

# Manitoba Prairies Regional Adaptation Collaborative Final Forum

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*Manitoba Hydro Building, 360 Portage Avenue  
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**A project in partnership with:**



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## Introduction

On March 22, representatives of the Government of Manitoba and invited guests active in the area of climate change adaptation participated in the final workshop of the Manitoba Prairies Regional Adaptation Collaborative (PRAC). The objectives of this workshop were to:

1. Gain knowledge of key results from projects undertaken as part of the Manitoba portion of the Prairies Regional Adaptation Collaborative (PRAC) on Water Resources, Drought and Excessive Moisture, and Terrestrial Ecosystems (forests and grasslands);
2. Share successes, lessons learned, challenges, gaps and opportunities to integrate climate change adaptation into targeted policies, plans, operations and decision-making processes; and
3. Identify priority options on how best to advance climate change adaptation in Manitoba

This report provides a summary of the activities and outcomes of the Manitoba Prairies Regional Adaptation Final Forum. The workshop's final agenda is presented in Appendix 1.

## Main outcomes of the presentations

The following section outlines the main outcomes of the various presentations made during Manitoba's final workshop under the PRAC's different themes.

### Introduction

The workshop began with opening remarks from Fred Meier, Deputy Minister of Manitoba Conservation and Water Stewardship. Mr. Meier noted that climate change is real, is already happening, and that we must adapt to it. He outlined some projected impacts for Manitoba, such as increased frequency of severe floods and droughts. He also highlighted the outcome of a study completed by the National Round Table on Environment and Economy which estimated that climate change will cost the Canadian economy an average of five billion dollars per year by 2020. Mr. Meier encouraged the continuation of greenhouse gas emission reductions, and emphasized the need to increase efforts in the area of adaptation to climate change. He noted that, as the PRAC comes to an end, successes on adaptation within Manitoba will be celebrated; however, it is essential to create an enabling environment to enhance adaptation plans. Lastly, he indicated that key messages from the workshop would provide valuable inputs for a provincial adaptation plan.

### PRAC Theme 1: Water supply and demand projects

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**Bob Harrison**, Manitoba Conservation and Water Stewardship (MCWS), discussed three studies completed as part of the PRAC project: a multi-sectoral quantified water demand study for the Assiniboine River for the periods of 2010, 2020, 2050 and 2080; a water supply study on the Assiniboine

River basin; and Provincial Drought Management Planning. Mr. Harrison indicated that through these studies MCWS has strengthened capacity in the province to manage drought events now and in a future influenced by climate change and increasing socio-economic pressures on the water and agricultural sectors. He noted that the draft provincial drought management strategy will respond to various projected drought stages by using precipitation and temperature indicators. Challenges associated with the Assiniboine River water supply and demand projects included: no available downloadable regional climate data; an inadequate meteorological data network to meet current needs; need to standardise biased corrections; projections based on runs using more than one climate change scenario are needed to decrease uncertainty; and no standardised classification of inter-jurisdiction soil and land use data. The final report for the Assiniboine River water supply study will be available in April, and the ministry is assessing potential future studies for the Assiniboine and other Manitoba major rivers that may include lake and reservoir drought indicators.

Questions raised by the participants after the presentation focused on the potential expansion of the Shellmouth Dam to increase flood storage and the development of a groundwater supply back-up plan.

## Theme 2: Drought and excessive moisture projects

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**Dr. Tony Szumigalski**, Manitoba Agriculture, Food and Rural Initiatives (MAFRI), presented on the Interlake Excessive Moisture Project. The project had three components: literature review, hydrological studies and consultations with stakeholders. Dr. Szumigalski noted that the Interlake Region was chosen as the case study area based on the following considerations: the Interlake is the most vulnerable agricultural census region to climate change impacts; it represents a wide variety of agricultural industries and practices; and the existence of progressive local producer groups and has an advanced watershed management planning (e.g. East Interlake Conservation District). Specifically, the Icelandic River watershed was selected for the hydrologic studies. He noted that stakeholder engagement focused on assessing weather observations and observed effects, developing local adaptation options, and recommendations for a provincial strategy to address the management of drought and excessive moisture. Among the adaptation strategies identified were flood mitigation, water quality protection (sealing abandoned wells), riparian area fencing and restoration projects. Adaptation strategies supported by the provincial and federal government discussed included the provision of financial assistance through crop insurance programs for unseeded acres, compensation for farms that are flooded out, and grants to elevate houses to protect them from future flooding.

