Episode 85: The Role of BI in the Water Crisis

with Alan Shapiro, Principal with Shapiro & Company

Alan Shapiro has spent a decade working on the climate crisis and the related, but distinct water crisis. In explaining some of the challenges within the water crisis and possible roles for behavioural science, Alan introduces the idea of changing not only individual-level behaviour and system-level factors, but also network-level behaviour. Alan also shares a few recent case studies about tackling persistent drought and reducing human-wildlife conflict.

Transcript:

KIRSTIN APPELT, HOST: Welcome to this edition of Calling DIBS. I'm your host, Kirstin Appelt research director with UBC Decision Insights for Business and Society or DIBS for short. Today, we're calling DIBS on Alan Shapiro.

Alan is Principal with Shapiro and Company, an environmental consultancy focused on water, climate and sustainability challenges. He's also an instructor at BCIT in the area of sustainable business. I met Alan when he was one of our brave students in the pilot cohort of the Advanced Professional Certificate and Behavioural Insights, and his positive attitude brightened our pandemic cohort, which was a real, real lifesaver. Since then, I've enjoyed staying in touch and checking in. Alan has really great ideas for how BI can play a role in his sphere, and I'm really excited to chat with him about those today. So welcome to the podcast, Alan.

ALAN SHAPIRO, GUEST: Thanks for having me.

APPELT: Why don't we start with just hearing a little bit about who you are?

SHAPIRO: I think I come to BI through a little bit of a nontraditional lens. My background is in environmental science, and I started my career in environmental consulting work as a practitioner. So doing boots on the ground, contaminated sites work, environmental impact assessment work, and gradually got really frustrated with the reactive nature of a lot of that work. We've got industries builds around cleaning up oil spills, but we don't really direct a lot of our attention towards the proactive conversations around water or sustainable development goals or sustainable business. And so I gradually gravitated towards that space and tried to build up my toolkit to do that work. And that's taken me both to the consulting work that I do today, and also to BCIT where I teach in their sustainable business program.

APPELT: So when you say boots on the ground, that's literal boots on the literal dirty, polluted ground.

SHAPIRO: I've spent many, many days digging in mud puddles all across both Vancouver and Western Canada.

APPELT: Sounds so interesting. So, I'm a bit of a broken record on this one, but I stand by it. Everyone's journeys to BI are unique and interesting, and it sounds like that's going to be the case for you. Can you tell us more about your journey? How did you get to BI?

SHAPIRO: I spent a chunk of time doing work in science communication and was really interested in how do we communicate better around water and climate issues. And it was actually sitting down for drinks once with a colleague of mine who works for a global water NGO, and we were chatting about the fact that the words education and awareness show up all the time in climate circles, but in reality, when we drill into what we want to educate folks about, we're looking for behaviour change and systems change. And it just stuck out to me how poorly adapted the tools we were using were to those specific applications. And that was around the time that UBC was launching the new pilot program of the BI certificate. And so to me, that was a really great opportunity to dive in and take some of the more hobby interest that I'd had from, you know, Thinking Fast and Slow, and Freakonomics, and reading all these fun books over the years and actually start to think about how that could be applied to climate and water spaces.

APPELT: That is excellent. I love that, and I totally see where you were coming from, having also obviously worked in education and knowing that it's valuable, but we need more than just awareness.

So, your area is water. And I think we're all broadly familiar with the climate crisis, but can you tell us more about the role of water? What are the dimensions of that challenge?

SHAPIRO: It certainly has a lot of similarities, but also differences and intersections with climate. So, if we look at like our global planetary boundaries, we've got one climate and one water, right? And we consider water to be a global crisis, but when we drill into it, it's really more of a collection of local and regional crises, right? We might look at water access in sub-Saharan Africa, we might look at water quality in parts of the world where there's been a lot of contamination, or we might look at water supply and water use in parts of the world where water is scarce, and then climate amplifies so much of that.

So if we look at the headlines around water in just Canada this summer, right, we're looking at flooding, we're looking at drought, we're looking at forest fires. All of these either water-related or water-mediated ways that we are feeling climate change. So it's both a global crisis in a similar way that climate is, but it's local manifestations is quite a bit different.

And then the last specific nuance to it, which is worth mentioning, is that a molecule of carbon dioxide is the same everywhere around the world, no matter where it's emitted, but a molecule of water in India during a drought versus in the Fraser Valley during a flood just is not interchangeable. And so it requires a lot more tailored tools and approaches at a local and regional level, but also learning from experiences at a global level.

