



North Saskatchewan Watershed Alliance

A WORKBOOK

**To Share Your Views on
Developing an Integrated Watershed
Management Plan (IWMP) for the
North Saskatchewan River Watershed**

January 2011





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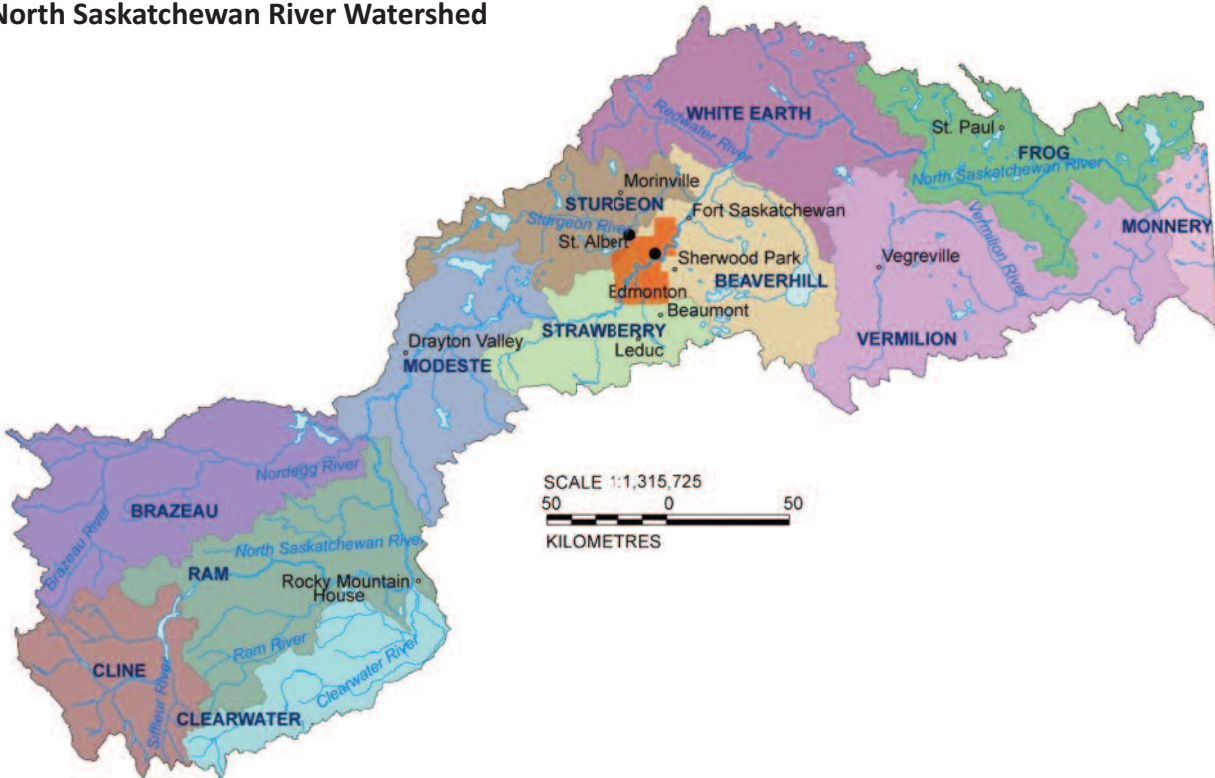
The North Saskatchewan Watershed Alliance (NSWA) is a non-profit society whose purpose is to protect and improve water quality and ecosystem functioning in the North Saskatchewan River watershed in Alberta. The organization is guided by a Board of Directors comprised of member organizations from within the watershed. It is the designated Watershed Planning and Advisory Council (WPAC) for the North Saskatchewan River under the Government of Alberta's *Water for Life Strategy*.

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The North Saskatchewan River watershed is one of the major drainage basins located in Alberta, Canada. The river originates in the Rocky Mountains in the ice fields of Banff National Park and flows in an easterly direction across the Alberta plains. It reaches the Saskatchewan border north of Lloydminster. See **Section 1.1** of the *IWMP Discussion Paper*.

North Saskatchewan River Watershed



- A watershed (also known as a basin) is the area of land that catches precipitation and drains into a larger body of water, such as a river. It is often made up of a number of sub-watersheds that contribute to its overall drainage. Total drainage area of the watershed in Alberta: 57,000 square kilometres.
- 12 sub-watersheds: Clearwater River, Ram River, Cline River, Brazeau River, Modeste Creek, Strawberry Creek, Sturgeon River, Vermilion River, Beaverhill Creek, Monnery Creek, Frog Lake and White Earth Creek.
- 1.2 million people live in the watershed, with 1.1 million living in the Alberta Capital Region.
- 20 rural municipalities and 66 urban municipalities.
- 2 hydro-electric reservoirs: the Brazeau Dam (creating the Brazeau Reservoir) and the Big Horn Dam (creating Abraham Lake).
- 3 coal-fired electricity generating plants.
- Large forestry, agricultural and petrochemical sectors, including oil and gas exploration.

Developing an Integrated Watershed Management Plan

In 2005, the North Saskatchewan Watershed Alliance (NSWA) was appointed by the Government of Alberta as the Watershed Planning and Advisory Council (WPAC) for this river basin. As one of the partnerships under *Water for Life: Alberta's Strategy for Sustainability*, the NSWA was given a mandate by the government to prepare an Integrated Watershed Management Plan (IWMP).

The IWMP will provide watershed information and advice to the Government of Alberta and all stakeholders in order to protect, maintain and restore the North Saskatchewan watershed; and to balance environmental, social and economic needs in order to achieve the three goals of the *Water for Life* Strategy.

To develop the IWMP, the NSWA:

- Took a watershed approach that considers both surface and groundwater issues, and the interaction of water, plants, animals and human activities within the watershed.
- Prepared a *State of the North Saskatchewan Watershed Report* (2005) and many other scientific and technical reports to provide an improved scientific basis for decision-making.
- Prepared an *IWMP Discussion Paper* (January 2011) that identifies Draft IWMP Recommendations for managing the watershed and a collaborative planning and management framework that identifies the roles and responsibilities of working groups of stakeholders to implement each action.
- Developed a stakeholder engagement process to identify issues in the watershed, review the Draft Recommendations proposed in the *IWMP Discussion Paper*, and build support for the implementation of the IWMP.

The purpose of the IWMP is to meet the goals of the *Water for Life* strategy:

- Safe, secure drinking water
- Healthy aquatic ecosystems
- Reliable, quality water supplies for a sustainable economy

Draft IWMP Recommendations are in the form of:

- Goals
- Watershed Management Directions
- Actions

An Opportunity to Share your Views

This *IWMP Workbook* is intended as a companion to the *IWMP Discussion Paper*. The information contained in this workbook briefly describes why the proposed Draft Recommendations in the *IWMP Discussion Paper* are important, and directs you to the section of the Discussion Paper where you can find more information.

Your views on these Draft Recommendations are important. Implementation of the IWMP depends on the willingness of watershed stakeholders to voluntarily implement these actions. **To help shape the final IWMP recommendations, please respond to the survey questions in this workbook.**

The survey questions have been divided into two parts. PART ONE focuses on Draft Recommendations that describe the goals and watershed management directions, which form the foundation of the IWMP. PART TWO focuses on Draft Recommendations that describe specific actions and stakeholder sectors required to voluntarily implement each action.

We encourage you to read all of the Draft Recommendations and to respond to questions in both Parts One and Two of the survey. The actions described in Part Two, however, may require some knowledge in the fields of planning and natural resource science and management to fully appreciate their implications. If you have limited time or do not feel you have sufficient background, please complete Part One of this survey. A third and final part of this workbook requests some basic demographic information about yourself, and asks you to provide the NSWA with your contact information so that you can keep informed of progress made developing and implementing the IWMP.

PART ONE – Time commitment: 15 to 30 minutes. Do you support the proposed goals and watershed management directions? Are there any that you do not support or that are missing?

PART TWO – Time commitment: 1.5 to 2 hours. Do you support the proposed actions? Are there actions you do not support? Are there other actions that need to be identified?

PART THREE – Time commitment – 3 to 5 minutes. Demographic questions and contact information.

How to Complete the Workbook

Online:

The *IWMP Discussion Paper* and this workbook can be found and completed online at www.nswa.ab.ca/IWMPworkbook.

Printed copies:

1. Can be found at your local library. The *IWMP Discussion Paper* and *IWMP Workbook* are available at all public libraries in the watershed. If you do not have access to the Internet, or if your access is dial-up, we encourage you to visit your local library to review the discussion paper and to use the library's computers and high-speed internet connection to complete the workbook online.
2. By mail: please contact the NSWA office at 780-496-3474 and return the completed workbook to: **North Saskatchewan Watershed Alliance, 9504 - 49 St. Edmonton, AB T6B 2M9.**

Deadline for receiving your response: **April 30, 2011.**

All responses received will be aggregated to produce a summary report. Individual responses remain confidential. Only NSWA staff and board members assigned to the analysis will have access to raw data. Only aggregated data and summary reports will be made publicly available.

IWMP Discussion Paper

The NSWA has been working towards the development of the IWMP since 2005. The IWMP Discussion Paper presents information about:

- The NSWA and the North Saskatchewan River watershed (**Section 1**).
- The IWMP planning process (**Section 2**).
- An analysis of the current legislative, policy and planning context (**Section 3**).
- A review and summary of major technical studies undertaken in the watershed (**Section 4**).
- A summary of watershed issues identified by stakeholders (**Section 5**).
- Draft Recommendations: goals, watershed management directions and actions (**Section 6**).
- Implementation of the IWMP with roles and responsibilities for each stakeholder sector (**Section 7**).
- Challenges of aligning the IWMP with other regional-scale planning initiatives (**Section 7.4**).

Implementing the IWMP: Dependency on Voluntary Action

Collaborative planning has been adopted by the Government of Alberta as the desired approach to managing water and land in an integrated way. Currently, IWMPs are not referred to directly in Alberta's legislation. There is no specific statutory framework in place to require the adoption and implementation of IWMPs. Implementation of IWMP recommendations therefore relies on the **voluntary choices and actions** of governments, industries, organizations and individuals. However, there are legislative tools, such as Water Management Plans and Water Conservation Objectives, which are currently available to approve, adopt and implement specific recommendations. (See **Section 2** of the *IWMP Discussion Paper* for more information.)



Example:

The Draft IWMP Recommendations identify the need to develop objectives (numerical thresholds) for water quality, water quantity (instream flow) and aquatic ecosystem health. The Government of Alberta's *Framework for Water Management Planning and Strategy for the Protection of the Aquatic Environment* (enabled by the *Water Act* in 2001), identify Water Management Plans, Approved Water Management Plans and Water Conservation Objectives as tools that can be used to implement objectives identified in IWMP Recommendations.

Creating a Collaborative Planning and Management Framework: IWMP Working Groups

The dependency on voluntary action underscores the importance of building a lasting collaborative planning and management framework to support continued stakeholder engagement in the implementation of the IWMP. The Draft Recommendations identify working groups of stakeholders responsible for addressing each proposed action. These stakeholders must have both the capacity and the interest to participate in the implementation of the actions.

Example: Establishing Water Quality Objectives

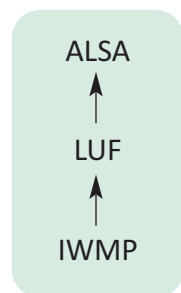
An IWMP Working Group of stakeholders will:

- Review current research and policy context.
- Identify and address gaps in the research.
- Propose numerical thresholds.
- Consult widely on the implications of these objectives; how they reflect societal values and how they may impact economic development.
- Provide the objectives as advice to the Government of Alberta, requesting the Director under the *Water Act* to include them as Water Conservation Objectives under a Water Management Plan or an Approved Water Management Plan.

Aligning Regional Planning Initiatives

The *Alberta Land Stewardship Act* (ALSA) enables sustainable development by responding to the cumulative effects of human activity and other impacts. It makes the *Land-use Framework* (LUF) Regional Plans binding, and requires the management of cumulative effects at the regional scale. Currently, most watershed stakeholders agree that the IWMP will “feed into” the Regional Plans, but the North Saskatchewan Regional Plan is in the very early stages of development, and it is still unclear how this alignment will occur.

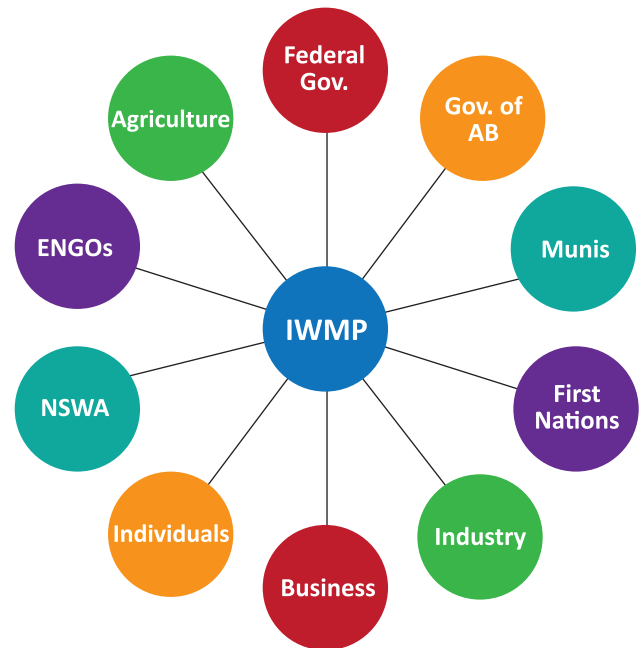
(See **Section 3.2** of the *IWMP Discussion Paper*)



The Role of the NSWA and Watershed Stakeholders

Choosing to take action requires the voluntary commitment of all sectors. The NSWA will continue to engage its members, watershed stakeholders and the public as an integral part of both the development and implementation of the IWMP. Over the next few months, the NSWA will:

- Conduct a broad program of stakeholder engagement and public consultation, using the *IWMP Discussion Paper*, this *IWMP Workbook*, the NSWA website, discussion forums, meetings, and presentations.
- Prepare a draft IWMP, which will include a work plan and timetable, that considers all information received during the consultation and engagement process.
- Consult with stakeholders on the draft IWMP.
- Prepare the final IWMP for approval by the NSWA Board of Directors, which will be submitted to the Government of Alberta and other stakeholders for endorsement and implementation.
- Initiate IWMP Working Groups to begin implementation on priority actions.



While the NSWA has taken the lead role to develop the IWMP, it will not be directly involved in all IWMP Working Groups. However, the NSWA is committed to monitoring and reporting on progress made to implement all IWMP actions. As the diagram illustrates, the NSWA is one of many participants. It is expected that full implementation of the IWMP will take several years. A work plan with short, medium and long-term targets will form part of the final IWMP.

Key Findings from the Research

The NSWA produced the *State of the North Saskatchewan Watershed Report* in 2005. Since then, the NSWA has commissioned many reports concerning the assessment of water quality, water quantity (supply and instream flow needs methodology), groundwater, cumulative effects, climate change, and current and future water use (water allocation). Following are key findings from the research:

- The overall health of the entire North Saskatchewan Watershed (in 2005) was generally fair. (See **Section 4.1** of the *IWMP Discussion Paper*)
- The most pressing issues in the mainstem of the North Saskatchewan River are those related to water quality. (**Section 4.2**)
- Quantity of water flowing in the North Saskatchewan River is an important component of an IWMP. This includes understanding natural supply and variability, withdrawals and consumptive use (water used and not returned to the river), and instream flow needs (the amount of water flowing in a river or stream needed to sustain a healthy aquatic ecosystem). (**Section 4.3.1**)
- Alberta must allow at least 50% of the annual, naturalized flow of eastward-flowing rivers to enter Saskatchewan. (**Section 4.3.1**)
- Nearly 90% of the water supply in the river comes from the upper four sub-watersheds (the Cline, Clearwater, Ram and Brazeau). The watershed area downstream of Edmonton to the Saskatchewan border contributes less than 5%. (**Section 4.3.3**)
- Most of the water needed in the North Saskatchewan River watershed in Alberta is taken from surface sources; only about 1% of water is taken from groundwater. However, much more research is needed to map the aquifers and to fully understand the impact of human uses on groundwater. (**Section 4.3.2**)
- 27% of the average annual flow from the watershed is allocated. However, many allocations are not fully utilized. Thermal power plants and municipalities, for example, return most of the water they use to the river. As a result, only 2.6% of the average annual flow is presently being consumed (withdrawn and not returned to the river). (**Section 4.3.2**)
- The most likely future trend in water supply, as a consequence of climate change effects, is an increase in annual yield (water volume) of 5% to 15%. However, reductions in annual yield are still a possibility. Potential variations in monthly yields may be larger than the annual yield variations (with the largest increases projected in spring and largest decreases projected in summer and fall months). (**Section 4.3.4**)
- The main footprints affecting watershed values are urban and residential development and agricultural use. (**Section 4.5**)
- The NSWA consulted widely with stakeholders to identify issues of concern in the watershed. Information received was categorized into five types of issues: water quality; water quantity (supply); habitat and aquatic species; governance (how people organize themselves to accomplish their goals); and knowledge (information and education). (**Section 5**)

Draft IWMP Recommendations

The NSWA recognizes that stakeholders have done, and are in the process of doing, much to improve conditions in the watershed, and considerable scientific work has been initiated in the past few years. However, much work and research remains to be done, including the development of effective assessment and modelling tools that can be used to support ongoing watershed planning activities.

The Draft Recommendations take the form of goals, watershed management directions and actions:

- **Goal:** overall, long-term result the plan is intended to achieve.
- **Watershed Management Direction:** A specific, measurable condition that quantifies efforts to achieve a desired goal.
- **Action:** A specific management activity undertaken to achieve the watershed management direction. The actions identified are not exhaustive, but instead serve as examples that reflect the NSWA's current understanding of the balance among environmental, social and economic needs and interests. These actions are expected to be refined and adapted by stakeholders as this understanding evolves.

See **Section 6** of the *IWMP Discussion Paper* to find definitions of other key terms as well as references and indicators that can be used to determine whether each Watershed Management Direction is being achieved.

PART ONE:

Survey Questions on Draft IWMP Recommendations

Note: Sections referred to in the survey can be found in the *IWMP Discussion Paper*. If more space is required for hand-written comments, please use the extra sheets supplied at the back of this workbook (pages 40-42).

Draft IWMP Goals

Five goals have been identified. Thinking about the entire watershed, please indicate how supportive you are of these goals.

