

Community-Based Source Water Protection Planning

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Executive Summary:

In Canada, access to safe drinking water is not equivalent between First Nation and Non-First Nation communities. The reasons for this vary, but are often tied to regulatory and jurisdictional gaps that are created by a decentralized approach to water management that confers responsibility for different aspects of water management to various levels of government. Increasing emphasis is being placed on integrated watershed management (IWM) approaches that bring together and coordinate governments and agencies engaging in watershed management and planning; however, these approaches are often still exclusionary to First Nations communities and do not adequately address jurisdictional and regulatory gaps. Many provinces and jurisdictions are focusing on source water protection planning as a strategy to advance IWM approaches because the process relies heavily on collaboration as well as stakeholder and public engagement. Source water protection planning is a long-term, proactive planning strategy that, when conducted properly, can be used as an invaluable way for First Nations communities to address disparities in access to safe drinking water, engage with and build partnerships with surrounding municipalities and stakeholders, as well as allow First Nations to engage in and lead the discussions required to address the exclusionary aspects of watershed management in Canada.

Numerous First Nations in Alberta and Saskatchewan have developed source water protection plans; however, the implementation of plans has not progressed to the extent many communities envisioned. In this paper, we present information shared during a two-day knowledge sharing workshop that brought First Nation communities from Alberta and Saskatchewan together to share their experiences with source water protection planning, to identify common barriers to source water protection plan implementation, as well as to share and discuss potential solutions and strategies communities can use to overcome these barriers. Emerging from the dialogue was emphasis on the need to build community financial, technical, institutional, human resource, and social capacity in order for First Nations source water protection plan implementation to progress. We argue that more on-the-ground support and funding for Indigenous-led, community-driven source water protection planning is needed to create opportunities for First Nations to use it as a tool to address the current jurisdictional and regulatory gaps as well as inequalities in access to safe drinking water and the consequent effects on human health.

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Introduction

Access to safe drinking water is a global issue, with many countries experiencing inadequate drinking water supplies, poor sanitation, and frequent outbreaks of waterborne diseases. In Canada, access to safe drinking water is often taken for granted by the general population as outbreaks of waterborne illnesses occur infrequently. However, the disparity between the ability of Indigenous communities to access safe drinking water relative to non-Indigenous communities is well documented. Outbreaks of infectious diseases are much more frequent in First Nation communities, with a rate of waterborne infection 26 times higher than the national average (Eggerton 2008, Patrick 2011) and First Nation communities 2.5 times more likely to experience a boil water advisory than non-First Nation communities (Eggerton 2006, Patrick 2014).

The protection of source water was identified as an important first step in a multi-barrier approach to safe drinking water following the inquiry into the deaths of seven people and over 2300 cases of serious illness resulting from the consumption of water contaminated with *E. Coli* O157:H7 in Walkerton, Ontario (O'Connor 2002). Source water protection planning refers to the development and implementation of strategies, policies, plans, and activities to prevent current or potential future sources of drinking water from being directly or indirectly contaminated (O'Connor 2002). While the process can vary, it generally involves assessing the extent of water sources, identifying areas that are vulnerable to contamination through land use inventories, and the development of actions, policies, or strategies to prevent or minimize contamination risk. The actions, policies, and strategies usually place an emphasis on stakeholder involvement, engagement, and education.

The federal government has placed an emphasis on source water protection planning; however, there is no formal federal policy or regulatory process for the development and implementation of plans. As such, the process has fallen to provincial jurisdiction and differs widely among provinces and territories. In Alberta, the process is largely driven by local municipalities as well as watershed planning and advisory councils (WPACs) tasked with developing watershed management plans through the provincial Water for Life strategy. While municipalities and WPACs recognize the importance of involving local First Nations in the development of source water protection plans, as well as wider watershed management initiatives, First Nation inclusion and involvement is informal and voluntary (CCME 2016). In addition, despite an increased focus on integrated watershed management approaches that aim to bring together governments and agencies engaging in watershed management to coordinate efforts, western and colonial approaches to watershed or land use planning are often designed in ways that exclude or present significant barriers to First Nations participation (CCME 2016).

