



# Addressing water-health equity through biological engineering and theatre

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## Abstract

For the past decade, RESEAU Centre for Mobilizing Innovation has been engaging with Indigenous and rural communities across Canada in pursuit of water-health equity which addresses SDG 6. RESEAU consists of a team of engineers, community partners, industry groups, and government officials working together to develop innovative solutions for water-health in small communities. Over the last six years, RESEAU has partnered with the UBC Research-based Theatre Lab to develop *Treading Water*, a research-based theatre play that brings to life some of the rich stories discovered during these community collaborations. The play flows between the intersecting narratives of individuals in a community dealing with unsafe drinking water and explores the resulting challenges to their health and well-being. Water operators and their experiences are central in *Treading Water*, and the

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research-based play illustrates their pivotal role in the community. This arts-based article, like the theatre initiative described, aims to open conversations addressing water quality and health issues facing rural communities in the 21<sup>st</sup> century. In an explorative text format, the article shares the collaborative process of developing the play with the various partners, the short script, as well as feedback from a performer and an evaluator.

**Keywords:** water equity, theatre, rural communities, collaboration, engineering

## Introduction

This arts-based article shares the collaborative process of developing the play *Treading Water* with the various partners involved, along with the short script and feedback from a performer and an evaluator. Addressing SDG 6, the theatre-based project focuses on water-health equity and security consisting of a large, diverse Canadian team of researchers, artists and community members. You'll meet some of them below as they describe their various contributions. The project began in 2016 with the help of a small grant, and the desire of researchers to work in transdisciplinary ways using the arts. The first phase consisted of a series of workshops with rural community members who work as water operators, industry folks (i.e., engineers), and researchers. The next phase was drafting a 20-minute play script that would reflect the insights gained from the workshops, along with follow-up interviews with community water operators and researchers. The core writing of the script involved three artists. Several drafts of the script were developed, building on the feedback offered after readings with small stakeholder groups. The version below has now been shared in parts or in full eight times for diverse audiences, including researchers, engineers, government officials, and rural community members working as water operators.

Each individual associated with this project on sustainability and equity brings unique capabilities and expertise to the collective and they were invited to participate because of their diverse knowledges and unique contributions in the development of a research-based play on water health. At its core, our arts-based initiative is guided by RESEAU Centre for Mobilizing Innovation, an engineering-led centre of excellence, working to address clean water challenges in rural and Indigenous communities across Canada. Collaborating on the theatre initiative are artists from

the Research-based Theatre Lab.<sup>6</sup> The transdisciplinary collaboration centres on engaging in meaningful discussions with marginalized communities around clean drinking water with a focus on *listening* to one another to foster mutual understandings and reciprocal learning. This reciprocal approach, using a circular approach to conversation, is also central in the interactions between the research team and artists who co-developed the play *Treading Water*. In what follows, individuals share their contributions and insights on this multi-year water project with a focus on the co-development and performance of the play using Research-based Theatre as a methodology.<sup>7</sup> Given how the full magnitude of this project cannot be captured in one article, we focus largely on the role of water operators and the complexity of contending with water insecurity in their own rural communities.

Participating in the ensuing dialogue are George Belliveau, professor of theatre education and artist-researcher; Madjid Mohseni, biological and chemical engineering professor; Christina Cook, artist-researcher and doctoral student; Tetsuro Shigematsu, artist-researcher; and Jennica Nichols, evaluator and doctoral student. This dialogue approach also echoes how the script of *Treading Water* itself was developed over a period of a few years with the artists, community members and researchers in conversation.

**MOHSENI:** As the scientific director of RESEAU for the last 10 years, I have focused my research on water equity in rural and Indigenous communities in Canada. The technical aspects of developing water filtration systems to produce clean drinking water in practically any circumstance was something our team of engineers could do quite well. However, what we discovered early in our process was that researchers and industry have a very thin understanding of day-to-day life in rural communities. For various reasons, community members are often reluctant to openly share their contextual data, insights, and experiences. To address this, RESEAU developed the Community Circle, where community members and all stakeholders were invited to share their needs and wishes. This process allowed us to move alongside communities and listen to their stories to better understand their needs. Once we agreed on pathways forward, we collectively developed and built the water system appropriate for their community. In this collaborative culture, the community is at the

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<sup>6</sup> University of British Columbia Research-based Theatre Lab: <https://rbtlab.ubc.ca>

<sup>7</sup> See Belliveau and Lea, 2016.

team's center and guided by them, with all partners from different organizations and functions collectively working together as part of the circle. We want to be clear that we are not using technology as a replacement for understanding the community's needs. Instead, we bring technology to augment the community's insights and abilities.<sup>8</sup>

**BELLIVEAU:** To my knowledge, this Community Circle approach used by RESEAU is unique in scientific research, and coincidentally, it suited the theatre-based work beautifully. So, when Madjid invited me to lead workshops with Indigenous and rural community members around water issues, I built upon their circular approach, using theatre activities that begin and end in a circle.

**MOHSENI:** The circle has been instrumental in the way we approach our work. It is built on Indigenous pedagogical strategies (Talk Story)<sup>9</sup> that utilizes Elders' knowledge passed down from previous generations' dialogue with listeners to build collective understanding, allowing participants from diverse knowledge systems to build group consciousness. In Community Circle, we build a team around the community's desirable outcomes rather than technology products or the functionality they offer.