Key Definitions (Section 6.1):					
<p>Maintain: keep in a condition suitable for all uses including ecosystem health, but not necessarily in the current or natural condition.</p> <p>Improve: where a condition is impaired, move toward a condition suitable for all uses, including ecosystem health, but not necessarily to a natural condition.</p> <p>Protect: where near-natural conditions exist, control and limit further human impacts on all uses, including ecosystem health.</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Goal #1: Maintain or improve water quality in the North Saskatchewan River watershed.					
Goal #2: Maintain or improve water quantity (flow) conditions in the North Saskatchewan River.					
Goal #3: Maintain or improve aquatic ecosystem health in the North Saskatchewan River watershed.					
Goal #4: Protect groundwater quality and quantity in the North Saskatchewan River watershed.					
Goal #5: Water and land-use planning are aligned at the regional scale.					

Comments: Do these goals accurately capture your “big picture” concerns in the watershed? Please describe any goals that you do not support or which are missing.

Draft IWMP Watershed Management Directions

Watershed Management Directions have been identified for each goal. How supportive are you of each of these management directions in relation to achieving the goal?

<p>Goal #1: Maintain or improve water quality in the North Saskatchewan River watershed.</p> <p>Point source: effluents entering the river from the end of a pipe and other constructed channels including industrial and municipal wastewater discharges, storm sewers and combined sewer outfalls.</p> <p>Non-point source: runoff from natural landscapes, farm fields, logging areas, mines, urbanized areas and roads.</p> <p>Source water: the waterbody from which a utility draws its supply of water. (Section 4.2)</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Watershed Management Directions:</p> <p>1.1. Site-specific Water Quality Objectives are developed and implemented for the mainstem of the North Saskatchewan River.</p>					
<p>1.2. Total contaminant loads entering the mainstem of the North Saskatchewan River, from all point and non-point sources, are managed so that the Water Quality Objectives at long-term river network monitoring sites are met.</p>					
<p>1.3. Water Quality Objectives are developed and implemented for all major tributaries to protect tributary uses and support the achievement of water quality management goals in the North Saskatchewan River.</p>					
<p>1.4. Drinking water source protection plans are developed and implemented by waterworks utilities within the North Saskatchewan River watershed.</p>					

Comments: Do these Watershed Management Directions contribute to attaining Goal #1? Please describe any management directions you do not support or which are missing.

	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Goal #2: Maintain or improve water quantity (flow) conditions in the North Saskatchewan River.</p> <p>Instream Flow Needs (IFN): the amount of water flowing in a river or stream needed to sustain a healthy aquatic ecosystem. This is achieved by maintaining a natural cycle of high, medium and low flows to address the needs of multiple components of an aquatic ecosystem. (Section 4.3.1)</p>					
<p>Watershed Management Directions:</p> <p>2.1. Future risks to surface water supply in the North Saskatchewan River watershed are evaluated.</p>					
<p>2.2. Instream Flow Needs are assessed and Instream Flow Objectives are developed and implemented for the mainstem of the North Saskatchewan River.</p>					
<p>2.3. Water quantity in the mainstem of the North Saskatchewan River is managed to meet Instream Flow Objectives.</p>					

Comments: Do these Watershed Management Directions contribute to attaining Goal #2? Please describe any management directions you do not support or which are missing.

<p>Goal #3: Maintain or improve aquatic ecosystem health in the North Saskatchewan River watershed.</p> <p>Healthy aquatic ecosystem: an aquatic environment that sustains its ecological structure, processes, functions and resilience within its range of natural variability. (Section 4.4)</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Watershed Management Directions:</p>					
<p>3.1. Aquatic Ecosystem Health Objectives are developed for all major waterbodies and riparian areas.</p>					
<p>3.2. Numbers and areal coverage of wetlands are maintained or increased.</p>					
<p>3.3. Riparian area health and function are maintained or improved.</p>					
<p>3.4. Environmental impacts from the activities of resource and utilities industries are minimized or reduced.</p>					
<p>3.5. Environmental impacts from municipal and industrial expansion are minimized or reduced.</p>					
<p>3.6. Net loss of the permanent forested land base to other uses is minimized or reduced.</p>					
<p>3.7. Fish Management Objectives are established and achieved for the North Saskatchewan River mainstem, tributaries and lakes.</p>					
<p>3.8. Environmental impacts from random camping and all other recreational activities on public land are minimized or reduced.</p>					
<p>3.9. Knowledge and understanding of the importance of a healthy aquatic ecosystem are improved.</p>					

Comments: : Do these Watershed Management Directions contribute to attaining Goal #3? Please describe any management directions that you do not support or which are missing.

Goal #4: Protect groundwater quality and quantity in the North Saskatchewan River watershed.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Watershed Management Directions:					
4.1. Knowledge and understanding of groundwater quality and quantity are improved.					
4.2. Impacts on groundwater from resource, industrial, municipal and agricultural developments are minimized or reduced.					
4.3. Management strategies and plans to protect groundwater quality and quantity are developed.					

Comments: Do these Watershed Management Directions contribute to attaining Goal #4? Please describe any management directions that you do not support or which are missing.

<p>Goal #5: Water and land-use planning are aligned at the regional scale.</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Watershed Management Directions:</p> <p>5.1. Cooperation and communication among planning initiatives are improved.</p>					

Comments: Does this Watershed Management Direction contribute to attaining Goal #5? Please describe any management directions that are missing.

Thank you for your time and consideration of PART ONE of this survey. We encourage you to continue to PART TWO to read and consider proposed actions to implement these management directions and achieve the goals of the IWMP.

If you have completed your participation in this survey please go to PART THREE to provide the NSWA with some basic demographic information about yourself as a responder to this survey and to provide your contact information.

PART TWO:

Survey Questions on Draft IWMP Recommendations

Draft IWMP Actions

Actions have been proposed to implement each Watershed Management Direction. Please indicate how supportive you are of each of these actions.

Goal #1:

Maintain or improve water quality in the North Saskatchewan River watershed.

Watershed Management Direction 1.1: Site-specific Water Quality Objectives are developed and implemented for the mainstem of the North Saskatchewan River.					
<p>Upstream of Edmonton: All water quality indicators are generally much better than the published guidelines, although occasional peak runoff conditions can affect drinking water treatment due to the presence of high suspended solids, organic material and pathogens (total and fecal coliforms, <i>E.coli</i> and <i>Giardia</i>).</p> <p>Downstream of Edmonton: Despite continuous population growth and development certain aspects of water quality have been improving, due in large part to improvements made to the City of Edmonton and Capital Region wastewater treatment systems. Other urban, industrial and agricultural impacts, however, are still evident. Most of the selected indicators are better than the published guidelines, but a few exceed them (total suspended solids, turbidity, fluoride and pathogens). (Section 4.2.1)</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Actions:</p> <p>1.1.1 NSWA to work with Government of Alberta and watershed stakeholders to finalize Water Quality Objectives for the mainstem of the North Saskatchewan River.</p> <p>The NSWA undertook a comprehensive assessment of water quality conditions for the mainstem of the North Saskatchewan River and proposed Water Quality Objectives based on that assessment. These proposed objectives are to act as a starting point of discussion for the working group identified in this Action. The group is expected to examine options to the current policy of ‘no further degradation’, including managing water quality to other targeted limits. (Section 4.2.1)</p>					

Actions cont'd:	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
1.1.2 NSWA to recommend these Water Quality Objectives to the Government of Alberta for inclusion as part of a Water Management Plan or an Approved Water Management Plan for the North Saskatchewan River watershed.					

Comments: Do the above Actions (1.1.1 and 1.1.2) contribute to achieving Watershed Management Direction 1.1? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 1.2: Total contaminant loads entering the mainstem of the North Saskatchewan River, from all point and non-point-sources, are managed so that the Water Quality Objectives at long-term river network monitoring sites are met.					
<p>Point source: effluents entering the river from the end of a pipe and other constructed channels including industrial and municipal wastewater discharges, storm sewers and combined sewer outfalls.</p> <p>Non-point source: runoff from natural landscapes, farm fields, logging areas, mines, urbanized areas and roads.</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Actions:</p> <p>1.2.1 All point-source approval holders (municipalities and industries) to quantify point-source loads for all pollutants for which Water Quality Objectives have been established (e.g. for phosphorous, nitrogen and total suspended solids). (See Section 6.2, Action 1.2.1 for more details.)</p>					
<p>1.2.2 Government of Alberta and point-source approval holders within each river reach (length of the river between two specific points) of the North Saskatchewan River to work together to set load targets and negotiate load allocations for each pollutant to meet site-specific Water Quality Objectives in the mainstem of the North Saskatchewan River. (See Section 6.2, Action 1.2.2 for more details.)</p>					
<p>1.2.3 Government of Alberta and participating stakeholders to complete and implement the Water Management Framework for the Industrial Heartland and Capital Region.</p>					
<p>1.2.4 Government of Alberta, in collaboration with NSWA, municipalities and industry, to evaluate current water quality monitoring and future needs in the mainstem of the North Saskatchewan River.</p>					
<p>1.2.5 Government of Alberta to develop a plan to fund and implement a comprehensive long-term water quality monitoring system for the mainstem of the North Saskatchewan River that includes the creation of a more accessible database for all point-source load data.</p>					
<p>Comments: Do the Actions (1.2.1 to 1.2.5) contribute to achieving Watershed Management Direction 1.2? Please describe any actions that you do not support or which are missing.</p>					

Watershed Management Direction 1.3: Water Quality Objectives are developed and implemented for all major tributaries to protect tributary uses and support the achievement of water quality management goals in the North Saskatchewan River.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions: 1.3.1 NSWA to work with local stakeholders to initiate sub-basin watershed plans to address local issues, in response to their requests. (See Section 6.2, Action 1.3.1 for more detail.)					
1.3.2 Government of Alberta, in collaboration with NSWA and watershed stakeholders, to evaluate current water quality monitoring in the major tributaries of the North Saskatchewan River watershed.					
1.3.3 Government of Alberta to develop a plan to fund and implement a comprehensive long-term water quality monitoring system established at the confluence of major tributaries entering the North Saskatchewan River mainstem.					
1.3.4 Government of Alberta to continue to work with agriculture and other sectors to minimize impacts and reduce non-point-source pollution by: analyzing current practices and plans; developing, monitoring and enforcing the implementation of updated plans; and utilizing best practices. (See Section 6.2, Action 1.3.4 for more details.)					
1.3.5 Government of Alberta to work with the oil & gas sector to review, update and report on current response plans for pipeline breaks in order to manage risks to drinking water supplies.					

Comments: Do these Actions (1.3.1 to 1.3.5) contribute to achieving Watershed Management Direction 1.3? Please describe any actions you do not support or which are missing.

Watershed Management Direction 1.4: Drinking water source protection plans are developed and implemented by waterworks utilities within the North Saskatchewan River watershed.					
Source water: the waterbody from which a utility draws its supply of water.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Action: 1.4.1 All waterworks utilities in the watershed, in collaboration with Government of Alberta and other stakeholders, to develop drinking water source protection plans.					

Comments: Does this Action (1.4.1) contribute to achieving Watershed Management Direction 1.4? Please describe any actions you do not support or which are missing.

Goal #2:
Maintain or improve water quantity (flow) conditions in the North Saskatchewan River.

Watershed Management Direction 2.1: Future risks to surface water supply in the North Saskatchewan River watershed are evaluated.					
Seasonal flow in the middle and lower reaches of the North Saskatchewan River is affected by two hydro-electric dams in the headwaters: the Brazeau Dam and the Big Horn Dam. These dams change the annual pattern of the river flow. Compared to the natural regime, flows are now lower in the summer and higher during winter. Stored water is released during the winter to generate power, to improve the reliability of the drinking water supply and to support the dilution of effluents. (Section 4.3.1)	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
2.1.1 Government of Alberta to work with NSWA and other stakeholders to develop and implement a water resource management model (a tool to manage flow and licensing data) for the North Saskatchewan River watershed.					
2.1.2 Government of Alberta and other stakeholders to evaluate and report risks to the water supply of the North Saskatchewan River and its tributaries resulting from climate change, landscape-scale disturbances and the interactions between surface and groundwater diversions.					
2.1.3 Government of Alberta, in collaboration with other stakeholders, to evaluate and report on the need for future constructed water storage.					
2.1.4 Government of Alberta, in collaboration with other stakeholders, to evaluate and report on the need to establish a cap on water allocations for the North Saskatchewan River watershed.					

Comments: Do these Actions (2.1.1 to 2.1.4) contribute to achieving the Watershed Management Direction 2.1? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 2.2: Instream Flow Needs are assessed and Instream Flow Objectives are developed and implemented for the mainstem of the North Saskatchewan River.					
Instream Flow Needs (IFN): the amount of water flowing in a river or stream needed to sustain a healthy aquatic ecosystem. This is achieved by maintaining a natural cycle of high, medium and low flows to address the needs of multiple components of an aquatic ecosystem.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
2.2.1 NSWA to work with Alberta Water Council and stakeholders to identify methodologies to assess instream flow needs.					
2.2.2 NSWA to work with Government of Alberta and stakeholders to evaluate instream flow needs for the protection of water quality, fish habitat, riparian zones, channel maintenance and intake structure requirements.					
2.2.3 NSWA to recommend Instream Flow Objectives to the Government of Alberta for inclusion as part of a Water Management Plan or an Approved Water Management Plan for the North Saskatchewan River watershed.					

Comments: Do these Actions (2.2.1 to 2.2.3) contribute to achieving Watershed Management Direction 2.2? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 2.3: Water quantity in the mainstem of the North Saskatchewan River is managed to meet Instream Flow Objectives.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Consumptive use: water used and not returned to the river.					
Actions: 2.3.1. Government of Alberta to manage the water allocation licencing and approval process to meet Instream Flow Objectives, as part of a Water Management Plan, and to meet commitments to the Prairie Provinces Water Board. (See Section 6.2, Action 2.3.1 for more details.)					
2.3.2 Government of Alberta to monitor, evaluate and report on the achievement of Instream Flow Objectives as part of a Water Management Plan or an Approved Water Management Plan.					

Comments: Do these Actions (2.3.1 and 2.3.2) contribute to achieving Watershed Management Direction 2.3? Please describe any actions that you do not support or which are missing.

Goal #3:

Maintain or improve aquatic ecosystem health in the North Saskatchewan River watershed.

The NSWA recognizes that different types of watershed management issues are found at different scales (mainstem of the river, tributaries, lakes and streams).

- Protection and restoration of the aquatic ecosystem, including lakes, wetlands and riparian areas can increase resilience and mitigate potential effects of climate change on these systems. **(Section 4.5)**
- The watershed was most healthy in the four headwater sub-watersheds, which include the Cline, Brazeau, Clearwater and Ram. East of the headwaters, where livestock density, human activity and populations are greatest, watershed health tended to decline. Generally, sub-watershed health was poorer where land use was more intensive and where riparian health scores and wetland cover were lowest. **(Section 4.1)**
- The impacts of high agricultural intensity in the Vermilion, Frog, Beaverhill, Modeste and Strawberry sub-watersheds was reflected in higher phosphorus levels, lower riparian health scores and lower wetland densities. **(Section 4.1.)**
- Disturbances to forest ecosystems can reduce water quality, and recovery will only occur with re-vegetation. Resource roads and stream crossings can have significant impacts on water quality in terms of erosion of surface soils and increased sediment deposition in streams. **(Section 4.2)**
- Controlling urban and rural residential sprawl appears to be one of the most powerful means of limiting further degradation of the watershed. **(Section 4.5)**
- The overall well-being of residents of the North Saskatchewan River watershed, as measured in economic terms, is on the order of \$96.8 billion. This represents the value of economic activity (\$79.1 billion) plus the value of ecosystem services generated by the landscape (\$17.7 billion). For the five sub-basins upstream of Edmonton, the value of ecosystem services (\$10.2 billion) was double the value of economic activity (\$5.0 billion). Downstream of Edmonton, the value of ecosystem services (\$4.9 billion) was 80% of the value of economic activity (\$6.0 billion). **(Section 4.6)**

Watershed Management Direction 3.1: Aquatic Ecosystem Health Objectives are developed for all major waterbodies and riparian areas.					
<p>Healthy aquatic ecosystem: an aquatic environment that sustains its ecological structure, processes, functions and resilience within its range of natural variability.</p> <p>Riparian areas: the bank and shore lands adjacent to and between streams, rivers, lakes and wetlands and their surrounding uplands, where the vegetation and soils are influenced strongly by the presence of water.</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Actions:</p> <p>3.1.1 Government of Alberta, in collaboration with North Saskatchewan River watershed stakeholders, to develop Aquatic Ecosystem Health Objectives for key waterbodies in the North Saskatchewan River watershed, including the mainstem, tributaries, lakes, wetlands and riparian areas.</p>					
<p>3.1.2 Government of Alberta, in collaboration with North Saskatchewan River watershed stakeholders, to assess the current state of aquatic ecosystem health of key waterbodies.</p>					
<p>3.1.3 Government of Alberta, in collaboration with North Saskatchewan River watershed stakeholders, to develop, fund and implement long-term monitoring of aquatic ecosystem health on priority waterbodies for inclusion as part of a Water Management Plan or an Approved Water Management Plan.</p>					
<p>3.1.4 NSWA, working with counties, summer villages, recreational councils and sport fishing groups, to develop a priority list of lakes requiring water quality management plans.</p>					

Comments: Do these Actions (3.1.1 to 3.1.4) contribute to achieving Watershed Management Direction 3.1? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 3.2: Numbers and areal coverage of wetlands are maintained or increased.					
Areal coverage: area of land (km ²) covered by wetlands.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
3.2.1 Government of Alberta, in collaboration with NSWA and other stakeholders, to develop wetland protection and restoration plans, practices and policies. (See Section 6.2, Action 3.2.1 for more details.)					
3.2.2 Government of Alberta and municipalities to incorporate wetland conservation and restoration guidelines into regulations and by-laws.					
3.2.3 Government of Alberta, in collaboration with NSWA and other stakeholders, to complete wetland inventories.					
3.2.4 Ducks Unlimited Canada, municipalities and other stakeholders to restore drained and altered wetlands (or create new wetlands where restoration is not feasible) in areas of the watershed where significant wetland loss has occurred, as defined in Alberta’s Interim Wetlands Policy and as determined by <i>Water for Life’s</i> provincial comprehensive wetland inventory. (See Section 6.2, Action 2.3.4 for more details.)					
3.2.5 Urban municipalities to increase retention and restoration of wetlands and create new wetlands to mitigate storm water runoff and non-point-source contamination to help meet Water Quality Objectives in receiving waterbodies; naturally-occurring wetlands to be retained with their function and processes intact.					

