

Ivan

[00:00:00] **Elizabeth:** Hi, I'm Elizabeth Van Nostrand, professional research hobo.

[00:00:04] **Ivan:** Hi. I'm Ivan Gayton. I'm a Canadian who did many years of aid work, and now I kind of work in the nexus of technology and humanitarian and development work.

[00:00:15] **Elizabeth:** And I'm so excited to talk to Ivan about both his history and how he got to where he is today, and also the Missing Maps Project.

[00:00:23] **Ivan:** Yeah, the missing maps itself as a specific project is kind of something that I was an absentee father of, but the spirit of that is something that I'm still really bound up with where I'm, I'm working to the democratize mapping and technology globally,

[00:00:39] **Elizabeth:** let's start at the beginning. How did you get involved in aid work?

[00:00:43] **Ivan:** I was a tree planter in Canada for 12 years straight outta high school. I went out in the forest in Canada. And after 12 years of that, you know, I'd become a project manager. One of the interesting things about manual labor is that you go up the ranks pretty quickly. I had, I think, 75 people working for me by the time I was 25. So I got used to sort of project management. And I had this neat life in the forest where I would earn a lower middle class income working five months a year.

[00:01:13] **Ivan:** But when I was 30 years old, I realized I'm only doing this because it's comfortable. I don't care about it anymore. I don't want, I don't have an passion for forestry anymore. And I'd heard that Doctors Without Borders, Medecins Sans Frontieres or MSF liked tree planters or tree planting project managers as logisticians, 'cause we're good at managing, you know, sort of remote settings and improvising without a lot of access to, you know, shopping.

[00:01:38] **Ivan:** So I walked into the Vancouver office on my 30th birthday and applied, and, that was the 20th of November. They sent me out by the 20th dec of December; I was in rural Burundi.

[00:01:51] **Ivan:** Not usually in this, in this case. What it boiled down to, they actually said to me after I passed the intake test and so forth, they said, "you

know, this could take up to a year to get you a posting. You know, it's, it's quite often very difficult for someone like yourself who's not actually a medic to get to get a, a place. you speak French, right?" "Yeah, I speak French." and just in case we needed to send you out before Christmas, you'd be okay with that?" Ha ha. And I was out a couple weeks later. because they, they had a desperate need for somebody, French speaking, who could do kind of hardcore technical deep bush logistics in this, Burundian project, which was a real baptism of fire.

[00:02:30] **Ivan:** I'd traveled before, but never to Africa, and certainly not to, you know, an African war zone.

[00:02:35] **Elizabeth:** How did the first project go?

[00:02:37] **Ivan:** I mean, it was amazing just stepping off the plane in Africa. I got, I got off the airplane in Burundi, in, in Bujumbura, and literally walking down the steps of the plane, I had this feeling like maybe a giraffe that was born in the Bronx Zoo and then transported to the Rift Valley might feel like, oh, "there's something familiar about this environment." it, it weirdly felt like a homecoming somewhere that I'd never been.

[00:03:04] **Ivan:** It's in, you know, the sort of old Congolese, what's left of the sort of Pan-African rainforest . , Incredibly lush green, red soil, just, you know, vibrant colors everywhere. Not a lot of car noise. In the village where I was, we got pretty much the only vehicles. I. And, you know, a little village of 300 people where we ran a giant regional hospital.

[00:03:24] **Ivan:** So at one point, I, I did a back in the envelope calculation that our hospital represented 75% of the village's economy. which is,

[00:03:32] **Elizabeth:** Wow.

[00:03:33] **Ivan:** you know, I'll come back to how much harm that does.

[00:03:36] **Elizabeth:** Mm-hmm.

[00:03:37] **Ivan:** but at the same time, it was literally the only way for many tens, almost hundreds of thousands of people to get any kind of healthcare at all. So, you know, the, the level of need there was staggering. This was just after the first ceasefire agreement in the, in the Civil War, in which Pierre Nkurunziza, the rebel leader took power. I actually met that guy when he was still a rebel leader before he became the president of Burundi.

[00:04:04] **Ivan:** We, had a satellite connection that we could use once a day for one group email address, text only. That was our connection to the outside world. And there we were in this village of 300 people with 6,000 demobilized rebel soldiers, four kilometers away. A small garrison of government soldiers, you know, kind of cowering in their, in their base, but occasionally going out to terrorize or intimidate, you know, everyone else. And levels of poverty and need that just, you know, beyond the imagining of a kid from Saskatchewan. and I, I fell in love with that work and, you know, the people.