**COOK:** I became involved in this project as a theatre artist in 2016, with George Belliveau co-developing and facilitating workshops and then co-writing the script with me called *Treading Water*. All our work has been done in collaboration with the engineering research team and community members. In my capacity as Research Director of the Research-based Theatre Lab, I enter projects from the very beginning. Belliveau and I meet with potential collaborators and discuss ways we might envision our work together so that it becomes mutually beneficial. Research-based Theatre, which we often call RbT, is used across diverse disciplines as a methodology that combines theatre and research. There are many different names for approaches that use theatre as research. Ethnotheatre, research-informed theatre, verbatim theatre,

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<sup>8</sup> For readings and further information on RESEAU see *In Pursuit of Water Health Equity*; RESEAU Community Circle Explainer; *Breaking Through*; *Water the Life of a Community*, as well as other contributions on <https://www.reseaucmi.org> reseau.cmi.org

<sup>9</sup> See Barkaskas and Gladwin, 2021.

applied theatre and documentary theatre are just a few examples.<sup>10</sup> As methodologies, all these approaches use theatre as a form of knowledge generation and exchange but have different commitments and emphasize different values. With its twin goals of making a scholarly and artistic contribution, RbT is committed to a collaborative inquiry process that involves professional theatre artists. It engages with research ethics and the unique ethical commitments of theatre as research in academic spaces.<sup>11</sup>



*Figure 1.* Community Gathering at Lytton First Nation, British Columbia, Canada  
Photo: RESEAU

It is important to know that RbT is not prescriptive, dictating how theatre should be used in research. Some RbT projects involve theatre at the end of the research process after the interview or survey data has been collected and analyzed to translate narrative research findings into forms that resonate with diverse audiences. Other RbT projects centre theatre throughout the research process, using script

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<sup>10</sup> See following work for Ethnotheatre (Saldaña, 2011), research-informed theatre (Gray & Kontos, 2018), verbatim theatre (Vachon & Salvatore, 2022), applied theatre (Freebody et al., 2018) and documentary theatre (Forsyth & Megson, 2009).

<sup>11</sup> For readings on Research-based Theatre as a methodology and approach to working with communities see Belliveau & Lea (2016), Belliveau & Sinclair (2018), Shigematsu et al. (2022; 2021). Research-based Theatre is influenced by and compliments the work in *A/r/tography* (LeBlanc & Irwin, 2019).

creation for data collection and analysis, script revising as member checking, and performance as an opportunity for knowledge exchange and project evaluation. This latter approach is the one we used for *Treading Water*.

**BELLIVEAU:** The insights gained through a variety of workshops, many conversations with water operators, engineers, stakeholders and community members in the early phases the project provided the research team and artists with critical data to develop the play. In the spirit of bringing conversations into the body and towards a creative realm, we often shifted the sit-and-talk approach towards drama-based activities at various events where we conducted workshops with community water operators along with engineers and government stakeholders. These interactive workshops became sites to gather and generate further data, in the form of stories, for the play and also to member check with individuals that we heard their stories fully.

We collected a number of stories during these scheduled events and workshops, but they also arrived unexpectedly. After one of our drama-based workshops at a large conference, a water operator approached Christina Cook and I in the lobby as we were having coffee. An Indigenous water operator shared with us the myriad challenges he faces within his community. With his permission, this 45-minute conversation turned into a key monologue for *Treading Water*.

**COOK:** Most of the *Treading Water* script you see below was created by theatre artists during a four-day retreat, drawing on narratives we had gathered from our conversations with water operators and RESEAU's team and the workshops. Our scriptwriting process was collaborative. We knew we wanted to represent numerous voices, including water operators, researchers, and community members, with a minimal cast to make the performances more nimble for conferences or community settings. We highlighted evocative scenarios and images from the data that resonated with our topic of water insecurity and the experiences of water operators, scenarios like a contentious community meeting on clean water issues facing a rural town, and images like snowballs in a freezer. As we immersed ourselves in the data, these scenarios and images became writing prompts that led to the monologues and scenes that make up the script. We would read our draft monologues or scenes out loud and rework them together. To protect the privacy of those involved in the project, we created two composite characters, and placed them in a fictional town facing clean water challenges. We then brought the draft script to the researchers

(engineers and social scientists) and community members involved in the project. The group provided initial feedback as a form of member checking, which we incorporated into subsequent drafts. We then began presenting the script at conferences to audiences of water operators, academics, and government workers.<sup>12</sup> The script was created to be performed and the version we share below is a blueprint to what a performance of *Treading Water* might look like.

**SHIGEMATSU:** As the Creative Director of the Research-based Theatre Lab, I had been aware of this project for a few years but only at arm's length. Belliveau and Cook and other artists had been developing it for a long time, but without my direct input. I finally had the opportunity to come on board as an actor for a special conference performance, after the script was completed. And what a performance that was! I've been acting professionally for over 20 years, and I can honestly say that our performance of *Treading Water* in the Fall of 2019 stands out for me in so many ways. Its unique audience of rural water operators and engineers, along with performing in a vacuous non-theatre space without stage, set, props or lighting was something I had not previously done.

We were at the Sheraton Wall Centre downtown Vancouver, Canada. It was a huge ballroom, one of the biggest I've ever seen, but the attendees were much more interested in eating their chicken dinner than paying attention to Belliveau and Cook, and Patricia Barkaskas (my fellow actor for the day).<sup>13</sup> We were puttering around the edge of the room, antsy with pre-performance jitters, fiddling with our microphones, making last minute changes to our blocking. Our theatre director, Cook was giving us some final suggestions.