Comments: Do these Actions (3.2.1 to 3.2.5) contribute to achieving Watershed Management Direction 3.2? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 3.3: Riparian area health and function are maintained or improved.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions: 3.3.1 Government of Alberta, in collaboration with NSWA, Ducks Unlimited Canada, Alberta Conservation Association, Alberta Riparian Habitat Management Society (Cows and Fish), and other stakeholders to conduct an assessment of riparian area conditions throughout the North Saskatchewan River watershed.					
3.3.2 Government of Alberta and municipalities to develop and incorporate riparian set-back guidelines into regulations and by-laws. 3.3.3 Municipalities to work with other stakeholders to explore the availability of support (financial and expertise) to enable landowners to restore damaged riparian areas.					

Comments: Do these Actions (3.3.1 to 3.3.3) contribute to achieving Watershed Management Direction 3.3? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 3.4: Environmental impacts from the activities of resource and utilities industries are minimized or reduced.					
Green Area: Public forested land owned by the Province of Alberta that is removed from settlement and managed for various uses including: timber production; oil & gas; mining; recreation; watershed, wildlife and fisheries. Agricultural use is limited to grazing, where it is compatible with other uses.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
3.4.1 Government of Alberta to work with the municipalities and industries to minimize their impacts in the Green Area by reducing the density (km/km ²) of linear developments (roads, seismic, power lines, underground lines, etc.). (See Section 6.2, Action 3.4.1 for more details.)					
3.4.2 Government of Alberta to work with the oil & gas sector to complete the process of improving regulations to reduce the footprint of active well sites and to reclaim and restore well sites defined as no longer in use. (See Section 6.2, Action 3.4.2 for more details.)					
3.4.3 Government of Alberta to work with resource industries to develop integrated planning, best management and reclamation practices, such as developing road maintenance plans, eliminating hanging culverts and minimizing construction of stream crossings.					
3.4.4 Government of Alberta to work with stakeholders to complete and implement its gravel extraction policies.					

Comments: Do these Actions (3.4.1 to 3.4.4) contribute to achieving Watershed Management Direction 3.4? Please describe any that you do not support or which are missing.

<p>Watershed Management Direction 3.5: Environmental impacts from municipal and industrial expansion are minimized or reduced.</p>	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
<p>Actions:</p> <p>3.5.1 Municipalities, business, industry and Government of Alberta to work together to identify and implement best land-use planning practices to guide future development. (See Section 6.2, Action 3.5.1 for more details.)</p>					

Comments: Does this Action (3.5.1) contribute to achieving Watershed Management Direction 3.5? Please describe any part of this action you do not support and/or other actions that are missing.

Watershed Management Direction 3.6: Net loss of the permanent forested land base to other uses is minimized or reduced.					
White Area: Settled area, where public land is part of the agricultural landscape and is managed for various uses including: agriculture; fish and wildlife habitat; recreation; soil and water conservation.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
3.6.1 Government of Alberta to work with industrial, municipal and agricultural stakeholders to develop policies to guide and minimize conversion of forest land to other uses in the Green Area.					
3.6.2 Government of Alberta to work with municipal and agricultural stakeholders to develop market-based incentives and policies to maintain forest cover and function in the White Area. (See Section 6.2, Action 3.6.2 for more details.)					
3.6.3 Municipal and agricultural stakeholders to work with Government of Alberta to develop policies and best practices to encourage re-forestation in order to maintain and improve forested riparian zones.					

Comments: Do these Actions (3.6.1 to 3.6.3) contribute to achieving Watershed Management Direction 3.6? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 3.7: Fish Management Objectives are established and achieved for the North Saskatchewan River mainstem, tributaries and lakes.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions: 3.7.1 Government of Alberta, in collaboration with stakeholders, to review, update and implement Fish Management Objectives for the North Saskatchewan River mainstem and develop and implement Fish Management Objectives for the North Saskatchewan River watershed tributaries and lakes.					
3.7.2 Government of Alberta and the federal Department of Fisheries and Oceans to assess, prioritize and protect significant fish habitat and populations in the North Saskatchewan River watershed.					
3.7.3 Government of Alberta, Department of Fisheries and Oceans and other stakeholders to fund the restoration of significant fish habitat that has been lost or damaged.					
3.7.4 Government of Alberta, in collaboration with other stakeholders, to develop and implement long-term monitoring of fisheries resources and aquatic habitat throughout the North Saskatchewan River watershed.					

Comments: Do these Actions (3.7.1 to 3.7.4) contribute to achieving Watershed Management Direction 3.7? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 3.8: Environmental Impacts from random camping and all other recreational activities on public land are minimized or reduced.					
Random camping: camping in unapproved sites with no provisions for proper sanitation and waste removal.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
3.8.1 Government of Alberta and municipalities to work with the recreation sector to develop access management plans that focus on managing recreational activities on public land.					
3.8.2 Government of Alberta and municipalities to work with the recreation sector to implement and enforce recreation-access management plans.					
3.8.3 Government of Alberta and municipalities to work with the recreation sector to develop education and awareness programs that promote responsible recreation use, activities and practices on public lands.					

Comments: Do these Actions (3.8.1 to 3.8.3) contribute to achieving Watershed Management Direction 3.8? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 3.9: Knowledge and understanding of the importance of a healthy aquatic ecosystem are improved.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions: 3.9.1 NSWA, in collaboration with the Government of Alberta, municipalities, industries and non-government organizations to develop active, wide-spread commitment to, and support for, watershed stewardship through improved education, communications and access to information.					

Comments: Does this action (3.9.1) contribute to achieving Watershed Management Direction 3.9? Please describe any part of this action you do not support and/or other actions that are missing.

Goal #4:
Protect groundwater quality and quantity in the North Saskatchewan River Watershed.

Watershed Management Direction 4.1: Knowledge and understanding of groundwater quality and quantity are improved.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
4.1.1 Government of Alberta to work with stakeholders to address gaps in knowledge about groundwater as identified in the NSWA's groundwater report. (See Section 6.2, Action 4.1.1 for more details.)					
4.1.2 Government of Alberta and stakeholders to advance public understanding of groundwater by increasing and sustaining extension and education activities for municipalities, landowners and other stakeholders who use or impact groundwater (e.g. Working Well Program).					

Comments: Do these Actions (4.1.1 and 4.1.2) contribute to achieving Watershed Management Direction 4.1? Please describe any actions that you do not support and any which are missing.

Watershed Management Direction 4.2: Impacts on groundwater from resource, industrial, municipal and agricultural developments are minimized.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions: 4.2.1 Government of Alberta, in collaboration with forestry and oil & gas stakeholders, to assess impacts of resource exploration and development on groundwater recharge in the headwaters region.					
4.2.2 Municipalities, in collaboration with Government of Alberta, industry and landowners to assess municipal/industrial/agricultural impacts on groundwater quality, quantity and recharge in central and downstream regions.					
4.2.3 Government of Alberta and municipalities to work with the oil & gas sector to monitor, report, and share information on groundwater well data.					

Comments: Do these Actions (4.2.1 to 4.2.3) contribute to achieving Watershed Management Direction 4.2? Please describe any actions that you do not support or which are missing.

Watershed Management Direction 4.3: Management strategies and plans to protect groundwater quality and quantity are developed.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions:					
4.3.1 Municipalities, in cooperation with the Government of Alberta, to develop aquifer management plans for areas where population density and competing uses impact, or are a risk to, groundwater.					
4.3.2 Government of Alberta, municipalities and other stakeholders to develop strategies to address cumulative effects of all water wells on groundwater aquifers.					
4.3.3 Government of Alberta to identify and define sustainable pumping rates for priority aquifers.					
4.3.4 Government of Alberta to require groundwater users to monitor and report water use from both licensed and non-licensed wells.					

Comments: Do these Actions (4.3.1 to 4.3.4) contribute to achieving Watershed Management Direction 4.3? Please describe any actions that you do not support or which are missing.

Goal #5:
Water and land-use planning are aligned at the regional scale.

Watershed Management Direction 5.1: Cooperation and communication among planning initiatives are improved.	Strongly Support	Support	Do Not Support	Strongly Do Not Support	Do Not Know/No Opinion
Actions: 5.1.1 Government of Alberta, Capital Region Board, municipalities and the NSWA to establish a working group to assess issues of planning integration and alignment within the North Saskatchewan River watershed in order to identify areas of overlap and inconsistency.					
5.1.2 Government of Alberta, Capital Region Board, municipalities and NSWA to report on the integration, alignment and implementation of all regional scale planning and management initiatives through their respective reporting mechanisms.					

Comments: Do these actions (5.1.1 and 5.1.2) contribute to achieving Watershed Management Direction 5.1? Please describe any actions that you do not support or which are missing.

Thank you for your time and consideration of PART TWO of this survey. Please go to PART THREE to provide the NSWA with some basic demographic information as a responder to this survey and to leave your contact information.

PART THREE: Please tell us about yourself

1. If you are responding on behalf of an organization, please answer the following questions. If you are responding as an individual, please go to the next set of questions.

Name of the organization:	
Is the organization a member of NSWA?	<input type="radio"/> Yes <input type="radio"/> No
What sector does your organization belong to? (choose only one)	
<input type="radio"/> Industry: chemical and petrochemical; oil and gas; mining; power generation; forestry; agriculture (livestock, irrigated and other crops); utility.	
<input type="radio"/> Environmental Non-profit: environmental; fish habitat conservation; lake environment conservation; wetland conservation.	
<input type="radio"/> Government of Alberta: Agriculture and Rural Development; Energy; Environment; Health and Wellness; Sustainable Resource Development; Alberta Economic Development Authority; Alberta Science and Research Authority; Alberta Water Research Institute.	
<input type="radio"/> Other Government: Federal; First Nations; Métis Settlements; large urban, small urban and rural municipalities.	
<input type="radio"/> Other (Please Describe):	

2. If you are responding as an individual:

Are you a member of NSWA:
<input type="radio"/> Yes <input type="radio"/> No
Age:
<input type="radio"/> Under 24 <input type="radio"/> 25 to 44 <input type="radio"/> 45 to 64 <input type="radio"/> 65 and above
Gender:
<input type="radio"/> Female <input type="radio"/> Male

Education:

Which is the highest level of education that you have completed? (Please choose only one)

- High school diploma or certificate
- Apprenticeship or trades diploma or certificate
- Non-university diploma (e.g. college, CEGEP)
- Some university, not completed
- University degree (Bachelor's)
- Graduate university degree

Occupation:

Which category currently best describes your primary area of work? (Please choose only one)

- Management
- Business, Finance, Administration
- Natural and Applied Sciences and related occupations
- Health
- Social Science, Education, Government Service, Religion
- Art, Culture, Recreation and Sport
- Sales and Service
- Trades, Transport, Equipment Operators and related occupations
- Occupations unique to Primary Industries (Agriculture)
- Occupations unique to Processing, Manufacturing and Utilities
- Homemaker, Caregiver for someone at home

What sector do you consider yourself belonging to?

- Industry:** chemical and petrochemical; oil and gas; mining; power generation; forestry; agriculture (livestock, irrigated and other crops); utility.
- Environmental Non-profit:** environmental; fish habitat conservation; lake environment conservation; wetland conservation.
- Government of Alberta:** Agriculture and Rural Development; Energy; Environment; Health and Wellness; Sustainable Resource Development; Alberta Economic Development Authority; Alberta Science and Research Authority; Alberta Water Research Institute.
- Other Government:** Federal; First Nations; Métis Settlements; large urban, small urban and rural municipalities.
- Other** (Please Describe):
- None**

Commitment going forward

The NSWA is committed to meeting with stakeholders to review the *IWMP Discussion Paper* and to widely distributing and encouraging response to this *IWMP Workbook*. The NSWA will continue consultation and engagement until the IWMP recommendations have been reviewed, revised and adopted by the NSWA Board of Directors and submitted to the Government of Alberta and stakeholders for endorsement and implementation.

Please share your name and contact information with us so that we can communicate with you regarding the development and implementation of the IWMP for the North Saskatchewan River watershed. Your personal information will be kept confidential and separate from responses given in the workbook.

Name: _____

Phone Number: _____

Email address: _____

Postal Code: _____

***Thank you for participating and helping to develop the
Integrated Watershed Management Plan for the
North Saskatchewan River watershed!***

These additional sheets are provided for those submitting handwritten responses to the survey questions. Please ensure you indicate the number of the goal, watershed management direction and action to which your comments refer. (Example: 1.1.1: The first number (1) identifies the goal; the first two numbers (1.1) identify the watershed management direction; three numbers (1.1.1) identify the action.)

Draft Recommendation number	Comment

**Draft Recommendation
number**

Comment

Draft Recommendation number	Comment



North Saskatchewan Watershed Alliance

Workbook Results: Integrated Watershed Management Plan for the North Saskatchewan River



May 2012

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The North Saskatchewan Watershed Alliance (NSWA) is a non-profit society whose purpose is to contribute to the protection of water quality, water supplies, ecosystem function and improved watershed health through the collaborative efforts of all stakeholders and interested individuals.

NSWA is guided by a Board of Directors composed of representatives of member organizations from within the watershed. It is the designated Watershed Planning and Advisory Council (WPAC) for the North Saskatchewan River under the Government of Alberta's [Water for Life Strategy](#).

Suggested Citation:

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EXECUTIVE SUMMARY

The North Saskatchewan Watershed Alliance (NSWA) carried out an extensive stakeholder engagement and public consultation program in 2011 to support development of their Integrated Watershed Management Plan (IWMP) for the North Saskatchewan River (NSR) watershed. The program was designed to elicit views and concerns about management of the watershed and provide people an opportunity to share their ideas and offer guidance to the NSWA to help shape the final recommendations in the IWMP.

In January 2011, the NSWA published a Discussion Paper that summarized information pertinent to preparation of the IWMP and presented 86 draft recommendations: 5 Goals, 20 watershed management Directions and 61 Actions.

A companion Workbook that contained a survey questionnaire was also published. The Workbook presented all 86 recommendations together with a set of close-ended (quantitative) response choices ranging from “Strongly Support” to “Strongly Do Not Support” for each Goal, Direction and Action. It also offered space for open-ended (qualitative) comments for further concerns and opinions about management of the watershed.

Starting in January 2011, the NSWA distributed about 1,450 copies of each of the Discussion Paper and Workbook. They were available on the website, (www.nswa.ab.ca), Facebook page (<http://www.facebook.com/pages/North-Saskatchewan-River-Watershed/218182158195353>) and tweeted from @NorthSaskRiver. The survey period and review activity continued until July 15, 2011.

A total of one hundred and six (106) Workbook survey responses were received by NSWA, and the responses from the 86 recommendations were then aggregated. The responses represent input from stakeholders and major sectors that impact and have jurisdiction in the watershed.

The breakdown of the 106 respondents is as follows:

- 43 – Individuals
- 19 – Non-Government Organizations
- 19 – Industry (utilities, agriculture, petroleum, forestry)
- 25 – Government (23 municipal, one Alberta, one Federal)

Many of the Workbooks responses had been developed by working groups, rather than by a *single* individual, business or government agency, which resulted in one survey representing the views of a large number of stakeholders within a particular sector. For example, some of the surveys in the ‘Government’ interest group were a consolidated response for several departments or agencies. Likewise, a number of corporations or businesses in the ‘Industry’ sector submitted consolidated responses (see Section I of the Results section for a description of the interest groups developed for data review). This presented a significant dilemma for data review because the statistical representativeness of each survey was difficult to specify. Consequently, an overall quantitative statistic of stakeholder agreement or disagreement with the draft recommendations cannot realistically be calculated from the collected data.

Close-Ended (Quantitative) Responses

An analysis of the aggregated responses found a high level of support for the draft Goals, Directions and Actions, as follows:

Goals:

The Goal statements received an average support level of 94.7%.

Directions:

The Direction statements received an average support level of 91.7%. The Directions that received the lowest level of support included:

- Direction 3.2: Numbers and areal coverage of wetlands are maintained or increased
- Direction 3.6: Net loss of permanent forested land base to other uses is minimized or reduced
- Direction 3.8: Environmental impacts from random camping and all other recreational activities on public land are minimized or reduced

The concerns about Directions 3.2 and 3.6 were expressed most often by industry respondents. The weaker support can be attributed to respondents being concerned that implementing these Directions would be detrimental to continued economic activity, growth and development in the future. Similar comments were expressed about Directions 3.3 (riparian areas) and 3.7 (fish management objectives).

Many respondents provided comments on Direction 3.8 specifically because of the potential negative ecological impacts from recreational activities, particularly the widespread use of off-road and other motorized vehicles. Respondents suggested an improved assessment of the impact of random camping and other activities to better inform watershed management needs. In addition, respondents highlighted the need for enhanced public education and the use of enforcement to minimize negative impacts. Other respondents also suggested strategies such as limiting the kind of activities allowed in the watershed rather than banning access to recreational activities altogether, especially in sensitive areas such as wetlands and riparian areas.

Actions:

The Action statements received an average support level of 86.5%. However, much of the weaker support was due to more responses noted in the “Do Not Know/No Opinion” or “Not Indicated” categories as opposed to the “Non Support” category. This suggests that some respondents are unclear about the role of various Actions to improve watershed management. This gives the NSWA an opportunity for developing public education based on well-established scientific findings about what factors affect the watershed, and to engage stakeholders in a more active dialogue around watershed management.

The Actions that received the lowest level of support included:

Action 2.1.3: Government of Alberta, in collaboration with other stakeholders, to evaluate and report on the need for future constructed water storage. Concern with this action was expressed most often by individuals who suggested the need first to evaluate risks to water supply and to determine Instream Flow Needs prior to considering water storage needs.

Action 4.3.4: Government of Alberta to require groundwater users to monitor and report water use from both licensed and non-licensed groundwater wells. The common view expressed with this issue was that the wide scope of groundwater well monitoring would be very difficult to implement with much success if there are limited provincial resources, as is the case now.

Action 3.2.1: Government of Alberta, in collaboration with NSWA and other stakeholders, to develop wetland protection and restoration plans, practices and policies.

Action 3.2.2: Government of Alberta and municipalities to incorporate wetland conservation and restoration guidelines into regulations and by-laws.

Action 3.2.4: Ducks Unlimited Canada, municipalities and other stakeholders to restore drained and altered wetlands.

Action 3.3.3: Municipalities to work with other stakeholders to explore support for restoration of drained and altered riparian areas.

Action 4.3.3: Government of Alberta to identify and define sustainable pumping rates for priority aquifers.

Concerns with the last five Actions were expressed most often by industry respondents. Again, the comments associated with these trends reveal that respondents are concerned about the trade-offs between economic development and strict protection and restoration of wetlands.

Open-Ended (Qualitative) Responses

Many respondents were concerned about the implementation of the IWMP. In general, the concerns raised about implementation refer to a perception that the role of the NSWA (and of WPACs in general) is not clear with respect to influencing and advocating various policies, regulations and management actions that could support the IWMP.