Key recommendations included a review of current policies and programs (e.g. for water, agriculture and drainage), streamlining the regulatory framework, innovations in planning, providing flexible funding for extreme weather events (financial compensation), and improving maintenance of existing infrastructure, including improving research on natural drainage.

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**Katy Walsh**, Manitoba Local Government (MLG), presented on two projects: Municipal Adaptive Planning (MAP) with Brandon and the TransCanada West Planning District; and the Land and Infrastructure Resilience Assessment (LIRA) Scoping Project in the Little Saskatoon River Conservation District. Describing the MAP, Ms. Walsh indicated that stakeholders identified vulnerability and risks to extreme climatic events. A guide developed for use in B.C. was tested and found to be user friendly and cost-effective. Experience gained through the MAP and LIRA projects also revealed some barriers and challenges. Primarily, it was observed that: it is hard to get people to participate as local resources are already stretched; local authorities have limited decision making power; there is a lack of knowledge and expertise; reluctance at the municipal level must be overcome; and municipal officials are typically focused on immediate, short-term solutions. Recommendations for the future include: further encouragement for more municipalities to get involved; engage an enthusiastic partner in a pilot project; and integrate the BC (or similar) model as part of an existing planning process.

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**Sean Madden**, City of Winnipeg, presented on the City's Climate Change Adaptation Initiative. He spoke about the demonstrated need for a corporate approach to adaptation and highlighted preliminary actions by the City to mainstream adaptation into planning and implementation. In March 2011, the City held a workshop to raise awareness about adaptation among key staff. During the workshop, it became evident that a significant limitation to corporate adaptation planning was the communication of expert knowledge about climate change and adaptation, and its relationship to management initiatives. To overcome this challenge, the City is planning an adaptation initiative supported by a topical video, *Call for Adaptation Action*, in which experts in the field build a common understanding of climate change issues affecting Winnipeg. By fall 2012 the City is looking to complete a climate change vulnerability, risk and priority assessment to guide municipal adaptation actions.

After the presentation, questions raised by participants focused on how the built environment is being handled in the City of Winnipeg and whether there is a complementary climate mitigation program in the city.

### Theme 3: Terrestrial ecosystem projects

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**Dr. Tony Szumigalski**, MAFRI, spoke about vegetation zonation in the Aspen Parkland in Manitoba. The purpose of the study undertaken by the Saskatchewan Research Council was to project grassland changes to the 2080s. The study indicated that the southwestern agricultural area in Manitoba could become dominated by a drier wheatgrass–needlegrass ecosystem and the forest areas could be pushed out of the Aspen Parkland. Vegetation projections indicated that by the 2080s, in the most extreme scenario, the region will become very dry and vulnerable. The models demonstrated that the region will

become warmer with medium to low precipitation, leading to lower forage productivity and a decrease in stocking rates for cattle producers.

The study provided three adaptive options for the short, medium and long term to resist the effects of climate change, increase resilience and respond to changes through adaptation. Short-term adaptive options identified for producers were: reducing livestock herd sizes; moving herds to alternative grazing sites and purchasing feed and hauling water. Medium-term adaptive strategies for producers consisted of changing herd structure towards more yearlings; promoting grazing management to improve rangeland health; detecting and controlling invasive species; developing drought monitoring and prediction tools; and measures to increase resilience to excessive moisture. Government adaptive options in the medium term were: improving water storage and distribution systems (regional); undertaking community pastures program; supporting conversion of cropland to permanent cover; detecting and controlling invasive species; undertaking crop insurance and assistance programs; and developing drought and prediction tools and other measures to increase resilience to excessive moisture. Dr. Szumigalski stressed that long-term adaptation options, which are considered too variable to form a basis for prescriptive plans, must look into directional change, not just year-to-year fluctuations, and have monitoring systems in place to detect when such change happens. Other options included conserving as much native prairie as possible and maintaining connections between patches to facilitate assisted migration of species.

Questions raised after the presentation focused on the possible worst case scenario for cereal crop production without irrigation and on whether the study also involved vegetation analysis modeling.

## Other Government of Manitoba initiatives

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**Terry Zdan**, Manitoba Infrastructure and Transportation, informed the audience of a recent Coastal Zone Impact Assessment initiated by Natural Resources Canada as part of the next phase of federally funded adaptation initiatives across Canada. The purpose of the assessment is to demonstrate the effects of climate change-related impacts, including sea level rise, and its impacts on coastal communities, infrastructure and ecosystems. Manitoba's concerns focus on the Hudson's Bay coastline and its floral and faunal ecosystems, the Arctic Bridge linking Churchill and the Russian Port of Murmansk via an international shipping route, and Port of Churchill and the Hudson Bay Railway, coupled with northern traditional knowledge, coastal ecosystems, tourism, and renewable energy in the Nelson River Basin. Mr. Zdan also highlighted the importance of addressing the costs of climate impacts and the cost of adaptation strategies in future assessment studies/research. He invited everyone to contribute to the Coastal Zone Impact Assessment process.

