of the loop. That's my take on what's happening. (CAB1 Sec. 0, Para. 133 – 143)

Overlapping boundary challenges

Respondent OUT1 drew an analogy between the challenges in managing school units that overlapped RM boundaries with attempting to manage watersheds that overlap municipal boundaries.

We are going to deliver an education piece through the public school system and that it is a good place to get people started being educated. Well the very first problem we have is that the school boundaries don't coordinate either and schools are notorious for saying in our division if we can't do it for all 22 schools then we are not doing it at all. And if your watershed thing only covers 17 of them the hell with it. Were not doing it. Were not going to play. Health is the same way. (OUT1 Sec. 0, Para. 79 – 81)

COORDINTER Summary

Respondents including CAB1 and PSR1 R1 discussed the benefits of establishing formal and informal relationships with watershed groups from Alberta. (CAB1 Sec. 0, Para. 305 – 324) There were comments indicating that the Alberta government's approach to water management might not be something to emulate given the allegedly high level of control held by the provincial environment department. (OUT1 Sec. 0, Para. 427 – 445 ROLEWATER) On the other hand PSR1 R2 indicated that the fact Alberta seemed to be further along in its water management planning was positive. (PSR1 R2 Sec. 0, Para. 112 – 162)

Respondent PSR1 R2 noted the need for his/her organization to be on top of issues in Alberta, which is understandable given the “basin” focus of the Partners group.

What I see as a potential issue down the road or coming up rather quickly is we still have the Alberta group and then we've got the Saskatchewan group so we still have this line going down the provinces that's kind of segregating them and there are some issues and concerns and communications that needs to occur back and forth across that boarder. I know the PPWB was set up to ensure the water was moving across if water quality is there but I think there is a need to make sure that we have the communications is going on at the local levels from the people that are actually making those decisions across jurisdictional boundaries. (PSR1 R2 Sec. 0, Para. 492 – 494)

This sentiment was echoed by PSR1 R1.

The only formal communication is the Prairie Provinces Water Board and it did kind of scare us when Alberta did a South Saskatchewan River plan. Somebody, are you talking to Saskatchewan about it? Oh we don't do that. That's friends for Saskatchewan basin they do that. (PSR1 R1 Sec. 0, Para, 495 – 510)

THEME 9 SUMMARY FOR WAGS

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR WAGS

THEME 10. How does this institution relate to rural community vulnerability?

REDVUL SUMMARY:

Getting the word out

One of the partners respondents indicated surprise about the vulnerability of Saskatoon's water supply and recommend a communications solution. Saskatoon was probably already well aware of the situation one would hope.

One of the researchers looked at Calgary, Lethbridge, and Saskatoon and basically showed how Saskatoon was far more vulnerable than any of those other communities to climate change. That's something to get into a report and get to city councils and others. (PSR1 Sec. 0, Para. 70 – 72)

Vulnerabilities, economics and agriculture

SES had a lot to say about vulnerabilities, economic growth and prairie agriculture.

I would say that government is unwilling to take the proper environmental steps because they can't seem to do anything that might slow economic growth or even to interfere with so called rights to private property but that's a little different argument of what I'm

saying around farmers vulnerability in that case it's significantly different in that very high levels of profit extracted by the dominant players in the system have left farmers extremely vulnerable highly indebted, no real net income no cash flow and sort of living pay cheque to pay cheque almost and they have no ability to absorb the impacts of crop failures there. (SES1 R1 Sec. 0, Para. 244 – 246)... in some ways farmers turn water into money you can literally stand outside in a 1 inch rain and farmers will go it's a million dollar rain and you think that way sometimes the last 4 weeks I sat on my farm and thought about the crops going around me and literally a 50 bushel an acre canola crop across the road probably the best crop of canola every been grown in my part of the country it went from a 50 bushel canola crop to being a 30 a bushel crop or 25 canola just because 35 degree days and high winds day after day so climate change and farm finance they're really inextricably linked and it's going to be really hard for farms to get through if the economic problems aren't solved in tandem with the water problems. (SES1 R1 Sec. 0, Para. 260 – 264)

PSR1 R1 offered the following epigram to describe the relationship between water and agriculture.

Money can get you through times of no water and water can get you through times of no money but if you have no money and water you can't get through and in some ways farmers turn water into money. (PSR1 R1 Sec. 0, Para. 252 – 258)

Dams to Reduce vulnerabilities

Agrivision's proposal for dams and other structures to increase irrigation capacity and provide rural communities with water has not been welcomed by the Saskatchewan Environmental Society as a sustainable solution.

I don't think you can actually supply security big dams and big irrigation really isn't a water security solution and it really isn't a very good plan to change adaptation solution it might be an economic development solution but I think if people looked honestly and carefully at Alberta and Manitoba where they've done more of this it becomes obvious that it becomes it's not even good at that. When you look at the massive subsidies our analysis of high gate is you could put 5 billion dollars into that dam and you might actually only benefit 50 farmers that's a 100 million bucks a farmer that's a lot of money.(SES1 R1 Sec. 0, Para. 266 – 268) ... and one of the things we've talked about is an optimum number of dams I'll just talk about that for a second and come back to Diefenbaker and in-fill irrigation. Agrivision argues for dams on rivers as a way of solving the problems if the glaciers go for instance in a sort of dealing with the ebb and the flow of more variable rivers and we point out is yeah you'd want a dam or 2 but we've already got them in the North and South Saskatchewan rivers we've got some dams that deal with that and if you had no dams and you added a dam things would get better but then you start adding more dams because the dams also come with 100s of thousands of acres feet of water extraction for irrigation and evaporation with each dam you add when you look down stream of the dam

you're actually getting decrease flows down stream as a thought experiment you could add dams theoretically be no water left in the river then you've completely clearly it's sort of a bell curve and there is a sweet spot in terms of the optimum number of dams so we wouldn't say that the best solution would be no dams on the major rivers but I think the conversation needs to be what's the optimum number of dams and what's the sustainable flow of irrigation water and there is talk 2 to 3 billion dollar expenditure to build the canal for the west side irrigation project and probably that should go along with a discussion securing water for nature and ecological flows in the rivers and making sure their compatible with each other. (SES1 R1, Sec. 0, Para. 270)

THEME 11 SUMMARY FOR WAGS

LEGAL SUMMARY

Present legislation is adequate

Respondent CAB1 made the following comments regarding the legal environment:

Well I don't think we need more rules, they just need to be closer to the situation when they look at these projects or whatever they are. And of course I'm not in the loop to know exactly what they are doing, but. I am kind of involved in a couple little ones but I've delved into. (CAB1 Sec. 0, Para. 283 -295)

Respondent R2 made similar comments, adding that current legal frameworks made legal powers for stewardship groups redundant (contrary to the opinion expressed by OUT2)

Municipalities have their right to set up zoning areas, planning and development, they can do that, they can set that up. They already have authority for some of that stuff -- their on zoning and planning ok, that is one part. The second part is that provincial government, through the department of environment have the authority already. They can do what, a body like ours would only be able to work within the framework of the capacity that the provincial government would establish, so it doesn't really, in my mind, pay to have a duplicate...the Department of Environment has the authority in one hand, the Department of Agriculture have the authority for intensive livestock operations and if they're doing their job, they have the authority to do what they have to do to make it happen...I say that provincial government has the authority to do it, or the federal government, they both have the authority, we don't need another one. R2 Sec. 0, Para. 225 -248)

Respondent SES1 R1 indicated his/her organization was dissatisfied with the current legislative regime for environmental review. Furthermore the current system was not sufficient for dealing with issues related to water management currently or in relation to adapting to climate change impacts.

Well that's a discussion an environmental organizations have all the time for instance how much energy do you put into environmental assessment environmental assessments are supposed to be the primary legal instruments for citizens and organizations to make sure environmental issues are taken into account in economic development. It's a mixed bag environmental assessments are seldom very gratifying and I guess maybe the most use to you might be the comment that there does not seem to be legal instruments in place that really help with the problem of climate change because environmental assessments tend to be extraordinary narrow and short term and disconnected from the larger context. You can't stand up in an environmental assessment and say does anyone know if we're going to have enough water to make this work 25 50 years from now it's unlikely they'd turn down the project on that basis that nobody knows that one. So there isn't a framework in place for dealing with that future uncertainty and issues around sustainability like that climate change brings up.(SES1 R1 Sec. 0, Para. 274 – 267)

legislation ineffective without local buy in

I think having the watershed plans and having local people because ultimately you can make all the legislation you want in the world but if you don't buy in from the local stakeholders like the landowners that are actually out there doing the activities on the farms it's not going to happen. And I think having these local groups being developed and working on the education aspects the promoting more water friendly irrigation equipment stuff like that I think that's getting closer. (PSR1 R2 Sec.0, Para. 492 – 494)

On water rights

R2 described the absence of a private water rights environment in Saskatchewan, indicating that cooperation between farmers, communities and government agencies determined apportionment.