Source water protection planning, when led by a First Nation community, takes into consideration Indigenous knowledge, community values, land-use activities and water management, making it a holistic approach to managing water resources. The process, including the implementation of the plan, requires extensive community-led research into the variables affecting source water as well as the community-driven solutions for addressing risks to source water. When the process is driven by Elders, youth, and technical experts from within the community, local knowledge is mobilized and recorded in the plan, making the results invaluable

in establishing safe drinking water. In addition, the information included within the source water plan can form the technical basis for other community-led research centered around water. Numerous First Nations in Alberta have developed source water protection plans; however, due to disparities and capacity challenges, many stemming from the legacy of the colonial system of “Indian reserves” and decentralized, state-controlled infrastructure services, the implementation of plans often does not progress to the extent the participants in the development of the plan aspire for.

In this paper, we highlight the findings of a knowledge sharing event that brought individuals from First Nations in Alberta and Saskatchewan together to share their experiences with source water protection planning. Twenty people from nine First Nations participated in the workshop. The workshop was made up of sharing circles, presentations highlighting community successes in source water protection planning implementation and facilitated, interactive, group exercises. Time was also included throughout the workshop for networking and informal discussions on issues related to source water protection. Information was recorded through both minute/note taking during discussions and through the collection of information (written, photography) during the facilitated exercises. The workshop covered topics from common barriers to source water protection plan implementation, potential solutions to these barriers and the intricacies of how successes have been achieved.

Based on the knowledge generated and shared at the workshop, we argue that to fully realize the potential of source water protection planning additional support is needed, largely by increasing community capacity. In this paper we will provide examples of barriers to source water protection plan implementation, as well as potential community-driven solutions to these barriers. Finally, we provide examples of community case studies that demonstrate the strength of source water protection plans when implementation is successfully achieved. Through these case studies we show that source water protection planning is an effective tool First Nation communities can use to address regulatory and jurisdictional gaps created by the decentralized approach to safe drinking water, as well as address inequalities in access to safe drinking water and the consequent effects on human health.

Community Capacity

For the purposes of this paper, community capacity is defined as the ability of a community to accomplish its source water protection goals and objectives (Rawlyk and Patrick 2013) and is divided into five categories: financial, human resources, institutional, social, and technical, after Timmer *et al.* (2007).

Financial capacity: is defined as the ability of a community to access and generate funding, obtain adequate resources to maintain water supplies, use financial resources sustainably, and demonstrate financial flexibility (Timmer *et al.* 2007).

Human resource capacity: includes the ability of a community to have dedicated water management employees, to have or have access to individuals with the needed technical training,

knowledge, and skills required to manage drinking water, provide education and training opportunities for staff, as well as access to individuals with the expertise needed to complete the technical assessments and activities required to implement source water protection plans (Timmer *et al.* 2007).

Institutional capacity: involves the ability of communities engaging in source water protection planning to create policies, legislation, by-laws, and strategies that provide guidance for protecting source water or that legally protect drinking water sources (Timmer *et al.* 2007).

Social capacity: involves leadership, partnerships, and communication (Timmer *et al.* 2007). Social capacity is high if there are leaders who provide clear vision and direction, if partnerships exist between the various levels of government (vertical linkages) and between the community and other municipalities and organizations (horizontal linkages), and if community awareness and support has been developed through education, outreach, and involvement in water management decisions (Timmer *et al.* 2007).

Technical capacity: the technical capacity of a community to protect drinking water supplies relies upon the ability to access water data (quality, flow, geochemistry, etc.), monitor source waterbodies, delineate water supplies, inventory potential contaminants, and to develop management plans focused on protecting drinking water sources (Timmer *et al.* 2007).

These five types of capacity are connected and interact with one another in order to successfully implement source water protection plans.

Identified Barriers to Source Water Protection Plan Implementation

The common barriers to source water protection plan implementation identified and discussed by participants are directly tied or relate to a lack of capacity in the five areas of community capacity. The identified barriers and potential solutions are summarized in Appendix A.