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<sup>12</sup> We acknowledge engineer Candace Cook who offered invaluable insights throughout our process, based on her field experience and close work with Indigenous and rural communities, as well as artist Scott Button who joined Cook and Belliveau in developing and writing the script.

<sup>13</sup> In earlier performances of the script, Cook and Belliveau read/performed the two parts (Water Operator and Researcher), with permission from the research team and key community members. This felt problematic to have two white actors performing these roles, given that a great deal of this research took place in rural Indigenous communities. We had always aimed to have one of the performers being Indigenous, and Barkaskas, a talented Métis artist and researcher agreed to participate for the 2019 event. In a subsequent 2023 reading performance of the script at Vancouver downtown theatre venue <https://events.ubc.ca/event/water4seasons/>, we were also able to diversify our casting by including Asian/Canadian actor Agnes Tong.

**COOK:** There wasn't a whole lot for me to do apart from reassuring our actors. I was gratified that Tetsuro was so enthusiastic about the text, but to be honest, I was a little bit relieved that I wasn't going to be the one performing that day. Usually, we actors like big audiences, but not when they are this distracted by a buffet meal! No wonder Shigematsu seemed a little nervous.

**SHIGEMATSU:** I wasn't nervous at all. Mostly because it felt so low stakes. We would be performing at the edge of this vast ballroom, on carpet level, to a group of people who came to a conference while taking a brief pause from the thankless task of bringing clean water to their communities. There were no theatre lights, no costumes, no music, none of the usual cues that guides an audience's attention towards the spectacle at hand. Nobody seemed to be paying any attention to us. But at least Barkaskas and I had each other. Poor Nichols, she was on her own, going from table to table inviting people to fill out her survey about the play. They must have thought she was one of the servers. "Survey? No thanks, but how about getting me a glass of water?"

**NICHOLS:** Like Shigematsu I was aware of this project and I had worked on a few other RbT Lab initiatives in the past as an evaluator. I joined the *Treading Water* team late in the process to craft an evaluation for a performance of the script at a Water Conference in Vancouver, Canada. Because evaluation is a newer practice in RbT, it tends to be one of the last steps in the development process. *I get it.* Artists are busy with transforming research and stories into a script and rehearsing. Researchers may already be fighting an uphill battle against academic norms to enable a more creative modality. When is the right time to stop and ask, "How did things go?" or "What happened as a result?" For many people, it never feels like the right time for evaluation. For me, though, evaluation is an essential part of RbT. Evaluation enables the RbT team to check their assumptions, plus it gives the audience a chance to talk back to the project team. When were audiences most or least engaged? What was missing? How did audience members feel after the show? We can only know these answers when we ask. Evaluation allows us to do just this.<sup>14</sup>

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<sup>14</sup> For readings on using evaluation in Research-based Theatre on another University of British Columbia project see Nichols et al. (2022a; 2022b). The following research teams and their evaluation



**SHIGEMATSU:** There was a slight delay for the performance as previous conference sessions had ended later than anticipated and the person scheduled to introduce Madjid and our artistic team had yet to arrive to the Ballroom. In theatre, you learn to expect the unexpected.

**NICHOLS:** I was feverishly handing out paper surveys with pens and a small token of appreciation – a small wooden carving from a local Indigenous artist – before the performance began, so I welcomed the delay. Often, the best evaluations are simple, well-executed, easy for participants, and reciprocal. In this case, audience members used the open-ended questions to share reflections on both impacts and missing pieces in the performance. I explained that the evaluation was voluntary and someone on stage would explain more.

**SHIGEMATSU:** That was me! Front of house speeches are always awkward, but this one was certainly unique! Few people in the audience were familiar with theatre conventions, plus most had been at the Water conference all day and were at this evening event mainly to eat their three-course meal.

**NICHOLS:** The survey had four 5-point Likert scale questions and four open-ended questions. After the show, I gave out additional pens, answered questions, and collected the forms. In total, 62 people participated. (73% were water operators, 11% were industry, 3% community leaders, and 13% other).<sup>15</sup>

**SHIGEMATSU:** The performer in me would like to add that there were over 200 people in the space. For independent Canadian theater, that's a big audience!

**NICHOLS:** I just wish more people would have filled out the survey. I was all over the place making sure the evaluation happened, not an easy task in the middle of a live in-person event. Knowing what I know now, I would have started planning for the evaluation earlier in the project. Just as "what if?" is a powerful way to tell a theatrical story, it is also a way to plan for a meaningful evaluation. Defining project goals and planning how to incorporate audience feedback from the start of a project helps to ensure that the "what if" unintended outcomes – both positive and negative – are

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approaches on theatre projects have informed and influenced our work: Kontos et al., 2020, Mitchell et al., 2011, Rossiter et al., 2008, Schneider et al., 2014, and Sinding et al., 2006.

<sup>15</sup> See Appendix with survey questions and results.

captured and used to inform next steps. One missed opportunity of this project was not having an Indigenous evaluator or consultant to guide decision-making given our context of research.

