

First Nations and Source Water Protection

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Most urban Canadians enjoy safe and plentiful drinking water. This is largely the result of reliable water supplies, advanced water treatment technologies, and sufficient water operator knowledge. When water quality issues do emerge, as was the case in Walkerton, Ontario (E. Coli contamination 2000 : 7 deaths and 2300 illnesses) and North Battleford, Saskatchewan (Cryptosporidium 2001: hundreds of illnesses) media attention is swift and corrective measures are immediate. After all, a contamination event of a public water supply in a developed country like Canada is normally unexpected. Within a year of these separate events public inquiries recommended new provincial regulatory frameworks, new water treatment upgrades, and new legislation to protect sources of drinking water. Yet, the same level of media attention, public awareness, and water policy development respecting access to safe drinking water is conspicuously absent for Indigenous communities across Canada.

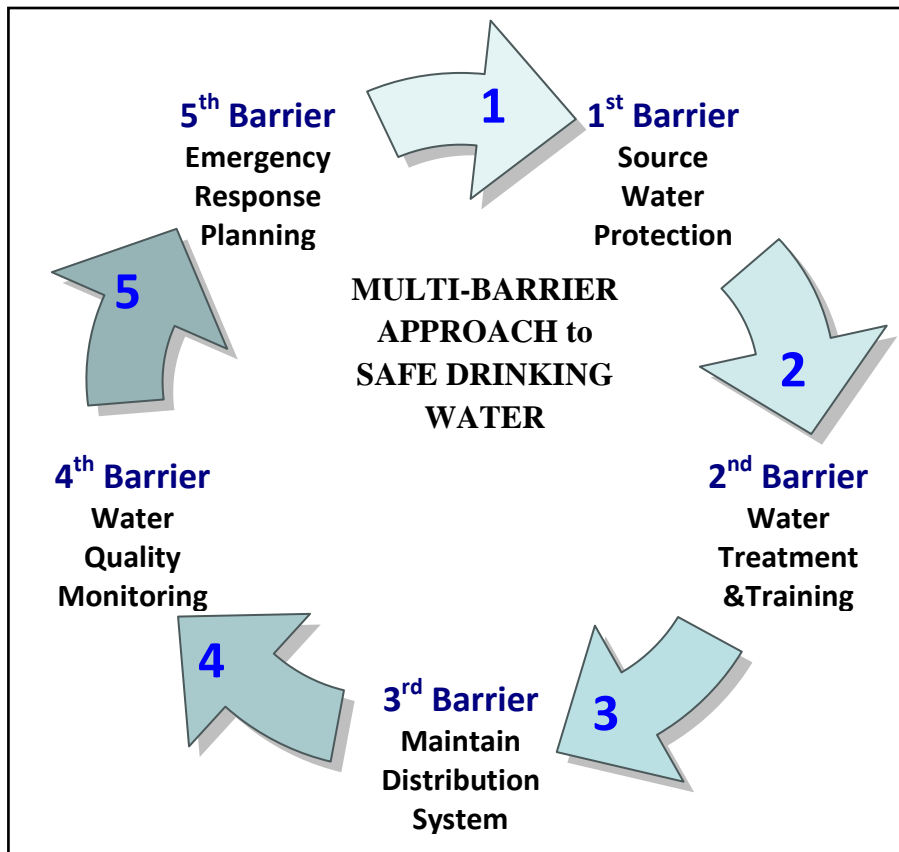
As an indicator of compromised drinking water quality, boil water advisories issued by federal or provincial health authorities for indigenous communities are 2.5 times more frequent than for non-indigenous communities. While approximately 30% of Indigenous community water systems are classified as high risk systems in Canada the number of water-borne infections in Indigenous peoples is an alarming 26 times higher than the Canadian national average.

Living with long term boil water advisories is often the norm in many Indigenous communities, a condition that would not be tolerable in non-Indigenous communities. For example, at Yellow Quill First Nation just west of Saskatoon, Saskatchewan, a boil water advisory was in effect for over 10 years. Landsdowne House First Nation in Ontario has been on a boil water advisory since 1995. Long term boil water advisories may lead to public complacency where unsafe drinking water is consumed by community members. Alternatively, lack of trust for tap water has also created dependency on expensive bottled water and cola-based beverages with associated health impacts.

To overcome risk associated with water contamination events the historical approach in Canada, particularly for Indigenous communities, has been federal government (Indian and Northern Affairs Canada) investment in expensive water treatment facilities. This approach has been less than successful, in part because of the high unit cost of water treatment technology given the numerous reserve lands across Canada and relatively small population base of each reserve. Additionally, some have questioned the rationale for conventional water treatment facilities applied in many of these communities citing problems with inappropriate (one-size-fits-all) design specifications, reliance on chemical treatment, lack of operator training, and high maintenance costs. Instead, a more holistic approach to safe drinking water has been supported across Canada that endorses watershed and groundwater protection as part of a multi-barrier approach to safe drinking water.

The Canadian Council of Ministers of the Environment (CCME, 2004) define the multi-barrier approach as “an integrated system of procedures, processes and tools that collectively prevent or reduce the contamination of drinking water from ‘source-to-tap’ in order to reduce risks to public health”. The goal of the multi-barrier approach in drinking water management is to reduce the risk of drinking water contamination through the presence of system redundancies, or barriers, built into the water system. The multi-barrier approach (see Figure 1) begins with source water protection (SWP), followed by water treatment, a well maintained distribution system, water monitoring and testing, and a response plan. SWP is the first barrier, and often the most important barrier, in the multi-barrier approach to safe drinking water.