R: The rule has changed, there is no priority, so the guy upstream will get more, and the guy downstream gets less. (R2 Sec. 0, Para. 96 – 116) ...

R: Well, we have set up the systems within that, that we monitor, that we require, no we don't require, we ask the Saskatchewan Water Corporation has the authority of the water. Here we have the PFRA which operates the facility, so there is better coordination now between the PFRA, Saskatchewan Water Corporation, and the farmers on delivering, and that's what's improved it. It really isn't a law, it's just working together. (R2 Sec. 0, Para. 118 – 128)

THEME 12 SUMMARY FOR WAGS

OTHERLIM Summary

The following comment was simply too colourful to leave out of the summary.

They are driving it. This all comes out of Walkerton and North Battleford. This was not driven locally. A lot of local people have the sense, (pause) we have depopulated. There are more white tailed deer than people out here and they are going. Why are we worrying about this stuff. There's more geese shitting in the river than there are among all my cows and the neighbours cows so why are we worrying. No one is chasing the geese away. So this depopulation, they have a sense that this is much ado about nothing in a way. That we are so globally populated that we really don't have that much impact. (OUT1 Sec. 0, Para. 110 – 112 STAKEISSUES)

ENVIRONMENT CANADA (EC) INTERVIEW SUMMARY

Process:

IACC interviewers interviewed two respondents employed by Environment Canada, one from the Canada Water Research Centre and one from the Adaptation and Research Division (ARD).

THEME 1 SUMMARY FOR EC

ROLEWATER Summary

National Water Research Centre

The National Water Research Centre (NWRC) is part of Environment Canada's water science and technology directorate. The NWRC has responsibility for monitoring surface water quality on the national level. They have five labs located across the country that support its efforts. The NWRC "does not do a lot of climate science per se" but attempts to link hydrological modelling to climate science. It also has an interest in the consequences of exposure to environmental contaminants and improved management of aquatic ecosystems. The NWRC respondent indicated a particular interest in integrated water management and the inclusion of stakeholders at the watershed level in the process. The goal being to extend the process from the local watershed level to the basin level. (CWRC1 Sec. 0, Para. 18)

Since water is primarily a provincial responsibility much of the NWRC's activities pertain boundary issues and provides technical support to the Prairie Provinces Water Board. (CWRC1 Sec. 0, Para. 36)

...in terms of monitoring we have a responsibility, on the Saskatchewan River for example, to monitor and ensure appropriate water quality as it enters Saskatchewan and again when it leaves Saskatchewan... In the case of the Saskatchewan River and in the case of the prairies there is there is the prairie provinces water board. That's a multi lateral master agreement signed by the 3 Prairie Provinces and the federal government and it has an agreed upon objectives for water quality in eastward flowing rivers as the cross provincial boundaries. Environment Canada conducts the monitoring at those sites compares them to the objectives that all parties have agreed to and if there is an issue then all parties sit down and try to remedy the case. (CWRC1 Sec. 0, Para. 53)

There appears to be some confusion over how federal agency responsibilities are divided with respect to monitoring the quality and quantity of ground and surface water.

Natural Resources Canada has the mandated for water quantity for ground water we have the mandate for ground water quality. And how you can separate those two across two departments is beyond me. (CWRC1 Sec. 0, Para. 181)

Adaptation and Research Division (ARD)

While the ARD respondent discussed his/her own areas of interest and activity in some detail, a description of the role/mandate of the division did not emerge from the interview.

COMMNEED Summary

Respondent CWRC1 described how the monitoring and data collection work done by his/her agency provided the scientific basis required for communities to make informed decisions about water management issues. The example of a major effort currently underway to better understand Lake Winnipeg assisted in making the point.

What we're trying to do in Lake Winnipeg now, because no one really has the answers, is first of all develop that sort of process by understanding the physical chemical biological character of the lake. Once we have that understanding we can say well if you cut back on nutrients by 10% we think this will happen, if you cut back by 40% we think this will happen. And then society will have to make a decision on what it wants to do. (CWRC1 Sec. 0, Para. 119 EVALPROG)

THEME 2 SUMMARY FOR EC

STRESS Summary

Comments posted under this node were relevant to other themes such as DATACOL NEED and were Posted there.

MANAGE Summary

No relevant comments were posted under this node.

ORGCLEAR Summary

No relevant comments were posted under this node.

ORGFLEX Summary

No relevant comments were posted under this node.

THEME 3 SUMMARY FOR EC

CLIMAVAR AND CLIMACHANGE Summary

NWRC

The NWRC respondent echoed comments of interviewees from SWA and SME regarding the planning challenges presented by uncertainty about the ways climate change will be manifested .

When we're trying to develop management tools required we have to explicitly consider climate change in that sort of scenario and that is a problem because the predictions. There is some uncertainty around the current predictions for climate change in terms of temperature but when it comes to things like precipitation and water availability there's even more uncertainty. (CWRC1 Sec. 0, Para. 255)

ARD

The ARD respondent described adaptation efforts in the Okanagan valley where a variety of issues come into play including residential development and agriculture. The respondent indicated that an important job for those wishing to enhance adaptive capacity was translating the science in ways that the public and policy makers could understand. The respondent also indicated that for social scientists to become involved in the process of dealing with climate change they had to discover the appropriate “entry points”.

we also have to be able to explicitly link climate change and local development pressures, not in an emission context, but in what that means for demand for water and whether or not those kind of development choices that are being made have the potential to constrain or reduce the degrees of freedom to act among local water managers, water managers trying to provide, say for liable water supply through his region. (EC1 Sec. 0, Para. 38)

THEME 4 SUMMARY FOR EC

DATA COLPRI, DATA COLSEC, DATA COLNEED AND DATA COLACCESS Summary

As was noted under the ROLEWATER node the NWRC is involved in monitoring stream flows and water quality as it pertains to the multi-party inter-provincial water agreement.

Respondent CWRC1 indicated that EC is indeed interested in the potential impacts of climate change. However significant additional research and data collection will be required before climate impacts can be better understood and planned for. And that efforts needs to approach the issues from a number of different directions

We need to first understand the processes themselves the natural ecosystems systems climate changes are occurring within. We also need to understand human impact on those physical chemical biological activities. We need to predict what the impact could be in the future because it's not sufficient to just understand it is now. We'd like to predict into the future. Where necessary and appropriate we'd like to come up with remedies mitigations and then we need to look at the consequence of our actions in those ecosystems. (CWRC1 Sec. 0, Para. 115)

The NWRC respondent also indicated that the agency does not collect data related to relationship between community needs for water and climate related water stress. This was described in relation to the possible impacts of drought on stream flows from Alberta.

What an irrigation district might require we probably would not be as... we don't build in a lot of population predictions or agriculture predictions we might say what I would like to see, this would be a response to climate change is to establish some kind of IFN flow above which withdrawals might be allowed but below it there's not withdrawals period. That's environment Canada's role and we could also model and try to predict how far above the thresh hold Alberta might be in most years. (CWRC1 Sec. 0, Para. 315)

CWRC1 described the challenge presented by wide scope of variables that are involved in dealing simultaneously with water management and climate change. The complexity of the task is itself an impediment to developing the data and knowledge required to inform solutions.

That is one of the challenges we talked about earlier, we already have highly variable systems and then we add to those additional variability caused by climate change or by urban development it becomes very difficult to attribute trends that you see to natural variation versus population expansion versus climate change. (CWRC1 Sec. 0, Para. 207 EVALPROGRESS)

The NWRC described a general lack of hydrology data especially for groundwater on the prairies and indicated that this was troublesome due to the vulnerability of the prairies. (CWRC1 Sec. 0, Para. 85,89)

The NWRC respondent stated that while sometimes the agency was unaware of data collected by other agencies, this was not seen as being due to an unwillingness to share data. (CWRC1 Sec. 0, Para 199)

The respondent also noted a change in the prioritization of data types. He/she indicated that in previous times Environment Canada relied heavily on chemists who examined issues related to contamination. Today, the agency requires a multidisciplinary approach that looks at a broader range of issues. (CWRC1 Sec. 0, Para. 145)

THEME 5 SUMMARY FOR EC

FINRES Summary

No relevant comments were posted under this node.

