



## VOICES FROM THE FIELD

Welcome to [\*Voices from the Field\*](#), a podcast produced by the National Collaborating Centre for Aboriginal Health (NCCAHA), which focuses on innovative research and community-based initiatives promoting the health and well-being of First Nation, Inuit and Metis peoples in Canada.

This episode was produced by NCCAHA in conjunction with the National Collaborating Centre for Infectious Diseases ([NCCID](#)) and the National Collaborating Centre for Environmental Health ([NCCEH](#)).

## EPISODE 5

### **From the Lab to the Reserve: The Transformative Power of Community-Engaged Scholarship**

This episode is based on a [keynote presentation delivered by Dr. Lalita Bharadwaj](#) at the fourth annual “[Create H2O](#)” [First Nations Water Research Conference](#), organized by the [University of Manitoba’s Centre for Human Rights Research](#) (June 1-2, 2017). Her keynote began with a personal story of how she moved from working as an academic in a laboratory to working with First Nations communities. She offered up key reflections and practical tips learned along this fifteen-year journey, including how to do research that is grounded in relationships, community ethics and community-based participatory research methods, which result in meaningful, beneficial and team-based knowledge production and translation. As an example of transformative community-engaged scholarship, she referred to an environmental research project in Saskatchewan called the Safe Drinking Water Program.



## BIO

[Dr. Lalita Bharadwaj](#) is an Associate Professor, Toxicologist, [School of Public Health, University of Saskatchewan](#) (Saskatoon, SK). She has unique expertise in human and environmental health risk assessment and community-based participatory research involving Indigenous communities both regionally and globally. Dr. Bharadwaj is committed to finding solutions and understanding issues associated with inequitable access, supply and provision of safe, sustainable drinking water supplies for First Nations in

rural and remote Saskatchewan communities. Through her community-based participatory research activities, she has provided learning opportunities for university and local students, facilitated interdisciplinary research collaborations and helped build research capacity at the local and university level.

## TRANSCRIPT

**Voice Over:** Welcome to *Voices from the Field*, a podcast produced by the National Collaborating Centre for Aboriginal Health. This series focuses on innovative research and community based initiatives promoting the health and wellbeing of First Nation, Inuit and Métis peoples in Canada.

In this episode, we hear from Dr. Lalita Bharadwaj, a professor and toxicologist at the University of Saskatchewan. What follows is an edited version of her keynote presentation at the fourth annual Create H2O First Nations Water Research Conference organized by the University of Manitoba's Centre for Human Rights Research. Her talk is entitled "From the Lab to the Reserve: The Transformative Power of Community Engaged Scholarship".

**Dr. Lalita Bharadwaj:** Hello, everyone. Good morning. I would like to open my talk to describe my journey from the lab to the reserve. My research started in a lab for about 20 years and then for the last 15, I've been working with community members. I would also like to express how community-engaged scholarship with First Nations communities has transformed my own research career, but has also transformed me as a person and the way I view things, the way I act, and the way I appreciate Mother Earth.

So, in 1990, there was a movement to metamorphosize a way in which academics conduct research. Dr. Ernest Boyer wrote "Scholarship Reconsidered" and, really, he was begging the academy to become more vigorous and involved in addressing some of the most pressing public issues in society. And he recognized that scholarship is not only about writing about knowledge, and the gaps within published scientific literature, but it involved interrelated dimensions, and these dimensions are reflected in scholarship, teaching and service to the community. It also involves connecting disciplines and understanding there are different ways of knowing.

So, scholarship is not about our disciplinary silos, it's about interconnecting those disciplines and how we can utilize the different world-views and the way we view the world to better address some of those pressing civic and societal issues. It also involves application and teaching and that transmitting knowledge is not just about writing and publishing in peer-review journals, but it can transform into other modes of communication and mobilization. So, for example, utilization of the arts, video, short pamphlets, things like that.

But, in 1990, I just started my master's degree in pathology and I was still in my siloed discipline. In 1993, Devon Mihesuah was writing about and documenting some ethical guidelines on how to work with First Nations communities, and in 1993 that's when I started my PhD in toxicology. So really, from '90 to about '99, I was oblivious to these things that were going on, these movements, and Linda Tuhiwai Smith in 1999 also wrote a book about decolonizing methodologies, and this was in response to the helicopter type approach to research where researchers parachuted into communities, gathered information with little or no benefit to the communities in which they gathered that data. And I think one of the key points that I learned, eventually, after reading through these guidelines was that we need to frame research within the historical, political, social and cultural perspectives of the communities in which we work. And also, that there has to be some fair return to the communities in benefits and action related to those results.