**SHIGEMATSU:** It felt like the opposite of an opening night. Or a world premiere. I could have started juggling on a unicycle, and this audience might not have noticed. It was actually kind of refreshing. In professional theatre, audiences have been so well trained, so socialized into being perfect, being quiet during performances, not looking at their phones, obligatory standing ovations, you just never know whether or not you've truly succeeded as a theatre artist. Dislike or apathy is almost indistinguishable from sincere appreciation. But not with this crowd. They offered next to no interest to what was happening at the front of the Ballroom.

**COOK:** So glad it wasn't me performing.

**SHIGEMATSU:** However, when Barkaskas and I began performing, one by one heads slowly began to turn our way. These water operators began pausing mid-bite when they realized we were telling *their* story. Not only were people paying attention now, some had risen from their tables to get a closer and better look.

**BELLIVEAU:** Post-applause there was a constant trickle of audience members approaching the artistic team towards our ad hoc stage area. Those who approached us were mostly water operators from Indigenous and rural communities who connected deeply with the script. We don't know if those particular individuals responded to the survey, though what we do know is that their extensive engagement with us post-performance points to how the script resonated. They recognized their experiences, themselves in the play.<sup>16</sup>This informal feedback has helped us continue to refine the script and future phases of this project, as it informs how the play resonates (or not) with various audience members.

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<sup>16</sup> Arts-based research approaches (Leavy & Chilton, 2020; McNiff, 2011) have opened the space for work that can resonate more directly with individuals, bringing research participants more vividly into art-infused knowledge translations in dance (Blumenfeld-Jones, 1995), visual art (LeBlanc & Irwin, 2019), poetry and performance (Prendergast & Belliveau, 2013), and music (Gouzouasis, 2006).

**MOHSENI:** Sharing insights about research through a theatre performance is not common at all in our field of applied sciences and engineering.<sup>17</sup> Though in my eyes *Treading Water* works really well! The performers captured the essence of what we found in the field research and you could tell by the end of the play how it was felt by the audience that evening. The stories in the script speak to the water operators, engineers, community members and stakeholders in ways our PowerPoint presentations never have been able to.

**SHIGEMATSU:** I will never forget one young water operator who cornered us post-performance. He told us we needed to come to his community for an encore performance. It was the only way his friends and family could understand what he had to put up with.<sup>18</sup>

**BELLIVEAU:** I wasn't sure if we could justify such a costly trip to a remote community, but his enthusiasm was very validating! Madjid, what do you think?

**MOHSENI:** Hmmh! Let me think about it.

**SHIGEMATSU:** Part of me wanted to take out my iPhone and start recording this young water operator, if for no other reason than to capture the power of theatre. Hungry conference attendees focused on their catered meals makes for one of the least engaged audiences I have ever encountered as a performer. And let's face it, two people acting broadly on the sidelines looks more like a skit than a piece of theatre, no matter how good the script. But to see those water operators put down their utensils and stand up, not to give a standing ovation, but because they're doing a double-take, as in "hold on a sec, that's MY story they're telling..." For me, the whole experience is such a vivid reminder of theatre's power.<sup>19</sup> Even if it's so totally simple, two people acting out a scene, so long as the story is true to its time and place, and a faithful reflection of a community, it is simply impossible to ignore.

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<sup>17</sup> The question of bringing sciences and drama together is addressed directly in Fels and Meyer's (2023) book chapter.

<sup>18</sup> To date we have not been able to secure funding to travel with the play to the remote rural northern Canadian communities where many water operators work.

<sup>19</sup> See chapters from the edited book by Finneran and Anderson, which focuses on Education and Theatre (2019).

**NICHOLS:** Like Shigematsu, I wish we could have recorded the various testimonies audience members shared with us individually after the play.<sup>20</sup> However, we did get some valuable qualitative insights in the surveys. Some people were very positive about the play. For instance, “Very powerful play that represents the day to day of an operator” (Water Operator) and “It was on the nose of everything I go through; love it!” (Industry). Others offered feedback to improve the play. For example, “Less formal. If First Nations, more smart jokes in conversations” (Water Operator) and “Add more dramatic situations (such as a power outage, lift station spills, basement flooding, pipe breaks, sick members due to drinking contaminated water)” (Industry). Some people talked about future work needed to address the widespread lack of clean water problem. For example, “Need honest engineers who will listen and design systems that are simple and work and address the concerns expressed by community” (Community Leader) and “most infrastructure is in need of upgrading or complete overhauls and I feel like all we do is wait for funding” (Water Operator).

**COOK:** OK, we are not going to ask you to evaluate *Treading Water*, however we want to share the script with you. We invite you to imagine that you are sitting in a hotel conference room or at the back of a crowded community hall. You have heard there will be a play, and you can see some theatre artists at the front of the room. They are joined by researchers from RESEAU and others you recognize as water operators. In the script, we include stage directions in parentheses, meaning they are what you would see acted out by the performers if you were watching the play live. As you read this script, imagine seeing those theatre artists share it with you.<sup>21</sup>

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<sup>20</sup> In other projects we have used different approaches to collect audience testimonies post-performance. For instance, a project about military veterans and PTSD, we used military camouflage netting where audience members attached their responses on different color ribbons, which collectively generated an art-piece representing audience responses towards the play (Nichols et al., 2020). The research team for *Alone in the Ring*, a research-based play about health care workers living with disabilities, have also found creative ways to collect audience responses using role play and interactive technology (Jarus et al., 2022).

<sup>21</sup> At the time of this article’s printing we do not have a proper filmed version of the play. On the RESEAU website <https://www.reseaucmi.org> you can access an archived stage reading of the script done with a handheld camera.