APPELT: That's fascinating. And I think it really illustrates how, like you said, these extreme opposites, drought and flood sometimes in the same area, very close, back to back, sometimes same time, different areas. And so yeah, I can see the local elements of that challenge.

At first glance, you're talking about water. People might not associate human behaviour, but of course people impact water, water impacts people. So what opportunities do you see for using behavioural science in this space?

SHAPIRO: I think we've got some really well defined opportunities around citizen and consumer behaviour, particularly where we're talking about water use or contamination related behaviour. So both things that we do that lead to contamination ending up in the water, or just ways that we are using water in the household, and also more broadly about our water footprints, just as we might talk about carbon footprints, right? What is the water that's embedded in all of the decisions that we make day to day?

For me, I actually get more interested when we zoom out from that level and start chatting a little bit about the network level, because the complexity of water as it challenge really leads to all of these multi-stakeholder coordination and collective action problems. And it always fascinates me that we're not using behavioural approaches in that space where we're trying to sort of get a bunch of different sectors around the table in a particular region to find common ground and define a path forward on water management, and oftentimes we haven't even thought about, you know, where does the BI lens fit in. So to me, there's a really, really interesting application of BI at that network level as well.

APPELT: Yeah, that's really a valuable point. And when we think of something like a river, you've got, like you said, so many different groups from the folks at the headwaters to the folks at the River Delta. So what key actors do we need to bring on board to tackle these challenges since you're talking about the network level?

SHAPIRO: You mentioned the sort of geographic piece, right, of the river, but it's also we don't have a Ministry of Water in B.C., right? We've got a Ministry of Emergency Management that focuses on flooding and drought, we've got a ministry of agriculture that focuses on irrigation, we've got a ministry of environment that focuses on contamination And so it's really even at the level of who is the government decision-maker or the policymaker. There's lots and lots of siloed technical folks that need to be connected together more effectively.

In terms of key actors, yeah, I mean, those same water managers and policymakers that that we flagged, but also thinking about how disproportionate the influence of certain actors is in the water crisis. I think this holds for the climate crisis as well. But globally, about 70% of our water use is agriculture, and so if we don't, for example, have large agricultural operations at the table, as sort of the history of California might be a really good illustration of that, they're getting really good at talking about water, but they still grow all sorts of produce that gets shipped around the world. And so there's this tension between that sort of individual level water use and that systems level piece of how can we make sure that the most significant actors and the significant risk holders thinking about the Fraser Valley floods or the flooding in Toronto this summer, and how much of a price tag might be borne by municipal governments in that case or business owners.

APPELT: That's really fascinating to think about how we have different folks who are on the job for water when it's working well, water when it's industrial use, water when it's an emergency that I had never thought of it that way. Really highlights how we've siloed things off and need to have these partnerships.

So that sounds like one barrier that might make it difficult to bring a behavioural science approach or just project work in this space. What other barriers make it difficult to bring a behavioural science approach to these challenges?

SHAPIRO: I think in Canada there's a really huge awareness gap around water, and we talk about this and there's actually been quite a bit of research on this and the myth of water abundance in Canada. This obviously doesn't hold around the world. There's many places that are well aware that they are drying regions. In Canada, unfortunately, we've got this DNA of we are a country of lakes and rivers, and in Vancouver we are a city that water falls from the sky many months of the year. And so our perception of water is of being in many ways a nuisance, right, when we've got too much of it and at the very least, just this sort of abundant resource that's all around us. So it both is in tension with many parts of the country, which are increasingly facing water scarcity, such as the Okanagan or southern Alberta. And then also this forward-looking conversation where we can see the water related impacts of climate change and a lot of the infrastructure investments that need to be made to be prepared for them are multi-decade investments. So, I'll flag kind of just that broader awareness and education gap is really being a big limitation to prioritizing water more highly on the list of things that we're thinking about.

APPELT: Yeah, that reminds me of the good old from your days at Columbia, the good old finite pool of worries, and the idea that we can only worry about so many things at any given time. And like you said, when it's a multi-decade, how do you get it on the agenda in time?

Something you started to talk about a little bit that I'm hoping we can talk about a bit more. Is this idea of the I-frame in the S-frame or individual level solutions and system level solutions? And there's been a debate in the field of behavioural science about which one is more powerful, and if we shouldn't be working on one or the other, but the field seems to be aligning on this as an "and" issue, not an "or" so, in other words, we need both I-frame and S-frame and they're complementary. And so I think both the climate crisis and water crisis are areas where we need both of these. We need individual behaviour change and larger systems change. Is that something here that resonates? Is it something you're seeing? Is it something you're not seeing, but what were you seeing? Can you speak to that?