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**Dr. Toni Morris-Oswald**, Manitoba Health (Office of Disaster Management), presented on the Heat Alert Response System (HARS) pilot program that focuses on the impacts of extreme heat events (EHs)

on health. Dr. Morris-Oswald outlined that HARS has three objectives: mitigate heat-health impact and increase coping mechanisms for individuals; increase capacities of all Manitoban communities to respond and adapt to EHE; and design a program with a tailored Manitoban context (including rural versus urban Manitoba). Some of the key challenges include: focusing on heat amid many health risks; limited resources and capacity in some key areas; quantifying heat related illness; addressing regional differences in capacities; and limited communication capacity in rural and remote areas during EHEs. Moving forward, HARS seeks to expand heat plans for the Regional Health Authorities within the province and increase capacity for staff and communities to cope with EHEs.

A question was raised after the presentation regarding the creation of a disaster unit in light of the extreme heat events. Dr. Morris-Oswald noted that such idea was difficult to sell in 2009, highlighting that communicating and getting the message out to the public was most important.

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**John Dojack**, Manitoba Conservation and Water Stewardship, presented on the vulnerability assessment undertaken by the Forestry Branch in the Sandilands Provincial Forest region of southeast Manitoba. He stated that the region is important to Manitoba due to its commercial, ecological and recreational opportunities. However, the Sandilands region is vulnerable to fires, strong winds, pests, diseases and drought. The Forestry Branch is conducting a vulnerability assessment using the Canadian Council of Forest Ministers (CCFM) Guidebook for Assessing Vulnerability. The assessment is close to completion and a report will be available soon.

Questions raised after the presentation dealt with the successes gained from the Trees for Tomorrow Program, the engagement of woodlot owners and the boundary shift of the boreal forest area northwards resulting from climate change.

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**Dr. Susan Roberecki**, Manitoba Health (Public Health and Primary Health Care Division), presented on the impact of climate change on the health sector in Manitoba, including the increased frequency and intensity from health hazards (heat, floods, forest fires/air pollution) and the rise of infectious and non-infectious diseases. She talked about the increase risk of Lyme Disease and West Nile Virus through the spread of black legged ticks and increased breeding periods for mosquitoes due to warmer climates. She also advised of other impact of climate change including decrease in air quality (e.g. due to an increase in forest fires) and flooding and their adverse effects on health. As a response to current and projected climatic changes, public health has a series of alert systems and provide information to the public aimed at increasing capacity and knowledge of individuals at risk.

A question was raised after the presentation regarding the conditions under which black-legged tick thrive. Dr. Roberecki stressed that these insects are usually found along the riverbank and in moist, leafy areas.

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**Ray Irvine**, Manitoba Aboriginal and Northern Affairs (ANA), of the Program, Planning and Development Branch, presented on the growing need to increase northern communities' capacity to adapt to climate change. He noted that local governments have met with the Centre for Indigenous Environmental Resources, and that ANA is working towards a development of climatic risk assessment in departmental emergency planning. Mr Irvine indicated that the key vulnerabilities local governments in the north/outside municipal Manitoba face include extreme weather events, flooding, droughts, forest fires, invasive species, new health vectors and the loss of permafrost, winter roads and traditional activities. Local governments under ANA jurisdiction are ready for a formal strategy to mainstream climate change into strategic and operational planning, and are willing to work with provincial partners to engage communities and build capacity.

After the presentation, questions raised by the participants centered on the common issues being faced in the North, ANA's geographic scope and activities undertaken to engage communities.