NEEDRES/TECHRESOURCES Summary

NWRC

The NWRC respondent made comments regarding financial resources that echoed those of most other civil servants interviewed for the project, namely that additional financial resources were welcome – they could after all be translated in to people. However, there was a sense of resignation to the fact that working within budgets was a fact of life.

The respondent made some interesting comments regarding the need to build a bridge between scientists and policy makers when dealing with climate change and water issues.

They need to work better together and what we lack is completely my bias is we lack people that can make that bridge people that can speak to both policy and scientific issues. The really good scientists don't want to do policy they want to continue with their science and the really good policy people want to continue with their policy. It's almost like you need a 3rd group. (CWRC1 Sec. 0, Para 291 – 295)

THEME 6 SUMMARY FOR EC

STAKEISSUES AND STAKEMEDIAT Summary

Respondent CWRC1 described the broad scope of the mediation efforts that can be required to manage trans-boundary waters. Efforts to assess and improve water quality on Lake Winnipeg were used as an example to describe how multiple jurisdictions can be involved in managing a watershed (since watersheds do not always conform to political boundaries).

Lake Winnipeg [watershed] is a million square kilometers so it's roughly the size of Germany, France and England combined. It has the US and Canada. It involves 4 provinces -- Alberta Saskatchewan, Manitoba Ontario, and four states -- Montana, North Dakota, South Dakota and Minnesota and multiple industries. But they're going to have to come together in terms of the regulatory response. It will be first and foremost Manitoba, they will have to make some decisions. We're going to provide the best science available for them to base those decisions on. There are a variety of other governance mechanisms like the international joint commission that are already engaged and they are going to use their powers to persuade or try to persuade the US partners. We're in the process of negotiating a Canada-Manitoba agreement right now around Lake Winnipeg. We have the Prairie Provinces Water Board so there is no single entity that will make this decision -- there are a whole variety of levels of governance. But importantly I think, this will be our job again [to coordinate the process]. (CWRC1 Sec. 0, Para. 125)

Respondent EC1 indicated that policy makers were required to engaging in balancing or brokering between interests when dealing with water. He/she stated that this was something that scientists informing the process didn't always have to do and didn't always recognize.

There are others that will then translate that into water supply, given what is known about reservoirs and reservoir capacity and operating rules and that becomes the purview of another set of experts because those that are managing reservoirs for water supply are managing them for multiple objectives so it's not just a matter of releasing water, say, when it irrigates or needs it, there is times when water is released for other reasons. The balancing act that has to take place is a complicated one because these various requirements are not synchronous, and it's quite likely that climate change will alter the balancing act between these objectives. This is recognized within the water resources community probably more so than it is recognized in the advisory science community. (EC1 Sec. 0, Para. 36 – 48)

Respondent CWRC1 also commented on the need to broaden consideration of water management issues to include more than just scientists or policy makers.

The really good scientists don't want to do policy they want to continue with their science and the really good policy people want to continue with their policy. It's almost like you need a 3rd group. (CWRC1 Sec. 0, Para. 295)

THEME 7 SUMMARY FOR EC

ACCAOUNTAB AND EVALPROG Summary

EC1 was asked specifically how he/she evaluated progress/success in efforts to combine climate adaptation and water management in the Okanagan valley in British Columbia. The respondent referred to an informal process which he/she said provided a sense that efforts over recent years have produced better informed stakeholders. He/she also pointed to instances where the results of adaptation and climate related initiatives had been incorporated into regional/municipal planning efforts. The respondent noted, for example, how the process had produced a change in mandate for the Okanagan Basin Water Board to include concern for water quantity in addition to its former focus on water quality. (EC1 Sec. 0, Para. 28 -30)

THEME 8 SUMMARY FOR EC

In what networks does this institution operate and how?

COORDFED , COORDPRO, COORDLOC, AND COORDINTER Summary

Agencies within Environment Canada including the CWRS and the ARD are deeply embedded in inter agency and inter-jurisdictional activities. This is the result of the fact that water governance is a provincial jurisdiction and therefore EC generally gets involved in an inter-jurisdictional capacity. Comments regarding EC's linkages and coordination with other levels of government and jurisdictions have been described under preceding headings.

One factor which perhaps distinguishes EC's role from that of provincial bodies or the PFRA is that EC appears to have much less a connection with municipalities.

THEME 9 SUMMARY FOR EC

CLIMA Summary

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR EC

REDVUL Summary

CWRC1 indicated that the agency was involved in reducing community vulnerabilities as follows:

The vulnerabilities certainly. We'd have a very strong and direct interest in stream flow needs. I mean we have a mandated responsibility for that. So that would be one area of vulnerability that we'd do. What an irrigation district might require we probably would not be as... we don't build in a lot of population predictions or agriculture predictions... (CWRC1 Sec. 0, Para. 315)

Respondent EC1, as noted elsewhere in this summary, indicated that efforts to introduce climate and adaptation concerns in the Okanagan Valley of British Columbia had provided an improved knowledge base that was starting to inform development decisions. For example, decisions about locating new residential neighbourhoods along lake fronts was starting to take anticipated lake levels into account.

THEME 11 SUMMARY FOR EC

LEGAL Summary

No relevant comments were posted under this node.

THEME 12 SUMMARY FOR EC

OTHERLIM Summary

Respondent CWRC1 provided a comment which echoed others who described the challenges of doing environmental, water and climate related policy development and implementation within the framework of election cycles.

One of the other big problems I think is policy and science work on different time scales. The Lake Winnipeg for example has taken us 40 years to get here. It will probably take us 30-40 years to get out of it and policy wants a solution based on an electoral cycle. (CWRC1 Sec. 0, Para. 299)

Saskatchewan Research Council Interview Summary

THEME 1 SUMMARY FOR SRC

What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLEWATER Summary

The Saskatchewan Research Council (SRC) has a broad economic development mandate but also operates as ... *their [the government's] applied research arm.* (SRC1 Sec. 0 62 – 72) The SRC also does paid custom work for non-governmental agencies and private corporations. (SRC1 Sec. 0, Para. 74 – 84)

The Saskatchewan Research Council is a Treasury Board Crown Corporation and what it does is it undertakes research and development and transfer of development to help people, mostly in Saskatchewan, strengthening the economy with good jobs and a secure environment. So that's the overall goal.... SRC has been involved in water research, mostly water and climate research for a decade now. So it's mostly with respect to research and transfer of technology and transfer of information as well. (SRC1 Sec. 0, Para. 16 – 22)

COMMNEED Summary

As SRC1 indicated in the comments recorded under ROLEWATER meeting community needs is central to the organization's mandate. However, protocols for determining how that mandate is met are not highly specified. (SRC1 Sec. 0, Para. 156 – 158)

THEME 2 SUMMARY FOR SRC

What past water stress has the institution faced, managed and mediated, and how?

STRESS Summary

No comments were posted for the SRC under this node.

MANAGE Summary

Comments re. Watershed Stewardship/Advisory Groups

Respondent SRC1 commented on the effectiveness of the Watershed Advisory Committees established and supported by the Saskatchewan Watershed Authority (SWA). SRC1 indicated support for the concept but did not offer an evaluation of how successful the process has been in involving people productively at the local watershed level.

I have seen the role of the Saskatchewan Watershed Authority in facilitating those local watershed committees and it ... seems to be progressing to some extent. Certainly there was much more community involvement than I thought, say maybe 6 years ago, for instance. 9SRC1 Sec. 0, Para. 277 – 292 MANAGE)

ORGCLEAR & ORGFLEX Summary

Are research findings being reflected in policy?

Respondent SRC1 provided comments that underlined one of the significant findings of the IACC interviews – Saskatchewan lacks a drought plan or drought mitigation (drought-proofing) plan. The following exchange illustrates this situation:

II: How do you feel about all your research effort in the area of drought? I mean, you are doing a lot of research there, but the provincial government doesn't seem to pay a lot of attention to that.

R: It does seem that way in the area of drought and as reflected in your findings of the drought plan.... And we do see that there are plans for further development of drought and we can do research on that but we are funded by other agencies to do that research and not the, for instance, Agriculture and Food who could actually use that for various aspects of their planning.

II: Yes. But the information is there. You are producing the information, it's just up to whatever Sask Agriculture, Sask Environment to use that information.

R: Yes. (SRC1 Sec. 0, Para. 94 – 104 ORGCLEAR)

However, in an earlier exchange in the interview SRC1 indicated that there indeed had been a “draft” drought plan produced for the Saskatchewan Ministry of Agriculture.

