

# Safe drinking water: a key to tourism development

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**D**The National Sanitation Foundation (NSF) hosted an international conference in 2000 titled "Small drinking water and wastewater systems:

Technology for the 21st Century". It brought together scientists and water treatment experts from North America and beyond. At the end of the conference the delegates were invited to debate a drinking water challenge.

The challenge? A U.S. tourist travels in rural Mexico and rural Canada, where is this tourist most likely to pick up a waterborne illness?

The overwhelming consensus was rural Canada. It was not that the prevalence of waterborne microbes is greater in rural Canada than Mexico. But, the NSF recognized that rural drinking water in both Canada and Mexico are not nearly as safe as we have come to expect. Scientists know this. Selecting Canada over Mexico as the most likely spot to catch a waterborne illness was based on this knowledge combined with the perception of most Americans that Canada's drinking water is safe while Mexico's isn't. So an American tourist may not take the proper precautions when traveling in rural Canada.

One may argue that while this may be true for non-Aboriginal communities, it cannot be true for Aboriginal communities in Canada because of how the water is tested. In Aboriginal communities Health Canada is responsible for testing water quality; it is Health Canada that puts the stamp of approval on water stating if it is safe to use or not.

Yet, Health Canada uses less than 5% of the Canadian Drinking Water Quality Guidelines to determine

whether a treated drinking water is safe or not. Safety is mainly assessed in terms of the presence/absence of indicator bacteria (coliforms). Meeting Health Canada's "coliform" test has little to do with whether the water is safe or not, it just means that the water has passed a couple of percent of the Canadian Drinking Water Quality Guidelines.

In fact only one third of waterborne disease outbreaks have coliforms associated with them. Meanwhile, microbes, such as viruses and protozoan parasites, have no coliforms associated with them.

If your community is using groundwater, then viruses will likely be your biggest problem. Unfortunately, Health Canada does not want to hear about the more than 100 different types of viruses that are present in human sewage. These viruses can cause many diseases that we normally don't think of as waterborne, such as heart muscle inflammation (potentially causing heart attacks) and Hepatitis A.

If your community uses surface water then your biggest problem will likely be with protozoan parasites, such as Cryptosporidium. While you can kill coliforms easily with chlorine, you CANNOT kill Cryptosporidium with chlorine.

Indeed, conventional technologies typically used in Aboriginal communities allow most of the microbes in the water to go into the finished drinking water and our only protection is inactivation using chlorine. So, for every glass of water we drink we may be also drinking hundreds of thousands of hopefully inactivated microbes, hoping and praying that the water is safe doesn't sound like a good Health Canada strategy.

As we find more and more microbes that cannot be effectively inactivated with chlorine a new school of thought is emerging in the Aboriginal community. It started at the Yellow Quill First

Nation in Saskatchewan. The philosophy is simple: instead of meeting less than 5% of the Canadian Drinking Water Quality Guidelines, meet 100%. Then meet more stringent European Union and U.S. Environmental Protection Agency regulations.

All drinking water quality guidelines and regulations are made up by government agencies, which are not removed from the political realities of the countries that they are operating in. So, instead of looking to governments to guide us, the project management team at Yellow Quill looked to science to design a water treatment process. New processes were implemented after two years of research, development and pilot testing. Instead of inactivating microbes, we remove them; instead of trying to work around problem chemicals in the water, we remove them.

The distributed drinking water is of such high quality that it surpasses most bottled water quality and indeed Yellow Quill bottles its own water for nation citizens to take to conferences outside their community.

With an improved water quality many First Nation citizens are moving back to the reserve. Visitors, meanwhile, enjoy the drinking water without the fear of unexpectedly taking unwanted microbes back home with them.

The Pasqua, George Gordon and soon Saddle Lake First Nations now use similar water quality processes to ensure their citizens have access to safe, clean drinking water.

Non-Aboriginal people living in the vicinity now have good reason to visit the reserves, stocking up on truly safe drinking water. **Δ**



Dr. Peterson is Executive Director of the Safe Drinking Water Foundation. For more information on water quality issues, visit: [www.safewater.org](http://www.safewater.org)