## **Treading Water**

### **Characters:**

A Researcher

A Water Operator

(The actors playing the RESEARCHER and WATER OPERATOR enter and take on parts of clothing or accoutrements from the research presenters and water operators present. This near ceremonial exchange of clothing is a sign of permission for the actors to take on the roles of RESEARCHER and WATER OPERATOR.)

**Researcher:** I'm [Actor's Name], and I will be playing the role of the RESEARCHER, a Water Systems Engineer. I appreciate [RES'EAU's] permission to do so.

**Water Operator:** I am [Actor's name], and I will play the role of the WATER OPERATOR and I appreciate [Water Operator's] permission to do so.

**Researcher:** The story I share is based on over 10 years of field experience in small rural communities in BC.

**Water Operator:** My story is based on dozens of water operators in BC who work tirelessly to bring clean water to their communities.

**Researcher:** The stories you're about to hear are about real people.

**Water Operator:** You know at the start of some movies they say, "based on a true story?"

**Researcher:** These are true stories.

**Water Operator:** Real situations, real life.

## **Prelude. Boiling Water**

(HAVE YOU EVER SEEN THE RAIN by Creedence Clearwater Revival blasts from a portable Bluetooth speaker that looks like it's made for a construction site.

Video clips of individuals and families from rural and Indigenous communities are projected. The montage ends with a shot of a "Boil Water Advisory" notice, frozen on the screen.

The WATER OPERATOR ENTERS. The operator turns an electric kettle on.

The operator watches the kettle, turns the music down, then speaks to the audience).

**Water Operator:** (as if reciting from memory) “Notice. Boil water advisory. All tap water used for human consumption should be boiled for at least one minute. This advisory shall remain in effect until the safety of the water supply can be assured.”

(The WATER OPERATOR watches the kettle.)

**Water Operator:** That notice isn’t printed on paper. It’s on wood. Painted on a piece of plywood – lasts longer that way. But it’s all chipped and faded now, cuz that notice has been in effect in this community for 12 YEARS.

(The WATER OPERATOR watches the kettle.)

**Water Operator:** Now, when government-types talk about it, they call it “long-standing” – it’s a “long-standing” boil water advisory. I wonder when it got to be “long-standing” for them? You talk to folks around here, it felt long-standing about 2 weeks in. And that was more than a decade ago...

You gonna have a shower? You gonna make yourself a cup of coffee? You gonna brush your teeth? You’re gonna want clean water for that.

And how many glasses are we supposed to be drinking a day? Eight, right?

All of you – everyone in this room – should be able to drink water and know you won’t get sick. And that your kids, your family – that they aren’t gonna get sick, either. But here we are – 12 years into a boil water advisory and we risk getting sick with every glass. Eight times a day.

We’ve been working with a group–

(The WATER OPERATOR turns up the music. The RESEARCHER ENTERS with a reusable water bottle.)

**Water Operator** (to audience, shouting over the music): THEY SAY THEY WANT TO TALK ABOUT-

**Researcher:** (shouting over music) Hi Pat! Um, HELLO?

**Water Operator:** (shouting over music) Sorry, what?

**Researcher:** (shouting over music) Hi, I was hoping we could talk about-

**Water Operator:** (shouting over music) What was that?

**Researcher:** (shouting over music) Can we talk about-

**Water Operator:** (shouting over music) I'll turn the music down.

**Researcher:** (shouting over music) WHAT?

(THE WATER OPERATOR turns down the music.)

**Researcher:** Oh, that's better.

**Water Operator:** This is Alex. Him and his team, they're called RES'EAU, and they want to work with us to figure out how to end the advisory – and make sure we don't get a new one. I said – (to the researcher:) Sure, I'm happy to talk, but gimme a sec. Waiting for my water to boil.

(The RESEARCHER absent-mindedly takes a sip of water. The WATER OPERATOR watches him. The RESEARCHER gets self-conscious and spills a little on his shirt. The RESEARCHER addresses the audience, brushing at his shirt.)

## **Moment 1. Snowballs**

**Researcher** (drinking from a reusable water bottle): So, ah, I went with the rest of the RES'EAU team to this community up north, and we were talking to this one Water Operator, Pat (gestures to the WATER OPERATOR, who's still watching the kettle. The WATER OPERATOR gives a wave). Now, a little background about Pat. She wasn't too sure at the beginning. First time I called ...

**Water Operator:** (jumping in) UNIVERSITY OF BRITISH COLUMBIA on the call display.

**Researcher:** No answer ... so I left a message.

**Water Operator:** Didn't even listen to the message!

**Researcher:** Called one more time, still no answer. And, no responses to my messages. I figured, I need to go in person. I had a contact in Pat's community who said they'd help introduce me to her.

**Water Operator:** If my uncle says this RESEARCHER has good intentions, what's one cup of coffee?

**Researcher:** Since that first cup of coffee, almost a year ago, my team and I have met with Pat a few times. Today, she's telling us about folks from her community. They can't drink the water if it's not properly treated, but they don't like it when it's clean either –

**Water Operator:** (interrupting) It's the taste. They can taste the chlorine. They don't want us using it.

**Researcher:** But ... that's how we treat water.

**Water Operator:** Think I don't know that?

**Researcher:** Of course not, sorry. (Back to audience:) Well, I guess that's a reason to dislike the water: if it tastes like a swimming pool.

(THE RESEARCHER takes another drink from the reusable water bottle.)

