

Host 0:09

Welcome to the Future Fix.

Host: 0:28

We often hear about new technology informing the way we live. In fact, many of us have a certain amount of anxiety about exactly that. The so called disruption the Silicon Valley crowd used to brag about, and the unintended consequences that often come with it. But sometimes, the way people live can inform new technology and its uses. In that way, the technology isn't there to replace traditions, cultures or livelihoods. It's just an extension of what was already working. In a place like the Arctic, where traditional knowledge has managed to sustain people for 1000s of years. It's important to maintain certain long proven practices and the adoption of technology there is a complement to a way of life, not an alternative. You're listening to the Future Fix: Solutions for Communities Across Canada.

Host 1:50

This is season three of the Future Fix, an audio exploration of the way technology and data are shaping communities across Canada. I'm Glyn Bowerman. Each episode we present community challenges and solutions and take you to places large and small from coast to coast to coast. In this episode, we're going to hear about SmartICE, a social enterprise which offers climate change adaptation tools that integrate traditional Indigenous knowledge of ice conditions and traversing the North with technology that is able to monitor everything from ice thickness, air temperature, and water salinity. It was co created in collaboration with the Nunavut government in 2010 in response to extremely hazardous sea ice conditions, it now services over 30 northern communities, trains local indigenous people to operate the technology and makes the findings available so people can make informed decisions about traveling across the ice. Andrew Arreak is a SmartICE regional operations lead for the Qikiqtaaluk region, and we've reached him in Pond Inlet.

Host 3:01

And for listeners who might not have been to the North, can you describe the the communities you work with? You know, what are they like?

Andrew Arreak 3:09

From my neighboring communities, their population is less than 1500, usually. And we are divided into regions. And I'm looking after our northern part of our territory. It goes down many reasons. But I fly to my neighboring communities and train locals on how to use our SmartICE equipment. So they too, can monitor their eyes for their community. And they will be community based as well. But they work seasonally because there's no ice during the summertime.

Host 4:02

And in terms of the technology that you use, I understand there's a combination of sort of stationary sensors about eight feet long. And then there's also the sled that that you use to monitor the ice.

Andrew Arreak 4:17

That's right. We monitor the ice in a few different ways. One is our stationary what we call a SmartBUOY. These instruments are about 12 feet high with PVC pipes

in between and 60 thermistors in the middle, and it has a built in GPS and a transmitter and I don't choose where to deploy the smart bouys, I attend community meetings I asked local hunters where their best place would be to deploy our smart buoys And these smart buoys are taking temperatures of the ocean, ice, snow and air. And we are able to look at that data in our office. Because that instrument has a built in GPS and a transmitter. And the other way we monitor the ice conditions, what we call a SmartQAMUTIK. It's ground penetrating radar, that is on the QAMUTIK, a sled, that is towed behind a snowmobile. So as we drive along, on the ice, through the regular trail that the locals use, I also have a top pad in between my handlebars. So it gives me an actual number of how thick the ice is, as we drive along the ice.

Andrew Arreak 5:58

And at the beginning of the season, I collaborate the sensor to be sure it's giving up the right thickness number. So I manually drill holes on the ice and measure manually and to be sure to have the confidence of my instruments that they're giving off the right thickness number. And then recently, we started producing weekly maps for my community, interpreting satellite imageries, mapping out where the flow edge is, or where the dangerous areas are, and how the ice is starting to form. We incorporate our traditional knowledge. And once we use our equipment, it's not replacing our knowledge at all. For me, I rely on the knowledge that was passed down to me, from my father and these instruments, they're not there to replace our knowledge, but they're a good resource also, that we can provide to our community. So the community have a better idea of how the current conditions are, in terms of ice.

Host 7:27

And for these communities, I mean, has it become more difficult to travel and just do daily things because of things like climate change and the loss of ice over time?

Andrew Arreak 7:40

Well, every year, the ice conditions are different. Some years we might have proper ice, and some years we might have smooth ice. And if we knew what was coming in terms of ice conditions, I don't think we will need a SmartICE at all in the North. It is a great adapting tool that we are able to use so we can provide the information for our local people. Since I've started working, there has been less people falling through the ice, less search and rescue call outs. And people are more confident on how long they should be out at certain time of years before the ice start to break or starts to act differently.