Financial

The most commonly identified barrier, and one that came up frequently throughout the duration of the workshop, was a lack of funding for implementing actions and projects identified in community source water protection plans. Participants discussed that this manifests in a number of ways. Often, there is simply a lack of funding available. Other times, communities will have been told funding exists, but knowing where and how to access the funding poses a challenge. This may be due to a lack of capacity (i.e., staff time and ability) to pursue the funding. When communities do have funding it is often short-term, which means a significant amount of time and resources are required to be continually looking for additional funding to keep programs and projects running. Participants also discussed that available funding often does not align with the priorities and projects the community wishes to pursue to implement their

plan. For example, one of the most commonly discussed implementation actions was developing community-based monitoring programs to assess baselines and monitor changes in contaminants of concern; however, there is a paucity of funding dedicated to supporting community-based water monitoring, let alone the holistic environmental and health monitoring programs many communities want to develop.

Human Resources

Tied closely to issues around access to funding are issues around a lack of human resources capacity. Virtually all participants expressed that they currently occupy or have occupied numerous roles within their community simultaneously or are frequently expected to “wear many hats”. For example, one individual may be the manager of both the public works and housing departments, as well as being involved in emergency management or health initiatives. When working group members of source water protection plans have so many commitments to meet, finding the time to work on plan implementation actions that do not align directly with their work loads becomes a challenge. Participants expressed feeling overwhelmed by the additional demands source water implementation activities place on their time.

Institutional

In Canada, water management is shared between federal and provincial levels of government. Due to this decentralized approach, jurisdictional issues and shared responsibilities between the federal and provincial governments often results in unclear roles and responsibilities (Cohen and Davidson 2011). Numerous environmental regulatory and protection regimes fall under provincial jurisdiction and, as a result, do not apply on-reserve, creating further jurisdictional and regulatory gaps (Edgar and Graham 2008). Participants expressed that this lack of clear jurisdiction and responsibilities often results in confusion or conflict around water management. Numerous participants expressed that government processes at the municipal, provincial, and federal level, as well as the interactions of those processes, often produce barriers to First Nations’ control over their lands and water.

So, while First Nations may have high institutional capacity when it comes to the management of reserve lands through the creation of policies and bylaws, the processes that exist to manage water outside of reserve boundaries are often exclusionary to them. In addition, these processes often do not confer the same level of water quality protections for First Nation communities compared to non-First Nation communities due to a lack of land management regulations that take into consideration impacts to First Nations’ water.

Social

Many of the barriers to source water protection plan implementation identified by participants related to insufficient social capacity. Participants expressed that a lack of community engagement and support poses a significant barrier to successful implementation. Many feel that this lack of support originates from a need for more education and awareness on water related issues. Conversely, sometimes the interests of community members themselves are at odds or conflict with source water protection initiatives, for example, when individuals rely on revenue-generating activities that may negatively impact source water.

Some participants also expressed that a lack of Chief and Council engagement and support for the community's source water plan can prevent implementation of source water protection initiatives, particularly if they require Chief and Council approval or involvement.

Furthermore, participants expressed that they feel there is often an inability within communities to participate in opportunities or initiatives that support watershed level/land-use planning outside of reserve boundaries. These opportunities or initiatives can include, for example, participation on boards, participation in working groups, or attendance at educational conferences. This inability has numerous negative effects. It makes it difficult for First Nation communities to highlight their concerns for water within their watershed. This is a barrier to the implementation of initiatives within the source water protection plan that occur outside of reserve boundaries. The inability to participate also limits the First Nations ability to learn information that could facilitate the implementation of their plans. For example, they may not know what initiatives are happening within their watershed, they may not learn new beneficial practices or other information that supports water management. Finally, the inability to participate limits First Nation community's ability to form partnerships or maintain relationships with other people working on initiatives that support the protection of source water. The inability to participate often results because it is rare to have a staff member with extra time to participate on boards or working groups. It is also rare that staff are able to attend conferences with the goal of networking with other groups involved in watershed management. When staff are able to participate or attend, money for travel can present a barrier to participation. All of this results in a siloed approach to water protection and management with First Nations often missing opportunities for meaningful engagement, participation, and relationship building with organizations that could increase the capacity required for source water protection plan implementation.