**Water Operator:** You bring in your own H<sub>2</sub>O, Alex? All the way from Vancouver?

(An awkward moment – the researcher doesn't know what to say.)

**Water Operator:** That's smart of you.

**Researcher:** Oh, yeah. Thanks.

We take for granted how much work is involved in treating water. But Operators in these communities can turn on the tap and think back on test after test that they ran with their own hands to make sure it's clean.

They measure residual chlorine, water flow, turbidity, and then they run the tests again, and keep records of all of it.

**Water Operator:** If you're not testing what the heck are you doing? Watch your pressures, your voltages, and you're good to go.



**Researcher:** But some communities, no matter how much you test, it comes back the same: no good.

**Water Operator:** Like the contaminants are outsmarting you.

**Researcher:** Like they don't want you drinking the water. Won't let you drink it.

Ever since the meeting, I've been thinking about our friend (referring to the WATER OPERATOR) – and this story she told us about her nine-year-old nephew who's staying with her. Her nephew told his class he wanted to be a Water Operator, just like his Aunt.

Then one day, Pat comes home, and opens her freezer to pull out some chicken for dinner. A bunch of snowballs fall out at her feet. The whole freezer is chock full of snowballs. What did you do then, Pat?

**Water Operator:** Well I'm thinkin', "What's going on here? Who's got their snowballs taking up room in my deep freeze, and where's my chicken?"

**Researcher:** And her nephew is like, "Oh, Auntie, Auntie, I made those for all of us. So when Spring comes we can stand in the sun and melt the snow and we'll have clean water to drink. Water that won't taste like chemicals."

(The RESEARCHER joins the water operator at the kettle. The WATER OPERATOR turns the kettle off.)

**Water Operator:** There we go – that's one full minute. Not counting the three and a half minutes it took to get going.

(The WATER OPERATOR pours two mugs and offers one to the RESEARCHER.)

**Researcher:** (holding up the reusable water bottle) Thanks, but I'm good. I wanted to ask –

**Water Operator:** Wait just a sec, I wanted to listen to this-

(The WATER OPERATOR turns on a radio broadcast. We hear the following.)

## **Moment 2. Crisis in Rapid Canyon**

(The following moment is recorded. The WATER OPERATOR occasionally talks over the Reporter's audio.)

**Reporter** (audio): From CBC News, it's The World This Hour. Boil water advisories would seem to be an issue of the past in Canada. But that's not the case in the small BC community of Rapid Canyon, where residents have been advised not to drink their local water for over a decade. The local treatment plant operator had this to say about the barriers facing her community:

**Water Operator** (audio): "...We're dealing with multiple issues. All the rains we've had recently have washed some nasty stuff into the river where our water comes from, and the treatment system just can't handle it. Of course, we are trying to address these problems so we can keep everybody safe –"

**Reporter** (audio): But for now, the community seems no closer to having clean drinking water, and the long-standing advisory continues...

(The Water Operator turns off the radio.)

**Water Operator:** That's it? They must have talked to me for twenty minutes and they just played that one little clip!

**Researcher:** What else did you say?

**Water Operator:** I said, "We are trying to address these problems to keep everyone safe, but these aren't new problems. How come it took you news guys so long to get up here and notice!" ... Well, actually, I guess I'm not so surprised they didn't play that.

**Researcher:** Sorry about that, I wish they had! Hey, are you coming to the community meeting on water needs?

**Water Operator:** Do you know how many of those meetings I've been to? Nothing changes!

**Researcher:** Fair enough, but –

**Water Operator:** To be honest, Alex, I've uh – I've got something I gotta take care of. I'll see ya later.

(The Water Operator exits.)

**Researcher:** (calling after her) Okay, well, maybe I'll see you at the community meeting? (He leaves.)

### **Moment 3. The Job Interview**

**Water Operator:** I was actually heading to a job interview in another community. Water Operator for a district position. Full time, full benefits.

(to self:) "What's your greatest strength, what's your biggest weakness? Where do you see yourself in five years?" (to audience:) I'm running through these questions in my head and I'm drawing blanks, and then they're calling me in.

I walk into this very clean, brand-spankin' new office building, and I start freaking out cuz I didn't print my resume – are you supposed to bring a paper copy to an interview?

I start with an introduction: "I've been a water operator in my small community for the last seven years, took over from Dad. (slight pause as listens to the interviewer:) Yes, I uh, I enjoyed the work. But, uh ... I did feel like I had to be available, 24/7."

I think about telling her that I've never taken a sick day. Not once, in all these years. I think about telling her that. But instead I say:

"I want to make clear, it has been a great position. The training, alone, I mean – there was an outpouring of support when I had to leave and take courses."

If she knew the truth she'd be appalled – there was nobody to cover me, so I had to convince Dad to come out of retirement. He was pretty mad when I told him I was going away to school. "They don't know you, they don't know our community. They don't care. School is made to break people – look what it did to your Aunts and Uncles."

For me, school is where I went so I could do-right by this community. It's where I went when I believed that delivering clean water to my community could be a one-man job.

And then I realize she's been talking about their team, the "District's mission", the workplace culture, how they're looking for an employee who will "fit in".

So I'm thinking I'm dead in the water. No pun intended.

Then she says – “You're our top candidate. We'd like to offer you the position, to start next week.”

What? Holy shit. I got the job.

I GOT THE JOB!