SHAPIRO: I think water's such a good illustration of that. Like if we look at some of the day zero crises that we've had, and that in itself is a little bit of a loaded term in water circles about like how we're talking about water scarcity. But if we look at Cape Town, which was in the news a few years back, where they were running out of water and getting to the point where they'd have to turn off water to taps in certain parts of the city. A lot of the tools that they implemented as emergency management measures were I-frame. It was, how do we get citizens to use less water? But a lot of the challenges around why were they running out of water in the first place in in a region that, like Vancouver, has rain for at the very least a few months of the year, they were structural issues around water policy and infrastructure and prioritizing these long term investments in water efficiency. And so there's absolutely this case to be made for the I-frame and the S-frame working together.

And then I think I'll come back to my favorite point about the network level, whether we call that like an N-frame that fits in in between, because it's not just sort of individuals and the system backdrop within which individuals act. It's also if we look at these multi-stakeholder or collective action problems, how do we apply the BI lens there? And I think for water as a particular set of issues, I think that's a really big gap that we might have some really motivated individuals and we might have a really great window to make new policy. But unless we can get the right institutional actors to the table, there's still a really big impasse there.

APPELT: Yeah. That's right. I really like the idea of the N-frame as an intermediate that we need to be talking about. That's really important.

SHAPIRO: Yeah, we'll patent it today on it.

APPELT: Oh, yes, and then we can use all the funds we receive to fund more projects on the N-frame. So that'll be, yes. Love it.

So we've been talking kind of generally with a few specific examples, but I thought maybe we could deep dive into a couple of projects. First, I wanted to talk about some of the lens work. So, in the BI courses at UBC, we draw this distinction between full BI trials that go all the way through a rigorous experimentation process versus BI lenses, which are also called BI audits. But it's basically providing advice, but usually not with that same level of rigorous impact evaluations, not randomly assigning people to conditions and measuring the impacts. So how are you seeing BI lenses fitting into your work?

SHAPIRO: I think one example of BI lens is really at that water conservation level. And so I'll bring BC as an example. We've had a very dry year in many parts of the province, and it's always interesting where we sort of look up at the sky and say, will this actually be a dry year, or will some late rain come and save us? And in

many parts of the province, late rain did save us this year, but on the other hand, if you're in Northeast British Columbia or if you're in parts of Vancouver Island, you might have multi-year drought that's been very regionally focused and quite severely impacting things like new housing development in the region. So it really has a big economic consequence.

And so the BI lens fits in where we start to think about, well, we've got this very traditional approach to rolling out water restrictions, and we say, hey folks, we're heading into another year of drought. You know the drill. Here's the water restrictions. It becomes, again, this sort of education and awareness exercise. And at the end of the day, there's this fatigue that comes from how are people reacting to water use restrictions. And so the BI lens fits just into this emergency management planning of how are we talking about drought both at that individual level, but again at that sector level too. So our big water users like agriculture or hydropower or oil and gas, what are the mechanisms by which we're shifting behaviour and norms in those sectors as well? It'd be hard to randomize and then measure behaviour accordingly for some of those challenges.

APPELT: I'm also curious about another project. I know both in the world of water and beyond, you mentioned the importance of having different actors and partnerships and bringing people together. And a year or two ago you partnered with BC parks on a project. Can you tell us about that project and what challenge you tackled?

SHAPIRO: Yeah, this is a really fun water project, and actually took me a little bit back to some of my undergraduate biology days thinking about animals on the landscape and not just the landscape themselves.

So, this is a project where one particular provincial park in B.C., Cathedral Provincial Park, has had an issue with human goat conflict. And so mountain goats are part of the nature in the park. And in fact, people come to the park specifically because of their unique mountain goat population. It so happens that part of the unintended consequence of people camping on the landscape is a lot of salt that's contributed to the landscape through gear or food storage or water, waste or urine. And all of these salt sources pull goats closer to campgrounds and to trails, and so you might have come to see goats, but you end up having an altercation with a goat, which is neither good for you nor the park itself. And so for B.C. parks as the client in this case, they were looking at, how do they continue their mandate of protecting parks and wildlife, but also be able to have folks come in a sustainable way, visit these landscapes?

And so for us, we got brought in to do a little bit of a behaviour lens project to look at what are some of the specific behaviours that are contributing to human mountain goat conflict, and then could we map some potential interventions to reduce that conflict?

APPELT: We definitely are hoping to see wildlife, but ideally with a bit of a gap not right up in your face. But who doesn't love a salt lick? So can't blame the goats. So how did you approach the project?