Figure 1: the multi-barrier approach to safe drinking water

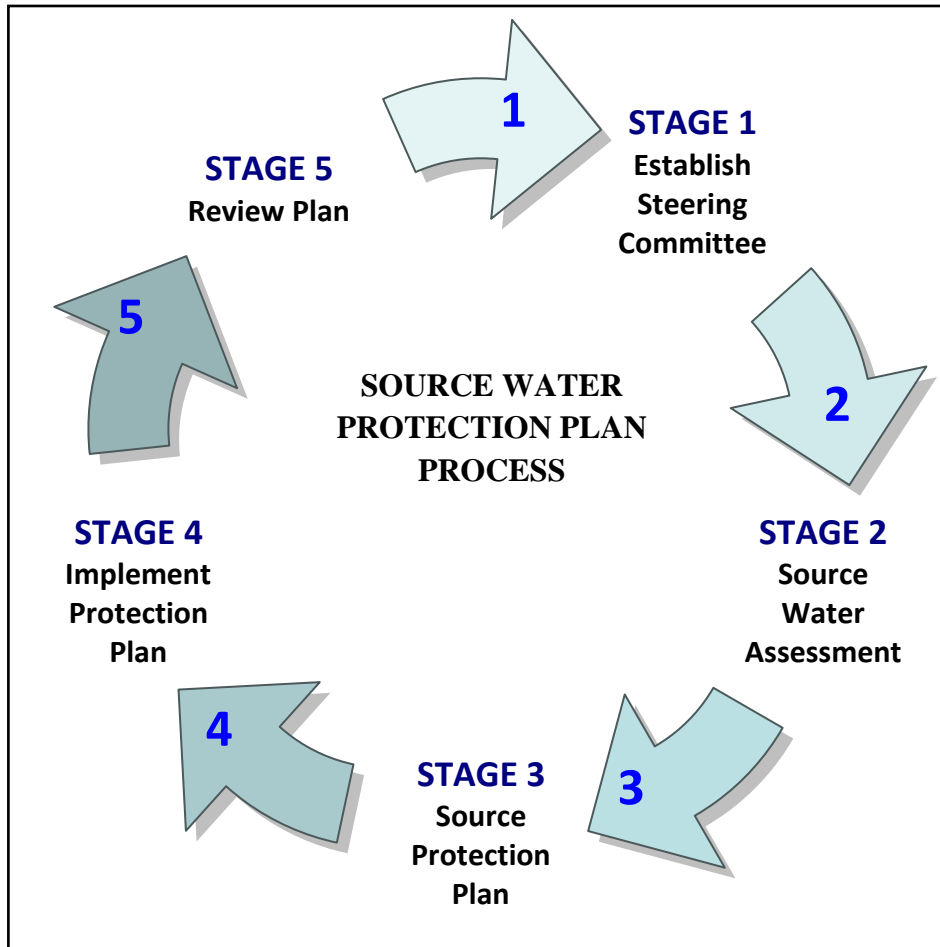


The public health and economic benefits of SWP are broadly discussed in the literature. SWP aims to reduce the risk of waterborne contamination at the water source. SWP also makes economic sense for at least three principal reasons. First, it is reported to be many times less expensive to protect a water source from contamination than it is to remediate after contamination. Second, it has been shown to be more cost effective to invest in natural capital, such as purchasing development rights or land acquisition within a watershed, rather than to invest in physical capital, such as water treatment technologies. Third, SWP, as the first barrier of defence for clean drinking water, significantly reduces water treatment challenges and costs. Yet, for all its benefits, SWP has proven to be difficult to practice on the ground. One of the main barriers to SWP is the lack of integration in the way in which planning is practiced in Canada. Land and water have historically been planned in isolation by separate agencies often operating at cross purposes. An alternative approach to safe drinking water would see increased SWP diligence, but not to the exclusion of other aspects of the multi-barrier approach.

SWP is a land use planning exercise that includes several components including the delineation of the public water supply area (watershed or groundwater recharge area); an inventory of potential sources of contamination; an assessment of risk to the water supply; identification of management actions to reduce the risks; and an implementation schedule to bring about planning action.

Ideally, First Nations SWP plans will be undertaken by community members including Elders, youth, land managers, and band members who best understand the source of their water supply as well as potential risks to the water supply. With the assistance of a plan facilitator, or planner, SWP plans can be completed in a relatively short period of time with minimal funding requirements. The plan making process, while ideally driven by the community members should also include stakeholders and industry partners as well as outside interests. One of the main questions for First Nations is to decide whether the SWP plan will be an on-reserve plan or a plan that also considers off-reserve potential impacts. The stages of the planning process are shown in Figure 2.

Figure 2. Source water protection plan process



Once developed, any plan requires action. This is the implementation phase and where financial resources may be necessary to implement identified management actions. This is where partnership and multi-stakeholder engagement early on in the process may help to secure industry and government funding to bring action to the plan. The goal of SWP planning is to identify potential risks to a water source and then to identify management actions to help reduce risk. Each community will look at risk slightly differently. A low risk in one community may be a medium or high risk in another. Often the elimination of all risks will not be feasible; therefore the reduction of risk is the aim.

An additional benefit of SWP planning is the opportunity for individuals and entire communities to reconnect with water and the physical environment. The SWP process allows a community to become more aware of its water sources and to re-gain an appreciation for water. For many First Nations this allows for discussion around traditional knowledge of water and the importance of

protecting sources of water. Elders will be encouraged to tell their water stories and young people will be given the opportunity to learn about water from both traditional teachings and western science.

SWP may now be the best hope for reconnecting health and place to overcome the deplorable drinking water conditions that persist in so many Indigenous communities across Canada.