[00:04:43] **Elizabeth:** What specifically were you doing while you were there?

[00:04:46] **Ivan:** so we were rehabilitating a government hospital, you know, sort of on a real emergency basis to get it to the point where it could support this huge population catchment area. So I mean, my day-to-day life consisted of organizing teams of construction workers and painters and hospital cleaners and, you know, guards and pharmacy, medical supply, keeping a bunch of trucks running, keeping a, a, a really, really dodgy generator running, , keeping fuel supply going, keeping ourselves and our staff from getting shot, or robbed until we couldn't, you know, even run the program anymore.

[00:05:24] **Ivan:** and, you know, providing toilet paper for the doctors and nurses .

[00:05:29] **Elizabeth:** That's a lot of responsibility for someone they hired a week ago.

[00:05:32] **Ivan:** It's remarkable. Yeah. And that's one of the things that I liked about it is that, you know, there we are really, really far from any kind of, you know, outside supervision or whatever, and yeah, just get on with it. and I, I, I like that. I, I like having those responsibilities provided I actually have the resources to do something with it.

[00:05:57] **Ivan:** So, you know, the budgets were there. I mean, I could order stuff and it would come on the trucks. I could, you know, pull money out of the safe and hire people to do stuff.

[00:06:07] **Ivan:** I had a, I had a real moment when I had this construction crew that was rebuilding a, a wing of the hospital and there were 30 people on this construction crew. And at some point, my boss, the project coordinator says to me, "Ivan, why are you just so obsessed with the construction crew always working? Constantly working and, and you know, never lacking for something to do." And I'm like, well, "because you know, you have a whole crew of 30

people, it's terribly expensive if they're doing nothing, I mean, if they sit there and do nothing all day, that costs, oh wait, \$30, huh? Maybe I'll just relax about that."

[00:06:43] **Ivan:** 'Cause you know, my, my last gig I'd been a, a forestry project manager, crew of 75 people who cost \$450 a day each. So if they, you know, lose an hour of productivity, that's like huge money. A day of productivity is unthinkable.

[00:06:56] **Ivan:** So I bring that to this, you know, African construction crew and the construction crew themselves are kind of exhausted. Like, good lord, this guy's nuts. but that realization that... 30 people on the business end of sledgehammers and shovels and travels cost way less than one hour of my time for an entire day. Wow. That was shocking.

[00:07:23] **Ivan:** And, and we were paying more than the local market rate for unskilled labor. I mean, at that time, this is 2003, the, the local market rate for nine hours on the business end of a shovel was a shiny new quarter, 25 cents. We were paying a dollar. So we had this huge lineup of people to work. I, I kind of rotated through all the villagers, to give as many people as possible a chance for the real unskilled labor. I think the, you know, the, the head construction crew guy was getting two bucks a day .

[00:07:52] **Elizabeth:** yeah, so maybe let's get into the economics of this. On one hand, it seems very generous to pay people four times their normal wage, and it's, you know, a trivial cost to MSF. On the other hand, that does distort the local economy.

[00:08:07] **Ivan:** distort is putting it mildly. It just completely messes up the local society. I mentioned that I had done this back in the envelope , calculation that we were 75% of the local economy. I mean, what that actually means is we destroyed and distorted the local economy completely; as development practice that would've been utterly and completely unethical.

[00:08:29] **Ivan:** The only justification for doing something like that is an acute emergency, which it was, it was nigh on a hundred thousand people with literally no access to healthcare whatsoever. The amount of avoidable suffering and death that was going on that we could actually alleviate was something that, you know, in sort of humanitarian practice, I guess we arrogate to ourselves the idea that we can, in a sufficiently emergency situation, justify doing things that would be unethical development practice.

[00:09:06] **Elizabeth:** Do you think the village was worse off for having the hospital located in their village?

[00:09:11] **Ivan:** oh yeah. Because we obviously brought this flood of money in, but where does the money go? . The doctors and nurses, they're not even local. They're from the capital city. So you're bringing in people from the capitol who then lord it over the local people, price of food jumps up, price of accommodation goes insane. The trickle down opportunities are to be sex workers and cleaners and, you know, servants for these, for these newly created royalty .