Host 8:41

In terms of sharing the data, how do communities access the the information that you gather with the SmartICE?

Andrew Arreak 8:49

Most people come to my office because I have an actual office here in the community and they're able to look at the last SmartQAMUTIK trail that we went on, or where the one of the smart buoys are. And also we use the platform: siku.org. And that's how we share our data with the community with the younger generation that we use

who are more tech savvy than older generations as some older generations, they like printed maps or printed data. So sometimes I print out a map and posted in community local places such as Co Op store, the coffee shop or the hamlet office.

Host 9:48

And what are the responses from the communities that you've worked with? What has it been to SmartICE?

Andrew Arreak 9:55

Well, SmartICE started off as a pilot project with two communities, Pond Inlet, Nunavut and Nain, Labrador. And local people started noticing what I was doing. They had asked if I'm able to provide this type of information for the community as long as I could. And I'm still here and still providing data for the community in terms of ice conditions, and it's been going great, um, by listening to the community needs, I get greater support and feedback on what I do. And it's been going great ever since. And we're still going, we have over 30 operators across in that region. And there'll be more in the future, for sure.

Host 10:56

It seems like you have a lot of ground to cover, you must get to talk to people all over the North.

Andrew Arreak 11:04

Yeah, it's pretty neat, we might have a slightly different dialect. But the language of ice is pretty much the same, which is pretty neat. And I get to learn stuff from other communities as well. Because not every community has the same ice conditions, or go out at the same time. In a certain year. It's nice to travel to other communities and train locals. And the local people are usually happy and proud that a northerner is training other northerners that the community information on, because the ice is a part of who we are, it's part of our identity. And we just want to travel for any ice services out there and to come back home safely without any incidents.

Host 12:09

Thinking about other challenges that face these regions. We spoke before and you had mentioned the invasive species. That's not directly related to ice. But I was interested in that what kind of invasive species are you seeing in these regions?

Andrew Arreak 12:26

Starting off as micro invasive species, like nothing huge, but we do know they start off small. There has been more sightings of red pocks. And more exciting, of killer whales during the summer. And I heard at one time one of the mine ships had brought in a raccoon. But that was quickly dealt with, as soon as local people heard about it. And it's because of the warming of the climate. Our season will get a little shorter each year and it will get a little warmer each year. And that will invite more insects because of the warming of the climate. And like I said, it starts off small and who knows what will come up north in the future because of the warmer climate.

Host 13:38

For you in terms of the future of SmartICE, I understand that it's kind of opt-in, communities reach out if they want to, and you work with them, and talk about how you can partner with them, essentially.

Andrew Arreak 13:54

Yeah, it's a community effort. I get a lot of credit of what I do. But there's a lot of background and what I do, because I don't make all the decisions on where to go on SmartQAMUTIK run or where to deploy are SmartBUOYS. I like to inform the community and get their feedback. And it's been going great. using that method and having that relationship with the community is very important. Because you'll get respect out of what you do, get better feedback, and better support on what we do just by listening to the community needs.

Host 14:47

Well, Andrew, I want to thank you so much for taking the time to speak with me.

Andrew Arreak 14:51

No problem at all.

Host 15:03

The ice has sustained the Inuit way of life for countless generations. But key to that way of life is knowing how to travel across that ice, to hunt, to gather supplies, and to connect with neighboring communities. The ice is always changing, and more recently, so is the climate. And while we may not know exactly how these changes will present themselves for now, in the Arctic, using technology as an extension of traditional Inuit knowledge is the fix.

Host 15:42

Thank you for listening to the Future Fix: Solutions for Communities Across Canada. We are a partnership between Spacing magazine and Evergreen for the Community Solutions Network, a program of Future Cities Canada as the program lead, Evergreen is working with Open North and partners to help communities of all sizes across Canada navigate the Smart Cities landscape. The Community Solutions Network is supported with funding provided by Infrastructure Canada. This podcast was produced by myself, Glyn Bowerman, and Neil Hinchley original music composed by Neil Hinchley. Our content consultant is Sanchita Rajvanshi. See you next time.