## Cross-cutting issues and analysis

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**Matthew McCandless**, International Institute for Sustainable Development (IISD), summarized findings from the Assiniboine River water demand and supply studies and the Manitoba Water Soft Paths study. Mr. McCandless noted that the conclusions of the water supply study were based on one climate change scenario (reflecting the data made available to the consultants) and therefore are not fully representative of the full range of possible temperatures and precipitation levels, and as such of water flow scenarios in the future. More model runs with additional climate change projections would provide a better range of possible scenarios to inform enhanced adaptive decision making for water resource managers and policy makers. Better access to climate change projection data would facilitate more robust climate change impact studies. In the short term, it was recommended to have a central climate data centre to manage climate change data and that instream water flow needs along the Assiniboine River be quantified. These recommendations should be coupled with the need to conduct further studies on climate change and weather extremes in Manitoba. The medium term recommendations included building upon the study findings for the Assiniboine River Basin and expanding this modelling to other river basins. The long term, overarching recommendations focused on examining water allocation policies to ensure that allowable amounts are flexible and account for return flows and climate change; better integration of land use change into watershed management plans; and promotion of regionalized water management services and technology development.

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**Roger Rempel**, Stantec Consulting, presented the outcomes of the Manitoba PRAC Workshop on Climate Data, Modeling and Applications for Planning held in January 2012. Mr. Rempel noted that it is important to understand the bias and limitation of climate change projections when conducting impact assessments for stakeholder-specific data needs. During the workshop participants represented three

difference climate data users: planning level, detailed modelling and analysis, and research and academic climate data users. From the workshop it was concluded that cross-cutting challenges include:

- limitation of the existing monitoring networks in meeting current needs;
- degradation of many existing networks due to loss of resources; and
- existing void in coordination and management of climate data in the provinces.

These limitations impair the ability of Manitoban communities to initiate and make progress in their vulnerability assessments and adaptation planning efforts.

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**Jo-Ellen Parry**, IISD, reviewed the objectives and planned content of the PRAC synthesis report being prepared. She noted that the objectives of the report are to: present an overview of the key activities completed within the PRAC; identify cross-cutting lessons and gaps; and provide recommendations for moving forward. Ms. Parry noted that observed cross-cutting issues emerging from the projects to date include:

- the need for a common source of reliable, standardized climate data;
- greater monitoring of the efficacy of current projects and programs;
- greater emphasis on longer-term proactive planning; and
- taking a flexible approach to adaptation decision making.

A draft version of the synthesis paper is to be available in mid-April.

## Key messages from breakout sessions

After the presentations, participants were divided into four different theme areas, namely water, terrestrial, municipal, and Aboriginal, Northern issues and human health. Using a common facilitated process, each group identified priority areas for adaptation action and how to move forward by discussing and providing responses to the following three questions:

- What are the key accomplishments, successes and best practices gained from the three theme areas (and non PRAC themes) and how can these be further enhanced?
- What are the key issues, gaps, barriers and priority needs in advancing PRAC or other MB climate adaptation work over the next few years? What can we improve upon?
- What are the potential collaboration opportunities to further PRAC and other Manitoba adaptation-related initiatives? What organizations should be involved and what are the potential roles they can play?

The responses of each group to these questions is provided in Appendix 2 and summarized below.

### Group 1: Water

Two main priority areas emerged for the water theme: public perception of climate change risk to the sector; and conflicting priorities and adaptation impacts. As a strategy to increase public awareness of the impacts of climate change, it was suggested that adaptation to climate change be mainstreamed into school programming. Potential partners to support other outreach efforts were identified such as

insurance companies, media and conservation districts, to name a few. Second, sectoral or national development priorities can contradict adaptation action. The group noted that in order to identify what these conflicts are it is important to consult with various stakeholders, including government, industry and consumers. It is also necessary to enhance knowledge of sectoral vulnerabilities and how climate change can increase these vulnerabilities. Moreover through public consultations and inter-governmental interaction, there should be better understanding of adaptation actions taking place in different silos, increased cooperation among stakeholders, and strengthened policies to complement adaptation action within the sector.

### **Group 2: Terrestrial Vulnerability**

The terrestrial group identified the need for a terrestrial classification system and a study on the vulnerability on food production. For the terrestrial classification system the group noted that an intergovernmental working group should undertake the task. Representatives from agriculture and forestry groups, as well as Ducks Unlimited should participate. Secondly, a concern was raised regarding the void between current projects/studies and understanding of the impact and vulnerability of food production and supply system. The group identified the need for a MAFRI led integrated impact assessment of local and global interactions and issues related to organic and local production and water availability. It was recommended that different stakeholders participate in this analysis.

### **Group 3: Aboriginal, Northern Issues and Human Health**

The Aboriginal, Northern and Human Health group pointed to the need to identify vulnerabilities to climate change within northern and aboriginal communities. To undertake this identification process it was suggested to have the northern association of communities and the Manitoba Keewatinowi Okimakanak involved. The Regional Health Authority in the North could take the lead in identifying concerns and responses to climate change impacts on health. It was also suggested that a quantifiable enterprise risk management strategy be developed. To do this some potential partners were mentioned, including the insurance industry, professional associations, some partners in science, the Association of Manitoba Municipalities, and Manitoba Emergency Measures Organization. Consultants and the insurance industry could take the leading role. Further, it was noted that the working group would greatly benefit from training and familiarization of IISD's work on adaptive policy and capacity building.