“Start next week? Wow, I mean, thank you, but... yeah, no, it shouldn't be a problem.”

The salary's more than twice the money I'm making now ... I can help Mom with her debt, get a new truck, take my nephew to Disneyland.

Benefits, vacation, overtime. Sick days.

But after 12 years of an advisory in my community ... I'm gonna leave now?

Hell, yeah, I am.

(The WATER OPERATOR walks off the stage, through the audience, and EXITS.)

#### **Moment 4. Community Meeting**

**Researcher:** I'm taking questions at the community meeting and this one lady sticks up her hand and I can tell – this won't go well. I'm wishing Pat was here for some backup.

This woman, she says, “Those fancy degrees and you people got it all wrong.”

This lady, she's angry. And that seems natural. When you've had a boil water advisory for 12 years, you're gonna be angry.

“The Operators, the Researchers, all of us: we have been doing the best we can, with the resources that we have –” She waves her hand, she cuts me off.

“I'm not as mad as I used to be about the water – that's nothing new. I'm mad because there's no dialogue between the government and the community. You build a treatment system – big whoop – but you don't speak a word to us, and you don't hear us. You refuse to hear what we really need.”

Hmm. She makes a good point. “Look, I understand you’re upset, but ... What this community needs is clean water.”

The room goes quiet for a sec. I think, maybe, I got through to her. To all of them.

But then comes a smaller voice, from the back of the room – one of the community elders. Her voice cuts through the room like ice: “We just need you to listen.” (Beat – let it sink in)

Then I realize – this whole time, I’ve been trying to listen. I’ve been really trying. I just didn’t know how. But I have to try to start. I have to...

“I’m sorry. I’m... I’m sorry.”

### **Moment 5. How do you listen?**

**Water Operator:** I’ve already accepted the offer. I’m taking the job. I’m moving away.

So why I am still here?

Why’d I slip in half-way through this community meeting to stand at the back to watch Alex sink? Yeah, he’s capsized and sinking up there.

This community.

No one calls you to say, “Thank you,” when they turn on the tap and water comes out. No one’s going to call you when their toilet actually flushes. When they call is any time of day or night when that stuff’s NOT happening. You’re gonna be on the line with them, while you’re trudging through the dark and the snow and ice at 3 AM trying to get to your water station to figure what the hell’s going wrong. But the snow and ice, I can handle. It’s the other stuff.

It’s that when they call you, they’re not thanking you, they’re screaming. How do you listen to that?

Then Alex, up at the front there, he starts talking about a Community Circle. He starts saying that he wants to know our needs, the needs of this community.

He wants to hear our voices.

(Video clips are projected – interviews with community members talking about their experiences with water advisories, their needs, and their hopes for the future. The WATER OPERATOR and the RESEARCHER watch.)

## **Moment 6. Snowballs II**

**Researcher:** I am walking away from the community meeting, down the main drag in the village, replaying the night over and over in my head, all the stories I've heard – when up comes the reporter, the one who interviewed Pat – he shoves his phone in my face and says: “Care to comment on the sustainability of water filtration in communities like this one?”

This guy's trying to get me off-guard. I take a breath, I tell him, “If we actively engage the community, and get it right on their terms, it will be sustainable.”

Then he's asking about finances and he says: “Individually designed water systems for every rural community? Sounds like a costly affair. What kind of business model is that?”

I say, “That meeting wasn't about business. It was about something as basic and essential as water. And community.”

This guy, he finally puts his phone down, he smiles this toothy sort of grin and he asks me, “Okay, off the record – do you know where the corner store is around here? I'm completely out of bottled water.”

Ah, no. I don't. I turn to walk away. But, I can't help myself, I turn back and shout –

“You know what works like a charm for clean water? Snowballs. Just shove 'em in your motel fridge.”

## **Moment 7. Melt**

(DIRTY WATER by the Standells or BRIDGE OVER TROUBLED WATER by Simon and Garfunkel blasts from the speaker.)

The WATER OPERATOR has a jug of water, which she pours into the kettle. She turns the kettle on. The RESEARCHER ENTERS.)

**Researcher:** (shouting over music) Hey, Pat!

**Water Operator:** (shouting over music) Hey! – Oh, wait a sec!

(The WATER OPERATOR turns down the music.)

**Water Operator:** Hey, Alex. Thanks for coming by.

**Researcher:** Yeah, of course – what’s up?

**Water Operator:** You did good at that meeting.

**Researcher:** (surprised) You were there? I didn’t see you...

**Water Operator:** I hid in the back. Just saw the end...

**Researcher:** I thought it was awful. I realized I had come in with a set of prepared soundbites and that’s not gonna fly here.

**Water Operator:** I talked to some folks afterward. People felt respected by you. They felt heard.

**Researcher:** I’m ... I’m glad.

**Water Operator:** It’s a weird sorta community, eh? The best of times and the worst of times. That’s Dickens. I know you’re a University type, so you probably love Dickens.

**Researcher:** Well –

**Water Operator:** I didn’t just ask you to come over to share a nice, steaming glass of... water. (Laughs) I actually wanted to say thanks.

**Researcher:** For what?

**Water Operator:** Before you and your team came, I was thinking about ... moving on. Taking a position in another district.

**Researcher:** Really?

**Water Operator:** People have come in before. I thought, “Here we go again. Another group of know-it-alls coming to tell us what we need.” I’m not really sure people from outside can support us, because this is about us. How we can access and develop

systems that work for our community. Not the ones fifty kilometres from here – who’ve got their own needs – but ours.