Let's see. The drought policy for Saskatchewan is at, we just put a draft policy and it's at the initial stages and has not gone beyond that, except for Saskatchewan's role, especially because it is led by Sask Ag and Food, in terms of helping develop national policy. And that was happening during (earlier or spring?) this year. So drought is certainly on the radar, or developing, for any of the provinces. (SRC1 Sec. 0, Para. 40 – 50 CLIMAVAR)

The interview comments indicated that the SRC had done considerable work on climate change in the Saskatchewan context and has made specific recommendations regarding adaptive measures. According to SRC1 there are indications that its climate change research will be utilized by provincial government planners in an (un-specified) exercise that is already underway. *And I believe there has been, there is an initiative to do that and we are involved in helping formulate that plan for adaptation for Saskatchewan. (SRC1 Sec. 0, Para. 106 – 120 ORGCLEAR)*

The interviewers indicated concern about the lack of specificity regarding progress on policy initiatives around building adaptive capacity, in particular the lack of clarity regarding which agency or agencies were involved. SRC1 indicated that the Prairie Adaptation Research Collaborative (PARC) was involved.

You are right that PARC will be one of the leaders in the adaptation planning for Saskatchewan. But another aspect is, in theory at this stage, is that that plan is quite vague at this stage. (SRC1 Sec. 0, Para. 122 – 128)

Respondent SRC1 indicated that the SRC had undertaken projects for water governance agencies such as a major hydrology study as well as some unspecified research dealing with climate change. However, he/she was not entirely aware of or confident that the research work found its way into the policy development process. (SRC1, Sec. 0, Para. 58 – 60 ORGCLEAR)

THEME 3 SUMMARY FOR SRC

Does this organization plan for water/climate stress and how?

CLIMAVAR Summary

Apparently the SRC has been involved in climate change and variability research. The interviewers asked SRC1 if he/she felt that the research was being put to use.

Yes. In some cases, certainly, especially in the quite technical areas. For instance, in the drought areas, ... the [department of] Agriculture and Agri-Food Canada have used the assessment of, lets say for example, the economic cost, especially for all of Canada, as part of their push forward to developing a national policy on drought and part of their national water policy. (SRC1 Sec. 0, Para. 40 – 50)

CLIMACHANGE Summary

Respondent SRC1 indicated that the SRC had made a specific recommendation to government for the initiating of planning for adaptation to climate change in Saskatchewan. However, as noted earlier under the node ORGCLEAR there is a lack of clarity as to who is actually involved in developing the adaptation plan (it was assumed PARC may be playing the lead role).

Okay. In terms of the climate change example, one of the aspects, one of the larger types of recommendations is that we have advocated and specified in recommendations that there be planning done, for instance, a Saskatchewan plan for adaptation, ... we are involved in helping formulate that plan for adaptation for Saskatchewan. (SRC1 Sec. 0, Para. 106 – 120)

There was some discussion of how the new provincial government elected in 2007 would handle the climate change adaptation file. In the following exchange, skepticism was

expressed regarding the status of adaptation planning. At one point PARC was identified as the group advancing the adaptation plan, in this exchange the provincial environment ministry is said to be the key player.

R: With the new provincial government, I'm not even sure climate change fits. It's a worry.

II: Well maybe [respondent named], what we could do is talk another moment what you think is the main (deductions?) in the area of adaptations? Because, as I said, we are very confused. I mean, if you ask me, I would argue that Saskatchewan has no plans for adaptations at all.

R: I think the only plan for adaptation, and I am being overly optimistic, is a plan to begin to do that. And that plan was something that we met with the people in Sask. Environment that are part of leading a plan, (SRC1 Sec. 0, Para. 130 – 140)

THEME 4 SUMMARY FOR SRC

What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

DATACOLPRI, DATACOLSEC, DATACOLNEED & DATACOLACCESS Summary

While there was nothing not recorded elsewhere listed for the SRC under this node it is understood that the agency is involved in considerable primary research in the areas of drought, climate variability, and climate change. However, questioning indicated that there is some lack of clarity regarding the process. The following exchange deals with both primary and secondary research and accessibility.

I: I have a couple of questions and that is about information. You are doing research in the area of water resources in Saskatchewan so you must be familiar with this. I am interested in the type of data that is being obtained and in terms of quantity and quality of water and to what extent that bases, common databases that are being created. For example, in terms of the quality of water, do you know if, in Saskatchewan, we are in a process of getting all the information into a common database?

R: For quality, I'm not sure. The parts that I, regarding quality, is that we do have more cooperation with SWA to merge not only our groundwater quantity but also the quality information in connection with them, in terms of, (you teach?) us about water quantity, the information is very and easily achieved. Well, access. Not as much in Alberta, but much better in Saskatchewan, we are happy to see, but the information is not spatially as suitable. Let's see, the spatial coverage is poor and the tendency seems to be going into fewer sites with more types of

measurements. So that is the situation I see with regard to water quantity and quality.

I2: But that is what is coming down the stream right?

R: Right.

I2: So actual information on who has allocation and how that plays out in a drought, that information isn't accessible, is it?

R: Let's see. It is through secondary information, mostly, well, quite a bit from Alberta, and doesn't seem to be quite as easily acceptable for Saskatchewan. I think it would take a lot more digging with the agencies themselves, but I haven't done that so I'm not sure. That is just the rumor I get from other researchers. (SRC1 Sec. 0, Para. 313 – 323 DATA COLSEC)

THEME 5 SUMMARY FOR SRC

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES Summary

Respondent SRC1 indicated that budget issues were limiting the capacity of the SRC to be involved in meetings and conferences.

I: [interviewer named] said yesterday that you didn't attend a meeting because you were not allowed to attend more committee meetings?

R: Right. Well what is happening is that our whole, because of the lack of funding from the province and federal government on adaptation, our projects were for the entire ecosystem unit, and perhaps other units here at the research Council has really decreased in the last couple of months. So our management has advised us to continue working on projects when we can. (SRC1 Sec. 0, Para. 168 – 181 OTHERLIM)

NEEDRES/TECHRESOURCES Summary

Respondent SRC1 indicated that interagency cooperation was important to developing an adaptation plan.

I also think that PARC needs to grow and make stronger partnerships with the Saskatchewan Research Council just because we have considerable human resources with experience in adaptation and without using all those resources in

Saskatchewan, including both the universities, the adaptation plan will not be sufficient. (SRC1 Sec. 0, Para. 313 – 323)

THEME 6 SUMMARY FOR SRC

STAKEISSUES Summary

SRC – comments posted under this node have been dealt with earlier in this summary.

STAKEMEDIAT Summary

SRC – no comments were posted for the SRC under this node.

THEME 7 SUMMARY FOR SRC

SRC – no comments were posted for the SRC under this node.

ACCAOUNTAB Summary

SRC – no comments were posted for SRC under this node.

EVALPROG Summary

SRC – no comments were posted for SRC under this node.

THEME 8 SUMMARY FOR SRC

THEME 8. In what networks does this institution operate and how?

COORDFED, COORDPROV, COORDLOC, & COORDINTER Summary

The SRC has considerable contact with a variety of federal and provincial agencies as is described in the following comment:

Ok, well that would be most, well, it would be a couple or more of the federal government departments including several parts of Environment Canada and also Agriculture and Agri Food Canada. Also the provincial government, especially Sask Environment [and SWA], both with climate and water issues and what used to be Sask Institute of Industry and Resources, SIR, and then there are specific private sector companies that have water quality testing and water and climate research done and those companies vary from, quite a few of them are agriculturally oriented, or mining oriented in some cases. (SRC1 Sec. 0, Para. 24 – 26)

The following exchange touches on the variety of committees at the provincial, federal and inter-provincial level the SRC's climate specialists deal with.

I2: Okay. Yes. And there is this federal-provincial committee that we met with yesterday. And I know you guys are really involved in the Canadian Water Resources Association. And are there any more after that...?

R: There are. I don't have them on the top of my head. But one other committee is the, I'm on the advisory committee for the National Assessment of Climate Change. So we have been working with the lead office, for example, to develop communication plans and to facilitate the process of getting our national assessment completed. (SRC Sec. 0, Para. 313 – 323)

THEME 9 SUMMARY FOR SRC

The information is already incorporated within the summary for Theme 3.

THEME 10. SUMMARY FOR SRC

SRC – nothing was posted for SRC under this node SRC – nothing was posted for SRC under this node.

THEME 11 SUMMARY FOR SRC

SRC – nothing was posted for SRC under this node.

THEME 12 SUMMARY FOR SRC

SRC – nothing was posted for SRC under this node.