The major policy and legislation challenges cited by Workbook respondents included:

- Coordinating the IWMP with existing policy or legislation
- Determining the appropriate geographic scale and administrative scope of the plan
- Balancing draft recommendations with sustainable land use, growth and economic development and equity among interest groups
- Enforcement of measures in the IWMP
- Appropriate use of environmental thresholds or targets

Regarding IWMP implementation, stakeholders were concerned about data collection, access to information, monitoring, education and the perspective from which information is assessed and reported. The support that respondents expressed for the Goals, Directions and Actions was tempered by uncertainty about clarity and appropriateness of certain words (such as “minimize”, “reduce”, “maintain” and “improve”).

For some respondents, these words do not go far enough to ensure protection, whereas for others the words appear too strong for current watershed protection needs.

There were also concerns expressed about:

- Level of direct involvement of stakeholders in developing the IWMP
- Access to funding and other resources for increased stakeholder capacity
- Establishing clear roles, responsibilities and governance structures to implement the IWMP

Government and Industry respondents were much more likely to be concerned about coordination than were NGOs or Individuals. Government and NGO respondents cited most concern with the roles and responsibilities of the parties involved in the development and implementation of the IWMP. The Government group was slightly more concerned about funding frameworks necessary to implement the plan. NGOs indicated the highest concern for the meaning of the language and terminology used in the Draft Recommendations.

Respondents overall indicated that there needs to be greater communicative and collaborative efforts with the various sectors in the watershed. While there is general support for the IWMP, there are “devils in the details” that give some respondents little confidence that the provincial government will adequately support collaborative planning and management.

Some respondents expressed doubt that the recommendations of the NSWA would be met through policy and legislation; that there would be a clarification of roles and responsibilities, and that some words used in the draft recommendations would be defined suitably and be appropriate to direct sustainable practices in the watershed.

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INTRODUCTION

The North Saskatchewan Watershed Alliance (NSWA) is the Watershed Planning and Advisory Council (WPAC) for the North Saskatchewan River watershed, a vast river basin that is host to diverse geography and land uses and therefore, a wide variety of stakeholders. The NSWA's mandate includes the preparation of an Integrated Watershed Management Plan (IWMP) under the provincial policy, *Water for Life: Alberta's Strategy for Sustainability* (2003). In early 2011, the Draft Recommendations for an IWMP were released in the form of a Discussion Paper¹ and Workbook² designed to gather extensive stakeholder input on the planning process and its outcomes to date. This stage of the consultation process was designed to gather feedback on the specific Draft Recommendations that were developed based on an extensive stakeholder engagement process involving presentations and discussions with stakeholders throughout the watershed between 2005 and 2010 (see p.8-12 of Discussion Paper for more information).

The Discussion Paper provided information and understanding to stakeholders on technical studies undertaken by the NSWA in preparation of the Draft IWMP, the IWMP planning and stakeholder consultation process, how the IWMP corresponds to existing provincial legislation and policy, the roles of various stakeholders, the Draft Recommendations themselves, and the watershed management outcomes that the process is intended to achieve. The Workbook, discussed below, was designed for this study in order to elicit broad stakeholder views and concerns associated with the Goals, Management Directions and Actions of the Draft Recommendations.

This report summarizes the main trends identified in the Workbook responses and will assist the NSWA in moving forward on the next stage of drafting the IWMP.

BACKGROUND INFORMATION

Extensive consultation was carried out among advising consultant Susan Abells, NSWA Board Members and staff, and NSWA Board Member and environmental sociologist Dr. Naomi Krogman to develop the Discussion Paper and Workbook. The Workbook was designed to mirror the draft IWMP so as to gauge the extent to which there is general agreement with the draft Goals, Directions and Actions of the plan. A set of close-ended responses ranging from 'Strongly Support' to 'Strongly Do Not Support' was provided for each of the Draft Recommendations. Recognizing that the structure of the Workbook itself limits qualitative understanding of stakeholder concerns and the potential range of issues, additional space for open-ended responses was provided under each set of Goals, Directions and Actions to seek out further concerns and opinions related to watershed management.

¹ NSWA. 2011. Discussion Paper for the Development of an Integrated Watershed Management Plan for the North Saskatchewan River Watershed in Alberta. 64 pp. <http://nswa.ab.ca/iwmpdiscussion>

² NSWA. 2011. *Workbook to Share Your Views on Developing an Integrated Watershed Management Plan (IWMP) for the North Saskatchewan River Watershed*. 42 pp. <http://nswa.ab.ca/iwmpworkbook>

The close-ended (quantitative) and open-ended (qualitative) responses collected from one hundred and six (106) individuals and organizations that generously spent time to record their opinions about the IWMP have great value. As part of an ongoing stakeholder engagement process, the responses presented in the following report will strengthen the NSWA's ability to ensure that the IWMP is strongly supported by relevant stakeholder groups. In this manner, deliberation on the content of the Draft Recommendations can proceed.

METHODS

The Discussion Paper and Workbook were broadly distributed to stakeholders within the North Saskatchewan River Watershed and were also accessible online. In total, there were one hundred and six (106) respondents to the Workbook, which represents only a small, purposive sample. As such, the results presented herein are not intended to be representative of the general population. There is, however, reasonable representation of different sectors present in the watershed, which allows for a thorough account of the variation in opinions and concerns from a number of stakeholder interest groups. The review of quantitative data, supplemented by meaningful qualitative statements and themes, provides a rich description of the variation in the views across these sectors and deepens our understanding of the issues and concerns around watershed management as expressed by respondents.

As previously stated, the Workbook was designed to gather broad stakeholder views and concerns emerging from the Draft IWMP. The sharing of information through this type of stakeholder consultation has revealed nuances that will help refine the IWMP in the next development and drafting phase. The NSWA intends to take into consideration the stakeholder feedback presented in this report and, importantly, will pay particular attention to all substantive comments made by respondents in the open-ended responses.

Sampling

Distribution of the Discussion Paper and Workbooks began in January 2011. Hard copies were sent directly to numerous stakeholders in the NSWA watershed, including rural and urban municipalities, summer villages, provincial government representatives, non-government organizations (NGO), First Nations and Métis groups, as well as other Alberta WPACs. Copies were also made available in all libraries in the watershed and posters were included for public display. In addition, email notifications advising of the opportunity to access the Workbook at designated locations or via the NSWA website were sent to all who had received hard copies of the Workbook, and other interested parties, including those who had attended previous IWMP forums or information meetings, provincial government officials, media contacts, and all NSWA members, Directors and members of the IWMP Steering Committee. Social media networks were also used in February, 2011 to invite Twitter followers and Facebook members to participate.

Data Collection

Completed Workbooks were collected until July 15, 2011, an extension of the original May 31st deadline due to a low number of respondents. Numerous hard copies of completed Workbooks were typed into electronic format by NSWA staff, and scanned letters were also entered manually by researchers, such that all related data could be copied into software programs needed for data review. Final compilation of the data was completed by July 26th after receipt of additional letters that accompanied some of the Workbooks.

The close-ended Workbook responses generated a quantitative data set for review. The responses on level of support were compiled into Microsoft Excel and IBM SPSS software. The quantitative data collected from close-ended responses presented in this report was generated and examined using the descriptive statistical analysis capabilities of Excel.

Data Review

Several of the respondents did not complete the Workbook in its original format, choosing instead to submit their responses as a letter. From these letters, comprehensive examination revealed explicit reference to support or non-support for particular Goals, Directions or Actions and this information was manually tabulated along with the survey data for the close-ended responses. If no direct reference was made with regard to support, the close-ended response for a Goal, Direction or Action was coded as 'Not Indicated'. Several of the respondents who did complete Workbooks also supplemented their responses with letters that provided more general comments in addition to (or in place of) comments made in the Workbook. Thus, the information and comments in all letters and emails submitted by respondents was manually transferred into both the close-ended data, where possible, as well as the open-ended response data.

Open-ended responses were collected from the comment sections of the Workbook and, as mentioned above, accompanying letters and emails. All responses comprising this second dataset were compiled using NVivo software, which allows for the creation of 'nodes' to represent themes that emerge through an iterative coding of the data. Nodes were first created for each of the draft Goals, Directions and Actions, providing a means of organizing the data such that compilations of comments specific to each Draft Recommendation could be generated. The Workbook was structured such that a single open-ended comment box was provided for a series of close-ended responses. This represented a challenge for thematic coding that would produce results specific to each of the draft Goals, Directions and Actions because many respondents made comments but did not cite a particular Draft Recommendation to which the comment could be attached. Every effort was made to achieve thorough coding by exploring the comments for content, relevance and context and attaching the coding to a particular Draft Recommendation. In the initial review, this resulted in the identification of more than three hundred (300) codes or themes and sub-categories within them. Through several iterations of comment review, themes were refined, nodes were collapsed or expanded, and dominant themes emerging from the comments were finalized. Each comment from the approximately one hundred and sixty (160) pages of qualitative data was coded line-by-line by

major theme and additional coding regarding support or non-support from the close-ended responses was then manually coded from the Excel data into NVivo.

It is important to note when reviewing the results for the close-ended responses that there was a lack of consistency in the manner in which respondents filled in the close-ended responses with regard to how they indicated their support or lack thereof for a particular Recommendation. Some respondents clearly indicated their lack of support by checking the appropriate box under 'Do Not Support' or 'Strongly Do Not Support', however, others did not provide a check in any of the boxes and instead indicated their opinion, or the need for more information before committing support, in the associated comment box. In these cases, if there was no specific reference to support or non-support, the response was coded as 'Not Indicated'.

Moreover, many of the open-ended responses included statements that a particular Draft Recommendation was supported and the appropriate box was checked, but that the support was conditional based on modifications to the wording of the recommendation or the need for more information. As such, the close-ended response data may not be fully representative of stakeholder support for this draft of the IWMP. For this reason, the qualitative thematic assessment of major themes emerging from open-ended responses will be an important factor in assessing overall trends in stakeholder views on the Draft IWMP Recommendations.

Another important consideration in reviewing the data arose with the realization that many of the Workbooks had not been filled in by a *single* individual, business or government agency. In fact, many of the responses had been developed by working groups, which resulted in one survey representing the views of a large number of stakeholders within a particular sector. For example, some of the surveys in the 'Government' interest group were a consolidated response for several departments or agencies. Likewise, a number of corporations or businesses in the 'Industry' sector submitted consolidated responses (see Section I of the Results section for a description of the interest groups developed for data review). This presented a significant dilemma for data review because the statistical representativeness of each survey was difficult to specify. Consequently, an overall quantitative statistic of stakeholder agreement or disagreement with the Draft Recommendations cannot realistically be calculated from the collected data.

As a rule, an objective criteria of the distribution of total potential respondents from each of the different interest groups within the population as a whole would be required in order to develop a weighting factor for normalizing the collected data across all stakeholder groups. To illustrate this point, a simplified analogy to the equal representation of gender in quantitative reporting can be used. If, for example, the results of a survey show that only 25% of survey respondents were female, a researcher could apply a weighting factor of approximately 2 to each of the responses provided by female respondents. This would double the significance of responses by female research participants, resulting in representation that is more consistent with the actual distribution of females in the total population (i.e. close to 50% of the total population) and an overall average of the views of both males and females could be reported and generalized as being representative of the total population. Since the total number of potential respondents within each of the different interest groups in the North Saskatchewan Watershed is not known, such a calculation cannot be done and, therefore, a generalized statement of the overall level of support or non-support that combines the responses across interest groups is not possible.

Instead, this report will focus on the interesting and obvious variation in levels of support *between* interest groups for those Draft Recommendations that received the lowest levels of support. The value in taking this approach is that it will provide the NSWA with practical information on areas of concern identified by stakeholder interest groups and will guide any further consultative processes with each of these groups, as well as any necessary revisions to the Draft IWMP. Again, the significance of the qualitative data in highlighting the major areas of concern among stakeholder groups cannot be overstated. It is within this data, which is also tabulated by interest group, that the essence of the concerns raised by respondents is best represented.

RESULTS

The results of the Workbook data review have been organized into three sections, the first describing the relevant demographic data of the respondents, the second highlighting the quantitative close-ended response findings, and the third providing discussion on the major qualitative themes emerging from the comments made by respondents in the open-ended response boxes.

I. Survey Respondent Demographics

A variety of interest groups were represented in the sample. The major categories, 'Individual', 'NGO', 'Industry' and 'Government' were developed in order to protect the identity of respondents who belonged to interest groups who were not represented in large numbers, and on occasion, a judgment call was used to place a respondent in the most appropriate category so as to conceal their place of employment or likely identity as the only person in a "grey" category. For example, one respondent from an educational institution and one from a church organization were merged into the NGO interest group category. Several of the Workbooks submitted by organizations contained the amalgamated responses from a number of members and were submitted as a representation of their collective viewpoints.

Table 1 provides the numbers of respondents by major interest group and their membership status in the NSWA. Further breakdown of each interest group into "grey" categories is also provided for general information. Of the respondents, the highest overall percentage of respondents (41%) belonged to the Individual category. NGO and Industry groups each had 18% representation, with the vast majority of NGOs being conservation or environmental organizations. The Government group represented 23% of respondents and municipalities were very well represented within this group, making up 23 of the 25 respondents. The unofficial response from a federal government department was completed by several employees, however, this group explicitly stated that their views were not necessarily representative of the department. In other cases, a single survey represented more than one party, but given survey protocol to not reveal who filled out individual surveys, we cannot explicitly state how many respondents jointly filled out single surveys. Figure 1 is a chart representing the respondents by interest group.

With respect to NSWA membership, 52 of the 106 respondents (49%) indicated that they are NSWA members, 47 (44%) are not members, and 7 respondents (7%) did not indicate their membership status. Figure 2 illustrates the NSWA membership status of respondents in chart format.

Table 1. Workbook Respondents by Interest Group and Membership Status (n=106)

	Number of Respondents (n)	Percentage of Sample (%)	NSWA Membership Status (%)		
			Member	Non-Member	Not Indicated
Total	106	100	49	44	7
Interest Group					
Individual	43	41	28	65	7
NGO	19	18	69	26	5
<i>Church</i>	1				
<i>Education</i>	1				
<i>Recreation</i>	3				
<i>Conservation/Environmental</i>	14				
Industry	19	18	53	47	0
<i>Utility</i>	3				
<i>Agriculture</i>	4				
<i>Oil and Gas</i>	5				
<i>Forestry</i>	2				
<i>Other/Not specified</i>	5				
Government	25	23	68	20	12
<i>Municipality</i>	23				
<i>Provincial</i>	1				
<i>Federal Department (not an official response)</i>	1				

Figure 1. Respondents by Interest Group (%)

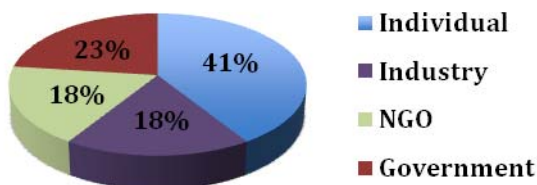
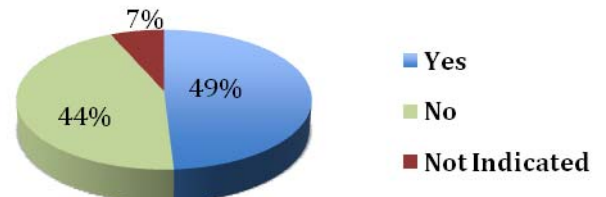


Figure 2. NSWA Membership of Respondents (%)



II. Close-Ended Response Findings

Review of the close-ended responses indicated that there was a high level of support for all of the Draft IWMP Recommendations. Without speaking to variation across interest groups, all five Goals were exceptionally well supported, and with only several exceptions, the Directions and Actions generally very well supported.

For simplicity at this stage, the number of responses falling into the ‘Strongly Support’ and ‘Support’ categories were combined to reflect *support*, and those in ‘Do Not Support’ and ‘Strongly Do Not Support’ were combined to reflect *non-support*. The results provided in this report are supplemented with Appendices 1, 2, 3 and 4³, which, respectively, provide detailed numerical summaries of the ‘Support’, ‘Do Not Support’, ‘Do Not Know/No Opinion’, or ‘Not Indicated’ results for all close-ended responses from all Workbooks, letters and emails.

Each Workbook consisted of 86 Draft Recommendations represented by the 5 Goals, 20 Directions and 61 Actions. With 106 respondents, this resulted in a total of 9116 close-ended responses. Again, the Workbook results indicate that the overall level of support was very high, with 8038 of the 9116 responses (i.e. 88.2%) being *supportive* of the Draft Recommendations. Of the remaining responses, 316 (i.e. 3.5%) were *non-supportive*; 259 (i.e. 2.8%) were in the ‘Do Not Know/No Opinion’ category; and 503 (i.e. 5.5%) fell into the ‘Not Indicated’ category. These average results are presented in Table 2 along with the distribution of responses by interest group.

With regard to the overall level of support, 3481 of the 8038 *supportive* responses (43.3%) came from the Individual group, while the Industry group made 138 of the 316 of all *non-supportive* responses (i.e. 43.6%). This demonstrates that although the overall level of support for this Draft of the IWMP was high, there remain significant differences in how the Draft Recommendations are confronted by each of the interest groups represented in the sample. Therefore, a closer examination of the variation in responses by the different interest groups is provided in the following sub-sections of this report, which explore the Directions and Actions that showed the highest overall levels of *non-support*.

The following points are also of interest in the results in Table 2. The NGO group had the lowest number of *non-supportive* responses at 40 (i.e., 12.7%). The Industry group made 119 of the 259 responses (i.e. 45.9%) falling into ‘Do Not Know/No Opinion’, which will be explored later in the document. The high percentage of ‘Not Indicated’ responses made by the Government interest group is likely due to the issue mentioned in the Methods section, which reflects the way in which responses were submitted. Several of the Government respondents chose to compose their responses in letter format with more general statements of concern instead of focusing on particular Actions and as such, with no explicit reference to particular Draft Recommendations, researchers coded the responses as ‘Not Indicated’. However, all comments made by the various interest groups, including the general comments submitted in letters or other formats,

³ Appendices 3 and 4 are very large and have not been included in this report but are available from the NSWA upon request.

are included in the thematic discussion in Section III of this report and, therefore contribute to an increased understanding of underlying concerns.