So: how did I get out of my silo and break out of my discipline and expand and transform my research? Well, it was by accident. In 2002, I started my academic career as an assistant professor in the College of Medicine at the University of Saskatchewan. I was looking at factors related to cardiovascular disease and I was utilizing animal models and human cells. And again, I was stuck in my discipline and felt siloed and alone.

However, when I was watching my son (our youngest son Rowan) at a soccer game, I had the chance to meet a hydrogeologist. And he asked me if I was interested in working with First Nations communities. He was telling me about a project, they were looking at waste dumps in the communities, and they were looking at some aspects related to leaching of waste, leachate into groundwater and water. So I thought, okay, sure. And that's how I entered into the reserve. It was a project first looking at waste disposal in these communities.

That project started in 2004. What did I learn? Well, first of all, because it was new to me, I sat back, I listened and learned from my community partners. I also listen and learn from the colleagues that I work with. And, what I noted was that not all issues can be explained by experimental research. That was number one.

Number two, that issues within the community need to be situated within the historical, social, political and economic context of the problem.

Third, that transmitting, transforming and extending knowledge includes a community. It involves not only one expert, but multiple expertise from the youth to the elders, and from expertise from the academic units and disciplines that we have opportunity to work with—it is truly a team effort. And that knowledge can be

mobilized through youth in our communities, through video, through interviews, through documentation and development of DVDs for educational curricula.

And in 2006, I had the opportunity to meet Elder Albert Marshall, he's a Mi'kmaw elder from Cape Breton, and also Cheryl Bartlett. And I was attending the Canadian Aboriginal Science Technology Society Conference in 2006, and I learned about the two-eyed seeing approach. And what it means is that to view the world with the strengths of an Indigenous world-view and the strengths of a scientific world-view and taking those contributions together to understand issues to benefit everyone. And that one is not dominant over the other. The contributions from diverse world-views can reshape and transform the nature of our research questions, to answer them in ethically and culturally appropriate ways, and it allows for new complementary ways to observe, co-design, coproduce and co-mobilize knowledge. So one of the key lessons I've learned through my work with First Nations community is to respect diversity and respect diversity of knowledge.

So now I want to talk about some practical tips when working with communities. So, one—I think, the big key—is building relationships. How do you do that? Second is, how do you work together to co-develop goals and get on the same page? What are methods that are appropriate for the questions you seek together and how are results meaningful and how they can be used to benefit the community?

So when I started, and this was back in 2002, as an assistant professor and got involved into looking at issues around waste disposal in communities, I got to meet a number of people from various communities, from various tribal councils, Saskatoon Tribal Council, the Federation of Sovereign Indigenous Nations, (formerly the Federation of Saskatchewan Indian Nations), and as a result of that connection and network we developed an environmental group. And this environmental group was really only about four or five people at the time, but then over time, and because of our engagement and continuous communication and networking with people, it developed into a formal structure within the Federation of Sovereign Indigenous Nations. And as a result of that, our research program, and the people involved in our program, are welcomed to the meetings of the FSIN. And we share information so that information and project ideas are collaboratively generated through those network opportunities. And over time, we've had many workshops, forums, meetings in the community, to really develop the goals.

So what are some of the practical tips? Okay. So, for one, I was talking to some students and they said you need some travelling money, okay, to get to the community. So that needs to be in place. You need time, okay. You need to be yourself. People care about who you are before they care about what you do. So be yourself. If you're in it for the advancement of your career, you're in it for the wrong reasons. Be able to listen. Don't come with judgement and opinion, okay. And it truly is about developing relationships.

Now, I did want to mention research agreements, and research agreements just outline the relationship. So what are the goals and objectives of the relationship? What are the roles and responsibilities of the partners, and what are the data requirements? What are the methodologies used to gather that information, and how should that information be disseminated? So those are the clear sort of themes that are usually involved in a research agreement.

So, after many, many, many interactive opportunities through workshops, meeting with communities, there was the development of the safe drinking water program through the Federation of Sovereign Indigenous Nations. And one of the goals that was co-created was to look at how the government is doing on its responsibility for Indigenous people in Canada. This occurred through a timeline from 2001 to 2013, and I won't get into the details because I'm looking at the time and I'm running out so I better get going.

So, the data indicates that, really, progress has not been made, although there have been a number of strategies implemented over that time period. So, under this program and through our networking, we developed a FSIN drinking water safety program and we've been collecting information on boil water advisories, utilizing a longitudinal approach, looking at some of the factors that are contributing to these boil water advisories, but also to the quality of the drinking water, within three-year segments and what I'm going to present here is some information from 2006 and 2010.