Technical

Another common challenge voiced by participants was the lack of access to data that is required to inform water management plans and decisions. In addition, where water and water-related data does exist, it is often in formats not easily collected or used to inform source water protection planning. The data may be scattered across complicated government databases that are difficult to navigate, or accessing the data may require time consuming data requests.

Community-Driven Solutions

During the knowledge sharing workshop, participants discussed a variety of different solutions to address the barriers listed above. Numerous common strategies and themes emerged. Below is a detailed discussion of some of the solutions identified by participants to build the needed capacity to address identified barriers to source water protection plan implementation. Where appropriate, community case studies are included to illustrate how identified solutions have been used by communities to overcome barriers to source water protection planning. Additionally, these case studies demonstrate how source water protection plans can be used by First Nations communities to address regulatory and jurisdictional gaps that result in unequal

protection of First Nation lands and water relative to Non-First Nation communities and to increase access to safe drinking water.

Implementation Coordinator

One solution that participants discussed to best enable an increase in financial, human resource, social, and technical capacity to overcome many of the identified barriers to implementation, is the hiring of a dedicated source water protection plan implementation coordinator. This individual would be an employee of the First Nation. The position would include the allocation of time for coordinating regular working group meetings focused on implementation. Having a designated, paid position to support implementation would ensure that the plan maintains momentum and continues to move forward.

Potential roles for the implementation coordinator include assisting with the design and coordination of water protection projects and initiatives, including pursuing funding to support these projects. As community outreach and education initiatives are commonly identified to mitigate many of the risks identified in source water protection plans, the implementation coordinator could invest time in developing much needed community education and outreach initiatives, as well as the corresponding educational materials. The data required to inform the source water protection plan is often time consuming to access, compile, and put into a format relevant to the plan. The implementation coordinator could complete this work as well as compile relevant water data on an ongoing basis. Many mitigation actions include community-based research and monitoring projects. The implementation coordinator could facilitate this research, including seeking the academic or technical partnerships often required by funding agencies to facilitate more Indigenous-led, community-based research. Dedicated, long-term funding for these positions is required to move this solution forward.

Implementation Coordinator - Community Case Study

Large scale flooding affected much of Alberta in 2013. One First Nation that was affected had just completed their source water protection plan. As a result, the top priorities for the implementation of their plan focused on mitigating source water risks associated with flooding. Based on their implementation plan, they were able to successfully apply for funding in order to cap unused water wells that had been contaminated during the flood, clean up large areas of unauthorized dumping near their source water, as well as to explore options for improving their solid waste transfer station. Given the large scope of the project, the working committee felt that it would benefit from having a designated coordinator. As a result, they included an Implementation Coordinator position in their project proposal. This position was filled by a member of the Nation and the individual received mentorship from a number of outside organizations. As a result of having this position, the working group was able to successfully cap dozens of water wells, clean up numerous unauthorized dump sites that were in close proximity to their source water, as well as complete a feasibility study for a waste transfer station. All of this work was completed within a short time. Without a designated person to coordinate the project, it would have been virtually impossible to achieve the same level of success. This project resulted in drastically reducing the risk of source water contamination

during subsequent flooding events; thus, increasing the quality of their drinking water and decreasing the risk to human health.

Funding and Proposal Coordinator

As financial capacity was one of the most significant barriers identified by participants, it was expressed that having a position within the First Nation dedicated to writing funding proposals and coordinating grants would greatly increase the community's financial and human resource capacity.

Potential roles for the funding and proposal coordinator include pursuing funding opportunities to support broader water management and protection initiatives not directly tied to the source water protection plan. The funding and proposal coordinator could also facilitate and support various opportunities for increasing social capacity. Communities recognize the importance and value of sending staff to participate in conferences and workshops; however, they often lack the funds to support travel, registration fees, etc. The funding and proposal coordinator could pursue funding to support involvement in these opportunities. There are many water committees, agencies, councils, boards, etc. that lack participation from and representation of First Nation communities. These positions represent invaluable opportunities for First Nation communities to participate in larger water management and planning initiatives that directly impact their land and water. The funding and proposal coordinator could pursue funding to facilitate participation in these opportunities. The funding and proposal coordinator could also facilitate opportunities to build the social capacity of the First Nation through accessing funding to support professional development, mentorship, and certification opportunities for staff. Once again, dedicated, long-term funding is required to realize this solution.