Table 2. Draft IWMP Workbook Results by Interest Group – Summary of Overall Responses (n=106)

	Total	Individual (n=43)	NGO (n=19)	Industry (n=19)	Government (n=25)
	%	#	#	#	#
Total “Support”	88.2	3481	1510	1330	1717
Total “Do Not Support”	3.5	62	40	138	76
Total “Do Not Know/No Opinion”	2.8	73	16	119	51
Total “Not Indicated”	5.5	82	68	47	306

i) Goals

As previously stated, the Goals in the Draft IWMP were extremely well supported and therefore, results for overall levels of *support* for the Goals will not be examined in great depth (see Appendix 1). The few *non-supportive* responses for Goals 1 to 4 (see Table 3 below and Appendix 2) came from Industry and Government. Responses for Goal 5 (refer to Table 3) show that the Government interest group made 2 of the *non-supportive* responses, whereas the remaining *non-supportive* responses were distributed evenly among the remaining interest groups. It is important to keep in mind that the number of *non-supportive* responses made with respect to the Goals was extremely low.

Table 3. Draft IWMP Workbook Results by Interest Group – Summary of ‘Do Not Support’ Responses for Goals (n=106).

Draft Recommendation	Total	Individual (n=43)	NGO (n=19)	Industry (n=19)	Government (n=25)
	#	#	#	#	#
Goal 1 Maintain or improve water quality	0	0	0	0	0
Goal 2 Maintain or improve water quantity	3	0	0	2	1
Goal 3 Maintain or improve aquatic ecosystem health	1	0	0	0	1
Goal 4 Protect groundwater quality and quantity	2	0	0	2	0
Goal 5 Align water and land-use planning at regional scale	5	1	1	1	2

The following sections examine levels of non-support for Directions and Actions that received the lowest levels of overall support, as well as those that showed a relatively high level of nonsupport combined with a significant variation in support or non-support across interest groups. An arbitrary level of 7 or more *non-supportive* responses was chosen as a starting point for discussion. We chose 7 non-supportive responses because there was significant variation between interest groups in some of the Actions that had 7 ‘do not support’ responses, whereas those with only 6 (or fewer) responses had less variation. The variation in responses may indicate it is a more controversial draft recommendation.

ii) Directions

Of the Draft IWMP Directions, Direction 3.2 on maintaining or increasing the numbers and areal coverage of wetlands, Direction 3.6 on minimizing or reducing net loss of permanent forested land base and Direction 3.8 on minimizing or reducing impacts from random camping and other recreation activities received the lowest levels of support (refer to Appendix 1). There were 10 responses coded as ‘Not Indicated’ for these three Directions and all came from the Government group. Of the 11 responses coded under ‘Do Not Know/No Opinion’ 8 were made by the Industry group.

Table 4 provides a summary of the distribution of *non-support* for Draft IWMP Directions 3.2, 3.6 and 3.8 (refer to Appendix 2). Again, it is important to keep in mind that the number of

non-supportive responses made with respect to the Directions was relatively low, as indicated in the first column of Table 4, however, there is benefit in examining the distribution of responses more closely due to the corresponding response levels in the Actions, as well as in the nature of the comments made with regard to these Directions in the open-ended responses.

Table 4. Draft IWMP Workbook Results by Interest Group – Summary of ‘Do Not Support’ Responses for Particular Directions (n=106).

Draft Recommendation	Total (n=106)	Individual (n=43)	NGO (n=19)	Industry (n=19)	Government (n=25)
	#	#	#	#	#
Direction 3.2 Numbers and areal coverage of wetlands maintained or increased	12	1	1	7	3
Direction 3.6 Net loss of permanent forested land base minimized or reduced	8	0	1	5	2
Direction 3.8 Environmental impacts from random camping and other recreation minimized or reduced	10	3	1	1	5

In order to examine reasons for *non-support*, the comments discussed below are representative of the criticisms raised by respondents who did not support Directions 3.2, 3.6 and 3.8. A copy of all open-ended responses made for each of the Draft Recommendation in the Workbook has been provided to the NSWA under separate cover.

- **Direction 3.2 – Numbers and areal coverage of wetlands are maintained or increased**

The respondents expressing *non-support* with Direction 3.2 were most concerned with the potential economic implications to maintain or increase the numbers or areal coverage of wetlands in the watershed. One respondent stated that this Direction and Direction 3.6 (net loss of permanent forested land base to other uses is minimized or reduced) “are not realistic given the need for continued economic activity and growth in the watershed” (Industry, Respondent #5). Another respondent agreed with this comment and included Directions 3.3 (riparian area health and function are maintained or improved), 3.6 (net loss of permanent forested land base to other uses is minimized or reduced) and 3.7 (Fish Management Objectives are established and achieved for the NSR mainstem, tributaries and lakes) in this criticism, citing that all of these Directions “are too broad of statements and without qualifications would restrict future developments in the Industrial Heartland” (Industry, Respondent #15).

Also related to development, but with an emphasis on site-specific considerations for issues regarding wetlands, yet another Industry respondent and a Government respondent raised

concerns about how this particular Direction aligns with the province's current approach in wetland policy.

The "no net loss" approach conflicts with the sustainable development objectives of the province. The recommendations need to balance with social and economic goals. "No net loss of areal coverage" is in reference to an outdated provincial wetland policy and lacks flexibility and place-based considerations. Wetland function (instead of areal extent) is a preferable management strategy including an ecosystem value of different types of wetlands. Industry, Respondent #22

Wetland conservation objectives do not fully align with the intent nor the suite of implementation tools proposed within the new wetland policy. Refinement of this objective will need to be made in the context of wetland value and location within the NSR watershed. Government, Respondent #51

Based on the comments presented above, the NSWA should focus any modifications for Direction 3.2 on clarifying the recommendation's alignment with provincial wetland policy. Criticisms around potential wetland regulations are related to the perceived tension between the focus of the new wetland policy, on valuing wetlands more on function than on areal coverage, and the restrictions on continued development in or around wetlands, especially in the Industrial Heartland.

- **Direction 3.6 – Net loss of the permanent forest land base to other uses is minimized or reduced**

As stated in the comments for Direction 3.2, respondents identified the need to balance the Draft Recommendations with future growth and development in the watershed and this applies to Direction 3.6 as well. A Government respondent (#51) made the following comment with regard to Direction 3.6,

No net loss of forested lands assumes that standing forest is the 'pinnacle' use of land. Such management principles may be more appropriately addressed through regional planning. Connection to watershed planning and the goal of maintaining aquatic ecosystem health is not clearly evident in the Direction or associated actions.

It was evident from these comments that further consultation with the Industry and Government sectors was required.

- **Direction 3.8 – Environmental impacts from random camping and all other recreational activities on public land are minimized or reduced**

Many of the respondents made comments regarding Direction 3.8 and its associated Actions. Those indicating *non-support* for this Draft Recommendation cited the need to identify and assess the degree of impact from these types of activities. Better assessment of random camping and recreational impacts can enable a coordinated management approach for this

Direction with other Draft Recommendations, such that prioritization of work and effective use of scarce resources is achieved.

The public needs to understand recreational impact, of course, but this cannot be a priority until other bigger issues are dealt with. Individual, Respondent #39

In addition, respondents highlighted the need for enhanced public education on negative impacts that result from irresponsible recreational use of lands in the watershed, especially with regard to motorized vehicles and the ecological damage they may cause.

An adequate, on-the-ground enforcement team capable of educating Albertans in acceptable public land uses needs to be established and funded immediately by the Alberta Government. NGO, Respondent #47

Other respondents also suggested strategies such as limiting the kind of activities allowed in the watershed rather than banning access for recreational activities all together, especially in sensitive areas such as wetlands and riparian areas. Enforcement of these restrictions was also cited as an important concern, with respondents acknowledging the challenges associated with the scale of the watershed and limited resources available for implementation of laws, by-laws or other legislated restrictions. Furthermore, one respondent suggested a change in wording from “minimized and reduced” impacts to “managing” these impacts in order to set a more realistic and feasible target.

Based on the comments above, the NSWA should focus on working to identify veritable impacts from recreational activities and prioritizing this Direction among others in the IWMP.

iii) Actions

Of the 61 Actions, 22 of them received relatively low levels of *support*. Many of the low levels of support occurred as a result of increased levels of responses of “Do Not Know/No Opinion” or ‘Not Indicated’, while levels of *non-support* vary dramatically and for some Actions are, in fact, quite low. As mentioned in the Methods section, inconsistencies in the manner in which Workbooks were completed and the resulting coding of responses as ‘Not Indicated’ may have an impact on actual levels of support. As such, it is important to recognize that respondents not in support of a particular Direction may not have explicitly indicated non-support and instead, simply left the close-ended response blank, which resulted in a coding of ‘Not Indicated’.

Table 5 provides a list of the 8 Actions that received relatively high levels of *non-support* (refer to Appendix 2). The data provided in this table shows that Individuals had the highest level of *non-support* for Action 2.1.3 (i.e. 10 of the 13 ‘Do Not Support’ responses) regarding the evaluation and reporting of the need for future constructed water storage by the Government of Alberta and other stakeholders. The Government interest group represents the highest level of non-support for Action 4.3.4 (i.e. 4 of the 10 ‘Do Not Support’ responses) on the monitoring and reporting of water use from all wells by the Government of Alberta. Notably, the Industry group had the highest levels of *non-support* for all of the other Actions listed in Table 5, specifically:

- Action 2.1.4 (evaluation and reporting by the Government of Alberta and other stakeholders of need for cap on water allocations) (5 of the 9 ‘Do Not Support’ responses);
- Action 3.2.1 (development of wetland protection and restoration plans, practices and policies by the GoA in collaboration with NSWA and other stakeholders) (5 of the 7 ‘Do Not Support’ responses);
- Action 3.2.2 (incorporation of wetland conservation and restoration guidelines into regulations and by-laws by the Government of Alberta and municipalities) (5 of the 8 ‘Do Not Support’ responses);
- Action 3.2.4 (restoration of wetlands (as per Interim Wetlands Policy and provincial inventory) by Ducks Unlimited Canada, municipalities and other stakeholders) (6 of the 9 ‘Do Not Support’ responses);
- Action 3.3.3 (exploration by municipalities and stakeholders of available support for landowners to restore damaged riparian areas) (3 of the 7 ‘Do Not Support’ responses); and
- Action 4.3.3 (identification and definition by the Government of Alberta of sustainable pumping rates for priority aquifers) (3 of the 7 ‘Do Not Support’ responses).

Also of interest in the review of responses for Draft IWMP Actions is that none of the Actions related to Goal 1 (i.e. with regard to maintaining or improving water quality) received high levels of *non-support*, while all of those under Direction 3.6 did (i.e. regarding net loss of permanent forested land base minimized or reduced). It will be important for the NSWA to carefully examine comments related to this Direction to guide future drafts of these Draft Recommendation since the Direction and all of its associated Actions showed relatively low levels of support. It will also be important for the NSWA to take into consideration the high levels of *non-support* by the Industry group for the Actions listed above. As previously stated, the Draft Recommendations were well *supported* and this report focuses only on those that showed the highest levels of *non-support* in order to assist the NSWA in the next phase of IWMP development.

Table 5. Draft IWMP Workbook Results by Interest Group – Summary of ‘Do Not Support’ Responses for Particular Actions (n=106).

Draft Recommendation	Total	Individual (n=43)	NGO (n=19)	Industry (n=19)	Government (n=25)
	#	#	#	#	#
Action 2.1.3 Evaluation and reporting by GoA and other stakeholders of need for future constructed water storage	13	10	0	3	0
Action 2.1.4 Evaluation and reporting by GoA and other stakeholders of need for cap on water allocations	9	0	1	5	3
Action 3.2.1 Development of wetland protection and restoration plans, practices and policies by the GoA in collaboration with NSWA and other stakeholders	7	1	1	5	0
Action 3.2.2 Incorporation of wetland conservation and restoration guidelines into regulations and by-laws by GoA and municipalities	8	1	0	5	2
Action 3.2.4 Restoration of wetlands (as per Interim Wetlands Policy and provincial inventory) by DUC, municipalities and other stakeholders	9	0	1	6	2
Action 3.3.3 Exploration by municipalities and stakeholders of available support for landowners to restore damaged riparian areas	7	1	1	3	2
Action 4.3.3 Identification and definition by GoA of sustainable pumping rates for priority aquifers	7	2	1	3	1
Action 4.3.4 Monitoring and reporting of water use from all wells by GoA	10	2	1	3	4

Additionally, Actions 2.3.1 (i.e. regarding the management of water allocation licensing and approvals by the Government of Alberta to meet Instream Flow Objectives) and 3.5.1 (i.e. with respect to collaboration among municipalities, business, industry and Government of Alberta for the identification and implementation of best land-use planning practices) received the highest rate of responses under ‘Not Indicated’, which may be a point of interest. Other Actions that had high levels of no response and were coded as “Not Indicated’ include:

- **Action 1.4.1** (development of drinking water source protection plans by all waterworks utilities in collaboration with the Government of Alberta and other stakeholders);

- **Action 2.3.2** (monitoring, evaluation and reporting by Government of Alberta of achievement of Instream Flow Objectives);
- **Action 3.4.3** (Government of Alberta to work with resource industries to develop integrated planning, best management and reclamation practices);
- **Action 3.4.4** (completion and implementation of gravel extraction policies by GoA and stakeholders);
- **Action 3.6.2** (development of market-based incentives and policies by the Government of Alberta in collaboration with municipal and agricultural stakeholders to maintain forest cover in White Area);
- **Action 3.6.3** (development of policies and best-practices by municipal and agricultural stakeholders to encourage re-forestation for maintenance and improvement of forested riparian areas);
- **Action 4.3.2** (development of strategies by the Government of Alberta, municipalities and other stakeholders to address cumulative effects of all water wells on groundwater aquifers);
- **Action 4.3.4** (monitoring and reporting of water use from all wells by the Government of Alberta) (**Note:** this Action is also listed in Table 5 as having received a relatively high level of *non-support*).

The distribution of responses coded as ‘Not Indicated’ among interest groups shows that the Government interest group had the highest rate of responses coded as “Not Indicated’ for these Actions. The Methods section and the first paragraphs of this sub-section describe the possibility that some of these findings may be related to submission of Workbook responses in formats other than the Workbook itself, however, an exploration of the comments made concerning these Actions is important. Many respondents did not provide a close-ended response, but rather, made comments with regard to concerns in the open-ended responses. Attention to the comments, as well as the themes that have been developed for the open-ended responses, will guide the NSWA in future work on the Draft IWMP.

The comments listed below are representative of many of the criticisms raised by respondents who did not support Actions 2.1.3 and 4.3.4.

- **Action 2.1.3 – Government of Alberta, in collaboration with other stakeholders, to evaluate and report on the need for future constructed water storage.**

Action 2.1.3 generated many comments questioning the need for constructed water storage. Several respondents adamantly stated that the construction of dams on the North Saskatchewan River is not supported. The following comments made by one respondent from government who cited conditional support for the action and one individual who indicated “Do Not Know/No Opinion” also underscore the need for careful consideration of how this Action is being interpreted by stakeholders. Each statement relates to the need to first evaluate risks to water supply and determine Instream Flow Needs prior to considering water storage needs.

We conceptually support all four actions proposed under this Management Direction, however it is premature to consider 2.1.3, and 2.1.4 [evaluation and reporting of need to establish cap on water allocations] without the perspective that would be granted by

2.1.1 [development and implementation of water resource management model] and 2.1.2 [evaluation and reporting of risks to water supply]. Government, Respondent #51

An evaluation of the need for future constructed water storage seems to me to be an outcome of decision to meet yet to be determined instream flow needs... Suggest this evaluation follow, or occur concurrently, with the assessment and implementation decisions regarding instream flow objectives, and a decision on whether or not to cap allocations. Individual, Respondent #63

Moreover, the consideration of off-stream storage “utilizing present lakes and wet lands” (Individual, Respondent #65) was suggested as a potentially acceptable means for accomplishing water storage if such actions are deemed necessary.

As such, the NSWA should work to clarify how Action 2.1.3 coincides with other work that will be done to assess Instream Flow Needs and the development of a management model for flow in the North Saskatchewan River.

· Action 4.3.4 – Government of Alberta to require groundwater users to monitor and report water use from both licensed and non-licensed wells.

Respondents who commented on Action 4.3.4 generally indicated that the scope of undertaking groundwater well monitoring was too broad and would be very difficult to implement with much success, given limited provincial resources.

[We] support the strategic development and use of groundwater resources, but Action 4.3.4 is not realistic and would be a significant burden on both landowners and government regulators. There are thousands of non-licensed water wells in this province for which monitoring and reporting of water use is neither practical nor warranted. This would not be a good use of people's time or provincial resources. Industry, Respondent #5

Non-support with this Direction as written; need long-term monitoring data that could accomplish the same objective; putting meters on non-licensed wells should be determined by the sensitivity of the aquifer and the extent of use; need monitoring data to assess the sustainability of the aquifer; need to prioritize sensitivity of aquifers. Government, Respondent #26

As long as drilled wells are logged and reported by the driller, there is no need for wells to be monitored and a water usage report filed. Pumping rates may be alright for villages, towns and larger industry, but not for individuals, agriculture and light industry. Government, Respondent #32

One Industry respondent asked for clarification as to how water use will be both “monitored and reported?” (Industry, Respondent #74), again questioning the scale of the Action. Another Industry respondent raised concerns about the need for such monitoring since the oil and gas industry is already heavily monitored:

Echoing our comments on 4.2 [minimization of impacts on groundwater from resource, industrial, municipal and agricultural developments], the oil and gas industry is required to identify sustainable pumping rates for aquifers in advance of being granted a license to draw water. We must report the volumes of water we use, as well as monitoring information to ensure our withdrawals are sustainable. [We] also track the volume of our saline (non-licensed) water use and report this volume to the Canadian Association of Petroleum Producers (CAPP). Recommendations that go above and beyond existing regulations should be justified in terms of their contribution to achieving the three goals of Water for Life. Industry, Respondent #75

Therefore, NSWA should focus future consultative efforts on furthering an understanding of the need for such an action and how this work would coordinate with existing legislation.

iv) Conclusion

The Discussion Paper and Workbook developed by the NSWA were designed and distributed to gather broad stakeholder views and concerns emerging from the Draft IWMP. The Workbook was designed to mirror the draft IWMP so as to gauge the extent to which there is general agreement with the draft Goals, Directions and Actions of the plan. A set of close ended responses ranging from ‘Strongly Support’ to ‘Strongly Do Not Support’ was provided for each of the Draft Recommendations. The sharing of information through this type of stakeholder consultation has revealed nuances that will help refine the IWMP in the next development and drafting phase. However, many of the completed Workbooks were not filled in by a *single* individual, business or government agency. In fact, many of the responses were developed by working groups, which resulted in one survey representing the views of a large number of stakeholders within a particular sector. For example, some of the surveys in the ‘Government’ interest group were a consolidated response for several departments or agencies. Likewise, a number of corporations or businesses in the ‘Industry’ sector submitted consolidated responses (see Section I of the Results section for a description of the interest groups developed for data review). This presented a significant dilemma for data review because the statistical representativeness of each survey was difficult to specify. Consequently, an overall quantitative statistic of stakeholder agreement or disagreement with the Draft Recommendations cannot realistically be calculated from the collected data.