PRAIRIE PROVINCES WATER BOARD (PPWB) INTERVIEW SUMMARY

THEME 1 SUMMARY FOR PPWB

ROLEWATER Summary

The core responsibility of the board is to ensure that eastward flowing streams which cross from Alberta to Saskatchewan and Saskatchewan to Manitoba are apportioned in accordance with the conditions terms and conditions of a Master Agreement between the federal government and the three prairie provinces. A Schedule on water quality was added to the Master Agreement in 1992 to ensure that water passing from one jurisdiction to another meets certain water quality objectives. Quality parameters are set in conjunction with the Canadian Council of Ministers of the Environment (CCME) and there are protocols for informing downstream users of contamination. There is also a clause within the agreement relating to ground water apportionment for trans-boundary aquifers. Respondent PPWB1 indicated *that is a fairly new area of endeavor but it is one we expect will be growing in the future as demands increase* (PPWB1 Sec. 0, Para. 16 – 32)

Under the Master Agreement essentially 50% of the water which rises as natural flow in Alberta is required to be passed to Saskatchewan. Saskatchewan can use 50% of that water but must pass on 50% of the water to Manitoba (including 50% of the water that originates in Saskatchewan from run off and tributary stream flows). (PPWB1 Sec. 0, Para. 16 – 32) However, exceptions are allowed under Schedules attached to the agreement. Schedule D refers to previous allocations of inter-provincial waters approved by Order in Council. And Section 4, of Schedule A states that Alberta may use 2,100,000 acre feet of water, even if that amount exceeds 50%, as long as a minimum flow of 1,500 cfs is passed from Alberta to Saskatchewan. (PPWB1 Sec. 0, Para. 34 – 64)

The following passage has not been summarized as it provides a succinct overview of aspects of the board's governance and funding structures.

The Prairie Provinces Water Board... is looked upon as a model for managing trans-boundary water issues in Canada and some say even beyond. The concept of a collaborative approach amongst the three Prairie Provinces goes back quite some time but the board itself, with the current parties -- Alberta, Saskatchewan, Manitoba, Environment Canada and PFRA was established in 1969 when the Master Agreement on Apportionment was signed. The secretariat to the board which I am part of is housed within Environment Canada and the board approves a budget each year including salary and... My salary for the time I spend working the board is cost shared by all parties to the agreement. Environment Canada provides 50% of the funding to the board and the three provinces each contribute 1/6th of the cost so the Crowns together contribute 50% the Federal government contributes 50% to the operation functioning of the board. (PPWB1 Sec.0, Para. 16 – 32)

The PPWB also provides a forum for discussion of trans-boundary water issues. Respondent PPWB1 mentioned discussions surrounding plans for the Highgate Dam on the North Saskatchewan, the Meridian Dam on the South Saskatchewan and a proposal to ditch water from Fishing lake to the Assiniboine River system assisted in decision making. (PPWB Sec. 0, Para. 48 – 54)

Operations of the board changed in the 1990s when funding cuts at the provincial and federal levels resulted in the Board ceasing to operate as a standalone organization with its own office and staff. It was physically located with offices of Environment Canada to save on staffing and office space etc. (PPWB1 Sec. 0, Para. 16 – 32)

It is noteworthy that respondent PPWP had significant experience in environmental management related to water issues with both environment Canada and the PFRA prior to going to work with the PPWB (PPWB1 Sec. 0, Para. 8 -12).

COMMNEED Summary

Nothing was posted under this node for PPWB

THEME 2 SUMMARY FOR PPWB

STRESS Summary

Respondent PPWB1 indicated that there have been a number of years since the 1970s where drought conditions required irrigators in Alberta to “give up water rights” for municipal use. However, drought since the 1970s has not caused a reduction of the natural flow into Saskatchewan of less than 50% of the flow that is naturally available (PPWB1 Sec. 0, Para. 151 – 157)

THEME 3 SUMMARY FOR PPWB

No comments were posted under the nodes for this theme

THEME 4 SUMMARY FOR PPWB

DATA COLPRI Summary

Right....it's ...the way they determine that is that they determine what the recorded flow is on a monthly basis and they also determine what the natural flow is. Now the natural flow isthere's aa methodology that's been agreed upon by the Board on how you determine natural flow and what factors are considered and not considered you know for instance of course all of the water that is consumed for irrigation for instance is calculated in the nat...er ..in ...you know it's added to the recorded flow to get the natural flow. You also have a evaporation in you know in that. The South Sask system is very complicated cause

of all the irrigation reservoirs and those kind of things but theyit's complicated in terms of trying to determine how much water is allocated in Alberta from the system and in Saskatchewan because with the irrigation projects is the irrigation districts have a license and sometimes some of that water that's included in that diversion or license is used by municipalities and so you don't want to double count and also it's been agreed that urban areas often will because of the increased run off from the urban area will in the overall scheme will end up putting more water back into the river system than what is actually been consumed because of increased run off. And so it's they've decided that municipal use is not calculated in natural flows because it's sort of in out kind of or out in kind of a process. So I think about maybe 90% or somewhere close to 90% of water consumed in the South Sask Basin and Alberta is for irrigation. But you also have a lot of and I mean thousands of small licenses for domestic purpose you know small industry or that kind of thing and so you know the question that community and hydrology's is addressing right now is whether the criteria or including the small licenses and withdrawals and of course for some domestic use there is no license required for domestic withdrawal so there small and so very it's bit of a practical question is you know because of the margin of error you know that how much effort do you put into trying to get every last drop of water accounted for and it's a big job, it complicated, by the various ways water is licensed and of course with irrigation ??? I referred to earlier the amount used actually is sometimes much less than the licensed amount and so they do have monitoring stations. Environment Canada and it's in clause I believe clause seven of the Master Agreement Environment Canada is responsible for monitoring water quantity and quality for stations that are approved by the Board. And they also obtain water use information from province irrigation districts from municipalities, from industry, whatever in order to do these natural flow calculations. There I think there are seventy eight hydroelectric stations and Environment Canada also maintains seventeen meteorological stations for monitoring of meteorological commissions and there are twelve water quality monitoring stations at the borders.

Polo: and those are run by Environment Canada

Esther: Environment Canada....yea... (PPWB Se. 0, Para. 76 – 106)

THEMES 5 -12 FOR PPWB

There were no postings posted under these themes for the PPWB

FOCUS GROUP COMMENT SUMMARY

Process: A group of twelve employees of federal and provincial government agencies involved in water governance and management in Saskatchewan were assembled for a focus group session moderated by Margot Hurlbert and Polo Diaz in October 2008.

THEME 1 SUMMARY FOR FOCUS GROUP

What is the role of the institution with respect to water and climate and what is the role of the respondent in the institution?

ROLEWATER Summary

The roles of the various participants are included in the interview transcripts but were not coded for summary purposes. The roles of the various agencies are included in the interview summaries and the organizational overviews.

COMMNEED Summary

Respondents were asked if government agencies based in Ottawa and Regina were well placed to assess and meet community needs. One of the respondents indicated that governments had to be responsive to big picture problems but also endeavour to learn about local needs. To that end they have to be learning organizations (Focus1 Sec. 0, Para. 1 -17). One of the respondents turned this argument around, stating that there is a corollary to the notion that governments don't pay close enough attention to local issues – which is that local communities don't pay close enough attention to bigger picture issues (Focus1 Sec. 0, Para. 76).

The relative capacities of the local versus senior levels of government to deal with community needs was mentioned by a respondent who pointed to fact that senior agencies tended to have the lion's share of technical expertise and resources (Focus1 Sec. 0, Para. 78). As one respondent noted, several decades of rural depopulation has reduced the adaptive capacity of local communities and municipal governments. In many circumstance they lack both the human and financial resources to cope with water stress and watershed management (Focus1 Sec. 0, Para. 82 – 84). The respondents agreed that there has been a trend emerging among their different agencies to deal with farm groups as opposed to an earlier emphasis on individual farmers. This was identified as a symptom of depopulation in the farming community (Focus1 Sec. 0, Para. 198 – 110).

Another respondent maintained that water governance agencies had a sufficient regional presence and had been capable of dealing reactively with past climate/water stress. The respondent indicated that there was often reluctance at the community level for taking advice from government representatives attempting to plan or implement mitigation measures prior to a crisis event, but were nonetheless not shy about calling for government help once the crisis arrived. One of the respondent's indicated that there are

contradictions involved when attempting to increase community involvement and input. On the one hand there is the view that we need to further empower local decision makers. On the other hand there is the concern that senior governments are really just downloading costs and responsibilities onto hard pressed local governments (Focus1 Sec. 0, Para. 212).

Another respondent commented on the challenges that confront governments when they are required to respond quickly to emergency events or crises when the tools available are contained in long term programs. The ideal situation is to have programs designed with flexibility in mind.

