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BATTLE RIVER WATERSHED: WATER CULTURE-ASSESSMENT

Battle River Watershed: Water Culture-Assessment

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Executive Summary

The research project was conducted between April 2009 and March 2010 in the Battle River Watershed, which starts south east of Edmonton, Alberta at the Battle Lake and joins the North Saskatchewan River at North Battleford, Saskatchewan. Objectives of this project were to have members of the public ascertain different economic water policy methods and to encourage deliberative democracy within the watershed. Research method included twenty in-depth interviews with knowledgeable members of the Battle River Watershed (BRW), four study group sessions, and a number of on-the-street interviews. Findings include the recognition that there is a significant different level of knowledge between water leaders and the general-public. Many members of the public were satisfied with the water quality in their homes and were unaware of quantity concerns even though the 2009 growing season was the driest since 2002. Knowledge agents were much more aware of water concerns and were divided between demand management and supply management paradigms. Also, it became clear in the research that citizens of the watershed are suffering a sense of consultation fatigue and tokenism in conventional engagement processes. Findings are summarized below:

Findings:

1. Watershed citizens prefer a soft path approach to water management and policies. This approach involves active participation of stakeholders within the decision making process and, always asking if “water is needed for this activity”.
2. Water policy mechanisms that work in one jurisdiction may not work in another. Given this, it would be prudent to design or adjust water management systems for specific ecological and social needs within communities.
3. Most study participants thought education of all citizens in water management and related issues of necessary part of the process. Embedding water issues within the public school curriculum was recommended. Students are open to information and will present it thoughtfully to their parents and extended families.
4. Command and control does not work as there is not enough enforcement and, in general, Canadian cultural norms are to not report infractions.
5. In general, many respondents expressed concern that water markets could out price water putting small operators out of business or hinder new entrants. In addition, there was concern that even with the best precautionary system, water pricing for general human consumption would become a future reality. Few respondents supported the concept of water markets and some people expressed fear.

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6. First in Time, First in Right (FITFIR) was viewed as a system of privilege that required change. Concerns raised included that FITFIR was limiting growth, hindering junior licensees, and could potentially infringe on human consumption.
7. The concept of reverse auctions was of interest and there was an even split between participants who favored utilizing this method and those who favored a grant system for repair and stewardship of essential ecosystems. Compensation needs to reflect actual income losses.
8. Ecological (or Environmental) Goods and Services or *natural capital* was thought of as a good decision making tool. Respondents found it difficult to visualize how an economic system could be applied to daily transactions.
9. Ecological services benefit everyone; thus, everyone needs to pay for these. To cover costs, respondents were divided between a grant system from general tax revenue or a new tax, such as an ecological services initiative. This new tax would be pooled specifically for grants for wetland restoration, nature preserves, and eco-conservation land purchases.
10. (a) All crown lands, provincial, municipal, and federal, should be preserved with Beneficial Management Practices (BMP) and be a showpiece of good water and land stewardship.

(b) Crown lands in ecological sensitive areas, such as the headwaters of the Battle River and Pigeon Lake, need to be preserved permanently.
11. Landowners would appreciate public recognition for what they do right.
12. Eco-labeling was considered a good idea, particularly if producers that follow BMP could brand their products accordingly. To take this a step further, some farmers and ranchers thought that a watershed based BMP stewardship label could be utilized to tap into the 100 Mile diet movement. Respondents commented that prices that better reflected economic input may help improve landowners' stewardship of water.
13. Timeline – People, in general, are slow to accept change. Respondents recommended that programs should be designed that will remain in place for a long time frame, such as twenty years. Minor adaptations to a program are ok, but not outright cancelling a program that is working.
14. (a) There is a certain amount of skepticism that new systems would be an honest attempt to enhance water quality and quantity. Some respondents felt that the process could be just window dressing and expressed a general lack of trust with all consultation processes.

(b) Renewing democratic skills was difficult. The lack of trust and skepticism discouraged participation in public forums.

Introduction - The Battle River Watershed

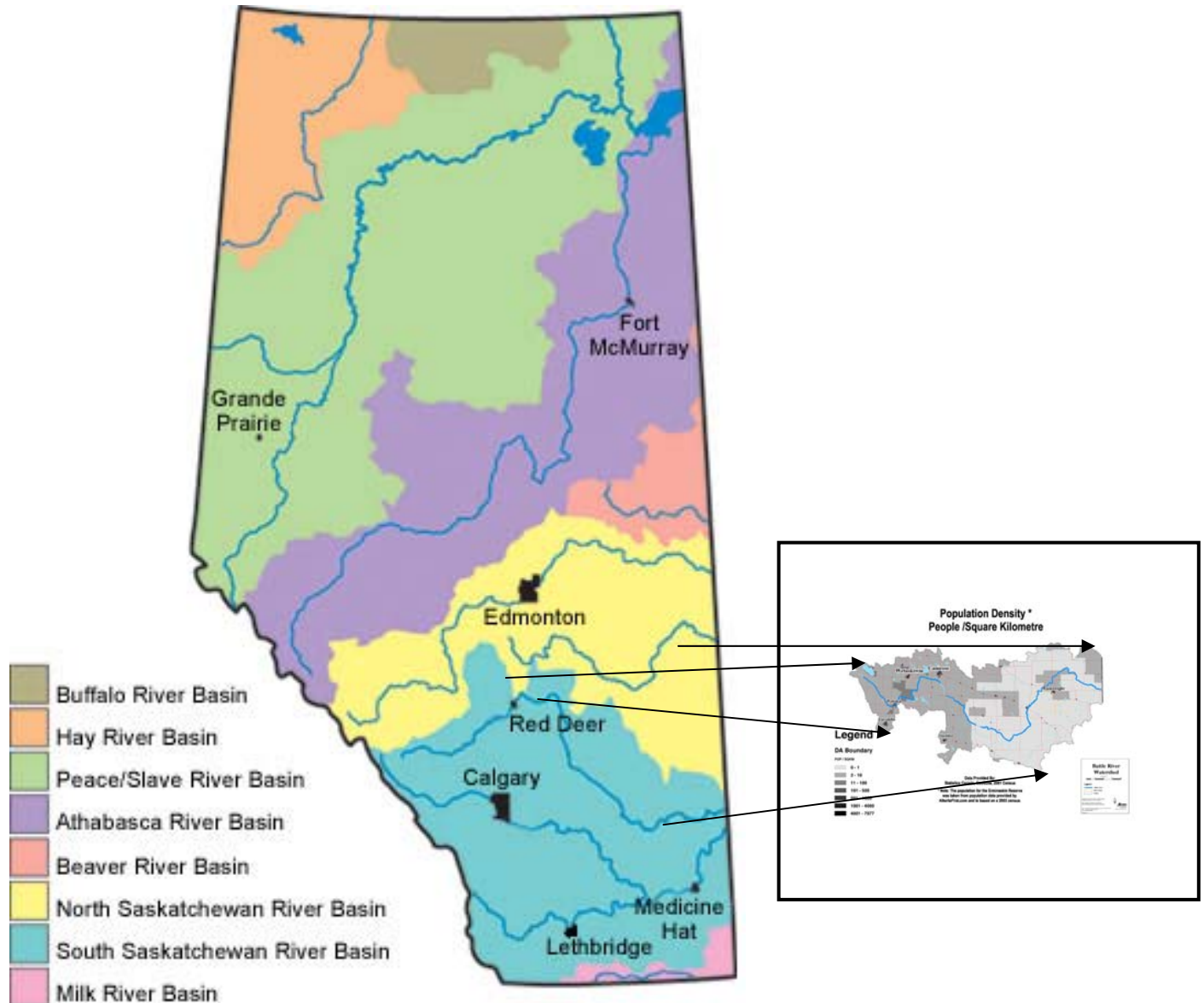
The Battle River Watershed (BRW) is the only prairie run-off river in Alberta and covers over 30,000 square kilometers. All other rivers in Alberta start in the Rocky Mountains. What this means for this river is that flow is directly affected by annual precipitation and will vary according to seasonal run off. Battle River Watershed has had a severe drought since 2000, which has affected in-stream flows. Other concerns include water allocation and use, and municipal and industrial effluents. Industries in the area are; agriculture, traditional oil and gas, coal mining, industrial agriculture (ILO), power generation, and Canadian Forces training Base (CFB) Wainwright. Industrial livestock operations (ILO) are located in the upstream ranges of the river and are viewed as significant contributors of nutrients.