Dedicated Funding for Source Water Protection Plan Implementation

Insufficient funding, as well as constraints on the funding that is available, are some of the main barriers participants feel prevent the implementation of source water protection plans. One solution to this would be to have a pool of funding dedicated to source water protection plan implementation projects and initiatives. Currently, communities are unable to implement many identified management actions because they do not fall within current federally or provincially funded programs or grant programs offered by other organizations. Many of the projects that require or would benefit from long-term, dedicated funding are identified across virtually all First Nation source water protection plans. These range from the development of comprehensive, holistic community-based monitoring programs, to addressing the condition of drinking water wells and cisterns, to replacing or repairing failing private septic systems. The creation of funding programs to implement identified management actions are needed to solve source water issues not currently captured in existing funding programs.

In addition, if First Nations were able to access a pool of funding that generally supported source water protection planning and plan implementation, it would increase First Nation autonomy over how source water risks are prioritized. The current system where First Nations are only able to access limited funding with numerous constraints limits decision-making power of First Nation communities and reinforces a colonial, western-centric system of water protection and management. In order to build capacity within First Nation communities to facilitate

Indigenous-led source water protection planning and related research initiatives, First Nations need to be able to decide for themselves what their priorities are and have access to funding to support identified priorities.

Dedicated Funding for Source Water Protection Plan Implementation - Community Case Study

Concerns around cistern condition and maintenance are regularly identified in source water protection plans as one of the main risks to source water. One First Nation who has dealt with this issue in their community shared their strategy for addressing concerns around cisterns at the workshop. In response to community concerns around cracked cisterns, cisterns missing collars or covers, and cisterns requiring cleaning, the cisterns in the community were inventoried to document which ones required cleaning, repair, or needed to be replaced. A proposal detailing the required work and associated costs was prepared and submitted to Indigenous Services Canada with support from their Environmental Health Officer, who was part of the First Nation's source water protection plan working committee. The community received the funding and completed the work. In addition, they were able to establish a comprehensive cistern cleaning and maintenance program. Dedicated funding solved the problems created over years of having insufficient resources and funds to deal with the issues. The community has greatly reduced the number of contaminated cisterns and, as a result, the number of boil water or do not consume advisories issued on their private water systems.

Securing this long-term, dedicated funding entailed a significant amount of work and negotiation on the part of the First Nation. If dedicated funding programs or a general pool of funding to support source water protection plan implementation existed, more First Nations would likely complete similar work to solve issues around private cisterns and wells in their community. However, many communities likely will not or are not able to invest the time and resources required without some assurance their efforts will be funded.

Partnerships and Collaboration

Workshop participants identified the formation and maintenance of partnerships and relationships as one of the necessary supports for the implementation of their source water protection plans. These relationships include other stakeholders, neighboring municipalities, provincial governments, federal governments, as well as organizations engaging in watershed and land use planning and protection. The formation of these partnerships could result in collaborating on initiatives and projects to address common risks to source water, sharing technical resources and data, as well as cost-sharing on projects. In addition, partnerships formed between First Nation communities, governments, and other stakeholders through source water protection could lead to meaningful dialogue and action around ways to address higher level regulatory and jurisdictional gaps.

A lack of social and human capacity were noted as some of the main barriers to being able to seek out and form these partnerships. So, while the formation of community-based and community-driven source water protection plans can be a tool to facilitate the creation of these partnerships, the ability of a First Nation to do so may be limited by the human capacity available to engage with potential partners.

Partnerships and Collaboration - Community Case Study:

A First Nation located in north-central Alberta originally planned to create a source water protection plan specific to the Nation, however; they recognized early on in the development of their plan that they needed to involve the neighboring municipality. Individuals from the municipality were invited to working group meetings and eventually a joint source water working committee was formed to protect their lakes, the shared source of their drinking water. As a result of this collaboration, they have achieved successes in the implementation of their plan. They have created joint bylaws for the two communities as well as aligned their goals and messages regarding water stewardship. The creation of bylaws, specifically, has helped address some regulatory and jurisdictional gaps that existed.