An additional set of problems arises when there is no anticipatory planning in place to deal with crises. It would appear that little has been done in the way of planning to prepare communities for drought events. And the drinking water safety issue was not dealt with proactively even though officials had been concerned about it prior to the Walkerton and North Battleford events. However, there is at least one exception, the Vanguard flood of July 3, 2000 has prompted some proactive planning.

We were talking for about a year about watershed management before Walkerton hit and then we were talking about it for another year before North Battleford hit. It took those crisis instances to really be the catalyst for some changes and then the changes start to happen slowly over time... We didn't have any case studies that we could point to. Similarly, in context of a drought like 2001- 2002 we can't predict when that is going to happen and there is no long term response program. After the Vanguard flood [July 3, 2000] for example, we prepared reports on our responses. That dividend now is paying off from today with more information coming out to other communities that are looking at the proactiveness as opposed to simply reactive to droughts. So there is a time-lag that governments have to go through, learning as well at the time. (Focus1 Sec. 0, Para. 1 – 17)

Another respondent maintained that the federal and provincial governments do have a drought strategy, in that Crop Insurance and income risk programs attempt to protect farmers from the impact of adverse climate variability. (Focus1 Sec. 0, Para. 52)

Municipal planning and zoning were identified as areas where institutional capacity could be enhanced in efforts to mitigate the impacts of climate variability. This comes echoes concerns expressed by SWA respondents with respect to flooding on Fishing Lake in 2006 and 2007. (Focus1 Sec. 0, Para. 66)

THEME 2 SUMMARY FOR FOCUS GROUP

What past water stress has the institution faced, managed and mediated, and how?

STRESS Summary

Very few comments were posted under this node. This is in part due to overlap between themes. For example, many of the comments provided above under COMMNEED could have also be posted under the STREE heading.

One of the comments provided some insights into unintended consequences when governments attempted to deal with what he/she alluded to as the most critical and perennial climate issue in Saskatchewan – drought. While income support program such as Crop Insurance are available they are not always commensurate to need. The respondent provided an example of a negative unintended consequence when the benefits of drought relief programs designed to assist farmers in buying hay wound up in the pockets of truckers rather than farmers. (Focus1 Sec. 0, Para. 21)

MANAGE Summary

Very few comments were posted under this node. This is in part due to overlap between themes. For example, many of the comments provided above under COMMNEED could have also be posted under the MANAGE heading.

One of the respondents underlined the water stress management issues related to municipal zoning with respect to things such as ensuring adequate water supplies for subdivisions and note locating developments in flood plains. The respondent indicated a similar argument can be made with respect to Crop Insurance. Should we be insuring farmers to grow annual crops in regions that are prone to droughts (Focus1 Sec. 0, Para. 23)?

ORGCLEAR Summary

One of the respondents commented on the possibility that systemic issues and problems have and continue to stand in the way of the development of clearly defined strategies for coping with water stress, although there have nonetheless been positive developments.

The problems that we have experienced in Canada since 2000 with water are not new to us in the industry. In fact I am surprised that it didn't happen sooner. So the question then begs to be asked, why couldn't we have coordinated it to make it preventable to begin with across the country? And why was North Battleford not preventable if the communication is good? Was it a one off? Maybe. But I think there were other systemic issues. Society responds when the province wants to create a new watershed authority. I think that is a good step. There is always room for improvement. But those problems were new and the notion of dealing with watershed management has been talked about since 1992... (Focus1 Sec. 0, Para. 106)

ORGFLEX Summary

The comments posted under ORGFLEX were similar to those reported under ROLEWATER where respondents discussed the need to be flexible in programming and responsive to local/community issues (Focus1 Sec.0, Para. 1 – 17).

THEME 3 SUMMARY FOR

Does this organization plan for water/climate stress and how?

CLIMAVAR Summary

As described earlier, Crop Insurance was used by respondents as an example of how government's currently assist producers in dealing with climate variability. One respondent brought up a concern as to whether it was even government's role to assist producers in managing climate risks at all.

First of all, whose responsibility is it when the rain doesn't fall, I guess it is the government's -- or is that just part of the risks of operating? But there is a sense, there seems to be a sense at least that governments should respond when there is a crisis. A drought would be an example of that maybe. (Focus1 Sec. 0, Para. 21)

CLIMACHANGE Summary

Very few comments were posted under this heading. However, a number of comments relevant to climate change planning were placed under other headings. The comments in this area typically described the dearth of comprehensive climate change planning including a drought plan. One of the Focus Group respondents described some of the difficult questions that would need to be considered when such plans are developed.

Why are we allowing for certain types of agricultural activities in an area that is destined for drought? And then having to deal with the issue after the fact? Why don't we have a big picture approach to this where we say that okay according to our forecasting there is going to be drought in this area so there are restrictions in regards to the activities that go on there? (FOCUS1 Sec. 0, Para. 23)

THEME 4 SUMMARY FOR

What information inputs are used by this institution in its operations and decision making? How are these obtained? How secure are information flows?

There were no relevant comments posted under this node

THEME 5 SUMMARY FOR FOCUS GROUP

What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?

FINRES/NEEDRES/TECHRESOURCES Summary

One of the respondents discussed the need for additional resources to meet community needs. The idea being that over the course of the past couple of decades senior level of government had been pulling personnel out of rural and regional areas. This would include the closing of rural service centres in 2004.

That perception is there have been cut backs by provincial and federal agencies, not just here in Saskatchewan but elsewhere too, in extension staff or regional staff. I think that perception has some validity in that governments are becoming more centralized and we don't have the government people out in the local communities that were formerly there to provide that two-way communication. (Focus1 Sec. 0, Para. 31 – 35) ...

Which is somewhat ironic isn't it? Because people often times complain about the cost of taxes, and if you give the benefit of the doubt to governments trying to economize, the centralization could be an argument for as you say -- economic savings, which are being asked for by the citizens. When the centralization results in the economic saving, the efficiency for the program they are delivering will be connected with those rural communities. A gap now is created. (Focus1 Sec. 0, Para. 31 – 35)

A somewhat opposing view was provided which suggested that regardless of concerns about cutback government agencies were available to rural residents and that the political process allowed for additional recourse in meeting community needs.

I think that most of the government agencies are not bad at responding to this stuff. Most of them have some kind of regional presence between that and the political route, usually enough pressure comes to do something. You can argue whether it is enough or whether it is fast enough but ultimately it is always a political decision. (Focus1 Sec. 0, Para. 25 STAKEISSUES)

THEME 6 SUMMARY FOR FOCUS GROUP

Who are the institution's stakeholders, how do the stakeholders relate to the institution, and how is their input incorporated into the institution's management and decision making?

STAKEISSUES Summary

Participants described problems with feedback mechanisms which were effecting government agency relations with communities. One feature criticized was the increasing reliance on web sites and digital communication as opposed to a rural agency presence. It

was noted that PFRA continues to have some regional offices. However SMA has gone from 50 to 8 or 9 rural offices in the past several years. (Focus1 Sec. 0, Para. 37 – 46).

Note: In January of 200p the SMA announced the reopening of 10 rural service centres which had been closed in 2004.

One respondent commented that community expectations for a safe and secure water supply has become institutionalized in Saskatchewan. This comment suggests that the current situation is rather secure and that institutions are well placed to begin looking at other components of water management such as the relationship between water management and the environment (Focus1 Sec. 0, Para. 50) This degree of optimism and satisfaction with current circumstances was not shared by many other IACC project respondents.

STAKEMEDIAT Summary

Providing greater resources at the community level and recognizing that municipalities were being asked to play a greater role with less resources were important issues impacting the adaptive capacity of rural communities.

I think that in Saskatchewan here at least that capacity of municipal governments needs to be enhanced and I think that is area where more can be done here in developing intuitional capacity.(Focus1 Sec. 0, Para.66)

An encapsulation of the shape of government responses to climate variability on the prairies was provided by one of the respondents. The respondent indicated that policy makers were starting to realize that climate and other crises were something that could always be expected in agriculture. Since the problems were always there, policy makers have decided that whatever help made available fits within frameworks (e.g. The federal-provincial Agriculture Policy Framework) which include principles such as a five year ceiling on total financial assistance.