The Battle River joins the North Saskatchewan River at North Battleford, Saskatchewan. Approximately 83% of the river basin is in Alberta. The human population of this area is approximately 111,000. All Alberta rivers are bound by an inter-provincial agreement that requires 50% of the flow to pass on to the next province or territory.

Both the Battle River Watershed Alliance and the North Saskatchewan Watershed Alliance have studied the ecological condition and needs of the watershed. The main ecological concern is the extensively disturbed riparian areas both along the rivers and streams and the multitude of sloughs and ponds which have been drained for agriculture. These disturbances have affected both the quality and quantity of water in the Battle River.¹

Water quality has been an issue in many of the towns within the BRW region because some of the aquifers flow through coal and other materials that influence taste. Due to both quality and quantity concerns within the watershed, the provincial government has funded rural pipelines to bring treated water from better sources. Communities from Edmonton to Killiam receive treated water from the North Saskatchewan River via pipelines. The water is treated at an EPCOR facility in Edmonton. Another pipeline brings water from the Red Deer River; that is treated in Bashaw and distributed to neighbouring communities via pipelines. In addition, another pipeline is being built to send treated water to the County of Paintearth. Residents see piped-in treated water as an improvement in water services.

¹ Until recently the Alberta government provided financial incentives to farmers to drain farmland. Clearing and draining land is still listed as a legitimate expense on federal farm income tax forms.



Map 1 - Alberta, Canada

- This map displays all of the river basins in the province. The Battle River Basin is a sub-basin of the North Saskatchewan River. To the right, you can see the Battle River Basin highlighted. The Battle River flows further east and joins the North Saskatchewan at North Battleford, Saskatchewan.

Map source: Alberta Government and the Battle River Watershed Alliance webpage.

Study Approach

This study was supported by a Walter and Duncan Gordon Foundation, Fresh Water Study Fellowship. The research proposal has been followed closely with the specific desire to access public support for different market based instruments (MBI) and other possible policy solutions to water management issues in the region. Deliberative democratic methods were set out as the primary method for completing this research, but during the research process it became apparent that one-on-one interviews were a more effective tool in this region of Alberta.

My research focused on the governance of water resources within the province of Alberta. The conceptual framework for this research project included common pool resource² theory and deliberative democracy. The objectives of this research were as follows:

- (1) to identify the role of citizen engagement in watershed management organization
And,
- (2) To acquire public input into evaluating market based instruments (MBI) for water resource management in Alberta.

The primary goal of this research is to provide a detailed plan for better civic engagement that can be utilized by government agencies, NGO's, and public educators to improve water management policies and practices within the watershed. At issue with this goal was the discovery during the research process that area citizens were reluctant to participate in public forums. There is some cursory data in regards to this within this report but this topic will be discussed in more detail in a subsequent report. This report will deal most specifically with public perceptions of market-based instruments and alternative policy methods.

This project focused on developing a water policy framework primarily through one-on-one interviews and meeting with established groups within the watershed. The research worked closely with the Battle River Watershed Alliance to identify a public preference for water policy instruments and approaches in the watershed. Tools and processes that are commonly associated with deliberative democracy, study groups and world cafe', were utilized in an attempt to enhance public deliberation and determine public choices between varieties of public policy options. Currently the Government of Alberta has expressed interest in identifying public preferences for various water policy instruments and has set up the Institute of Agriculture, Forestry, and the Environment (IAFE) to evaluate water policy initiatives. These include market-based and non-market based instruments that will have clear implications for Albertans into the future.

²Common pool resources share two characteristics: Subtractibility or rivalrous meaning that once the good is used another person cannot use it. The second characteristic is the inability for exclusivity as it is difficult or impossible to limit other people using the good. Dolšak, Nives & Ostrom, Elinor (2003). *The Commons in the New Millennium*, Cambridge, Massachusetts: The MIT Press, p. 7.

Methods

The methods used in this research include semi-structured one-on-one interviews, study groups, and a world cafe'. To date, twenty interviews have been completed, transcribed, and analyzed. Specific quotes are included in this report. There have been four study groups completed and one world cafe'.

Although this project was based originally on utilizing deliberative democratic tools for research and enhanced public engagement, these tools have been difficult to employ, as it is very hard to get people attend scheduled events. The reasons given for this include: busy schedules, lack of interest, and lack of opportunity to influence water policy development. One outcome of the research is a strong sense that many Albertans have lost interest and more importantly a set of skills to participate meaningfully in public dialogue and democratic debate. A sense of consultation fatigue and tokenism in conventional public engagement processes was also apparent. As an example, some individuals indicated that they had attended government sponsored public consultation meetings that were well attended and even though the public expressed a specific opinion, the provincial government took a different course of action. One individual commented that the final report was written prior to public consultation processes. Thus, the perception of public consultation is that public consultation is "window dressing" or simply an "item on the to do list".

The feeling of not being able to influence the political context of their lives, with the exception of one vote every four or five years, has left many people feeling excluded. The social distance between the political elite and the general-public has caused a sense of frustration, mistrust, and scepticism.

Upon discovering the difficulty in having people come to events, research was altered slightly to work with already existing groups within the region. To date four study groups have been completed in this way. More time in the BRW area would provide greater opportunity to develop relationships as the need to develop trust is paramount.

Interviews were conducted primarily with knowledge leaders, although a few were with local business people. The term knowledge leader refers to people with specific personal or professional interest in water management. Thus, knowledge leaders come from a wide spectrum of backgrounds including retired citizens, members of NGOs, municipal employees, and elected officials. Twenty interviews were completed reaching informational saturation. Many of the respondents were well educated and well informed about topics such as in-stream flow needs and water conservation. Some respondents were well informed about terms such as Market-based Instruments (MBI's) and Ecological Goods and Services (EG & S) and some were unfamiliar with these concepts.

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It was not difficult to find people willing to talk about water needs; the only issue was the frequently expressed concern when asked to sign a letter of consent. Verbal consent to be interviewed and taped was quickly volunteered, but a number of times, respondents raised concern that their name might be associated to their remarks and they feared reprisals if that occurred. Two individuals refused to sign consent forms, although they were still extremely happy to share their views. This same fear was expressed by respondents contacted to participate in the World Cafe'. In particular one respondent left a lengthy message on the researcher's voice mail expressing interest in being interviewed, but adamant that he would not participate in a public event.

The World Cafe' was set up for the end of April, 2010 specifically upon the recommendation from local informants who believed this time frame would be the most advantageous to garnering public participation. Agricultural activities would not yet have started, and winter holiday travellers would have returned. One hundred and twenty letters of invitation were mailed out to randomly selected participants explaining the event and offering a gas card. In addition, twenty open invitations were sent to members of the Battle River Watershed Alliance board of directors, public administration offices, and established local groups. All participants were contacted by phone and either spoken to directly or a reminder message left on voice mail. Of those invited, only six people showed up for the World Cafe', four of whom had not been previously interviewed. One of the new respondents indicated that he would not attend a public forum for fear of reprisal if he voiced his opinions. He agreed to attend after speaking to me, and being assured that anonymity would be maintained.

The low turnout at the World Cafe' was similar to that of the initial study groups. The first study group was planned as a student forum at the Augustana Campus of University of Alberta. Posters were placed around the campus, five student volunteers announced the event during class, pizza and refreshments were supplied, and students in the hall were asked to attend. The only people who attended were four of the five student volunteers. Of interest, as well, is that Augustana Campus is well known as promoting *green* methods and classes, and the 2009-2010 school year theme is *the year of Dissent*³ that emphasized the importance of the public-including students- to voice opinions and concerns. There had been a number of events and speakers already at campus related to this topic. After the low turnout the study group strategy was changed to having the researcher attend already existing groups within the community. This provided an audience, but the pre-established relationships discouraged some people from speaking.

Respondents sometimes related anecdotes of similar experiences. One individual mentioned attending a local public forum and being the only participant. Another respondent discussed how a local small group was attempting to generate political renewal and found that

³ See Augustana Campus webpage for more information. <http://www.augustana.ualberta.ca/theme/>

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the initial meeting generated about four hundred participants, the second about fifty or sixty, and the third, about twenty or thirty.