### **Group 4: Municipal Climate Adaptation Planning**

Two main priorities were identified for municipal climate change planning, namely providing funding to support the integration of adaptation into development planning process and greater awareness in the province through an effective awareness building strategy. For increasing municipal capacity, some key steps were noted, including interactive workshops at the Association of Manitoba Municipalities conference, a presentation to the Interdepartmental Planning Board, and sharing of best practices. Regarding enhancing provincial awareness, the group identified the need to bring provincial funding to the City's mainstreaming of adaptation to climate change within its planning and programming.

## Synthesis/Next Steps and Closing Remarks

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The workshop closed with a presentation by Neil Cunningham, Director, Climate Change Branch, MCWS. Mr. Cunningham reminded participants of past and present provincial adaptation initiatives beyond the PRAC, such as the joint climate workshops under the MOU between Manitoba and Wisconsin and the Manitoba Weather and Climate Data Inventory Project. He then outlined planned steps to further adaptation efforts in the province, including: (1) completion of a government-wide risk assessment; (2) undertaking a risk assessment for the province; and (3) preparation of a provincial adaptation strategy and action plan. Mr. Cunningham noted the challenges associated with implementation of this plan (e.g., limited resources, need to engage in proactive planning), along with the opportunities (e.g., existing networks, presence of no-regrets policies). Mr. Cunningham concluded his presentation by thanking the workshop facilitator, presenters and organizers, as well as all of the workshop participants, before officially closing the event.

## Appendix 1: Workshop Agenda

<b>8:00- 8:30</b>		<b>Registration</b> (Coffee and muffins provided)
<b>8:30- 9:00</b>		<b>Workshop Overview and Introductions</b> <ul style="list-style-type: none"><li>• <b>Sheldon McLeod</b>, Facilitator</li></ul> <b>Welcoming Remarks</b> <ul style="list-style-type: none"><li>• <b>Fred Meier</b>, Deputy Minister, MB Conservation and Water Stewardship</li></ul>
<b>9:00 -10:15</b>		<b>Key Results from MB PRAC Water Resources and Drought and Excess Moisture Projects and Recommendations Going Forward</b> <ul style="list-style-type: none"><li>• <b>Bob Harrison</b>, MB CON/WS, Water Supply and Demand Project, Drought Planning</li><li>• <b>Tony Szumigalski</b>, MAFRI- Interlake Excess Moisture Project</li><li>• <b>Katy Walsh</b>, MLG, Municipal Adaptive Planning and Landscape Infrastructure Resiliency Scoping Projects</li><li>• <b>Sean Madden</b>, City of Winnipeg Climate Adaptation Initiative</li></ul>
<b>10:15-10:45</b>	-	<b>Health Break</b>
<b>10:45-11:15</b>	-	<b>Key Results from Terrestrial Ecosystems Projects and Recommendations Going Forward</b> <ul style="list-style-type: none"><li>• <b>Tony Szumigalski</b>, MAFRI Grasslands/Rangeland Project</li></ul>
<b>11:15- 11:45</b>	-	<b>Presentations on other PRAC Projects and Adaptive Initiatives</b> <ul style="list-style-type: none"><li>• <b>Terry Zdan</b>, MIT, Infrastructure, Coastal Zone Impact Assessment</li><li>• <b>Dr. Toni-Morris Oswald</b>, MB Health, Office of Disaster Management MB Heat Alert Response System: planning for extreme heat events</li></ul>
<b>11:45- 12:45</b>	-	<b>Lunch</b> (provided)
<b>12:45- 1:20</b>	-	<b>Presentations on other PRAC projects and Adaptive Initiatives-continued</b> <ul style="list-style-type: none"><li>• <b>John Dojack</b>, MB CON/WS, MB PRAC Forestry and Next Steps</li><li>• <b>Dr. Susan Roberecki</b>, Public Health and Primary Health Care Division, MB Health, Public Health and Climate Change Considerations/Needs</li><li>• <b>Ray Irvine</b>, MB Aboriginal and Northern Affairs, Climate Change and Adaptation: Implications for Policy and Planning</li></ul>
<b>1:20- 2:10</b>	-	<b>Presentations on Cross-Cutting Issues and Analysis</b>