So you can see here that the primary reason for boil water advisories for First Nations in 2010 was mainly due to pressure issues in the plant, whereas previously it was related to plant chlorine and adequacy of disinfection. One of the questions was what are the differences between reserve and non-reserve communities of similar size, communities of about 500 people who are non-First Nations and First Nations, and what we found in relation to long term advisories (and these are lasting five weeks or more), that, in First Nations communities, power outages was an issue. And this data comes from a period of over 2012 to 2016.

Now, again, we looked at water quality. So we looked at some of the aesthetic objectives, meaning colour, taste, smell of the water, and feel of the water. And what we noted was that, you know, a good 50 per cent of them were exceeding aesthetic objectives. The main aesthetic objective that we observed were total dissolved solids and manganese (and manganese can product discolouration of water). We also looked at health parameters, or maximum acceptable concentrations, and we also found that a good number, a good proportion, of the systems exceeded those maximum allowable concentrations. And what we found was trihalomethanes was an issue, and it still is today.

Now, as we proceeded, and based on sort of the evolution of our research results, we developed a program based on four questions. And this was to look at the impacts of First Nations and water regulations on the health equity promotion of health in these communities. And our guiding questions were primarily focused on: what are the challenges to achieving effective regulation of First Nations water; how do these challenges impact the health of First Nations individuals, families and communities; what are the differences or similarities of challenges among Saskatchewan First Nations, and, what are the processes and capacity needs around this?

So we partnered with nine communities in Saskatchewan and one in the Yukon and we started to address some of the issues. We utilized a community-based approach. Water quality assessment was a key to this particular project—ongoing program, really—and utilization of quantitative and qualitative data. And we conducted interviews, sharing circles, youth project—and as I mentioned before, community-engaged scholarship with First Nations really involves a community.

And what we found is that a lot of the communities are dependent on groundwater, that 42 per cent of the people who responded did not drink the water, rarely drank tap water. Fifty-seven per cent experienced a boil water advisory while living in their community. Dry skin and rashes, 40 per cent of individuals indicated that. A high chlorine content was an issue for most participants who were interviewed, and that the water experienced an odour.

Now, I just want to quote a couple people who shared their stories and information.

“The newest water treatment plant, people don't drink that water even though our water treatment plant personnel send water samples in and it's supposed to be good drinking water, but I wouldn't drink it. It's discoloured and it's got, like, a smell. It's a newer system, but I don't think it's serving its purpose or its job to have access to clean drinking water.”

“The chlorine that they put in is sometimes too much sometimes. I know my grandchildren they go back home and their skin breaks out in rash. We said that many times, but INAC insists it's the operators putting in too much chlorine. I don't know: I wish I could know more about the system itself and how it operates.”

“Oh, I would love more water because then I would be able to keep up with my laundry; because we shower the kids every second day and I'd love to shower them every day but I can't, I just don't have enough water.”

So this is echoing some of the news reports that we see. We also learned that cisterns and water supply systems other than distributed systems are an issue. And we learned that there are poor maintenance, and continued delivery schedules are interrupted as a result of flooding of roads and infrastructure. That, in fact, cistern water supply is actually costly to the communities and there are a lot of cisterns that have broken lids, improper installation, and lack cleaning schedules.

So, because of this information, we then decided to assess the water supply system through the truck-to-cistern water supply. So we grabbed samples through the route in the supply system. And what we found is that in cisterns there were drinking water parameters that exceeded the guidelines.

And here's just a snapshot of what we found. We looked at unconditional associations between potential risk factors and presence of total coliform, and what we found was that there was a significantly higher risk of coliforms in trucks during late summer. So there's a seasonal effect. Significantly higher risk overall of coliforms in cistern-served houses than piped distribution taps and then also, significantly higher risk of coliforms in houses during late summer.

We also did a structural assessment of cisterns, and we found that there were installation problems. A lot of them were cracked (they were concrete), there were damaged lids and collars, and they were improperly located in relation to waste, sewage or lagoons and in relation to distance from other potential environmental contaminants.

So some of the results from this program have resulted in good things and action. And we've had wells remediated, decommissioned and cisterns replaced as a result of some of the work that we've done. So in some of the communities there has been some benefits.

So for me, engaged scholarship really is about building relationships. And these relationships can be built through scholarship and the elements within scholarship; and that includes co-teaching, co-research and the co-creation of knowledge for the action and benefits of communities. And it really is centred on transformative learning.

And for me, building those relationships and maintaining those relationships has really transformed me not just as a researcher, and understanding my role and responsibility as a researcher, but as a person. And it has changed my behaviour and I think that is why community-engaged scholarship is transformative.

Thank you.

**Voice Over:** For more information on [Dr. Lalita Bharadwaj](#) and the [Create H2O First Nations Water Research Conference](#), or to hear more podcasts in this series, go to the [Voices from the Field](#) homepage. Find it on the website of the National Collaborating Centre for Aboriginal Health: [nccah.ca](#).

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