The lack of trust and expressed scepticism with Alberta government programs is a severe concern, as it places a very high barrier for policy initiatives. Overcoming public fear, mistrust, and scepticism will be the first and main issue to be contended with regardless of policy instrument selected.

Findings

A number of important pieces of information were revealed from this research. This section will go into detail in regards to each of the findings and if appropriate, provide examples. No reference will be made to specific individuals. All comments will be in an aggregated form, and all names have been changed to a pseudonym.

One respondent described water related issues in the Battle River Watershed in this manner:

Well like the biggest; the biggest issue is probably quantity. Ultimately and inevitably, from what I remember of river flow is climate change. We do not get the amount of snow in the headwaters of this river even close to what we used to get in rain. It's not only anecdotal. I mean, that's been demonstrated, right? The flow is the issue, right? [Yeah.] The quality and there's quality issues as well. But like, we used to swim in the river as well as kids, right? Well I mean, there's no way I'd ever go in there now. But I mean, it used to flood every spring or not every spring, but very regularly well.

This respondent has concerns over **both the quality and the quantity of water** in the Battle River, but also expresses his sense of loss that the fun activity of being able to swim in the river is now not possible. This sense of loss, or solastalgia⁴—the “distress caused by environmental change” (Albrecht, 2007), was expressed many times even in casual conversations within the watershed. The respondent then goes on to explain his thoughts of why the runoff levels have changed within the BRW:

And so that is a um to simply whatever you make if you want to call climate change. But the fact that we do not have near the snowfall and, and uh, and, and year-long trickle down effects of through different coulees and that uh, right were the uh, whatever cattle operations are, they're way bigger. There's way more cows, but they're concentrated now into more of the way marginal land which is way next to the, only the river and associated coulees. And those operations have an effect; have probably more of a drastic

⁴ Albrecht, Glenn, et al (2007) “Solastalgia: the distress caused by environmental change.” *Australasian Psychiatry*, 15 (1), p. S95.

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impact you know, of mineral runoff and also denuding vegetation in coulees and that normally hold back water and trickle it down for later use in the summer. Like I think I'm noticing that, right? Like that is in certain what I call sub watersheds that happens.

The respondent noted the **increase of cattle on the land negatively influenced** the ability of nature to control and clean water before entering the river. In addition, he noted that although zero tillage is applauded for reducing carbon into the atmosphere his experience is that it actually reduces the amount of run-off.

Uh, so those are agriculture itself, probably even the movement to minimum tillage or zero tillage is probably being a detriment to the uh, to your, to river flow. Because we have huge; last year, we had quite a snow pack or quite amount of snow. There was zero runoff. [Really?] Or on the unseeded fields, zero runoff. Complete filtration of the water. So that when it melted because of the direct seeded ability of when it warms up, the water doesn't all run off in sheets like we used to when we used to have lots of summer fallow and all kinds of tillage. So, I think those things have not been accounted for, and have; and no one wants to admit either because that's a, a beneficial management practice in itself.

The respondent also notes the **need for more research** about the ultimate effect of zero tillage as well as the difficulty of experts to accept that maybe the recommendations that have been made are wrong.

This respondent goes on to explain how even **marginal land has been cultivated** as commodity prices are low **forcing the hand of farmers to meet their financial costs** by further draining of riparian areas. He uses the term "bank account" to refer to the very best river bottom land that he feels should be kept like a savings account and used just for emergencies.

I would say in the last, in the last three years, I would say half the marginal land in this country has been converted back into crop rotation. Just kind of economically not feasible. And, most of this land, even if it's marginal, to us is still way better than most of the land that's cultivated in the province. . . So therefore, some farmers I know used to hold all their cattle, all of their – they owned some land here, all of the river bottom stuff has been drained. And uh and uh and I mean, worked up. And it's happening all along the river. And, maybe some ways it's good. The disappearance of cattle might be good. If there was sort of any buffers left after anything, but they're working right up until edge. You know, they're logging to 20 feet or whatever

Yeah. And, like so, so there's kind of different issues at work. And there are pluses and minuses, I haven't quite figured out whether the disappearance of cattle from the – from this area, what the long term effect positively will be on, on water because we've – it used to be kind of chewed off grass in a, in a lot of those areas. But now, it's going to be cropland, right, that's direct seeded. At least they're not working it. But there is

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associated fertilizer events [and chemicals too] I think yeah to some degree. It's not a, a big deal – the, the herbicide issue. Um

Yeah, yeah. We're still applying lots of herbicide, right? But I doubt that makes; is the biggest issue. So it's a; and we've done water tests forever and you always get a big spike in herbicide detection immediately following a city storm drain runoff, right? [Yeah.] Cause of all the herbicides that they're using inside cities. Much of, a bigger, a bigger problem of surface water [yeah] here than it is the agricultural stuff.

Urban dwellers have a much **more impact on water quality** with the use of herbicides than farmers. Thus, the social norm of having an aesthetically pleasing green, weed-free lawn can be measured in the river both in water quality and quantity.

It's more of just the total nitrogen than phosphorus and it comes from, well, I mean, there, there's always a risk with uh the amount fertilizer guys used. You get a big flood of the river valley all that stuff is going to “chuck” up. [Oh yeah, yeah.] Yeah. Or a bunch of it, so is, is definitely gone. But the biggest thing is there is just not enough water flowing through this river. A huge amount of the problems would be solved simply by flow. It would! Like it's all of the issues. If you have lots of water, the quality's going to improve. It's just deluted; it's deluted out. I don't know if that's meaning more total tonnage of manure or waste or whatever dumped into this, into that river now mid to late '70's. I really wonder. There's a lot more people living along here. But, the actual total amount – I wonder how much difference just when you'd look at the, the uh, the dilution factor, I don't know.

In the early days, the scientific solution to pollution was dilution, but now this idea is considered one of the **worst ideas that has contributed** to poor development decisions that have lead to many long-term problems. But, as was also noted;

*See pharmaceuticals... see that issue wasn't even an issue before. The pharmaceuticals in the river... when you've got... the solutions to pollution's dilution... but when you don't have dilution and you've got pharmaceuticals going down the toilet... (laughs) well, I didn't really say this, right... maybe there's a reason some of my cows don't come and calf... maybe there's too much birth control in the river system (laughs).
Pharmaceuticals... we actually, we have a pasture by the river. We have it fenced. And over the years, long before I started with this, there's always conversations at the auction marts. Just guys sitting around, it's kind of interesting... one guy says to me, we got talking, and I said “Well I got that fenced”. He says maybe that's good, do you want your cattle drinking out of the river? I never thought of it that way. You don't know what's in there, do you?*

Pharmaceuticals are known to be a significant pollutant downstream from all cities, but the solution to this problem via traditional municipal sewage treatment appears to not have

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an easy solution. Alternatively, scientists have discovered that riparian plants such as cattails and willow do a very good job in removing pharmaceuticals and other pollutants from water.

In addition, the proposed **Sherritt Dodd Round Hill Coal** gasification plant and the related public consultation process is **discussed from the view of the farmer who** will have to live with this development during and long after the plant is gone. The following respondent explains his thoughts over how Sherritt Dodd's expert opinion of mitigating problems associated with draining the aquifer and the resulting dry water wells. The following comments show how the scientific expert from outside does not have the local knowledge that is necessary to make adequate recommendations. In addition, this respondent expresses his concerns of lack of foresight in the planning process. Once more, better listening to the local knowledge in the consultation process could help in the mitigation and reclamation. Although, aboriginal knowledge is now making inroads into the decision-making process of developments, local knowledge is not. This fact is important to think about. Who knows the land better than the people who live on it?

They haven't thought about it. It's easy to say well we'll supply. We'll haul, we'll haul in water. We need water, we'll haul in water. You know, but wintertime, you know, we run into problems with those things. How do you water cattle in the winter from a tanker truck? So uh [yeah] that whole water issue was; it was really just kind of brushed aside. [Yeah.] And I, if, if this project proceeds, I mean there will be; it will definitely go to public hearings. ...that was all going to go. [Yeah.] Like that whole; everything was going. [Yeah.] They go right through. Nothing, nothing stays behind. [Yeah.] So uh even things like wetlands and natural areas, all those things were going to go. Now if there are issues with coal mines, there's, there's always wetlands left behind. And there is cause there's always the, when they take out the coal, there's always going to be low spots [yeah] that was % always low spots you know? So they; they were going to build natural or, or artificial wetlands back in. And I, I don't think we've got the technology for that...