This is one example of the positive collaboration that has come out of partnerships formed through the development and implementation of source water protection plans. If community capacity for engagement was increased, such as through the aforementioned addition of an implementation or funding and proposal coordinator, First Nations would be able to devote more time and resources to forming and maintaining valuable and beneficial partnerships and relationships.

Cultural Connections to Water

Throughout the workshop, participants repeatedly expressed a desire to strengthen the connection between water and their community through culture and ceremony. By building a deeper connection to water through traditional teachings and ceremony, communities expressed that more people would become engaged in water protection, and that water protection would become more holistic and meaningful.

Cultural Connections to Water – Community Case Study

Unauthorized dump sites are a risk to drinking water commonly identified in source water protection plans. The solution, or implementation plan, normally involves the clean-up of the dump sites as well as additional community awareness on the proper disposal of solid waste. A First Nation community that had recently completed their source water protection plan decided to tackle the issue of unauthorized dump sites in a novel way. They wanted to not only clean up the solid waste, but while doing so, increased cultural connections to water and land. Over 75 summer students were hired to carry out the 2017 Summer Clean Up project. The project included the participation of Elders. The Elders spent time with the youth teaching them about traditional ways of life including the identification of medicinal, ceremonial and edible plants.

Through the inclusion of Elder-youth knowledge transfer in the community clean up, the youth not only learned skills pertaining to the hands-on aspect of cleaning up solid waste (e.g. safe work procedures, GPS skills etc.) but learned traditional teachings that furthered their respect and appreciation for water and land. These teachings are invaluable to building a foundation of caring for water and land within communities.

Conclusions

Water management in Canada is increasingly focusing on integrated watershed management (IWM) approaches that manage human activities and natural resources on a watershed basis. However, few jurisdictions have established clear mandates and departments to guide and undertake IWM approaches and they remain largely informal (CCME 2016). IWM places an emphasis on watershed management that brings together the various levels of governments and agencies that are involved in watershed management and planning activities. It also places an emphasis on the involvement of numerous stakeholders and wider engagement of communities to inform and implement management plans. In many jurisdictions, this is being accomplished through an increased emphasis on source water protection planning processes (CCME 2016). In Canada, there is no federal legislation that regulates and guides the development of source water protection plans. As a result, source water protection strategies vary greatly among provinces and across jurisdictions. Further complicating this, particularly for First Nation communities, are the regulatory and jurisdictional gaps created by a decentralized approach to water management.

In Alberta, integrated watershed planning is carried out largely by The Alberta Water Council, Watershed Management Planning and Advisory Councils (WPACs), and local watershed groups (CCME 2016). While municipalities are often well-integrated into existing watershed planning and protection initiatives, First Nations often do not enjoy the same protections and meaningful inclusion due to jurisdictional and regulatory gaps. For this reason, addressing the financial, human resource, institutional, social, and technical capacity needs of First Nations communities is crucial to ensuring that communities are able to develop and implement community-based, community-driven source water protection plans. Source water protection plans not only assist First Nation communities in addressing the disparities in access to safe drinking water relative to non-First Nation communities, but they also represent an invaluable avenue for addressing the exclusionary processes of watershed management that exist within Alberta and elsewhere in Canada. The development of community-driven source water protection plans allows First Nations to engage in and lead discussions around water protection and management. They create opportunities to engage with stakeholders, surrounding communities, and regional watershed management planning agencies to discuss shared concerns around source water and to build meaningful partnerships to collaborate on water protection initiatives.

Source water protection planning is a proactive planning methodology and management tool; therefore, it has greater potential to align with Indigenous perspectives and approaches to water protection more so than other western-centric, colonial planning and management approaches. It is not a management and planning “silver bullet”, but if approached properly, can provide a first step in meaningful dialogue, inclusion, relationship building, and reaching an ethical space of shared understanding (Ermine 2017) from which to move forward in meaningful co-creation of water protection and management strategies. However, more on the ground support and resources are needed to increase community capacity to enable additional Indigenous-led research and to further the implementation of these community-led plans.