Keeping in mind the statistical limitation mentioned above, the strongest overall support for the IWMP Draft Recommendations come from Individuals, followed by Government, NGOs and then Industry. Among respondents there was more widespread support of the Goals than the Directions and Actions, which is to be expected because it is in the details of implementation that particular actors will be expected to change behaviours, absorb costs, alter management styles and so forth. The Directions that received the highest levels of *non-support* include Direction 3.2 (numbers and coverage of wetlands maintained or increased), Direction 3.6 (net loss of permanent forested land base minimized or reduced), and Direction 3.8 (environmental impacts from random camping and other recreation be minimized or reduced). The respondents expressing non-support with the Directions are generally concerned about the potential economics implications to maintain or increase the numbers or areal coverage of wetlands and forests in the watershed, and that the resources devoted to minimizing environmental impacts

from random camping and other recreational activities are prioritized against other impacts to the watershed.

Greater variation in responses occurred with regard to Action 2.1.3 (Government of Alberta, in collaboration with other stakeholders, to evaluate and report on the need for future constructed water storage), Individuals were most likely to *not support* this Action, often suggesting the need to first evaluate risks to water supply to determine Instream Flow Needs prior to considering water storage needs. *Non-support* was highest among Government for Action 4.3.4 (Government of Alberta to require groundwater users to monitor and report water use from both licensed and non-licensed wells), with the common associated written concern that the scope of undertaking groundwater well monitoring was too broad and would be very difficult to implement with much success, given limited provincial resources. The Industry group had the highest level of *non-support* for a number of other Actions including:

- Action 2.1.4 (evaluation and reporting by the Government of Alberta and other stakeholders of need for cap on water allocations);
- Action 3.2.1 (development of wetland protection and restoration plans, practices and policies by the GoA in collaboration with NSWA and other stakeholders);
- Action 3.2.2 (incorporation of wetland conservation and restoration guidelines into regulations and by-laws by the Government of Alberta and municipalities);
- Action 3.2.4 (restoration of wetlands (as per Interim Wetlands Policy and provincial inventory) by Ducks Unlimited Canada, municipalities and other stakeholders);
- Action 3.3.3 (exploration by municipalities and stakeholders of available support for landowners to restore damaged riparian areas); and
- Action 4.3.3 (identification and definition by the Government of Alberta of sustainable pumping rates for priority aquifers).

Recognizing that the structure of the Workbook itself limited qualitative understanding of stakeholder concerns and the potential range of issues, additional space for open-ended responses was provided under each set of Goals, Directions and Actions to seek out further concerns and opinions related to watershed management. The NSWA intends to take into consideration the stakeholder feedback presented in this report and, importantly, will pay particular attention to all substantive comments made by respondents in the open-ended responses, as presented in the following section.

III. General Thematic Findings for Open-Ended Responses

As previously mentioned, iterative review of the data collected from the IWMP Workbook generated themes within which the statements made by respondents in the open-ended comment boxes could be coded. This Workbook not only solicited feedback on complex issues, but was also very widely distributed to promote broad stakeholder participation. Thus, with respondents representing a variety of interest groups, many diverse themes emerged. This report focuses only on the major themes, defined as appearing frequently and across all sections of the Workbook. Every comment from the more than one hundred and sixty (160)

pages of data were coded under at least one of the themes described. In the sections that follow, themes are characterized and a limited number of select comments chosen to best represent the concepts within these themes are presented.

Overall, support for the Draft Recommendations was considerably high, however it appears that perceived challenges in developing and implementing the IWMP constitute the core concerns raised by stakeholders, regardless of support or non-support for a Goal, Direction or Action. The major challenges cited by Workbook respondents included: (1) coordination of the IWMP with existing policy or legislation; (2) determination of the appropriate geographic scale and administrative scope of the plan; (3) the balancing of the Draft Recommendations with sustainable land use, growth and economic development and equity among interest groups; (4) enforcement of the management plan; and (5) the appropriate use of environmental thresholds or targets. These challenges were grouped together as a sub-theme under the major theme of “Policy and Legislation”, as shown in Table 6, which provides a brief description of each of the themes that emerged from the collected data. Another sub-theme under IWMP Implementation was that of Knowledge, used to code stakeholder comments referring to data collection and access to information, monitoring, education, the use of science-based criteria in IWMP design, and transparency and third party involvement in information sharing.

Table 6 also lists the other major themes of “Roles and Responsibilities” and “Language”, each of which were cited by respondents as primary concerns. Within the second most cited theme of Roles and Responsibilities, sub-themes were developed for references to: (1) the engagement of appropriate stakeholder groups and the degree of their involvement in IWMP development; (2) access to funding and other resources for increased stakeholder capacity; and (3) the structure of governing frameworks. The third major theme of Language emerged mostly from comments related to uncertainties with the definitions of particular words and the appropriateness of their respective use in select Draft Recommendations, as well as concerns related to the framing of the Draft Recommendations based on implied assumptions underlying their purpose or intent.

For many, it is thus apparent that their support rests on the details of what a management tool specifically entails (Language), who is responsible (Roles and Responsibilities), and what emphasis/rigor will be placed on particular rules and regulations to meet certain IWMP recommendations (Policy and Legislation). This kind of responses are expected given the necessary vagueness of the Goal, Direction and Action statements at this stage of NSWA planning, but also suggests that a great deal more communication, trust building, and deliberation will be needed to gain stronger support for specific recommendations promoted by NSWA.

Table 6. Major Themes Represented in Open-Ended Workbook Responses

1.0 Policy and Legislation

1.1 IWMP Implementation

1.1.1 Challenges

Concerns raised over difficulties that may be encountered in finalizing the IWMP, implementing its recommendations, and achieving sustainable outcomes. Includes sub-themes:

1.1.1.1 Coordination

Concerns raised over IWMP coordination or alignment with existing legislation, policy or regulatory frameworks

1.1.1.2 Scale and Scope

Concerns raised over determining appropriate geographic scale and administrative scope of the Draft Recommendations

1.1.1.3 Growth and Development

Concerns raised over the balancing of these Draft Recommendations with the need for continued growth or expansion of population centres, land uses and/or economic activity among regions within the watershed. Includes subtheme:

1.1.1.3.1 Balance of interests among stakeholder groups and/or geographic regions

1.1.1.4 Enforcement

Concerns over mechanisms required to achieve enforcement of the IWMP.

Includes sub-theme:

1.1.1.4.1 Voluntary vs. legislated implementation

1.1.1.5 Thresholds and Targets

Concerns raised over the setting of thresholds or targets as conservation objectives

1.1.2 Suggested Strategies and Priorities

Concerns raised over prioritizing work within the watershed and strategies suggested for implementation

1.1.3 Outcome Evaluation

Concerns raised over how measureable outcomes for the IWMP can be determined and monitored

1.1.4 Timing

Concerns raised over the timing of implementation

1.2 Knowledge

1.2.1 Data Collection and Access to Information

Concerns raised over the generation of new data and expanding access to existing data with regard to monitoring, assessment and reporting

1.2.2 Monitoring

1.2.3 Education

Concerns raised over education strategies that could be used promote a healthy watershed

1.2.4 Science-based Knowledge

Concerns raised over the need for science-based knowledge to guide IWMP, not perception-based ideas

1.2.5 Transparency

Concerns raised over the need for transparency in all aspects of planning, implementation, monitoring and evaluation

1.2.6 Third Party Involvement

Concerns raised over the need for third-party monitoring of activities in the watershed that could impact ecosystem health

2.0 Roles and Responsibilities

2.1 Stakeholder Engagement and Involvement

Concerns raised over stakeholder identification, involvement, equity and support

2.2 Funding and Other Resources

Concerns raised over access to funding and other resources, as well as the responsibilities associated with improving stakeholder capacity for involvement

2.3 Governance Frameworks

Concerns raised over the roles and responsibilities in overarching regulatory oversight

3.0 Language

3.1 Definitions and Wording

Concerns raised over the use of particular terms and their definitions, as well as the need for clarity or enhanced descriptions to ensure better understanding of Draft Recommendations

3.2 Underlying Assumptions

Concerns raised over the framing of issues based on the terms or wording used

Before examining the three major themes of Policy and Legislation, Roles and Responsibilities, and Language in more detail in the following sections of the report, Table 7 provides a summary of the number of references made by respondents for each of the themes. The table is organized such that major themes are listed in decreasing order of the total number of

references made to each, as are the sub-themes. In addition to citing the overall number of thematically coded references, Table 7 also shows the percentage distribution of comments made to each theme and sub-theme by the interest groups represented in the sample. These percentages were calculated using the number of references made to a theme or sub-theme by a particular interest group and dividing by the total number of coded comments collected for that interest group. For example, 1740 coded comments were collected from the Workbooks completed by respondents falling into the Individual interest group. Of those 1740 comments, 281 were coded under Policy and Legislation. Thus, 16% of the comments made by Workbook respondents from the Individual interest group were related to Policy and Legislation. Presenting the open-ended response results in this way prevents an overstatement of interest group representation within any of the themes, since each respondent was given the opportunity to provide unlimited comments in the open ended response box.

From the number of coded responses it is clear to see that the vast majority of open-ended responses were coded within the Policy and Legislation theme (see Table 7). Most specifically, the numbers are highest under the sub-theme of IWMP Implementation and the challenges associated with this process, constituting the core concerns. Many respondents also made specific reference to “Suggested Strategies and Priorities” that should be explored by the NSWA to aid in finalizing the IWMP and seeing through its implementation. However, since these comments were very numerous and diverse, including a range of ideas from including carcinogenic contaminants in the Water Quality Objectives to implementing compensation ratio schemes where wetland avoidance in development is not possible, these comments will not be explored in detail in this report. A copy of all comments coded to this theme will be provided to the NSWA under separate cover so as to enable closer examination of the ideas provided by all respondents. There was also mention of prioritizing the assessment of Instream Flow Needs over other IWMP Directions or to ensure that activities in one sub-basin are regulated before implementing the plan in other regions of the watershed.

An example of a comment that falls under the sub-theme of Strategies and Priorities follows:

Identifying a priority list/scope (watershed, subwatershed, municipal boundary?) will enable a better understanding of the timing for action items and associated municipal resources necessary to achieve the proposed goals. From a municipal perspective, a priority list will be necessary to facilitate long term planning to efficiently and effectively achieve the proposed goals. Government, Respondent #87

This respondent’s comment summarizes the close association of Strategies and Priorities with both themes of Policy and Legislation (under which it is found in the coding structure) and Roles and Responsibilities as it relates to watershed management. This type of stakeholder feedback will have to be examined on a comment-by-comment basis by the NSWA for thorough inclusion of appropriate and viable stakeholder ideas in the next draft of the IWMP.

While Table 7 and the discussion that follows are useful for exploring trends within the data, the central objective of the Workbook was to gather input from stakeholders on each of the Goals, Directions and Actions of the Draft IWMP. As such, a listing of all comments specific to each of the Draft Recommendations was provided to the NSWA under separate cover. This presents the

collected data to the NSWA in a useable format for easy reference in the next stage of development of the IWMP.

The coding of comments by theme and analysis of the distribution of comments by interest group yields an interesting result - a relatively uniform distribution of comments among interest groups for most of the themes. This undoubtedly indicates that *all* interest groups raised similar points and with approximately the same level of concern. There are few differences between interest groups in how strongly each was represented within the themes. For the majority of themes and sub-themes, interests groups fell within two (2) percentage points of each other with respect to level of concern. There are, however, three (3) themes for which the distribution varies more than two (2) percentage points between interest groups and these include:

- Major theme 2.0 Roles and Responsibilities – the Government and NGO interest groups indicated a higher level of concern at 9% and 8%, respectively, while the Individual group had a level of 6% and the Industry group a level of 6.5%;
- Sub-theme 1.1.1.1 Coordination – the Industry and Government interest groups indicated a higher level of concern at 6% and 5%, respectively, while the NGO group showed a level of 3% and the Individual group a level of 2%; and
- Sub-theme 1.1.1.2 Scale and Scope – the NGO interest group indicated a lower level of concern at 1.5%, while all other interest groups showed a level of 4 or 4.5%.

These results demonstrate that the major themes, in order of presentation, are significant concerns to each of the interest groups represented in the sample and should be considered as the NSWA moves forward with consultation and any necessary revisions to the Draft IWMP.

Table 7. Coding Frequency by Theme and Interest Group

Theme	Total # of References to Theme	Individual (n=43) %	NGO (n=19) %	Industry (n=19) %	Government (n=25) %
1.0 Policy and Legislation	1016	16.0	15.0	16.0	15.0
1.1 IWMP Implementation	857	14.5	13.5	12.5	12.5
1.1.1 Challenges	604	9.0	8.0	10.0	10.0
1.1.1.1 Coordination	263	2.0	3.0	6.0	5.0
1.1.1.2 Scale and Scope	250	4.0	1.5	4.5	4.0
1.1.1.3 Growth and Development	163	2.0	2.0	4.0	2.0
1.1.1.3.1 Balance of interests among stakeholder groups and/or geographic regions	158	2.0	2.0	4.0	2.0
1.1.1.4 Enforcement	136	2.0	2.5	1.0	2.0
1.1.1.4.1 Voluntary vs. legislated implementation	86	2.0	1.5	1.0	1.0
1.1.1.5 Thresholds and Targets	58	1.0	2.0	1.0	1.0
1.1.2 Suggested Strategies and Priorities	333	6.0	6.0	4.0	5.0
1.1.3 Outcome Evaluation	32	0.5	< 0.5	1.0	< 0.5
1.1.4 Timing	19	< 0.5	0.5	< 0.5	< 0.5
1.2 Knowledge	362	7.0	6.0	5.0	5.0
1.2.1 Data Collection and Access to Information	205	4.0	3.0	3.0	3.0
1.2.2 Monitoring	96	1.0	2.0	2.0	1.0
1.2.3 Education	62	2.0	1.0	< 0.5	1.0
1.2.4 Science-based	54	1.0	0.5	1.0	1.0
1.2.5 Transparency	34	0.5	1.0	1.0	< 0.5
1.2.6 Third party Involvement	23	1.0	0.5	< 0.5	< 0.5
2.0 Roles and Responsibilities	489	6.0	8.0	6.5	9.0
2.1 Stakeholder Engagement and Involvement	278	4.0	4.5	4.0	5.0
2.2 Funding and Other Resources	164	2.0	2.0	2.0	4.0
2.3 Governance Frameworks	146	2.0	2.0	2.0	3.0
3.0 Language	296	4.0	6.0	4.5	4.0
3.1 Definitions and Wording	236	3.0	5.0	3.0	3.0
3.2 Underlying Assumptions	78	1.0	1.0	1.0	1.0

Each of the following sub-sections correspond to the major themes of Policy and Legislation, Roles and Responsibilities, and Language that emerged from the qualitative data review.

i) Policy and Legislation

Challenges with IWMP Implementation

- Coordination

The NSWA Discussion Paper addresses the current legislative, policy and planning context and its implications with regard to the implementation of the IWMP, however, respondents indicated a general lack of understanding as to exactly how and where the IWMP will align with existing (or developing) policy. Many of the Workbook comments were related to confusion over this alignment, and one respondent suggested the incorporation of “*a flowchart on how all the Acts and initiatives fit together*” in order to “*understand the relationship and legality between regulations*” (Government, Respondent #87) and thereby, foster more effective communication among stakeholders.

Other comments were related to specific policies, regulations or legislation and their complex associations with the NSWA’s IWMP. The exemplary comments listed below refer to the challenges to coordinate existing policy and planning contexts with some of the IWMP Goals, however, many respondents made similar comments for Directions and Actions applying more narrowly to wetlands, surface and groundwater quality and quantity, and land use.

Need to ensure alignment with existing regulations. NSWA needs to justify reasoning if recommending targets or objectives that go above and beyond these regulations [Wetland Policy in regard to Directions for Goal 3 on maintaining or improving aquatic ecosystem health]. There are multiple layers of plans that need to align to avoid redundancy or conflicting direction. Industry, Respondent #22

While this direction [for Goal 5 on improved cooperation and communication among planning initiatives] is laudable, it remains unclear how they will be aligned. Currently the regional planning process and the land use controls of municipalities are quite distinct, both in form and in regulatory relevance, from the water and watershed management planning processes. NGO, Respondent #42

The purpose of the Land Use Framework and subsequent Capital Region Plan is simply being reiterated here [regarding Action 3.5.1 - municipalities, business, industry and GoA to work together to identify and implement best land-use planning practices to guide future development]. Government, Respondent #87

Another respondent clearly expressed frustration over the management approach currently being followed by the Government of Alberta in the following comment, highlighting the need for transparency and “*open governance*” in planning.

GoA should quit confusing planning by coming up with more and more and slightly different or grander planning initiatives when existing ones are not finished and when the relationship to existing planning initiatives are not defined. GoA should develop a public, transparent and open assessment system to track the methods, success, challenges and life cycle points of their planning initiatives... NGO, Respondent #73

- Scale and Scope

With regard to the theme of Scale and Scope, several respondents made specific comments that the geographic scale of the IWMP should be expanded to specifically include major tributaries in Goal 2 and all its Directions (i.e. maintaining or improving water quantity conditions in the North Saskatchewan), while another comment related broadly to developing “*tiered approaches to address surface water quality, in which the level of environmental risk determines the scope and scale of management effort required. We do not see this management Direction [1.2 - management of total contaminant loads from all point and non-point source sources to meet WQO at long-term monitoring sites] used in reaches where there is little or no risk to maintain current water quality conditions*” (Government, Respondent #51). Other respondents were concerned that the administrative scope of the IWMP was too broad and that the “*NSWA must not get involved in development issues*” [regarding Action 1.3.1 that the NSWA will work with local stakeholders to initiate sub-basin plans to address local issues] (Government, Respondent #26).

- Growth and Development

The theme of Growth and Development and its sub-theme of the balancing of interests among stakeholders were also cited numerous times. Overall, comments coded under this theme related to general concerns over restrictions to economic growth in the watershed should some of the Draft Recommendations be implemented. The comment below is representative of concerns regarding the equitable application of the IWMP among different regions in the watershed.

Areas upstream should not have their development opportunities restricted to maintain current near pristine conditions. Every measure should be implemented to eliminate river quality deterioration, but those same standards must apply equally downstream so development is not inhibited upstream. Government, Respondent #16

Other comments indicated concern over how the IWMP may impact regions that are already zoned for heavy development through the establishment of restrictive measures. Similar concerns were also expressed over the establishment of WQOs and working toward increasing areal coverage of wetlands or forested areas.