- **Matthew McCandless**, IISD, Adaptation in the Water Sector in Manitoba: Recommendations and Next Steps for Manitoba Water Theme
  - **Roger Rempel**, Stantec, Results from MB PRAC Workshop on Climate Data, Modeling and Applications for Planning
  - **Jo-Ellen Parry**, IISD, MB PRAC Project Final Synthesis Report
- 2:10-3:50** - **Breakout Session: Identifying key considerations, issues, gaps, priority needs and opportunities for defining a Manitoba Adaptation Roadmap (with break)**
- 3:50 – 4:15** - **Report Back/Plenary session**
- **Sheldon McLeod**, Facilitator
- 4:15 – 4:30** **Synthesis/Next Steps and Closing Remarks**
- **Neil Cunningham**, Director, Climate Change Branch, MB CON/WS

## Appendix 2: Breakout Group Outputs

### Group 1 – Water Resources, Drought & Excessive Moisture (data/modelling)

**Question 1:** What are the key accomplishments, successes and best practices gained from the three theme areas (and non PRAC themes) and how can these be further enhanced?

Theme Area	Key Accomplishments/successes/best practices	Key Actions to Enhance Accomplishments/successes
Water Resources, Drought & Excessive Moisture	Good stakeholder involvement – every project is achieved with an increased understanding of stakeholder expectations	Policies to allow effective adaptation
	Integrating stakeholder input into projects.	
	Enhanced understanding of pilot projects for application to future studies (good foundation)	
	Irrigation growth projections show some future allocation challenges	Opportunity to review allocations and tighten up the numbers. Explore risk tolerance levels – could mitigate need for storage options in future planning.
	Awareness of data (CC Projection)	More work needs to be done to establish
	Stakeholders now understand the need for good projection data.	
	Recognition that future climate projection uncertainty can be quite large	<ul style="list-style-type: none"> <li>- Sensitivity analysis on water demand under climate projections</li> <li>- Water demand patterns need better understanding</li> <li>- Pilot studies on more efficiency in irrigation practices and better understanding and sensitivity on irrigation demand.</li> </ul>
	Modelling river in response to climate change	Enhance/build upon this initial modeling to figure out the best model to define basins of key interest.
	New partnerships	Need some sort of climate change steering committee leading to provincial coordination.
Municipal Adaptation Planning	Create awareness of: skill sets, data, gaps, regulatory challenges, need for clear provincial coordination.	

Question 2: What are the key issues, gaps, barriers and priority needs in advancing PRAC or other MB climate adaptation work over the next few years? What can we improve upon?

Area of Concern	Key Considerations/Issues/Gaps/ Barriers	Priority Needs/Actions (next few years)
	Policy and Technical groups	
	Government awareness (elected officials)	Assemble all practitioners/departmental groups – convey urgency to cabinet. Elected officials need to understand their full vulnerabilities and liabilities
	Public perception of risk	More education on risk
	Conflicting priorities and adaptation impacts	-More study of multi-impacts. -Benefits/costs of adaptation actions. -Central coordination review of adaptation options with a review of costs/benefits/impacts
	Lots of activity in different silos	-More inter-agency awareness of all pockets of activity. -Are all Canadian RACs fully aware of each other’s activities? -Build on awareness. -Central coordination of all activities -Today’s workshop is a step in the right direction.
Potential of confusion through various planning sessions		
Expectation by all stakeholder groups – will talk about adaptation, but aversion to take effective, often radical action.		

Question 3: What are the potential collaboration opportunities to further PRAC and other Manitoba adaptation-related initiatives? What organizations should be involved and what are the potential roles they can play?

Top Priority Areas	Mechanisms – Approaches/Tools Needed	Key Actions/Steps Required	Potential Partners – existing and esp. new partners	Potential Role (Who leads, who supports?)	Resources Required
(1) Public perception and risk	More awareness. Communication strategies to	Education of public through school	Insurance, school system, media,	Provincial steering committee –	Funding

Top Priority Areas	Mechanisms – Approaches/Tools Needed	Key Actions/Steps Required	Potential Partners – existing and esp. new partners	Potential Role (Who leads, who supports?)	Resources Required
	respond when a CC related event occurs in Canada.	programming.	conservation districts,...	multi-disciplinary composition	
(2) Conflicting priorities and Adaptation conflicts	Prioritizing. Multi-criteria decision techniques	Assembling stakeholders to ID priorities & concerns, assess options for adaptation	Industry, government, groups, everyone at the table	Specific working groups reporting to a Provincial steering committee.	Funding

## Group 2 - Terrestrial Vulnerability

Question 1: What are the key accomplishments, successes and best practices gained from the three theme areas (and non PRAC themes) and how can these be further enhanced?