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Appendix A:

Summary of barriers to source water protection plan implementation identified by workshop participants, divided into the five areas of community capacity:

Financial:

Funding for the community

Government funding

Solutions for funding

Finding funding

How and where to access funding

Incremental funding for employees (to increase staff retention, especially water operators)

Social:

Lack of community support
Lack of volunteers
Lack of education, interest, and awareness
Lack of engagement
Lack of support from community (the people themselves)
Community engagement (support)
Engaging community in a meaningful way
Lack of engagement
Community and leadership awareness
Chief and Council
No support from leaders – not a priority to them
Plan awareness to leadership (re-educate) newly elected, getting leadership on same page
Support
Creating and maintaining partnerships
Lack of communication
Communication
Other communities

Human Resource:

Organization to regularly (2 times/year) review and discuss to maintain focus
Implementation coordinator to maintain momentum/apply for grants/organize
Implementation coordinator – someone to keep the plan alive
Lack of capacity
Finding people who are committed
More partnerships and support for carrying the burden

Institutional:

Protection vs. treaty right (more concerned with treaty rights than protecting water)
Oil and gas companies' interests take priority
Competing priorities for water use
Government process (local, provincial, federal)
Environmental costs

Technical:

Lack of knowledge
Equipment and materials
Infrastructure

Summary of potential solutions identified by workshop participants. Potential solutions include source water actions and strategies that First Nation communities have implemented or could implement:

Community clean up yearly
Aquifer plan for GUDI (groundwater under the influence of surface water) – risk assessment of oil pipeline risk to aquifer, landfill leachate, effluent release risks
Implementation – incorporate source water plan into local schools
Programs merging together
Meeting with oil companies
“Illegal” dumpsite clean-up
Removal of metal (appliances, cars, etc.)
Improve land management practices of band livestock management
Full time, year-round water monitor
Meeting with Elders about graveyards
In-house filtration systems installed
Tested water (independently to verify results)
Old vehicle removal
Annual clean-up before our smudge walk
Switch landfill to transfer station
Decommission wells
Educate new housing residents
Culvert upgrades
Work in stages – planning, meetings, communication, administration, leadership
Extended well collar, mounded ground around well, fence around well
Water asbestos lines replaced
Flood mitigation – levee
Put porta potty at ice fishing village
Expand lagoon capacity
Beaver dam management/strategies
Good workers to keep on top of the water treatment plant
Water line
Cistern collars and covers – cleaned and changed
Implement agricultural BMPs – offsite watering, buffer areas, VRT, grazing management
Removal of abandoned diesel tanks
Upgrade sewage systems
Upgrade solid waste
Community clean-up
Water purification ceremony
Facilitate community engagement meetings – with food!
Shoreline restoration
Landfill – community involvement to use the station, need to recycle more products, needs clean up, dead animal drop-off, more people working
Cisterns – replace cisterns, testing water for all homes and inspecting every cistern, cleaning systems annually

Lagoon – we got the lagoon repaired (re-lined), beaver damn on lagoon was removed, removed the beaver from the lagoon
Annual water sampling events
Recovered old residential land pits
Have garbage bins for every home
Wells – repair wells, decommission wells, chlorinate wells, blow out wells and clean, install screens
Ensure the source water protection committee is comprised of local community members
Fields – land person to communicate with farmers, spraying/garbage
Schools – recycle bags, community clean-up, school gardens
Collaborate with oil/gas/forestry/industry/mining companies
Changing shootouts to holding tanks
Abandoned dumpsite assessments for groundwater leachate
Re-useable shopping bags instead of plastic
Mapping watershed
Regional waste management partnership, dumpsite -> waste transfer
Community clean up – pick up large appliances/large furniture/mattresses, old vehicle removal, clean up beach
Youth education and engagement
Solar panel station
Ongoing education of youth and Elders
Cleaned up contaminated sites
Hire a planning coordinator – CDI
Water treatment plant upgrade (huge capital investment)
Surface water management – increase culvert sizing
Remove old, abandoned vehicles from community
Decommissioned abandoned wells
Mapping – complete mapping on our reserve, all our areas and roads, all our rivers and creeks
Collaborate with municipal district #17
Pass bylaws to protect the water
Selling/recycling our scrap metal
Community clean-up day
Extend main water/sewer lines
Way of thinking – 4 sacred waters – sea water, freshwater, rain water, breaking water