SHAPIRO: We started by coming up with a behaviour tree, and this was looking both at who were the different actors involved in the park. So that includes our park rangers and our park staff and then also our visitors. We thought about throwing the goats on the behaviour tree, but we decided that we really have sort of a human mediated issue here.

APPELT: It would be more of a headbutt than a nudge, I guess, for the goats.

SHAPIRO: Headbutt not a nudge, exactly. And then from there we tried to focus in on particularly touch points and that's a big challenge of having folks camping in a remote park is the touch points are limited or might be quite distant in time. So we can try to reach people before they come to the park, but of course, when they're

thinking about the nuance of like, where do I dump this water that I cook my pasta in, that might not be front of mind for them.

And then the other thing we did is we tried to understand the barriers to behaviour change, and again, particularly in this context of while if we're trying to ask folks not to urinate off the trails, we need an option for them which is better. And so these structural issues of, do we have enough and well enough maintained bathroom facilities? Do we have enough park staff, and are those park staff creating the right touch points? So there was a bunch of structural issues that we ended up identifying around the behaviours themselves. And then the intersection of those two kind of highlighted for us what are the actual leverage points that were up for discussion and what was a little bit more challenging?

APPELT: I remember once being in the national park and trying to use the outhouse, and there was a marmot sunning itself on the steps, and like I'm trying to do the right thing, but there's also the marmot. Which right thing do I do?

SHAPIRO: What a great visit with environment as well, hey?

APPELT: So what recommendations came out of the project after all of this work?

SHAPIRO: It was kind of a two pronged recommendation.

One was that we found that the messaging that was being used by BC parks was just a little bit to all over the place. So there was places in the park where there was really effective messaging, but then other places where the messaging conflicted or just didn't quite align. So it certainly wasn't sticky enough and ended up sort of getting absorbed into these larger informational signs where you'd really need your audience to be standing and reading for quite a while and then retaining that information. And so there was a big pool of recommendations around messaging, how do we improve messaging at various touch points, both communication before someone stay at the park and then stickers on picnic tables and sort of specific sort of fresh in folks memory reminders, and then clean up the signage in the park to be a little bit more attractive and easy to sift through.

And then the other big chunk of recommendations was around infrastructure and staffing, and it was maybe drawing some caveats around what behaviour change tools can actually accomplish when you've got all of these challenges to actually making behavioural switches.

So, it was this two pronged, hey, understanding what the longer term investments need to be in the park, but also here are some of the quick wins from improving signage and messaging on site. I really like that two step approach of here's what we can do while you work on the bigger structural issues.

APPELT: I think that's a great way to phrase it, and would be good in a lot of our other projects as well, because there are so many where there are these big issues that, you know, for whatever reason, budget or resourcing of other kinds, you can't tackle them now, but then how can we lay the groundwork to as we get to those? So that's really, really nicely done.

I'm curious, so one issue we sometimes see with BI projects is that we have this great idea, and that in the lens or the trial, we see evidence that we think it works well or that it will work well in the case of a lens, but then it's not always as simple, especially with government or other partners to just implement. Like obviously they don't have unlimited budgets and resources. So can you talk a bit about the road to implementation? What challenges has BC parks come across trying to implement some of your evidence based recommendations?

SHAPIRO: So the challenge in this case actually is not one that we quite expected, which is that BC parks carved out budget to update the signage, and so at the very least, these short term recommendations, were very actively in the process of being implemented. And then unfortunately, last year there was a big wildfire that shut down the park, and so the park has been closed ever since. And so that, reminder as we chat about water and climate, that there's the very real impacts of climate, even when we talk about specific projects. And so we were grateful that our client for this project had a really good history and roots in the BI space, and I think was very committed to the implementation, and we still see that commitment through ongoing conversations with them. So it sounds like the signage updates are in progress and will be installed when the park is reopened, hopefully next year.

And then of course, this being always the conversation around where do we find more budget, because BC parks doesn't have deep, deep pockets. When we look at all of the parks that they manage across the province, talking about the infrastructure updates and the more long term structural issues, that's where it becomes a little bit more of a challenge to define bigger chunks of budget to do that.

APPELT: That's such a sad but useful illustration of the idea of priorities changing, right? Like we want good signage, but we also need the park to not be on fire, so we have to literally put out the fires, the priority fires, before we can work on some of the other projects.

And so maybe there's a small silver lining of the wildfire that it makes it an opportunity to if the previous signage is destroyed, it will need to be putting up new signage. So, hopefully transfer some of that budget to the new signage and doing the new signage, but yeah, in implementation, a unforeseen obstacle.