Theme Area	Key Accomplishments/successes/best practices	Key Actions to Enhance Accomplishments/successes
Terrestrial	Impact Vulnerability Report	<ul style="list-style-type: none"> <li>- Ecosystem classification system (grassland, forestry and wetlands) – for effective management</li> <li>- Use of 3 R's for identifying vulnerabilities &amp; adaptation actions</li> <li>- More time for those efforts</li> <li>- Ways to prioritize identified actions</li> </ul>
	Review of operational practices (Adaptation DEM)	<ul style="list-style-type: none"> <li>- Ecological classification system</li> <li>- Strengthen operational capacity of organization and increase capacity to make changes</li> <li>- Regional prioritization – focus on key areas.</li> </ul>
	DEM CC adaptation policy assessment	

Question 2: What are the key issues, gaps, barriers and priority needs in advancing PRAC or other MB climate adaptation work over the next few years? What can we improve upon?

Area of Concern	Key Considerations/Issues/Gaps/Barriers	Priority Needs/Actions (next few years)
No mention of impact and vulnerability on food production	An integrated analysis of local and global interaction and issues with	

Area of Concern	Key Considerations/Issues/ Gaps/Barriers	Priority Needs/Actions (next few years)
and supply system (food security)	organic production, local production and water availability.	
Surface water management to deal with drought and wet extremes	Increase in cost of food production, social-economic effect on consumers, understanding where food comes from (gap in knowledge)	
Adaptive management of seed zones over time (study of tree health)		
Research and understanding of CO2 in production		
Understanding of pests and diseases (forestry vulnerabilities in size of land, mixture of trees in same area, wind as medium of transportation of pests)	Increase pest effects, extreme weather events – neither sector can deal with extreme weather events	

Question 3: What are the potential collaboration opportunities to further PRAC and other Manitoba adaptation-related initiatives? What organizations should be involved and what are the potential roles they can play?

Top Priority Areas	Mechanisms – Approaches/Tools Needed	Key Actions/Steps Required	Potential Partners – existing and esp. new partners	Potential Role (Who leads, who supports?)	Resources Required
Need for development of terrestrial classification system		Developing an intergovernmental working group	Agriculture and forestry Ducks unlimited, etc.	Not discussed	
Determining vulnerability on food production	Integrating analysis of food production + supply system	Knowledge and increasing societies awareness	Agriculture sectors	Manitoba Agriculture	

### Group 3 – Aboriginal, Northern Issues & Human Health combined Group

Question 1: What are the key accomplishments, successes and best practices gained from the three theme areas (and non PRAC themes) and how can these be further enhanced?

Theme Area	Key Accomplishments/successes/best practices	Key Actions to Enhance Accomplishments/successes
Human Health	Information on human health programs. Heat alert response, responding to floods, forest fires, etc. Persistence	<ul style="list-style-type: none"> <li>- Need to be able to understand your own environment to know what is going on – involving local people in discussions.</li> <li>- Prioritization.</li> <li>- Important to see the relevance</li> <li>- Link something to a health effect – may encourage/motivate.</li> <li>- Group that talks about issues on its own.</li> </ul>

Question 2: What are the key issues, gaps, barriers and priority needs in advancing PRAC or other MB climate adaptation work over the next few years? What can we improve upon?

Area of Concern	Key Considerations/Issues/Gaps/Barriers	Priority Needs/Actions (next few years)
	<ul style="list-style-type: none"> <li>- Not aware of all programs available – level of awareness</li> <li>- Intra-governmental challenge</li> </ul>	<ul style="list-style-type: none"> <li>- Continue to build awareness.</li> <li>- Foster more links within government.</li> <li>- There needs to be a similar process on northern Manitoba (with respect to work being done on Agri-Manitoba)</li> </ul>
	<ul style="list-style-type: none"> <li>- Preparedness /real world examples</li> <li>Climate change is not getting cross-gov't attention.</li> <li>- Predisposition of audiences to not see climate change as something far into the future</li> <li>- There is still a need for federal leadership on mitigation and adaptation</li> <li>- Label is challenging for people</li> <li>- Connectivity between levels of government</li> <li>- Focus currently seems to be on Agri-Manitoba</li> <li>- Lack of understanding of the economic consequence</li> </ul>	<ul style="list-style-type: none"> <li>- If climate change problem is identified through a risk management process to help identify priorities – identify, quantify and manage</li> <li>- Recognize changing conditions.</li> </ul>

Question 3: What are the potential collaboration opportunities to further PRAC and other Manitoba adaptation-related initiatives? What organizations should be involved and what are the potential roles they can play?