This comment shows **scepticism of the science** and the process around public decision-making. Knowledgeable members of Battle River Watershed are well informed about water problems. They also have concerns about other provincial government plans including the **Stewardship Act and the need to define what stewardship actually** means.

I think like a province's mandate has to be clearly laid out. And, that's why in our conversation we better be having a discussion about what is stewardship as we develop a Stewardship Act. You know uh I can take you out and show you producers who say that stewardship is maximizing production on wetland. That means get rid of every slough, fertilizing, doing everything – the next person well say, oh, stewardship is retaining completely naturalized conditions all their life. Well they, they both think they're right.

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As well as the provincial **government's mindset for corporate fiduciary responsibilities:**

But the province isn't ready for those questions I think. The province just says this is what we're doing and it sells well, but I don't think the people understand. But at least it sounds like we're doing something, I think.

Many of the respondents were well versed in the social and technical needs within the BRW. Respondents spoke freely in interviews expressing deep thoughts and at times referring to the importance of their remarks not “getting out” to the general public or back to certain people. Thus, I believe that the following results do represent the true beliefs of the respondents.

Soft Path

Watershed citizens prefer a soft path approach to water management and policies. This approach involves active participation of stakeholders within the decision making process and, always asking if “water is needed for this activity”.

Most respondents showed interest in developing a soft path approach to water issues, although only one individual expressed previous knowledge of this ideological perspective. Even individuals who were primarily supply oriented in their water resources management strategy showed interest in learning more. Being left out of the political decision making process was frequently elicited, and individuals thought that including citizens in all portions of the decision making process to be vital. Provincial stakeholder sessions were seen as a form of promotion for already made decisions. As one individual said: “It was like they had this list and they got to the public consultation portion. They stood up there and spoke, we listened, and then they checked that off.”

The soft path approach emphasis asking the question, “How else do we do this without the use of water?” (Brandes and Brooks, 2005)⁵. Respondents who supported the concepts of the soft path approach expressed their concerns in a number of ways. The following is an example:

I have a big problem with economic-based incentives, because I think that is our problem. .we always look at the economics of things. If we were the kind of society that said, “I want the river to be pristine, I want to have agriculture, I want to have mining and everything – but the main goal is to keep the river pristine. Instead of saying, “we're going to do the other things and then we'll worry about the river later.

⁵ Oliver M. Brandes and David B. Brooks. “The Soft Path for Water in a Nutshell.” A joint publication of Friends of the Earth Canada, Ottawa, ON, and the POLIS Project on Ecological Governance, University of Victoria, Victoria, BC . November 2005, Reprinted with minor revisions (May 2006)

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Policy development is a multi layered process that includes: fact finding, local and expert analysis, problem solving, analysis, policy development, legislation, program development, and system delivery. Each of these steps would benefit by taking public input as a serious contribution.

To me the beginning parts of that are very gentle. . .we're going to work with people. Because without having public input they're always gonna be open to criticism that they have made the decision based on lobbying behind the scenes and so on.

Designer Policy

Water policy mechanisms that work in one jurisdiction may not work in another. Given this, it would be prudent to design or adjust water management systems for specific ecological and social needs within communities.

Some respondents felt that it was important to be more adaptive to community needs when developing policy programs. People commented that some communities have differing cultural norms than others, and, as such, need to have programs tweaked to meet local needs. Ecological integrity was viewed as imperative as humans depend on water for life.

One problem is that the government limits the possibilities. There is a belief that the entire province needs the same policy. I think that is stupid. Different areas should and can have different policy. Part based on geography and part is the social – the people.

Program introduction should be made through existing channels, such as the municipal agriculture agent. Establishing good working relation with farmers and ranchers is necessary. Also, assistants should be available to help individuals with understanding programs and completing forms. Forms for programs need to be easy to complete.

Education

Most study participants thought education of all citizens in water management and related issues of necessary part of the process. Embedding water issues within the public school curriculum was recommended. Students are open to information and will present it thoughtfully to their parents and extended families.

Public education for all ages was viewed as important.

“I think the biggest thing is for people to get the facts, and there's a lot of misunderstandings out there.”

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One young respondent thought that the reason education is mentioned is because it is a frequently cited action plan. The deeper part of this proposal for education was that elementary, junior high, and senior high curriculum needs to prioritize local water education. It was noted that although water resources are part of the curriculum, how and what is taught is inconsistent. Local needs and resources are often ignored for a more global; far away perspective, which is inadequate in conveying the imperative of concern. A teacher explained that most school aged children do not know where their water comes from or goes. It just comes from the tap. If reducing municipal water consumption is truly as important as we are told, then this piece of information is troublesome.

Curriculum recommendations included not just local water needs, but also ecological information such as the importance of riparian areas. A quick internet evaluation of readily available information shows a plethora of educational resources from both private organizations and provincial and federal bodies. Materials have been developed for all school age groupings.

Education enthusiast felt that the program needed to start at a young age and build to more detailed scientific information at higher grades. Grade 5 and 6 was thought to be a great age group to start community field trips and basic water evaluation experiments. Public school education was thought an excellent method of providing information as students will go home and teach parents and the extended family.

Even in grade 6 here in the city, we had an excellent teacher. . .he had our class do the Alberta hunter training. And the boys built a canoe, we had fundraisers to buy a bus for the school, and we went. So yeah he was really into teaching us about the outdoors and enjoying the wilderness. . .and the whole thing, so yeah. . .it's been part of my life."

This quote comments on both education and on the previously mentioned idea of solastalgia or a sense of place. There is a great body of literature about the human desire or need to feel a sense of place, or attachment to a geographic location that has sentimental or historical memories attached (Stedman, 2002)⁶. Developing a relationship to the outdoors typically last a lifetime and educators as well as family can play a role in developing these relationships.

It was noted by some respondents that one group that truly needs to be educated is the politicians at all levels. Many politicians as seen as "dinosaurs" working from "old scripts."

Command and Control

Command and control does not work as there is not enough enforcement and, in general, Canadian cultural norms are to not report infractions.

⁶ Stedman, Richard C., 2002. "Toward a Social Psychology of Place: Predicting Behavior from Place Based Cognitions, Attitudes, and Identity". Environment and Behavior, Vol. 34 No. 5, September 2002 561-581

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“Well there are rules out right now but they’re not being enforced.”

The present regulatory system that is referred to as command and control, in-which each level of government has regulatory power over certain activities or resources, has become a difficult and intricate collage of rules, regulations, and laws. There is overlap between levels of government and/or departments. Laws in regards to land, which can significantly influence the integrity of water, are primarily held at the municipal level. Water is primarily controlled by the province and navigable waters by the federal government.

Small budgetary allotments, from all levels of government, restrict investigation and enforcement procedures that are necessary. Poor public awareness of laws and regulations is partnered with lack of enforcement. Regulatory levels within government are complicated by jurisdictional issues and, at time, strained federal-provincial relations regarding resource control. In addition to this disparity of relationship, is the *thin sectioning*⁷, or the fine slicing, of responsibilities between different departments that creates uncertainty within bureaucratic staff and concern of over stepping boundaries.

Some respondents feared that almost any action they took would be breaking a law or regulation. Intentionally breaking rules was reported, but most people indicated that they would not knowingly do so. The reason given for breaking regulations was a misunderstanding of the reason for the rules, and also, the belief that “this is how we have always done this.”

Although individual citizens can initiate complaints and investigation there are social and political reasons that inhibit this process. As noted earlier in this document, respondents fear reprisal, and this would be true as well if neighbours suspected a fellow neighbour reporting infractions.

Water Markets

In general, many respondents expressed concern that water markets could out price water putting small operators out of business or hinder new entrants. In addition, there was concern that even with the best precautionary system, water pricing for general human consumption would become a future reality. Few respondents supported the concept of water markets and some people expressed fear.