SHAPIRO: Well, in our hope as well was that while some of the structural challenges were unique to Cathedral Park, the signage recommendations really were scalable elsewhere in the province. And so there's things that can be adapted to or installed in other parks as well. Not in every park is there sort of a specific goat conflict, but mountain goats are part of our natural backdrop and BC but there's also other large mammals, and the conflicts tend to be fairly similar. And so adopting some of those same sort of BI-based signage and messaging recommendations to other parks, I hope, is something that can be pretty easily done.

APPELT: And even outside of the context of human wildlife interaction, just the ideas of having the signage be quickly digestible, like you said, so you're not having to stand at a sign in nature and read it for ten minutes so that you get the quick messages. Or, like you said, having the messages at the right places. So they're at the picnic tables or wherever the they hoped for behaviour is. So it sounds like there's a lot of scalable ideas coming out of that project, so what a huge win.

SHAPIRO: This does bring us back a little bit full circle to this conversation about like communication versus behaviour change, because the unexpected thing we found when we started digging was that BC parks actually has a really phenomenal social media presence, particularly on Instagram, and that that was not being used at all in the behaviour change arsenal. It was being used for outreach, it was being used for broader education, but it just wasn't really in anyone's back pocket when we talked about, well, wait a second, how do we tackle a behaviour challenge. And so bridging existing sort of communication resources and tools, and especially if you've got tens of thousands of followers who are already watching, how can we take a BI lens on how we're using that communication channel and not just look at, you know, what's our upcoming campaign?

APPELT: Yeah, that's a great point. And they do. They do have a very nice Instagram. Now we just need to figure out ways to get stuff on the license plates because also, the beautiful license plates they do as well.

Well moving on, do you have any message for our BI practitioners and training, folks who are going through the certificate or finding their own way to BI?

SHAPIRO: Interesting question. One thing that stands out to me being, I think, one of the few environmentally focused folks that have passed through the UBC BI certificate is that some of the most interesting to me applications of BI haven't really been well defined yet. That to me, working in the water space or on collective action problems, I see this as being really ripe for at the very least BI lens applications, but that the models for behaviour change work in this space, and the awareness of behaviour change toolkits in this space is only just beginning to take off. And so I think there's a really huge opportunity for BI practitioners and training to sort of run with BI beyond where BI has traditionally been used. And I think there's a lot of heavy lifting, particularly around these complex problems that aren't easily bounded to say, well, okay, this might not be an immediate BI trial, but there's certainly an opportunity to bring the BI into how we're talking about climate at a large scale or how we're thinking about systems change.

APPELT: Yeah, I love that. Yeah. And I think when it comes down to it, sometimes we get wrapped up in BI as the whole suite of tools, but when we break it down, you know, behaviour is the key message. And most of our challenges we're facing have behavioural elements. So if nothing else, just thinking about the role of behaviour in either creating or solving the challenges is a huge win.

So, any last thoughts, questions I should have asked and didn't?

SHAPIRO: Just one thing as I was thinking about this was that I've chatted with the few folks that I'm aware of now in BC who are doing some form of environmental or sustainability BI work, and it really seems like there's a gap in actors in this space. Like, it's interesting to look globally at how folks like, you know, the behavioural insights team in the UK or OECD globally are using BI toolkits for climate and sustainability, but how when we zoom in here there's groups like BC BIG in the provincial government that have worked on climate applications, but there's no consultancy, there's no sort of network of folks that are doing this work. I know there's some really interesting projects under the UBC DIBS umbrella, but just sort of an invitation to figure out what's next from a level of this slowly growing community in BC to do more of this work and to bring the BI toolkit into a little bit more visible application in environmental spaces.

APPELT: Got to get your N-frame going.

SHAPIRO: Gotta get the N-frame going.

APPELT: Exactly. I love that, and I think there are, like you said, folks starting to pop up, and so hopefully there can be more connection and more great work in the space because we absolutely need it.

SHAPIRO: Thank you.

APPELT: And just thank you for being here today. Our team at DIBS, as you kind of alluded to, is keenly interested in environmental sustainability, but water is not our core area, so it's been really fascinating for me to dive in, pun intended, with you today and learn a little bit more and water and climate and such existential issues that that can be, you know, really challenging to keep your head above water, I guess more water puns. But having folks like you working on these challenges and thinking about ways we can weave behavioural insights and tackling them gives me a lot of hope, so thank you for all the work you do in this space, and I'm excited to see what else you do and have you back in a few years with a new suite of projects.

SHAPIRO: Sounds great and thanks for pulling me in for this conversation. It's always so much fun to dip your toes into BI and look at all the possibilities there.

APPELT: And thanks to our listeners for joining another episode of Calling DIBS.