I think the federal and provincial drought response has become institutionalized in terms of cash payments for crop failures due to droughts for example. There is almost an expectation that new programs will come about and years ago we were trying to figure out ways under the Agricultural Policy Framework to prevent that. How can we get away from the world of so-called bailouts to something that is more sustainable? Where are we not being hit by surprises when we get drought? And I think we quickly learned that we probably can't. That we live in area where there will be repeated crisis in agriculture for example, drought is one of them. BSE is another. Avian flu. It is just one after the other. So instead of saying there will be no money available for bailouts we say we are going to restrict the threshold so the institutional limit which will be this amount of dollars per year over a 5 year period and we will renegotiate the program later with the provinces and try to manage our operations more efficiently. (Focus1 Sec. 0, Para. 52)

A number of participants concurred that in recent years a sense of entitlement had arisen within rural communities to the effect that if a disaster causing an income shortfall occurs senior governments should provide some degree of financial assistance (Focus1 Sec. 0, Para. 54 – 62).

THEME 7 SUMMARY FOR FOCUS GROUP

To whom and how is the agency accountable?

ACCAOUNTAB Summary

Accountability issues have been described previously in relation to municipal zoning issues. There are situations where a municipality authorizes development on a shoreline for example. This leaves an agency such as SWA responsible for dealing with residents complaints about high lake levels that cause flooding or low levels which impact access to lakes by boaters or impact fishing and water quality. (Focus1 Sec. 0, Para. 223)

EVALPROG Summary

One of the respondents suggested that Saskatchewan's performance management review process provides a suitable mechanism for goal setting, evaluation and accountability. That said nothing in the IACC research suggests that those performance measures include developing adaptive capacity for climate change.

One thing I am really impressed with is Saskatchewan's annual performance measurement reports which you can pick up on the internet in terms of what the stated objectives are for your water activities for a given year and the achievements. By each department and also by safe drinking water. They are really good approaches and they are all so publicly disseminated so that people realize that there is an accountability here. (FOCUS1 Sec. 0, Para. 222 – 227 COORDINTER)

THEME 8 SUMMARY FOR FOCUS GROUP

In what networks does this institution operate and how?

COORDFED Summary

A participant representing SMA indicated that there was good federal-provincial agency coordination, especially on environmental programming. The respondent was likely alluding to programs such as Environmental Farm Planning and permanent forage cover programs which are often delivered jointly by SMA and PFRA. (Focus1 Sec. 0, Para. 86 – 92) Respondents did however, comment that there were issues presented by centralization. For example, "and edict may come down from Ottawa" that frustrates the

efforts of both federal and provincial officials attempting to deliver programming on the ground in Saskatchewan. (Focus1 Sec. 0, Para. 102 – 104)

COORDPROV Summary

One respondent commented that the small size³ of the water governance community in Saskatchewan was a factor facilitating good agency coordination within the province. (Focus1 Sec. 0, Para. 94 – 100)

COORDLOC Summary

A participant described how water has traditionally been a locally managed resource and that an outcome of this may be that local decision makers do not always fully appreciate the need to take a larger view. This larger view would be one that appreciates what happens with an issue such as contamination in one community can have effects on others. (FOCUS1 Sec. 0, Para. 76)

One participant noted the conflicting notions of empowerment and downloading. The reduction in the presence of senior government institutions in rural communities reduces the capacity of government to respond effectively.

[When senior government employees are active in the communities] they hear about other things that are going on through these communications and they can pick up on it quickly and address it but now because you have distanced those folks from the local administration you don't have that ongoing communication taking place and before you know it you have got a big problem there. Where as if you would have heard about it earlier you could have dealt with it. (Focus1 Sec. 0, Para. 212)

COORDINTER Summary

One of the big issues coming out of the IACC interviews is the complexity of the water governance system and the accompanying confusion and overlapping responsibilities and activities. It has been suggested that the system should be rationalized, possibly through the creation of one central water management agency – a single desk or one-stop shopping system. One of the Focus Group participants indicated that this sort of centralization may not be necessary.

My opinion is I don't know if it needs to be centralized, if you can coordinate and cooperate. I don't see or know that that has to be centralized into one agency. I don't know if that is a benefit. There is nothing that tells me that that is a better way to go. If you can do appropriate coordination, cooperation why? Why do you need one agency? (FOCUS1 Sec. 0, Para. 222 – 287)

A participant supported this position by providing examples where greater efficiencies can be obtained by allowing more than one agency to have water related responsibilities.

We have looked at this before. I was involved in the provincial safe-drinking water strategy after North Battleford and I don't know. I think everybody agrees with the concept [of Integrated water management] or has some positive thoughts about the concept but when you start to slice and dice it and try to put it all together it doesn't fit very good. I could give you an example, so Health, through the regional health authority public health inspectors, regulates and inspects small public water supplies like your tourist and accommodation type facilities (small campgrounds and so on). There are around 1500 of those small types of operations in the province. These folks had never been regulated as an owner-operator of public water supply before so new regulations had to be developed and delivered. These public health inspectors have other programs where they have need to go to same facility to inspect in any way, why not have them be looking at water as well? (FOCUS1 Sec. 0, Para. 222 – 287)

One of the participants suggested that overall cooperation between government agencies whether inter-provincially or between federal and provincial governments has increased. The respondent suggested that the increase was due to the hollowing out of the state – the tendency for government to “become smaller” over the past few decades. Since governments and agencies were being reduced in size and capacity they endeavoured to work more closely together to share resources. (Focus 1 Sec. 0, Para. 216)

THEMES 9 - 11 SUMMARY FOR FOCUS GROUP

There were no relevant comments posted under this node

THEME 12 SUMMARY FOR FOCUS GROUP

What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

OTHERLIM Summary

Human Resources/succession issues

Focus Group participants were unique among IACC respondents in giving attention to personnel problems related to the retirement of large numbers of baby boomers expected over the next few years. There was a sense expressed that succession planning was inadequate and that the agencies lack a cohort of junior employees capable of filling senior roles and functions. (FOCUS1 Sec. 0, Para. 108 – 144)

Climate Change Awareness

One respondent discussed the lack of climate change awareness among farmers. This phenomenon was reported by respondents from the interviews who noted a lack of awareness and/or concern among rural residents as well as among politicians. The respondent noted the need to be flexible in communications and the need to tailor messages to rural people.

I wonder for example in the area of climate change as we wrestle with new programs how we can provide information that is meaningful to farmers specifically. And this is an example. And I notice in some of the products that we prepare universities are very interested and other government organizations are very interested but I don't have a clear signal as to whether or not the farmers are truly interested in the projects and information that we are developing. So the phenomena I am referring to partly relates, I am not sure that we always have an understanding of what the needs are of those clients. (FOCUS1 Sec.0, Para. 214)

Election Cycles

One of the respondents compared developing climate change awareness to health care where there is a tension between a focus on acute care as opposed to developing wellness. Wellness models require time to develop. The positive impacts lack the immediacy of acute care solutions. Similarly climate change awareness takes time to build and that is something difficult for politicians to get their heads around because their thinking is shorter term – based on election cycles.

But for preventative health programs so you put on some courses and you develop some educational programs and you can show from history over time that this has made change but it is not going to be short term change. Its long term change right. And politicians cant wait 15 years for a program to be proven. So that is a challenge. (FOCUS1 Sec. 0, Para. 286)

APPENDIX 3: IACC FIELD WORK GUIDE - GOVERNANCE ASSESMENT

This appendix contains the fieldwork guide used by the IACC researchers to organize each one of the assessment interviews.

A. PURPOSE AND SCOPE

The Governance Assessment Field Work Guide is an outline of research themes and questions which should be addressed in the semi-structured research interview. ***This is a practical guide, designed to help you with the scope of the interview, and is not designed to be used as a questionnaire – think of it more as a checklist of themes that need to be addressed.*** The goal of the interview is as natural and free-flowing a conversation as possible. How you word particular questions, the order they are asked, and how much depth you go into will vary.

The themes outlined below will allow for the collection of information which will allow the IACC project to assess

- a. The openness of political institutions to identify problems and issues in the civil society
- b. The ability of political institutions to seek solutions to those problems and dealing with issues, and
- c. The capacity of political institutions to implement solutions.

B. SET-UP AND GENERAL BACKGROUND PREPARATION:

Which organizations you will be interviewing, who you will speak to in that organization, and how you approach for an interview needs to be decided by the researchers in collaboration with Unit 1E of the IACC Team. This process will be aided by:

- a. *Water Governance Institutions in the South Saskatchewan River Basin*, prepared by Elena Orrego;
- b. *Summary Report: Database of Environmental Institutions*, prepared by Paula Haygarth and David Gauthier.