Water markets were the least supported MBI method. Although respondents felt that water was underpriced and industry needed to pay the true value for its use, water markets were not seen as the solution. A number of respondents indicated that it has been the markets and capitalism that has got “us” into the economic and ecological mess that we are in today. Why add more fuel to the fire? Examples of comments are as follows:

⁷ The term thin section comes from the field of geology and refers to a very thin slice of rock that is prepared for examination under a microscope. It is approximately .03 mm thick. (Oxford Dictionary of English, 2nd edition, 2003).

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Sometimes efficiency is part of the problem.

It was pure economics which got us into the economic mess we're in now.

One well-informed respondent pointed out that it has been *the market* that has pushed farming out of reach for new entrants. He feared that developing a water market would aggravate the problem rather than help. He also pointed towards Australia's water markets and indicated that their water is now in the hands of "cotton producers and grapes growers for the wine making industry". Thinking further on this topic, he noted, "I can compete for water with another farmer, but I cannot compete with the Municipality of Camrose. Then, of course, the City of Camrose cannot compete with a multi-national such as Nielson's Brothers. Thus, there are three levels of buyers within a water market." He queried, "How would a young person ever be able to get into the market to make a living?"

Less informed respondents did not support water markets either. They felt that industrial users needed to be more responsible with the water that they used. A government controlled pricing system at the municipal or federal level was thought to be the most suitable plan. The deeper issue appeared to be concern for water being available and affordable for human consumption. Some respondents pointed to the 2002 situation when ATCO used their senior rights position to override the town of Wetaskiwin for water⁸. This enraged citizens - that a corporation could have rights over human water consumption needs - adding more fear.

"You could end up with certain people having ownership over water and not willing to share it-which could certainly limit residential-commercial development in areas."

In a concluding thought:

"Well I sort of think that you're looking at a market, so... what can the user afford to pay for the market value of the product when I've had it for free all my life?"

First in Time, First in Right (FITFIR)

First in Time, First in Right (FITFIR) was viewed as a system of privilege that required change. Concerns raised included that FITFIR was limiting growth, hindering junior licensees, and could potentially infringe on human consumption.

As mentioned in the previous section, concern over the senior rights were brought to public attention in 2002 when ATCO's call of seniority (FITFIR) over the town of Wetaskiwin's water license. Given this, public concern has raised the need to change the priority system. Other concerns raised about FITFIR included the limiting growth as a few senior rights holders can either hold onto their rights or price them out of reach of new businesses. This can also cause the accumulation of rights in the hands of a few wealthy individuals or corporations.

⁸ I received this information in several interviews, but I was unable to confirm this by on-line investigation.

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One respondent was concerned for future generations and young people who wish to start a business. It is well understood that senior rights can take all of their licensed water before junior rights can have any water. In times of drought, this could cause a junior rights holder to lose their business. The well-informed respondents were aware of these issues with the FITFIR system, thus recommended that the grandfather system be cancelled and a more adaptable, currently relevant system be brought in to force.

Yeah, well... let's put it this way: the human need is always gonna be a priority. It don't matter what the paper says. The human need is gonna be priority, we know that. I think they (government) do have to manage some of this.. like this "first in time, first in rights" permits. Like our system here I thought they were going through it. And what's old and what's not used what's violated and take it back.

Reverse Auction

The concept of reverse auctions was of interest and there was an even split between participants who favored utilizing this method and those who favored a grant system for repair and stewardship of essential ecosystems. Compensation needs to reflect actual income losses.

The MBI referred to as reverse auction was of interest to many of the respondents, although there was a roughly even split of support for reverse auctions and a system of grants. Key question respondents asked was where was the money for this type of program going to come from? All members of society benefit from saving or re-establishing riparian areas and nature conservation areas. Thus, all society needs to contribute to this. The question then arises should the funds come from taxpayers, local or national; a levy; a specific eco tax; or an international fund? How should funds be distributed so that they are fair and equitable?

One study group noted that a reverse auction could pit one farmer against the next. *"We are going to pit farmer against farmer and the lowest bid will win."* Another individual was concerned about the appearance of political favouritism, whether it was true or not.

Who chooses who gets the money? I live in a political world, who chooses that? Perception is reality . . .if two neighbours, side by side, how do they choose which one gets it and which one doesn't?

In one study group the discussion of funding was determined as:

"It has to be as much or more than I earn now."

A number of respondents recommended adjusting compensation amounts according to

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specific communities and not an amount across the board. One study group recommended that economic markers such as acreage rental fees or tax based assessed values be used to determine a closer to true value than simply basing on crop values or time.

Ecological Goods and Services

Ecological (or Environmental) Goods and Services or natural capital was thought of as a good decision making tool. Respondents found it difficult to visualize how an economic system could be applied to daily transactions.

Respondents found this an intriguing method for decision making, especially within the context of developments, but could not imagine how this system could be made workable within the capitalist system. In addition, most people thought that there needed to be a catchier or easier to understand name for this strategy. Natural Capital was considered an easier name, but not necessarily a name that conveyed the meaning.

Oh gosh! I remember being in Econ; we were talking about this. [Oh really?] Yeah! Yeah! [Laughs] So it's like taken us 40 years to get this far I guess. Um yeah. I, I guess the thing is who determines the value and who pays eh? [Okay.] You know? Like that's, yeah. And, I mean, I, yeah, you know, I could have been reading the last little while about our boreal forest and how important our boreal forest is in; you know, we're really critical of them all cutting down the Amazon jungles. But, we're busy cutting down our boreal forest and are we not doing almost as much damage as they are, you know? [Yeah.] An, so, one of the big destroyers of our boreal forest is the tar sands. I mean, that's all our boreal forest. And, plus the wetlands. Plus, the peat and the carbon that's released during the mining process. [M-hm.] You know, the, the peat's that turned over, the carbon that goes into the atmosphere. Those things have never been considered at one time. And, so, but I mean, in; like I say, who, who, who determines what that value is and then who pays? Because I mean, our provincial government, our federal government is very clear that they're not going to let our economy be ambushed by the fact that – by environmental concerns. You know, he (Prime Minister Harper) says we're not going to decrease our economic uh livelihood any way, you know? An, I mean, the provincial government says the same thing. So we're not going to, not going to take an economic risk in this province because – because we're big producers of carbon, you know, so it's I don't know. I mean, sooner or later, somebody's got to take some responsibility, right?

As for the terminology of EG&S, many respondents found this to be a confusing concept. “Pretty wordy, yeah, but yeah. Yeah, I thought it could be shortened a lot” In addition, respondents felt confusion was also contributed to the different words used for the same idea, such as ecological goods and services, natural capital, and environmental goods and services.

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You need consensus in the groups at what term you are going to use. . .it's talked in a very convoluted discussion about what it actually means. (after reading the I AFE information sheet.) So I think that there needs to be some work put in behind, actually clearly defining it in a one-sentence. . .it's like your elevator speech. . .define exactly what you do in thirty seconds.

In addition to developing a “catchier name” and an easier method of describing, it was thought that a social marketing program needed to be involved.

I think you need a good marketing tool to get it caught, and I think that the terminology is too much of a mouthful and people don't really understand it.

And that the term environmental has developed a negative connotation.

. . .but environmental has the connotation of environmentalism and that kind of thing. And I think environmental has been overused to the point where some people are mocking it now.

In conclusion,

I think in my imagination I think you must have then an education program to go through and explain that to people and to get them on board and to help them fill out the forms.

In general **Market Based Instruments** received a mixed review. On the pro side for MBI's, a respondent concluded;

And that's where I think the institute and their work with market based instruments is, is a good way to go. I mean, it's in a way, well kind of philosophically, it's too bad that we have to well pay people to do the right thing but. .

In contrast, another respondent stated his concerns over the entire process and the IAFE.