With respect to [Action] 2.1.4 [evaluation and reporting by GoA and other stakeholders of need for cap on water allocations], [we] do not believe this action is required as there are no major water "quantity" issues today. This is an action that could restrict future development potential. Industry, Respondent #72

The “balancing of interests” among stakeholder groups in the watershed was another concern raised by many respondents. Respondent #73 from the NGO interest group stated that in order to accomplish fair representation for Goal 5 [alignment of water and land-use planning at regional scale], development of the IWMP should be “*balanced so that people can have some hope of standing on a level platform vs. NGOs, companies, government branches*”. Another general trend in this sub-theme was related to the impartial and comprehensive application of IWMP recommendations such that the activities of one group or industry are not impacted more than others.

Unless plans utilizing best practices/best available technology [are] applied across the board on all regions and users, this is a non-starter [Actions for Direction 1.3 on the development and implementation of WQO to protect tributary uses in support of achieving water quality management goals in the NSR]. We cannot do what appears targeting one user only. Government, Respondent #16

- Enforcement

Respondents also raised concerns over the enforcement of IWMP recommendations. Many identified that the enforcement of the IWMP through legislation rather than relying on voluntary action and cooperation may be necessary. Specifically,

The goals of this plan in general are laudable, however, measures must be taken to measure, monitor, report and evaluate the success of implementation of the plan. The Workbook states that the collaborative plan will be implemented by “voluntary choices and actions” of the watershed stakeholders. [This organization] views this approach as inappropriate and insufficient to justify the resource expenditures that are likely to be made. [This organization] is of the view that implementation of a collaboratively agreed to plan need not be voluntary. Indeed, if the plan reflects agreement, it is only sensible that actions to arrive at outcomes are not merely advice or matters to consider. NGO, Respondent #42

Yet another comment in this regard indicates that existing policy may in fact hinder the implementation of the IWMP because it “*is not binding by any regulation but depends on voluntary action and cooperation of many stakeholders.*” (Government, Respondent #4).

The response went further to state, that,

While examining the directions and actions that the IWMP should be composed of, one might have an impression that in certain instances the enforcement of enacted laws and regulations might be a concern and potential obstacle in plan implementation. If the NSWA is of such opinion, that issue should be duly addressed in the Paper and the IWMP as well.

Other comments related to enforcement reflect concerns over how any form of enforcement can be achieved without detailed inclusion of measures to address frameworks for the implementation and funding of enforcement initiatives:

Currently, the majority of enforcement of pollution discharge into the watershed falls under provincial jurisdiction. A number of action items within the discussion paper allude that municipalities may need to become more involved in this enforcement. The legislative jurisdiction as well as details regarding funding of municipally initiated enforcement is not provided in the discussion document. Clarification is necessary as to where provincial responsibility ends and the municipality's begins. Government, Respondent #87

Wetland conservation regulation needs to reside firmly with the Province. Municipalities (counties/summer villages) do not have the strength of enforcement and ability to withstand development pressure to meet the protection needs of wetlands, groundwater or lakeshores. My comments also extend to land conservation in the watershed, not wetlands alone. Government, Respondent #90

- Outcome Evaluation

Respondents cited the need for specific outcomes that should be developed such that success of the IWMP can be evaluated, as well as the need for an impartial auditing agency to oversee assessment. The following general comments were made.

The watershed plan does not include any performance measure to assure stakeholders that the plan is on track or meeting its goals. Industry, Respondent #21

In the absence of a binding implementation agreement there is a need for a significant increase in monitoring and evaluative capacity to discern the effectiveness of policy approaches and implementation of best management practices. NGO, Respondent #42

What mechanism is in place to ensure that the plan achieves its goals when stakeholders have substantially different priorities and resource bases? Government, Respondent #87

There should be an auditing body to ensure objectives have been met. Government, Respondent #97

Knowledge

Knowledge was another important sub-theme under Policy and Legislation. This sub-theme refers to the generation of new data and expanding access to existing data with regard to monitoring, assessment and reporting. Individual Respondent #6 made a general and very representative comment on concerns over the data collection for the watershed, the use of data, the value of monitoring initiatives and oversight. This comment also sheds light on concerns over transparency and access to information.

Decisions should be based on precautionary measures and ensure data are reliable. Much more scientific work is required to improve data (e.g. especially on groundwater sustainability, and low levels of potentially toxic elements). There is a lot of emphasis on monitoring, but who will do it and how, and will vested interests influence the quality of this data? All information on water quality, etc. should be freely available to the public. Also, if good practices seem to be maintained, there should be opportunities for credit.

The following comment made with regard to Actions for Direction 1.2 (management of total contaminant loads from all point and non-point source sources to meet WQO at long-term monitoring sites) by Respondent #4 from the Government interest group also highlights many of the major concepts within this theme, including concerns over access to information, monitoring requirements and the value of including multiple perspectives in reporting and assessment.

We suggest that reporting include all management considerations. Given the information and data requirements for research, can the databases be made available if and when monitoring/sampling systems are in place and implemented? We need credibility of the monitoring, who, when and [what type of] access will be considered. The release or accessibility of the monitoring information needs to be clear or access improved for the purpose of utility of the data reported and any future analysis of the data by researchers, academics or other stakeholders.

In summary, the theme of Policy and Legislation combines the important issues of alignment with existing policy and initiatives, clarifying the geographic scale and administrative scope of the IWMP, the balancing of economic and social considerations with environmental objectives, the incorporation of thresholds or targets to facilitate outcome evaluations, and the need for expanded and transparent access to information. Respondents were especially concerned with the challenges to implement the IWMP in a suitably managed, cost-effective and timely manner and made many comments in this regard. There was repeated mention of the need to identify priorities for “critical areas in immediate need of comprehensive management” (Industry, Respondent #105) such that a manageable, and perhaps staged, implementation strategy can be enabled to ensure that the goals of the IWMP “are focused and achievable” (Industry, Respondent #75).

ii) Roles and Responsibilities

The Workbook described the NSWA as a “bridging” organization, with the capacity to provide links between various stakeholders, domains, and regulatory mechanisms. The NSWA also stated that it will establish working groups and provide support to these groups throughout the implementation process for the IWMP. While the NSWA is committed to this support, each of the working groups would be given the responsibility to determine the context of legislation and policy within their respective regions, to develop processes and strategies to implement the IWMP, and consult with other stakeholders. This description, in combination with the language used in the Directions and Actions, generated much uncertainty surrounding the eventual structure of stakeholder involvement, and funding and governance frameworks. Many of the comments related to the theme of Roles and Responsibilities cited the need for clarity on these frameworks to ensure that groups are fully engaged and have the capacity to develop expertise and funding required to fulfill particular expectations.

- Stakeholder Engagement and Involvement

With respect to stakeholder engagement and involvement, many of the comments made by respondents expressed that the variety of stakeholder groups within the watershed could impede finalization and implementation of the IWMP unless a foundation of meaningful participation, representation and collaboration is built into the plan. Some of the comments related to the importance of the role of Watershed Stewardship Groups, which are not mentioned in the Actions of the IWMP. Other interest groups, such as the oil and gas and agricultural sectors, as well as conservation organizations, are mentioned in the IWMP. In addition, some respondents asked for clarity on the term ‘other stakeholders’ that is often used in the wording of Actions, citing that the “*agendas*” (Government, Respondent #16) of particular interest groups may dominate.

It is a laudable goal [Goal 5 on alignment of water and land-use planning at regional scale], but from a social-economic perspective is it realistic when there are 20+ municipal jurisdictions, provincial, federal and project developers all involved to various degrees in planning and each with their own perspectives and agendas on what's best for them particularly from a cost perspective? A plan and a set of rules need to [be] laid out for them to ensure a level playing field and that cooperation and communication occurs. The IWMP should focus on providing sound, quantifiable information for these other stakeholders to work from and sound water management information and management recommendations for implementation. Individual, Respondent #41

The extent of public involvement in IWMP development was also brought forward in numerous responses.

For Action 2.3.1 [management of water allocation licencing and approval process to meet Instream Flow Objectives] – I am a bit worried about that one and would want to see “Government of Alberta ‘to engage public’ in determining a water allocation licencing and approval process ...” Individual, Respondent #79

Similar comments that questioned the role of the public, but also the role of scientific expertise, were also made with regard to the development of WQOs.

Actions for Direction 1.2 [management of total contaminant loads from all point and non-point sources to meet WQO at long-term monitoring sites] - “I am concerned that industry will drive this if they have too much say in the process. Where is the role for independent scientists giving their expert advice to government? Are citizens' groups included in stakeholder groups? What about First Nations' groups? Industry should not be privileged over citizens and the public.”

- Funding and Other Resources

A significant number of comments were made concerning the costs and potential funding requirements associated with IWMP implementation. Generally, respondents questioned if “costs to achieve these goals [all five] have been analyzed?” (Government, Respondent #27). Another government respondent #104 also stated that the “limiting factors” of funding and resources should be addressed by the NSWA because “ultimately it is these factors that will influence the plan’s ability to be properly implemented.” Similarly, Respondent #97 from the government sector underscored the importance of providing clearer language that specifies, “the Federal and Provincial Governments’ roles in standardizing and enforcing objectives and protection plans” [Directions for Goal 1 on maintaining or improving water quality]. This again, signified that clarity in the language used to describe management tools and approaches is seen as a necessary addition to the IWMP.

Respondent #87 also made a comment that speaks specifically to clarification of the roles of other responsible parties with respect to monitoring once the IWMP is in place and there is potential for downloading responsibilities onto municipalities.

The main premise throughout the discussion paper is the monitoring and management of water quality, water flow and aquatic ecosystem health... it is anticipated that the IWMP will recommend an increase in monitoring. The extent to which monitoring will be increased and where the funding will come from to support the labour and infrastructure necessary for this increase needs to be clarified.

This concern was acknowledged in the comments of several of the municipalities or government agencies and was expressed as a major consideration that was not clear in the Discussion Paper or Workbook.

- Governance Frameworks

The need for a more in-depth description of the NSWA’s role was apparent in comments such as,

The role of NSWA as a mediator, facilitator, and supporter in building capacity when proposed actions are not achieved is not well understood. Government, Respondent #51

The specific roles and responsibilities of the NSWA as a bridging organization and potential for the eventual development of policies and procedures that guide inter-municipal watershed strategies need to be further clarified. Government, Respondent #87

Furthermore, the roles and responsibilities of groups involved in implementing the Actions under Direction 5.1 [improved cooperation and communication among planning initiatives] were questioned by Respondent #104 from the government sector with the statement, “How does/would this differ from the Regional Advisory Councils established through the Landuse Framework?”

And yet another respondent made a closely related comment with respect to roles and the intersection of existing and developing policies and highlighted the need for clarity.

There are currently three unique and different sets of WQOs [Water Quality Objectives] for the same reaches of the North Saskatchewan River [NSR] that have been drafted or are in the process of being developed: those of the NSWA, the Industrial Heartland [IH] cumulative effects management framework, and AENV's internal set. [Our organization] supports in principle the development of WQOs for NSR reaches. A final set of WQO's should be developed and adopted by AENV that takes into account all the issues identified in the NSWA and IH WQO's and is inclusive of all stakeholder needs. [Our organization] does feel strongly that the NSWA has a key role to play as a bridging organization in the process of establishing, and implementing the final set of WQOs. Industry, Respondent #45

The sub-themes of Stakeholder Engagement and Involvement, Funding and Other Resources and Governance Structures help to capture the major concerns of respondents with regard to the major theme of Roles and Responsibilities. Articulation of frameworks designed to (1) elicit broad and meaningful stakeholder inclusion in IWMP development and implementation, (2) clarify funding structures as well as (3) governing structures, i.e., the location and strength of authority, will be necessary to address respondent concerns in this area.

iii) Language

A major theme that emerged was that of the language used in the Draft IWMP Recommendations. Respondents often cited disagreement with the use of particular terminology, definitions, or framing of issues, as well as the need for greater clarity, regardless of whether the Draft Recommendation was supported or not.

Comments about Direction 3.8 regarding the minimization or reduction of environmental impacts from random camping and recreational activities, which received one of the highest levels of non-support, indicate concern with the use of the words 'minimize' or 'reduce'. One NGO (Respondent #102) expressed the opinion that these words are subject to interpretation and affect the framing and details of the management tools identified in the Draft Recommendations.

...'minimize' and 'reduce' are words that can mask an indefinite increase, as long as it is the 'minimum' that someone feels is necessary [without a threshold]. These words can allow practices that are currently unsustainable from an environmental perspective to continue because they are the 'minimum' needed for a certain human use.

The respondent expanded on this comment by suggesting that in order to eliminate this perceived problem with wording, not just for Direction 3.8, but for all Directions or Actions that use the words minimize or reduce,

...include the idea of environmental limits. For example, 3.4 might read "Environmental impacts from the activities of resource [development] and industries are minimized or reduced, and will be prohibited by regulation from exceeding the environmental threshold for said impacts". Then the focus will be negotiating what is an acceptable amount of degradation in the province, beyond which we will not go.

The nature of these comments is also evident in many other responses. In particular, the comment, "define 'minimized' or 'reduced' - this will have significant impact on Policy development" made by Respondent #20 from the government sector cited the need for clarification of the terms, and also highlights how the theme of Language is very closely linked to the theme of Policy and Legislation with regard to aligning the IWMP with existing legislation or initiative such that the idea of thresholds could be introduced.

Additional comments made with regard to the use of the words 'minimize' or 'reduce' as management concepts include:

Given the current state of the watershed, environmental impacts should be 'minimized'; when you include 'reduced' it takes the intent of the objective to another level that is not required at this point. [listed under several of the Directions for Goal 3 – maintaining or improving aquatic ecosystem health] Individual, Respondent #49

Sections 3.4, 3.5, 3.6, 3.8 [related to the maintenance or improvement of aquatic ecosystem health] should have the wording changed from "minimized or reduced" to "reduced". Individual, Respondent #11

[We] support the direction 4.2 [minimization of impacts on groundwater from resource, industrial, municipal and agricultural developments] in principle, but think that 'manage' would be a better word than 'minimized'. There is a problem understanding the definition of "minimize" and this could create serious uncertainty about the intent and results of this direction. Industry, Respondent #5

Change 'minimized or reduced' to 'identified and assessed' [for Direction 4.2 on minimization of impacts on groundwater from resource, industrial, municipal and agricultural developments] and through point source due diligence, optimal outcomes are achieved. Industry, Respondent #64

Other concerns regarding definitions and the framing of the Draft Recommendations were also raised by the same NGO (Respondent #102) mentioned above with respect to the words 'maintain' or 'improve' and how the terminology used in the recommendations may have a significant impact on communication and the building of trust among stakeholders.

Directions 3.2 [maintaining or increasing numbers and areal coverage of wetlands] and 3.3 [maintaining or improving riparian health and function] also suffer from the loophole in the definitions of "maintain" or "improve". Consider 3.2, substitute in the present definitions and

you get a very disturbing direction: "Numbers and real coverage of wetlands are kept in a condition suitable for all uses including ecosystem health, but not necessarily in the current or natural condition, or, where condition is impaired, move towards a condition suitable for all uses, including ecosystem health, but not necessarily to a natural condition". Translated, this means that every single wetland could be lost in this province if the end landscape allowed economic, social and environmental uses; this would still satisfy this direction. Ecosystem health is just one consideration, not the priority. Fix the definitions, and we would strongly support these goals.

Interestingly, a respondent from Industry (Respondent #22) interprets the definition of maintain very differently.

The word 'maintain' may give the perception of a static condition and the public may interpret this goal as meaning no additional changes. Perhaps "sustain" should be considered in this context as this captures flexibility.

A common trend in the data on policy language is that industry comments reflect concern around stricter regulations that may be implied by the language, whereas many NGO and individual comments are concerned about the ambiguity of the language where little accountability will be held to take specific actions or precautions.

Other terms that were cited as potentially problematic due to a lack of clarity were the terms 'Instream Flow Objectives' (not defined in Discussion Paper); 'cap' with regard to water allocations and restrictions or controls; and 'best management practices' and who will have the responsibility to define them. The comments below are representative of these particular concerns.

Can you define Instream Flow Objectives (could not find it in the Discussion Paper)?
Government, Respondent #27

The use of the term 'instream flow objectives' introduces a new term that will require clarification in the context of the IWMP. Government, Respondent #51

Definition of the word 'cap' and/or water allocations (potential restrictive language) must be clarified and defined as it relates to restrictions, allocations and controls. Government, Respondent #96

Direction 3.5 [minimization or reduction of environmental impacts from municipal and industrial expansion] is very vague and suggests that BMPs [best management practices] are not currently employed by the listed parties. Is the NSWA suggesting that this be the place for municipalities, government, and industries to voluntarily "list" their commitment for BMP implementation? Is there the intention of providing partners a common metric by which to measure the effectiveness of BMPs? Is the NSWA suggesting that commonly developed

growth scenarios be used to evaluate what BMPs may be necessary to address to mitigate potential environmental risk associated with the projected growth? Government, Respondent #51

Some respondents made comments suggesting that the wording of actions needs to better capture the current situation as seen from the perspective of the respondent. For example, one Industry respondent (#22) stated,

Actions for Direction 4.2: Implies there are already impacts to groundwater. There are currently many regulations in place to ensure groundwater is protected.

What is meant by best land-use planning practices? Does this land-use practice necessarily reflect what is necessary to conserve and protect the water resource or is it done from a land management perspective? Need to take care to state exactly what the expectation is from a water management perspective. Individual, Respondent #41

Some respondents also argued for a stronger correspondence between NSWA Discussion paper, and Action statements in IWMP. Here are two key examples:

[Actions for Direction 3.5 on the minimization or reduction of environmental impacts from municipal and industrial expansion] *Stronger wording is needed here to address the comment made in Section 4.5 in the Discussion Paper, "in the future, controlling sprawl appears to be one of the most powerful means of limiting further degradation of the watershed".* Industry, Respondent #105

The concept of continual assessment has been built into the discussion paper but has not been translated to the directions explicitly. – Government, Respondent #27

Many respondents made direct suggestions to changes in wording of particular Draft Recommendation. Listed below are several comments of this nature.