Then I saw you listening at that meeting – and me, knowing firsthand how hard that can be, when someone’s ticked off at ya – it reminded me of what a community can be. Cheesy as it sounds.

Reminded me about family too. I don’t want a FaceTime relationship with my nephew, I don’t want to watch my parents get older over Skype. I want to be here, with my family, listening in person.

Few months back I went to talk to this group of high school kids and said, you always want to have a guaranteed job? Become a Water Operator. No matter what, people are always going to need clean water. The thing is, you can’t look at it like just a job.

I tell these kids: you already know all about what I do, about water treatment. Your bodies are experts at it. They do it every day. Your body’s doin’ it right now. It’s... it’s actually a pretty amazing thing: your body is its own water treatment plant.

The valves, they’re your blood vessels – the water, it’s your blood – and you know the filtration? That’s the fancy way of saying “getting the junk out of there” – that’s your liver.

And you, your brain, that’s the Operator. You’re the Operator. It’s a ... pretty beautiful thing.

(Beat. The kettle goes off.)

**Water Operator:** But as you can see. We still got some work to do.

(The WATER OPERATOR pours two mugs of water. She hands one to the RESEARCHER, who accepts. They both take a sip.)

**Researcher:** Good water.

**Water Operator:** Good water, good deal.

(The WATER OPERATOR and RESEARCHER turn to the projection screen. The “Boil Water Advisory” fades away to clips of individuals and families sharing what barriers they see standing in the way of clean water for their community. The



community members address the camera directly: “What are your experiences with water in your community?” “What are your needs?” “How can we listen?”)

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Tetsuro Shigematsu is a Vancouver-based theatre artist with a PhD in Research-based Theatre. He became the first person-of-colour to host a daily national radio program in Canada, when he became host of *The Roundup* on CBC Radio. Tetsuro’s theatrical solo-work *Empire of the Son* was named the best show of 2015 by the Vancouver Sun, and has been touring continuously throughout Canada, and beyond.

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It has played in 18 cities to over 20,000 people. His other solo-work, *1 Hour Photo* garnered five Jessie nominations, winning for Significant Artistic Achievement, and was named as a finalist for the 2019 *Governor General's Award for Drama*.

Jennica Nichols is a Ph.D. candidate in Interdisciplinary Studies at the University of British Columbia. She has a master's degree in epidemiology and global health (MPH, University of Toronto, 2012), and she also possesses the Credentialed Evaluator designation from the Canadian Evaluation Society. She co-owned a theatre company (Starfish Productions) where she experienced the magic of theatre firsthand. Her doctoral research explores how research-based theatre can foster public scholarship while increasing meaningful participation and reciprocity within health research.

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## Appendix

### Treading Water Survey Questions and Results

After the *Treading Water* performance at the conference at the Wall Centre (October 9<sup>th</sup>, 2019), 62 people filled out evaluation forms. Many respondents were water operators (n = 45, 73%) followed by other (n = 8, 13%) and industry (n = 7, 11%). Two people identified as community leaders (3%). The results were analyzed by stakeholder groups. This analysis was completed by Jennica Nichols using R and Excel.

#### Water Operators

The following table summarizes the questions asked to water operators.

Questions	Not at all or a little		Somewhat		A lot or Completely		NAs
	n	%	n	%	n	%	
Is access to clean water a problem in your community?	40	93	3	7	0	0	2
As a water operator, do you feel valued by the people in your community?	18	41	17	39	9	20	1
As a water operator, do you feel supported by community leaders to do your job?	15	34	17	39	12	27	1
As a water operator, do you get support from industry to help create water solutions for your community?	10	24	18	44	13	32	4

## Industry

The following table summarizes the questions asked to those representing industry (n = 7).

Questions	Not at all or a little		Somewhat		A lot or Completely		NAs
	n	%	n	%	n	%	
Did the play give you a new awareness of the challenges water operators face?	3	43	2	29	2	29	0
Did you learn something new about the role of water operators in their community?	2	29	3	43	2	29	0
Do you feel empathy for water operators working in rural communities?	0	0	1	14	6	86	0
Did the play make you reflect on your work in rural communities?	0	0	2	33	4	67	1

## Community Leaders

The following table summarizes the questions asked to those representing community leaders.

Questions	Not at all or a little		Somewhat		A lot or Completely		NAs
	n	%	n	%	n	%	
Is access to clean water a problem in your community?	2	100	0	0	0	0	0
Did the play give you a new awareness of the challenges water operators face?	0	0	0	0	2	100	0
Did the play accurately represented the experiences of water operators(s) in your community?	0	0	1	50	1	50	0
In your role as a leader, do you currently support the water operator(s) in your community?	0	0	0	0	2	100	0
Do you, as a leader, feel you get support from industry to define water solutions for your community?	1	50	0	0	1	50	0



**Other**

The following table summarizes the questions asked to attendees that did not identify as a water operator, a community leader, or someone working for industry (e.g., intimate partner, child).

Questions	Not at all or a little		Somewhat		A lot or Completely		NAs
	n	%	n	%	n	%	
Did the play give you a new awareness of the challenges water operators face?	1	12	0	0	7	88	0
Did you learn something new about the role of water operators in their community?	1	12	1	12	6	75	0
Do you feel empathy for water operators working in rural communities?	0	0	1	12	7	88	0