I don't know. Market based you know, we have to start talking about environmental issues. . . like I said, there has to be a recognition that this has to be...there has to be some sort of a public contribution to these sorts of [yeah] and uh where it's going to come from? I think it probably has to come out of tax dollars. A lot of the stuff, you know? Because uh, I don't; I don't know how this would do that. I don't know how you know? Like, I said, markets keep doing the opposite. It's just – they tend to encourage you to use resources and encourage the most efficient use of resources. Sometimes efficiency is part of the problem. You know? Like if we gave it all up to, up to pure economics, um. I think that, that's maybe got us maybe into some of the situations that we're in. This, this, you know? [chuckles]

And he (Premier Stelmach) talks about all kind of stuff, but I; I don't see any action by the government, you know? But you know, so they; I still don't think that these things are

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most; I, I don't want to be sceptical but it's almost like this is something that we're doing so we can focus on and the government can say you know, we are doing things

Skepticism was a common response as well as the recognition that the sense of community has been lost as rural communities and agriculture has been drawn into globalization. The growth of the size of farms as well as the input costs for agriculture has placed more emphasis on money than on stewardship.

I'm not sure (about MBI). Because what I'm seeing right now... just as you leave the town of Daysland there used to be a little slough with lots of wildlife and birds and stuff... it's gone now. He's absolutely brought in enough soil and stuff... I keep thinking "God'll get ya", twenty years it's gonna rain and all your work went for naught, because God does repair that stuff. I've watched it over the years... trees? We're gonna cut them down, and we're using huge equipment. But the huge equipment, if you could put a tax on it- you're talking about what should you do with water, I think you've gotta do with what we're doing in farming that would encourage us to do water... I don't think its money. I honest to God don't think it's a money thing. I think it's more of a community value, of what is our land to us? Are we good stewards to this land? My board built this building and they said, "We want you to be good stewards." So, I could give you a key to this building and say, "You take good care of it, I'm just the steward, I don't own this building.". Are we good stewards to our land? I don't know, I have to tell you: probably not. I mean Jean (pseudonym) and can talk about in the olden days lots of trees... so when the wind blew it was never... we're almost like Lethbridge often now, because we'd have the odd windy day, and my name is ___ so I'm very cognizant of windy... we had the odd windy day, but now we'll have day after day, like Lethbridge. And you think: have we done something with the trees being gone? Is that another problem for our poor little water? Is it another problem? I don't know. But I do know this: we're in trouble.

Eco Tax

Ecological services benefit everyone; thus, everyone needs to pay for these. To cover costs, respondents were divided between a grant system from general tax revenue or a new tax, such as an ecological services initiative. This new tax would be pooled specifically for grants for wetland restoration, nature preserves, and eco-conservation land purchases.

Many examples can be put forth to justify an eco-tax. Some existing examples are the recycling fees attached to consumer goods such as vehicle tires and electronics. There has been much talk about a carbon tax and it could be possible to attach a fee to a product based on a water use factor.

Crown Lands – Beneficial Management Practices

(a) All crown lands, provincial, municipal, and federal, should be preserved with Beneficial Management Practices (BMP) and be a showpiece of good water and land stewardship.

Crown lands are those that are set aside as provincial, municipal, or federal lands. These lands are expected to be utilized in the best interest of the people. It was suggested that crown lands should be an example of beneficial management practices. Presently that is not the case for provincial lands. There are specific standards in crown land leases and additional rules could be added that would show land and water stewardship as a priority.

So you know, there is crown land protection that is an option that is politically, nobody will touch. But probably needs to be; is that there are certain spots. But then who is the custodian of those lands? The Alberta government sure isn't, can't be because some of the worst riparian areas in our Country are uh, are the cattle grazing places. There are two or three of them right at the head waters of Dried Meat Lake. They're some of the most damaged places around. Their range specialist has not been to visit those sites in four years. So obviously, the province under sustainable resource development can't be trusted with those.

Canadian Forces Base Wainwright, which is federal crown land, has a good record for supporting Beneficial Management Practices that ensures eco-system integrity. More than one person thought that the military base was an example that land can be utilized for all types of activities and still maintain good water quality. All that is required planning and adaptation to natural ecological cycles; demands on land, water, and wildlife needs to be taken into account when making decisions.

Crown Lands – Ecological Reserve

(b) Crown lands in ecological sensitive areas, such as the headwaters of the Battle River and Pigeon Lake, need to be preserved permanently.

Crown land that is in ecological sensitive areas should be preserved. Also, the conservation easement system that the Federal Government has in place is seen as ineffective as most farmers and ranchers are not in a position that a tax credit would be of benefit to them. Some farmers showed support to a system similar to Ducks Unlimited's program of purchasing easements, while others indicated that they were not interested in this program. Those who were interested in conservation easement policy wanted to receive a fair price for their land. Those who were not interested indicated numerous reasons such as inconvenience or fear that ducks and geese living in the conservation easement would cause crop damage. Obviously, there

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would have to be a crop damage portion to the conservation easement as well as a fair, market value payment.

One respondent also suggested that in the situation when a quarter is cut by a river or large body of water with a small acreage on one side, that these parcels might be good ones for conservation easement. The example given was in the situation when 30 acres of 160 acres (quarter) of land was cut off by the river, many ranchers do not use this small amount of land as they do not want to bother fencing it off and loading and hauling their cattle to the other side. This would be a prime location for river riparian area conservation. Buying these riparian areas for conservation would maintain or improve water quality.

Accolades

Landowners would like public recognition for what they do right.

Farmers and ranchers feel that they are much maligned and not thanked for the things that they are doing well. Many farmers would like to receive a fair price for their product just as we see “fair trade coffee”. As one farmer expressed it, “if we can do this for people that live thousands of miles away, why can we not do this for local farmers?”

Farmers and ranchers expressed frustration for the lack of support from federal and provincial government. They do not want more handouts, what they want is the ability to be in control of their own marketing system instead of being dominated by foreign corporations such as Nielson’s Brothers, Tyson, and Cargill. The monopoly that Cargill and Nielson’s Brothers have on the meat packing plant in Canada and North America is not good for the industry nor for consumers. Farmers, ranchers, and informed consumers would like to see a change away from the monopoly system that exists today.

In the next section, I will be talking about developing a ‘Beneficial Management Practices’ or ‘Stewardship’ labelling. Interest in special labelling was thought as a method of increasing the net return to farmers and ranchers. Small locally owned packing plants would be needed. Farmers and ranchers felt that they would earn a better return on their produce if they could market through a local company.

Eco-labelling – Locavore

Eco-labeling was considered a good idea, particularly if producers that follow BMP could brand their products accordingly. To take this a step further, some farmers and ranchers thought that a watershed based BMP stewardship label could be utilized to tap into the 100 Mile diet movement. Respondents commented that prices that better reflected economic input would allow for better stewardship.

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Stewardship labelling was of interest and a few ranchers/farmers were very interested in this method of marketing their produce. The locavore movement, which encourages consumers to support local agriculture, has shown significant growth. Locavore movement expresses a concern for preserving local agriculture, reducing transportation distance and carbon release. It is also believed that local food is fresher and therefore has more nutritional value.

The Battle River Watershed is “No Longer the Land of Milk and Honey.” . . .they had a group of researchers go to Save-On Foods, Food for Less, Superstore, Wal-Mart and Safeway. And Sobey’s. And they; they went in there were with a list of 23 items you could put in your food basket that are, that are produced in Alberta. . .the most of these 23 items which were found in any store was in Save On Foods which had 7 of the 23 items. Most of the other stores had three or four of those items. Alberta milk is supplemented by Quebec, and if we have excess, it is shipped to Saskatchewan and BC. Honey – Alberta produces more honey per capita than any other province in Canada. Yet the majority of the honey comes from Argentina.

Methods that have been developed in some countries worldwide to accommodate the locavore movement are a bar code labelling system. This could be adopted in Alberta as Canadians are familiar with barcodes. As an example of how this system works, produce is connected directly to the producer with bar codes. Packages of meat or vegetables can be scanned by the consumer at point-source information stations. The video screen will then display a picture of the farm family and a description of their operation and location. Consumers in other countries have quickly adopted this information into their shopping habits and seek produce from specific farmers.

Alberta farm stewardship labelling could be developed in a similar fashion. Interested agriculturalists felt that this could help improve their financial return, relations between urban and rural citizens, and help the environment at the same time. Beneficial management practice labelling supplies more information to consumers and places the farmer/rancher and consumer into closer contact. This could improve not only relations between consumers and producers, but also it could improve the ability of farmers and ranchers to respond to consumer demands.

Know your farmer. I want to be your farmer for the next 20 years!