For Direction 4.3 add 'and implemented' [not just develop management strategies and plans to protect groundwater quality and quantity, but also implement them]; *Action 3.3.3* [municipalities and other stakeholders to explore support for landowners to restore damaged riparian areas] *This is weak - we need to go beyond 'exploring'.* Individual, Respondent #8

Action 4.2.2 [assessment of municipal/industrial/agricultural impacts on groundwater] *This should read in a reverse order - "The Government of Alberta, in collaboration with municipalities...".* [Government should be listed first as it is more accountable for carrying out this task]. Government, Respondent #59

For Direction 3.5 [minimization or reduction of environmental impacts from municipal and industrial expansion] should add the words 'and current activities' after 'municipal and industrial expansion'. For example, regular use is already degrading Sturgeon River. NGO, Respondent #14

SUMMARY/CONCLUSIONS

This report has summarized the levels of support elicited from close-ended responses in the Draft IWMP Workbook that was widely distributed to stakeholders in the North Saskatchewan watershed. In addition, major themes in the more than one hundred and sixty (160) pages of written comments collected from open-ended responses were elaborated upon and shown to be consistently cited concerns by all respondents, regardless of the interest group to which they belong. As stated earlier, overall, support for the Draft Recommendations was very high, however, many of the completed Workbooks were not filled in by a *single* individual, business or government agency. In fact, many of the responses were developed by working groups, which resulted in one survey representing the views of a large number of stakeholders within a particular sector. For example, some of the surveys in the 'Government' interest group were a consolidated response for several departments or agencies. Likewise, a number of corporations or businesses in the 'Industry' sector submitted consolidated responses (see Section I of the Results section for a description of the interest groups developed for data review). Consequently, an overall quantitative statistic of stakeholder agreement or disagreement with the Draft Recommendations cannot realistically be calculated from the collected data, but the substantive qualitative comments provided in the Workbook responses will help guide the NSWA in future IWMP development.

Many respondents are concerned about the way in which the IWMP will be implemented. In general, the broader implications from the comments about implementation refer to the perceived lack of clarity, provided by the Alberta government, on the role of NSWA in informing, influencing, guiding, advocating and perhaps implementing various policies and regulations that would support watershed management goals. The major challenges cited by Workbook respondents included: (1) coordination of the IWMP with existing policy or legislation; (2) determination of the appropriate geographic scale and administrative scope of the plan; (3) the balancing of the Draft Recommendations with sustainable land use, growth and economic development and equity among interest groups; (4) enforcement; and (5) the appropriate use of environmental thresholds or targets. An important sub-theme under IWMP Implementation was that of Knowledge, which referred to stakeholder comments directed toward concerns about data collection and access to information, monitoring, education and the value of including multiple perspectives in reporting and assessment.

For many, it is thus apparent that their support rests on the details of what a management tool specifically entails (Language), who is responsible (Roles and Responsibilities), and what emphasis/rigor will be placed on particular rules and regulations to meet certain IWMP recommendations (Policy and Legislation). More specifically, within the theme of Roles and

Responsibilities, sub-themes were developed for references to: (1) the engagement of appropriate stakeholder groups and the degree of their involvement in IWMP development; (2) access to funding and other resources for increased stakeholder capacity; and (3) the structure of governing frameworks. The structure of governance frameworks refers to the vague specification of NSWA's role, either as a mediator, facilitator, capacity builder, bridging organization, implementer of water quality objectives, and so on. The Language theme emerged mostly from comments related to uncertainties with the definitions of particular words and the appropriateness of their respective use in select Draft Recommendations. There is skepticism from many around the use of the word "minimize" instead of "reduce", and "maintain" versus "improve". For some, the words do not go far enough to ensure protection, whereas for others the words may appear too strong for current necessities for watershed protection.

It is notable that Government and Industry respondents are much more likely to be concerned about coordination than NGOs or Individuals. Concerns about how integrated watershed management might affect development and growth were most often expressed by Industry. NGOs expressed the fewest concerns about geographic scale and scope of the IWMP, while the Government and NGO respondents cited the most concern with the roles and responsibilities of parties involved in the development and implementation of the management plan. The Government interest group was slightly more concerned about funding frameworks necessary to implement the plan and NGOs indicated the highest concern for the language and terminology used in the Draft Recommendations.

Overall, the qualitative data that informs this report suggests that there is a need for greater communication and collaborative efforts with the various sectors in the watershed, because while there is general support for the IWMP, there are "devils in the details" that give some respondents little confidence that the provincial government will adequately support Watershed Alliances. Furthermore, there was doubt expressed that the needs of the NSWA will be met through policy and legislation, that there is a clear clarification of roles and responsibilities, and that the language used in the Draft Recommendations is suitably defined and appropriate to direct what is necessary in the watershed for the promotion of sustainable practices.

This report focused on the interesting and obvious variation in levels of support *among* interest groups for those Draft Recommendations that received the lowest levels of support. The value in taking this approach is that it will provide the NSWA with practical information on areas of concern identified by stakeholder interest groups and will guide any further consultative processes with each of these groups, as well as any necessary revisions to the Draft IWMP. Again, the significance of the qualitative data in highlighting the major areas of concern among stakeholder groups cannot be overstated. It is within these data that the essence of the concerns raised by respondents is best represented.

APPENDIX 1
CLOSE-ENDED DATA RESULTS
SUMMARY

Part One

	Support		Do Not Support		Do Not Know/ No Opinion		Not Indicated	
	#	%	#	%	#	%	#	%
Goals								
1	103	97.2	0	0.0	0	0.0	3	2.8
2	98	92.5	3	2.8	2	1.9	3	2.8
3	102	96.2	1	0.9	0	0.0	3	2.8
4	101	95.3	2	1.9	0	0.0	3	2.8
5	98	92.5	5	4.7	0	0.0	3	2.8
Directions								
1.1	100	94.3	2	1.9	1	0.9	3	2.8
1.2	100	94.3	3	2.8	0	0.0	3	2.8
1.3	100	94.3	2	1.9	0	0.0	4	3.8
1.4	99	93.4	2	1.9	1	0.9	4	3.8
2.1	101	95.3	1	0.9	2	1.9	2	1.9
2.2	98	92.5	4	3.8	1	0.9	3	2.8
2.3	95	89.6	4	3.8	3	2.8	4	3.8
3.1	96	90.6	5	4.7	2	1.9	3	2.8
3.2	88	83.0	12	11.3	3	2.8	3	2.8
3.3	97	91.5	5	4.7	0	0.0	4	3.8
3.4	97	91.5	4	3.8	0	0.0	5	4.7
3.5	96	90.6	5	4.7	1	0.9	4	3.8
3.6	91	85.8	8	7.5	4	3.8	3	2.8
3.7	95	89.6	5	4.7	3	2.8	3	2.8
3.8	88	83.0	10	9.4	5	4.7	3	2.8
3.9	103	97.2	0	0.0	0	0.0	3	2.8
4.1	103	97.2	0	0.0	1	0.9	2	1.9
4.2	95	89.6	3	2.8	4	3.8	4	3.8
4.3	99	93.4	3	2.8	2	1.9	2	1.9
5.1	102	96.2	0	0.0	1	0.9	3	2.8

Part Two

	Support		Do Not Support		Do Not Know/ No Opinion		Not Indicated	
	#	%	#	%	#	%	#	%
Actions								
1.1.1	96	90.6	3	2.8	1	0.9	6	5.7
1.1.2	96	90.6	1	0.9	2	1.9	7	6.6
1.2.1	95	89.6	1	0.9	3	2.8	7	6.6
1.2.2	94	88.7	1	0.9	4	3.8	7	6.6
1.2.3	97	91.5	0	0.0	4	3.8	5	4.7
1.2.4	97	91.5	2	1.9	1	0.9	6	5.7
1.2.5	97	91.5	2	1.9	1	0.9	6	5.7
1.3.1	95	89.6	2	1.9	3	2.8	6	5.7
1.3.2	96	90.6	1	0.9	2	1.9	7	6.6
1.3.3	94	88.7	4	3.8	2	1.9	6	5.7
1.3.4	93	87.7	2	1.9	3	2.8	8	7.5
1.3.5	96	90.6	0	0.0	2	1.9	8	7.5
1.4.1	92	86.8	4	3.8	2	1.9	8	7.5
2.1.1	96	90.6	3	2.8	2	1.9	5	4.7
2.1.2	95	89.6	1	0.9	3	2.8	7	6.6
2.1.3	79	74.5	13	12.3	6	5.7	8	7.5
2.1.4	83	78.3	9	8.5	6	5.7	8	7.5
2.2.1	89	84.0	5	4.7	6	5.7	6	5.7
2.2.2	91	85.8	4	3.8	3	2.8	8	7.5
2.2.3	91	85.8	4	3.8	4	3.8	7	6.6
2.3.1	89	84.0	3	2.8	4	3.8	10	9.4
2.3.2	90	84.9	3	2.8	5	4.7	8	7.5
3.1.1	96	90.6	2	1.9	2	1.9	6	5.7
3.1.2	96	90.6	0	0.0	4	3.8	6	5.7
3.1.3	95	89.6	4	3.8	1	0.9	6	5.7
3.1.4	95	89.6	2	1.9	3	2.8	6	5.7
3.2.1	91	85.8	7	6.6	2	1.9	6	5.7
3.2.2	88	83.0	8	7.5	4	3.8	6	5.7
3.2.3	96	90.6	3	2.8	1	0.9	6	5.7
3.2.4	83	78.3	9	8.5	7	6.6	7	6.6
3.2.5	90	84.9	4	3.8	6	5.7	6	5.7
3.3.1	94	88.7	4	3.8	2	1.9	6	5.7
3.3.2	89	84.0	6	5.7	4	3.8	7	6.6
3.3.3	87	82.1	7	6.6	5	4.7	7	6.6
3.4.1	91	85.8	4	3.8	4	3.8	7	6.6
3.4.2	93	87.7	3	2.8	3	2.8	7	6.6

	Support		Do Not Support		Do Not Know/ No Opinion		Not Indicated	
	#	%	#	%	#	%	#	%
Actions								
3.4.3	92	86.8	3	2.8	2	1.9	9	8.5
3.4.4	85	80.2	4	3.8	8	7.5	9	8.5
3.5.1	88	83.0	5	4.7	2	1.9	11	10.4
3.6.1	89	84.0	5	4.7	5	4.7	7	6.6
3.6.2	87	82.1	6	5.7	4	3.8	9	8.5
3.6.3	90	84.9	4	3.8	4	3.8	8	7.5
3.7.1	92	86.8	1	0.9	7	6.6	6	5.7
3.7.2	89	84.0	3	2.8	7	6.6	7	6.6
3.7.3	89	84.0	5	4.7	5	4.7	7	6.6
3.7.4	93	87.7	2	1.9	4	3.8	7	6.6
3.8.1	88	83.0	4	3.8	7	6.6	7	6.6
3.8.2	87	82.1	5	4.7	7	6.6	7	6.6
3.8.3	91	85.8	2	1.9	6	5.7	7	6.6
3.9.1	100	94.3	1	0.9	0	0.0	5	4.7
4.1.1	94	88.7	2	1.9	3	2.8	7	6.6
4.1.2	99	93.4	1	0.9	1	0.9	5	4.7
4.2.1	94	88.7	4	3.8	2	1.9	6	5.7
4.2.2	94	88.7	5	4.7	1	0.9	6	5.7
4.2.3	93	87.7	4	3.8	3	2.8	6	5.7
4.3.1	90	84.9	6	5.7	4	3.8	6	5.7
4.3.2	90	84.9	2	1.9	6	5.7	8	7.5
4.3.3	86	81.1	7	6.6	6	5.7	7	6.6
4.3.4	83	78.3	10	9.4	4	3.8	9	8.5
5.1.1	92	86.8	4	3.8	3	2.8	7	6.6
5.1.2	93	87.7	1	0.9	5	4.7	7	6.6

APPENDIX 2

CLOSE-ENDED DATA RESULTS

“DO NOT SUPPORT” DISTRIBUTION BY INTEREST GROUP

Part One

	Total "Do Not Support"	Individual		NGO		Industry		Government	
		#	%	#	%	#	%	#	%
Total "Do Not Support"	316	62	19.6	40	12.7	138	43.7	76	24.1
Goals									
1	0	0	0.0	0	0.0	0	0.0	0	0.0
2	3	0	0.0	0	0.0	2	66.7	1	33.3
3	1	0	0.0	0	0.0	0	0.0	1	100.0
4	2	0	0.0	0	0.0	2	100.0	0	0.0
5	5	1	20.0	1	20.0	1	20.0	2	40.0
Directions									
1.1	2	1	50.0	0	0.0	0	0.0	1	50.0
1.2	3	1	33.3	0	0.0	1	33.3	1	33.3
1.3	2	1	50.0	0	0.0	0	0.0	1	50.0
1.4	2	1	50.0	0	0.0	0	0.0	1	50.0
2.1	1	1	100.0	0	0.0	0	0.0	0	0.0
2.2	4	0	0.0	0	0.0	2	50.0	2	50.0
2.3	4	0	0.0	1	25.0	2	50.0	1	25.0
3.1	5	1	20.0	0	0.0	3	60.0	1	20.0
3.2	12	1	8.3	1	8.3	7	58.3	3	25.0
3.3	5	0	0.0	1	20.0	3	60.0	1	20.0
3.4	4	0	0.0	1	25.0	2	50.0	1	25.0
3.5	5	0	0.0	1	20.0	2	40.0	2	40.0
3.6	8	0	0.0	1	12.5	5	62.5	2	25.0
3.7	5	2	40.0	0	0.0	2	40.0	1	20.0
3.8	10	3	30.0	1	10.0	1	10.0	5	50.0
3.9	0	0	0.0	0	0.0	0	0.0	0	0.0
4.1	0	0	0.0	0	0.0	0	0.0	0	0.0
4.2	3	0	0.0	1	33.3	1	33.3	1	33.3
4.3	3	0	0.0	0	0.0	2	66.7	1	33.3
5.1	0	0	0.0	0	0.0	0	0.0	0	0.0

Part Two

	Total "Do Not Support"	Individual		NGO		Industry		Government	
	#	#	%	#	%	#	%	#	%
Actions									
1.1.1	3	1	33.3	0	0.0	2	66.7	0	0.0
1.1.2	1	0	0.0	0	0.0	1	100.0	0	0.0
1.2.1	1	0	0.0	0	0.0	1	100.0	0	0.0
1.2.2	1	0	0.0	0	0.0	1	100.0	0	0.0
1.2.3	0	0	0.0	0	0.0	0	0.0	0	0.0
1.2.4	2	0	0.0	0	0.0	2	100.0	0	0.0
1.2.5	2	1	50.0	1	50.0	0	0.0	0	0.0
1.3.1	2	1	50.0	1	50.0	0	0.0	0	0.0
1.3.2	1	1	100.0	0	0.0	0	0.0	0	0.0
1.3.3	4	1	25.0	1	25.0	2	50.0	0	0.0
1.3.4	2	0	0.0	2	100.0	0	0.0	0	0.0
1.3.5	0	0	0.0	0	0.0	0	0.0	0	0.0
1.4.1	4	2	50.0	0	0.0	2	50.0	0	0.0
2.1.1	3	0	0.0	0	0.0	3	100.0	0	0.0
2.1.2	1	0	0.0	0	0.0	1	100.0	0	0.0
2.1.3	13	10	76.9	0	0.0	3	23.1	0	0.0
2.1.4	9	0	0.0	1	11.1	5	55.6	3	33.3
2.2.1	5	1	20.0	1	20.0	2	40.0	1	20.0
2.2.2	4	1	25.0	0	0.0	2	50.0	1	25.0
2.2.3	4	1	25.0	0	0.0	2	50.0	1	25.0
2.3.1	3	1	33.3	0	0.0	2	66.7	0	0.0
2.3.2	3	0	0.0	0	0.0	2	66.7	1	33.3
3.1.1	2	1	50.0	0	0.0	0	0.0	1	50.0
3.1.2	0	0	0.0	0	0.0	0	0.0	0	0.0
3.1.3	4	1	25.0	0	0.0	3	75.0	0	0.0
3.1.4	2	2	100.0	0	0.0	0	0.0	0	0.0
3.2.1	7	1	14.3	1	14.3	5	71.4	0	0.0
3.2.2	8	1	12.5	0	0.0	5	62.5	2	25.0
3.2.3	3	1	33.3	0	0.0	2	66.7	0	0.0
3.2.4	9	0	0.0	1	11.1	6	66.7	2	22.2
3.2.5	4	0	0.0	1	25.0	2	50.0	1	25.0
3.3.1	4	1	25.0	0	0.0	2	50.0	1	25.0
3.3.2	6	0	0.0	0	0.0	4	66.7	2	33.3
3.3.3	7	1	14.3	1	14.3	3	42.9	2	28.6
3.4.1	4	1	25.0	1	25.0	2	50.0	0	0.0
3.4.2	3	0	0.0	1	33.3	1	33.3	1	33.3

	Total "Do Not Support"	Individual		NGO		Industry		Government	
	#	#	%	#	%	#	%	#	%
Actions									
3.4.3	3	0	0.0	1	33.3	1	33.3	1	33.3
3.4.4	4	0	0.0	1	25.0	2	50.0	1	25.0
3.5.1	5	0	0.0	2	40.0	3	60.0	0	0.0
3.6.1	5	1	20.0	1	20.0	3	60.0	0	0.0
3.6.2	6	1	16.7	1	16.7	3	50.0	1	16.7
3.6.3	4	1	25.0	1	25.0	0	0.0	2	50.0
3.7.1	1	1	100.0	0	0.0	0	0.0	0	0.0
3.7.2	3	0	0.0	0	0.0	0	0.0	3	100.0
3.7.3	5	0	0.0	1	20.0	3	60.0	1	20.0
3.7.4	2	0	0.0	0	0.0	2	100.0	0	0.0
3.8.1	4	1	25.0	1	25.0	1	25.0	1	25.0
3.8.2	5	1	20.0	1	20.0	1	20.0	2	40.0
3.8.3	2	0	0.0	1	50.0	0	0.0	1	50.0
3.9.1	1	0	0.0	0	0.0	1	100.0	0	0.0
4.1.1	2	0	0.0	1	50.0	1	50.0	0	0.0
4.1.2	1	0	0.0	0	0.0	1	100.0	0	0.0
4.2.1	4	3	75.0	1	25.0	0	0.0	0	0.0
4.2.2	5	1	20.0	1	20.0	1	20.0	2	40.0
4.2.3	4	2	50.0	1	25.0	0	0.0	1	25.0
4.3.1	6	1	16.7	1	16.7	1	16.7	3	50.0
4.3.2	2	0	0.0	0	0.0	1	50.0	1	50.0
4.3.3	7	2	28.6	1	14.3	3	42.9	1	14.3
4.3.4	10	2	20.0	1	10.0	3	30.0	4	40.0
5.1.1	4	1	25.0	0	0.0	1	25.0	2	50.0
5.1.2	1	0	0.0	0	0.0	0	0.0	1	100.0