In addition, all researchers are expected to have a thorough understanding of the general principles of institutions and water management in the South Saskatchewan River Basin and the rationale for the research of Unit 1E. Familiarity with the following documents is assumed:

- c. *The Case of Canada – Institutions and Water in the South Saskatchewan River Basin*, by Darrell R. Corkal, Bruce Inch and Philip E. Adkins;
- d. *Methodological Framework for the Assessment of Governance Institutions*, by Polo Diaz and Alejandro Rojas
- e. *Water Law in the South Saskatchewan River Basin*, by Margot Hurlbert.

C. PRE-INTERVIEW:

Research the organization – know its mandate and geographic scope, as well as the position of your contact. You should have spent some time with the organization's

website and have acquired good knowledge of its areas of concerns, issues, etc. If there are publicly available documents produced by the organization, be familiar with them. (Bottom Line: be thoroughly prepared before you ask people for their time)

D. THE RESEARCH INTERVIEW AND THEMES

Goal of the Interviews: To understand the role of an organization and its associated decision-making processes with respect to water and climate stress, including identifying factors (beyond the public self-presentation in websites and public documents) which facilitate or hinder adaptation to changing conditions and how they do so (past, present, future).

The points below represent **themes** that should be explored. However, the order in which these are addressed and the language used will vary by interview. Depending on the context, there will be instances where particular topics warrant greater depth than the questions below indicate to meet the goal of the interviews. The interview guide assumes that the interviewer has a high degree of familiarity with the subject matter and comfort with open-ended, loosely structured interview techniques.

The main points (in bold) are general themes. The bulleted lists are points you need to address. It is always preferable to gather the information in an open-ended fashion, and you should resort to specific prompts only if necessary. Think of the questions as questions to you, the researcher – you should be able to answer these based on what you learned in the interview?

- 1. What is the role of the institution with respect to water and climate and what is the role of the respondent within the institution?**
 - What is the role of the institution with respect to water and climate change? What is its area of institutional responsibility or jurisdiction? How do water and weather condition relate to its mandate?
 - What decisions does this organization routinely make with respect to water and climate conditions?
 - Does the organization directly relate to (manage, mediate) the needs of rural communities? What is its relationship to rural communities?
 - What is the position of the respondent in the organization? What decision-making or administrative tasks relative to water and climate does he/she routinely perform?

- 2. What past water stress has this organization faced, managed, and mediated, and how?**
 - In what instances has the institution faced water stress in the past? When? What were the effects of it?
 - Was there an institutional response to water stress? If so, what was the nature of the response? Was this part of the institution's existing mandate at the time?

- In times of crisis, were there unprecedented measures/ad hoc responses which became necessary? How were these implemented? Were new protocols developed?
 - How flexible has the institution been when it comes to responding to water stress? If the past water stress occurred now, how would things be different?
- 3. Does this institution plan for water/climate stress, and how?**
- What type of long-term planning is done w.r.t. water/climate (refer back to routine decisions, past times of stress as needed)? How many years is the planning time frame?
 - How is planning for variability done? What factors are considered? Is there explicit consideration of climate change / long-term scenarios of water availability / moisture deficit / forecasted demand?
 - Are there contingency plans (emergency preparedness or business continuity plans) for particular situations? Are these short, medium, long term? How is the decision made to implement these both procedurally and substantively?
- 4. What information inputs are used by this institution in its operation and decision-making? How are these obtained? How secure are information flows?**
- What data are routinely used (refer back to points made in other parts of the interview)? What level of information is collected by the institution/individual and what data come from secondary sources? How spatially disaggregated is the information used)? Are there non-quantitative data which are used or collected?
 - If primary data is collected, what is the purpose of collecting this information (to monitor, to diagnose, to manage)? Does that data permit the identification of problems? Does the collected information provide the organization with a comprehensive picture of potential problems within its mandate?
 - Is collected data made available to other organizations? To the public? Is this information relevant to rural communities, and if so, is it accessible to them? How do they know about the data collected by the institution, and how is it accessed?
 - Where does the individual/organization get the secondary information he/she needs (agency, contact, informal/formal network of data dissemination)? Are these data public?
 - If your respondent's contact for one of his/her data needs retires, is access to data affected?
 - What data are needed that aren't currently available? What data does the individual/institution have difficulty obtaining?
- 5. What resources does the institution have access to, what are its resource constraints, and how does this affect its activities with respect to managing, mediating, and planning for water-related issues?**
- How is this organization funded? How secure is this funding? What time horizon does funding encompass?

- Does the organization have the necessary financial and technical resources to carry out its activities? How are further resources sought?
- Are there programs and activities which the organization has identified as necessary which are inadequately supported?
- How secure are the financial resources of this institution? Does security of resources match the planning timeframe? What are the consequences of insecure funding for technical and human resources?
- Are there currently particular areas of priority for funding? How were these set? How does the respondent anticipate these will change? In response to what?

6. Who are the institution's stakeholders, how do stakeholders relate to the institution, and how is their input incorporated into the institution's management and decision-making?

- Who are the institution's stakeholders? On what basis does the respondent consider them stakeholders? How do the institution and the stakeholders interface? Is there a formal process for soliciting stakeholder input?
- How accessible are decision-makers / planners within the institution to stakeholders?
- Has the input of stakeholders ever or changed a decision? How are the interests of various stakeholder groups balanced in routine decisions/management activities and times of conflict? Do some stakeholder groups have more influence than others, and why?
- When confronted by a conflict of stakeholders, how does the institution respond? Is the organization sensitive to the various resources available to the different stakeholders? How does access to resources influence/affect significant participation of various stakeholder groups? Is the knowledge base of the different stakeholders considered?
- Does the institution facilitate the process of negotiation of the interests of different stakeholders with respect to particular interests?
- Has the institution's relationship to stakeholders changed over time? How and why?
- Are there areas where the relationship with stakeholders could be better? Why? How?

7. To whom and how is the institution accountable?

- To whom is the institution accountable? What is the process for this (fiscal accountability, progress reports, elections? Against what is this accountability measured (the institution's mandate, public opinion polls, balanced budget...)?
- How are individuals within the institution accountable (performance reviews from superiors, progress reports)? Does final responsibility rest with any one individual/group of individuals?
- Are there established ways to monitor/evaluate the success of particular policies/programs? If yes, to whom are the results of this monitoring/evaluation given?

- What is considered “poor” performance? What are the consequences of this (for the institution, for individuals – decreased funding, less responsibility...)?
 - Have there been changes in the institution in response to poor performance? What happened?
 - Is the institution’s performance public record? How is this information made public?
- 8. In what networks does this institution operate, and how?**
- To which organizations do you give direction? From which organizations do you receive direction? Which organizations work within parameters heavily influenced by your institution? How does this work? Do these organizations influence how these parameters are set? Is there a formal process for this? How does this work?
 - Which organizations/institutions do you co-manage/collaborate/coordinate with? What is the nature of this collaboration/coordination?
- 9. How will things change for this institution as climate/water stress changes?**
- Has this organization’s mandate with reference to water/climate changed over time? If yes, how? What prompted this change? Did the change improve the overall ability of the organization to address a particular problem?
 - Does the respondent anticipate changes in the way things are done in light of predicted warmer temperatures, lower flow in river, higher evapotranspiration (i.e. Sauchyn data)? Is business as usual feasible if drought becomes longer, more frequent? What would have to change for this organization to maintain effectiveness as an organization?
 - Are there anticipated future conflicts which may arise in relation to water and climate change?
 - What are the main problems faced in management of water resources? Does the capacity to solve this problem exist? Is it improving?
 - How does the respondent characterize changes in the pattern of development of the region? How do these changes relate to water management? How will these change as climate changes?
- 10. How does this institution relate to rural community vulnerability?**
- IACC work has identified various concerns raised by stakeholder during in-community work. Does this organization help address these concerns? Is this part of your official mandate? How does the organization become aware of concerns (link to stakeholder discussion)? How does it know the outcome of actions taken?
 - Does this organization promote capacity building and problems solving in rural communities? How does the respondent define community capacity building?
- 11. What legal instruments are relevant to this institutions day to day operation?**
- Which are the main instruments (key policies, plans, regulations) that govern or affect the decision-making within this institution?

- What are the main key issues and concerns with these instruments? Are they adequate and effective in the management of water-related problems? If they are not, what are their main problems?
- How does the current water legislation relate to the ability of this institution to alleviate the problems of communities? How would the respondent improve upon current legislation?
- How does the current environmental legislation affect this institution's ability to adapt to changing water and climate conditions? Does it affect the institution's capacity to respond to the needs of communities? How would the respondent improve this legislation?

12. What other factors facilitate or constrain the institution's ability/capacity to manage water stress/respond to the needs of stakeholders/meet the needs of communities?

- Are there any other factors/compounding stresses that the respondent identifies which are relevant to the overall purpose of this assessment?