Concern was expressed that this would require co-operation from government including bureaucratic departments.

The only thing is, will the government allow you to do the right thing? Because, they won’t allow us to label a non-GMO. There’s all kinds of things they won’t allow us to do. Even the made in Canada thing or processed in and or food from Canada – they’ve still disguised that so that when you buy something, you still don’t know if it was actually grown and raised in Canada.

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Whether the above statement includes fact is not important in this context. What is important is that this is the belief system under which this individual and others operate.

It is not surprising that agriculturalists feel this way as they are trapped on a treadmill in-which they attempt to keep up to the payments as their commodity prices remain low. Machinery costs are high (example - a self propelled combine retails at \$450,000) and the farmer must accept that machinery will not be paid for, thus, farmers just try to keep up with the payments. In addition to this, although Canada has strict laws about corporate monopolies, agriculture is dominated by two players – Nielson Brothers and Cargill.

A monopoly, yeah. Whether we sell in Lloyd, Provost, Vermillion, whatever... the idea of that labelling is great. How are we gonna do that? , we gotta have plants to do that... do we build our own plants?

The domination of the agricultural market chain by a few large companies is a constant irritant as farmers have no choice who they can sell their product to. These corporate giants maintain the mantra of “**maximizing shareholder profits**”. Part of their strategy is to have their own herds and acreages; utilizing their own when prices are high and buying from farmers and ranchers when prices are low.⁹ These strategies keep the farmer continually on the treadmill of production, trying to maintain a particular lifestyle. Some of the respondents indicated that they would like to see the governments assist them in developing their own slaughter houses and market system.

Agriculturalists feel that the urban public perception of them is that farmers are constantly looking for a hand-out. “**Farmers do not want a hand-out; they want a hand-up.**” Given the inputs required to do their profession, this perception is resented. This resentment goes on towards politicians who appear to not understand farmer's and rancher's needs and simply walk the corporate line.

Yeah. Like in my business, monopoly is controlling everything. We have- what, two packing plants and that is it. Well you see here we have between Cargill and Nielson Brothers, they control... it's about 65-70% of animals in motion, from the feed stage to the plant. They are a conglomerate of outside packers... they bought out Tyson and then ____ in Calgary and Moose Jaw. I know they brought in immigrants. They're cheap labour and you see with all this monopoly... north of highway thirteen, they control virtually every auction market right up to the far north.

⁹ For further reading see:

Schlosser, Eric. (2002). The Dark Side of the All-American Meal, FAST FOOD NATION Do you want Lies with that?. New York: Harper Perennial.

Nestel, Marion. (2002). Food Politics. Berkley, California: University of California Press.

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Some of the respondents believe that if farmers and ranchers could get a fair price for their produce they could focus more on being good stewards of the land and water.

Timeline

Timeline – People in general are slow to accept change. Respondents recommended that programs should be designed that will remain in place for a long time frame, such as twenty years. Minor adaptations to a program are ok, but not outright cancelling a program that is working.

Whatever program is chosen must be well planned, well presented, and have a secure source of funding. Respondents mentioned situations such as change of government, change of cabinet minister, or economic downturn that have resulted in the cancellation of good stewardship programs in the past. In addition, it is important that the program is land based so that money goes to the person who is directly responsible in stewardship. Water quality will improve slowly as these land improvements are made.

On page 30 is a chart that shows the different policy paradigms and what that means for policies, decision-making, and long-term ecological conditions. Western society has gone down a long process of having engineers problem solve with infrastructure mega-projects, only recently have the social sciences become involved in resource management. Economists recommend different market solutions to encourage better use of resources. This process has had some successes. Looking forward in Alberta, soft path approaches show encouraging interest from the public. The soft path approach would ask; “Do we need water for this process?” One place that this could be asked is at Forestburg, Alberta at the coal-fired power plant. Does water need to be used? Yes, it is cheap and can be released into the environment to be cooled, but should that be done? Other products, such as ammonia, can be used in electrical generation. Ammonia just needs to be stored and cooled.

Trust and Democratic Renewal

(a) There is a certain amount of skepticism that new systems would be an honest attempt to enhance water quality and quantity. Some respondents felt that the process could be just window dressing and expressed a general lack of trust with all consultation processes.

Public trust has been broken on numerous occasions. Albertans, especially the rural population have long memories. The most recent infractions include Bill 19, Bill 36, Bill 46, and Bill 50 that have contentious sections. In addition, farmers and ranchers feel that they have been betrayed by one of their own; Premier Stelmach is a farmer.

(b) Renewing democratic skills is difficult. Lack of trust and skepticism discourage participation in public forums.

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As mentioned earlier in this report, participants frequently voiced concerns of reprisal if their comments were connected to their name. It is difficult for urban dwellers to understand this, but it must be remembered that the BRW is made up of many small communities spread across a large area. Neighbours depend upon each other for friendship and support in time of need. Memories run long, and gossipers can and will embellish. Rural citizens understand the need to maintain civility with candour and moderation.

One respondent expressed the process of disengagement well:

I was unconcerned when the provincial government took over the running of the hospital board and I no longer had to attend meetings. I thought, "heh, more time for me." Then the same thing happened with the school board. I now realize that we have totally lost control of our community organizations. They no longer have to serve our needs.

The following respondent echoes a similar thought.

And the school was her business, and it was my Mom and Dad's business... that was their business. And if we were in trouble in school, it was their business to give us trouble at home. We've changed that radically now, and not all for the good you guys. I think as a kid I would've really liked to have my parent's high-rolling lawyer when the teachers talked to me (laughs). But as an adult I have to say, maybe we've got it mixed up. And maybe we need to make that school our business again, because you know what? For years we haven't been able to use our schools. . . We need to open these up, we own them. We weakened up that ownership for many years... but remember we've got super boards and we've got bigger boards. So rural Alberta, what used to be our business (totally it really was our business), was taken away. And the government keeps going, "Let's create another super board". Well you keep doing that and I have no obligation to that. And I think even in terms of water: if you take it away from us, the right to make our own decisions about it- right or wrong, good or bad- I think then you're a government agency. . . So every time you give it to government, it takes away from the commitment of the community to do something for ourselves.

This respondent clearly attributes the relationship between the decision-making process and commitment to community. In sociological terms, this would be referred to as *agency*. A person who has agency feels that they are involved with or in control and what they say or do makes a difference. Take away the responsibilities and the person then loses the right to make decisions. Or the other way around, if you take away the right to make decisions, responsibilities are lost and, thus, the individual does not feel that their actions make a difference not just to policy but also to water quality and quantity.

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Democratic renewal after so many years of slow disengagement by citizens will require a concerted effort by government, politicians, and knowledge agents. It is unknown at this point if bureaucrats and politicians want to encourage democratic renewal of citizens. The power elite in Alberta have maintained their place of prominence for over thirty years with the present system. Out of speculation, it is doubtful that politicians will encourage change without public pressure.

Policy Method Comparison Chart

Policy Method	Dominant Discipline	Range of Policy Choices	Fundamental Question	Planning Process	Outcome	Gaylene's Example
Supply Management	Engineering	Policy decision on presumed need for more infrastructure.	How can we meet water demands given current trends in water use and population growth?	Planners extrapolate from current consumption patterns to determine future “requirements” and then locate and develop new sources of supplying to meet this projected demand.	Construction of dams, pipelines, canals, wells, delivery systems, and inter basin transfers when necessary.	Find more supply for large capacity flush toilets.
Demand Management	Economics	Policy decision made on short term cost-benefit analysis.	How can we reduce the need for water to conserve the resource, save money and reduce environment impact?	Planners incorporate efficiency and information programs together with improved pricing patterns to maximize use of existing infrastructure. Increasing capacity is only one option amount others in a least-cost approach.	Efficiency gains through technical fixes and consumer education.	Install a low flush toilet.
Soft Path	Social Sciences with the recognition of bio-physical limits	Policy based on stakeholder consultation and political review.	How can we deliver services currently provided by water in ways that recognize the need for economic, social and ecological sustainability?	Planners model a sustainable future state for water use with attention to long-term economic and social prosperity. They then “backcast” to devise a feasible and desirable path to reach that state. Ecological sustainability is fundamental to all economic, political and socio-cultural choices.	Options to reduce use through innovation. Conservation, water reallocation and changing patterns of use and re-use. More water is left <i>in situ</i> .	Ask. Why use water? Install a composting toilet.