<b>Top Priority Areas</b>	<b>Mechanisms – Approaches/Tools Needed</b>	<b>Key Actions/Steps Required</b>	<b>Potential Partners – existing and esp. new partners</b>	<b>Potential Role (Who leads, who supports?)</b>	<b>Resources Required</b>
Aboriginal and Northern Issues	Coordinate a Round Table to assess key vulnerabilities in the North		Northern association of community councils, MKO	- RHA in North – identify concerns, responses - First Nations Regional Health Branch	Coordinator – someone to bring this together - Financial considerations
Enterprise Risk Management	An Established method for quantifying risks: 1. Identify 2. Quantify 3. Prioritize		Insurance industry/Professional associations, some partners in science, Manitoba Municipalities, EMO	Consultants, insurance industry	Training and familiarization of the process - IISD concept paper to talk about how climate change can be applied

## Group 4 – Municipal Climate Adaptation Planning

Question 1: What are the key accomplishments, successes and best practices gained from the three theme areas (and non PRAC themes) and how can these be further enhanced?

<b>Theme Area</b>	<b>Key Accomplishments/successes/best practices</b>	<b>Key Actions to Enhance Accomplishments/successes</b>
General	Awareness in community – larger centres. Communication, media – convey information so that all are on side.	Youth interest and involvement through school curriculum and activities
Water	Advanced with climate modeling in MB. This good start provides an understanding of the situation we are facing.	Act now on information we have. Continue to gather data, but can use what we have.
DEM	BC model is a best practice model, especially for rural communities.	

Theme Area	Key Accomplishments/successes/best practices	Key Actions to Enhance Accomplishments/successes
Water	Soft path is a good model for promoting local engagement in water management plans.	Inform water services board about the water soft path and find if we have an adequate water supply.
General	Inter-departmental coordination	

Question 2: What are the key issues, gaps, barriers and priority needs in advancing PRAC or other MB climate adaptation work over the next few years? What can we improve upon?

Area of Concern	Key Considerations/Issues/Gaps/Barriers	Priority Needs/Actions (next few years)
Water – Regional	Interprovincial coordination of water management: Excess moisture is an issue in MB; drought in other prairie provinces	
	What will happen to lake levels? Up or down?	
	Water quality - is this an information gap? Not discussed.	
General	Public awareness of CC adaptation	Create ways to communicate (i.e. Winnipeg’s video approach)
Water	Do monitoring systems meet today’s needs?	
General	Lack of engagement with elected officials: limited time, budget.	New ways to engage elected officials – “sell it”
General	Downloading of responsibility > Fed > Prov’s > Municipalities	- “Blue Sky” ideas on what we can do (regulations to enable municipalities to take practical steps - Presentations on AMM, Planning conference - Engagement with children
Terrestrial	Cattle – resource intensive	No longer have this industry? Phase out?
General	Groups, departments, missing from the table (MIT, First Nations...)	
Climate Data	No central station	
DEM	Limited municipal capacity	Enhance: awareness, education relative to adaptation > fund incorporating adaptation into DP regulations. ICSP Standards
		Provide tools and mechanisms to enhance municipal understanding. MB Planning

Area of Concern	Key Considerations/Issues/Gaps/Barriers	Priority Needs/Actions (next few years)
		conference.
		PRAC presentation to IPB.
Water	Policy: water in rivers should not be used for WW as simulation.	Change policy.

Question 3: What are the potential collaboration opportunities to further PRAC and other Manitoba adaptation-related initiatives? What organizations should be involved and what are the potential roles they can play?

Top Priority Areas	Mechanisms – Approaches/Tools Needed	Key Actions/Steps Required	Potential Partners – existing and esp. new partners	Potential Role (Who leads, who supports?)	Resources Required
Enhance Municipal Capacity	Funding to integrate adaptation into DP process.	Interactive workshop @ AMM, planning conference and presentation to IPB. Access to best practices.	AMM, other departments, COP	MLG	Funding and political support
Enhance provincial awareness	Develop an effective strategy to develop/increase awareness	Agreements with the City of Winnipeg to include adaptation clause.	City of Winnipeg, the Climate Change Connection	CONS/WS, MLG, MAFRI	Funding