Source: Brandes and Brooks, 2005, p. 5.¹⁰

¹⁰ Brandes O and Brooks DB (2005) The Soft Path for Water in a Nutshell. Friends of the Earth Canada, Ottawa and POLIS Project for Ecological Governance, University of Victoria, Victoria.

Conclusions

As I have observed many times, given the opportunity, local people can provide innovative, intuitive solutions to problems. After all, they are the experts of their own environment. They deal with the problems every day. The respondents in this study have provided some innovative ideas to the issue of water management.

Respondent's level of understanding of the issues varied significantly. Knowledge leaders were keenly aware of deeper long term watershed needs. Some of the key respondents were well aware of MBI's and had given significant thought to long term effects. Economists frequently believe that the reason people reject MBI's is because they do not understand how these policy options work. To summarizing respondents' answers to economists:

1. Economists assume rational decision-making. People utilize many factors in decision-making and do not necessarily use economic rationality. Decisions can be based on cultural norms or past personal experiences.
2. At times there is curiosity, but most of the time there is a sense of concern and fear about the use of market based instruments. Some research participants do not understand the deeper details of market based instruments but are concerned that economic methods will not provide the desired result. Those respondents that do understand MBI's maintain a sense of skepticism about market-based solutions to water issues in the province.

Regaining public trust will be the biggest challenge for whatever water policy option is selected. A well-planned and strategically introduced social marketing program will be required. Regaining this trust will be difficult given the history of the present Alberta Conservative Government and the long memories of rural people.

Inputting results from this research into the Designer Carrot¹¹ MBI decision-making tool has resulted in the suggestion of: positive price based instruments, information, and transaction costs. Certainly, information was repeatedly recommended for introduction of a new policy framework, but in addition, the information hi-way flows both ways. Citizens want their concerns heard and respected. Given the low margin nature of agriculture, at this point in time, landowners need to be financially re-numerated for providing ecological goods and services. Finally, transaction costs need to be covered in order for public acceptance of this new policy regime. I have discussed many reasons for this in this report, but one respondent summed it up like this: "Who knows, this might just be another program in a long list of programs which will be gone in three or five years." Thus, a sign of true commitment needs to be shown and what better way than a sizable fund set aside. Another respondent said: "Alberta can agree to spend \$3 billion on carbon capture, which is an unproven technology. How about making that type of

¹¹ www.marketbasedinstruments.gov.au

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commitment to landowners where we have proven technologies?” (Referring to planting trees and zero till.)

Thank you

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Appendix 1 - List of Terms

Agency – In sociological terms, agency is “seen as the capability, or power to be the originator of acts and a distinguishing feature of being human.” (Cleaver, F. 2007. “Understanding Agency in Collective Action.” Journal of Human Development, Vol. 8 (2), p. 226.)

Beneficial Management Practices – “Beneficial management practices (BMPs) are cost-effective, practical methods that minimize environmental impacts. All industries use BMPs at some level to help protect our natural resources. In the agricultural sector, solutions to managing impacts on water resources are unique to each situation - what may work for one operation may not always work for another. This factsheet lists some of the many information sources available to agricultural producers for developing individual management plans to protect water quality.” [www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/aesa5826](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/aesa5826)

Common pool resources share two characteristics: Subtractibility or rivalrous meaning that once the good is used another person cannot use it. The second characteristic is the inability for exclusivity as it is difficult or impossible to limit other people using the good. Dolšak, Nives & Ostrom, Elinor (2003). The Commons in the New Millennium, Cambridge, Massachusetts: The MIT Press, p. 7.

Crown Land is a term used in Canada to describe land that is held by the crown – municipal, federal, or provincial government in trust to be used for the best interest of the citizens. www.srd.alberta.ca/MapsFormsPublications/Maps/ResourceDataProductCatalogue/Geoadministrative.aspx

Deliberative democracy – “Deliberative democracy strengthens citizen voices in governance by including people of all races, classes, ages and geographies in deliberations that directly affect public decisions. As a result, citizens influence--and can see the result of their influence on--the policy and resource decisions that impact their daily lives and their future.” www.deliberative-democracy.net

Designer Carrot – Is a decision making tool set up by the Australian Government to assist in analysis of different economic instruments to managed water resources. www.marketbasedinstruments.gov.au

Ecological Reserve – Land that has been set aside by either an NGO or government that is to be kept in its natural state in perpetuity.

Eco Labelling – Term that evolved from this research that respondents identified as a method of identifying certain produce as having followed specific, yet undefined, stewardship or green methods in the production of the food stuff.

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Eco Tax – A term developed through this research that identifies the need to provide funds to encourage landowners to save or refurbish riparian area. The belief is that all life benefits from good riparian areas, so all humans need to financially support preservation and renewal.

Ecological Goods and Services/Natural Capital/ Environmental Goods and Services (EG and S)- for the best discussion, see the attached IAFE supplement in Appendix 2, attached.

FITFIR- First in Time, First in Right is a method of determining which water licenses are serviced first. As the name implies, senior licensees take their allotment prior to the more junior licensees. In Alberta, senior licensees can take all of their allotment prior to more junior licensees even if that means that the junior licensee gets none.

http://environment.gov.ab.ca/info/faqs/faq7-Water_Allocation.asp

Intensive Livestock Operation (ILO) – This is a method of industrial farming in-which cows, pigs, or poultry are held in small cages or pens to encourage less exercise and more rapid weight gain. Typically animals end up standing in fecal matter and urine and require large doses of antibiotics to maintain health. ILOs are criticized not only for the treatment of the animals, but also, for producing noxious, unhealthy fumes and damaging service and ground water.

Reference: L. Frati a, S. Santoni a, V. Nicolardi a, C. Gaggi a, G. Brunialti a, A. Guttova b, S. Gaudino c, A. Pati c, S.A. Pirintsos d, S. Loppi. 2007. “Lichen biomonitoring of ammonia emission and nitrogen deposition around a pig stock farm.” Environmental Pollution 146 (2007) pp 311 to 316.

Locavore – is a term that refers to the relative new eating movement that encourages people to buy local. Terms such as the 100 mile diet are sometimes used. Locavore eaters believe that they are obtaining fresher produce that has higher nutritional value and are supporting their local industry.

Market Based Instruments – see the attached IAFE supplement in Appendix 2, attached.

Reverse Auctions is an economic term used to describe a type o market based instrument in-which the buyer bids on the opportunity to complete a specific renewal project. The bids are completed in secret and through the selection process a panel determines which projects provide the most ecological benefit first. See Designer Carrot for more detail.

www.marketbasedinstruments.gov.au

Soft Path –The soft path approach is an approach in-which the first question asked is if water is necessary for the process. The soft path approach sees improved efficiencies as its mandate. The soft path approach emphasises public involvement in all stages of the process. Brandes O and Brooks DB (2005) The Soft Path for Water in a Nutshell. Friends of the Earth Canada, Ottawa and POLIS Project for Ecological Governance, University of Victoria, Victoria, BC. Page 31 displays a chart making a comparison between soft path, supply management and demand management.

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Solastalgia¹ Albrecht, Glenn, et al (2007) “Solastalgia: the distress caused by environmental change.” *Australasian Psychiatry*, 15 (1), p. S95.

Study Group is a deliberative democracy tool that is used to encourage people to discuss and problem solve over a specific issue. Groups of four to six people sit, like in a coffee shop, and discuss and work through solutions for the problem at hand. The larger group comes together at the end to share their findings and categorize them. Typically study groups meet on a regular basis to problem solve and implement changes. See: www.deliberative-democracy.net

World Cafe² is a deliberative democracy tool that is used to encourage democratic renewal. A large group of people meet and divides themselves into smaller groups of four or five. Each group will discuss the questions that have been provided for them on their table for about twenty minutes. Answers will be recorded by one or more members of the group. A *runner* will post the answers on the wall. After twenty minutes, each group will split up and go to different tables and discuss with this new group the questions that have been posted on the next table. See: www.deliberative-democracy.net

Appendix 2

See the attached two PDF information sheets prepared by the Institute of Agriculture Forestry and the Environment.