[00:09:40] **Ivan:** Yeah, it does, it does all kinds of harm. Sure. Some people benefit, it's not, I mean, just flooding

[00:09:46] **Elizabeth:** you might hope that if the price of food goes up, but their wages are also going up because they're working for the hospital or tangentially, then that would compensate?

[00:09:54] **Ivan:** Well yeah. For the people who are already, you know, have access to the labor market and are already able to sort of get in on that. Sure. I mentioned that I actually, I deliberately kind of rotated through the villagers to give lots of people a chance, but still, if you're not one of the people who gets a chance or even ever had a chance, or was somebody who's, you know, on the outs with the local powerful people, then we, as these foreigners providing these jobs, we never even see those people.

[00:10:22] **Ivan:** They don't, they don't even get to apply for a job with us. We never even know of their existence. So those people, now, the price of everything is jumped. There's a bunch of newly, much more wealthy people around them, and they're excluded from that. They don't see any of the benefit and all of the harm. So it's, it's terrible.

[00:10:39] **Ivan:** On the other hand, I mean, the number of lives that we were saving, you know, in the maternity ward alone, I mean like dozens a month at least.

[00:10:50] **Elizabeth:** Okay. How do you think about that trade off in general? Like it sounds like you think it was worth it that you essentially, you're ruining the lives of some small amount of villagers in exchange for saving possibly hundreds of lives per month since you were more than a maternity ward.

[00:11:06] **Ivan:** I mean, you just said it, there it is. How do I feel about me or us being the people making that decision on their behalf? Not great.

[00:11:19] **Ivan:** Would I feel better making the opposite decision? N no. Worse. And I guess , the moral hazard for me is where you sort of get attached to the work and you start wanting to do it even when it's not necessarily an emergency. I do actually, you know, still, I, I've become very, very, skeptical of humanitarian aid, but the fundamental principle that as fellow humans, we have both a responsibility and a right to provide life, health and alleviate suffering.

[00:11:51] **Ivan:** Yeah. I, I still believe that. I still believe that. It's just, I'm, I'm a lot more kind of careful about where I think that is justified.

[00:12:03] **Elizabeth:** Where do you think it is most justified?

[00:12:06] **Ivan:** Well, I mean, concretely, South Sudan. In South Sudan, there are, you know, entire populations who are deliberately excluded from all of the sort of benefits that any kind of society can provide. And it's not for lack of money, right? Like if you, if, if you go to a place like Tanzania where at least theoretically , if you just sort of injected more capacity into the system, people would have better lives.

[00:12:37] **Ivan:** If they're not providing, you know, the proper care for their citizens, it's because they don't have enough money or there's corruption in the system or whatever, then that's a development context where, where it's unethical to help directly. What you can and should do if you wanna get involved is like, support the local systems to try to help them sort themselves out.

[00:12:59] **Elizabeth:** Because there are local systems that if you give them money, will produce good outcomes.

[00:13:04] **Ivan:** Yeah, but if you gave the government of South Sudan money, they would spend it on bullets to massacre more of the population. So here, development is actually unethical. It is unethical to practice development, which by definition is working with local systems when those local systems are malign.

[00:13:22] **Ivan:** A, a murderous government isn't just one that shoots its people. It's one that deliberately excludes some people from things like healthcare, access to food because of who they are. If the government prevents

you from getting food because you are from a specific tribe, that's not benign neglect. It's malign neglect.

[00:13:40] **Ivan:** It's targeted exclusion for which as human beings, I believe that as a human being, you have the right and duty to intervene when people are being denied basic rights and, and dignity.

[00:13:53] **Elizabeth:** That's one example. Are there other examples with different principles of where it's good to intervene?

[00:14:00] **Ivan:** no, not, not to me. to me the only justification for sort of unilateral, bypass the system, go in cowboy style , arrogate to yourself those decisions about, you know, the cost benefit-. The only thing that is sufficiently powerful to justify that is deliberate harm. That is only in the context of deliberate harm that you can contemplate this sort of unilateral humanitarian work.

[00:14:32] **Elizabeth:** Is everything MSF does unilateral?

[00:14:34] **Ivan:** No. Oh, no, no. and, and it's, it's, it's a humanitarian organization. And so, so I actually draw this distinction between humanitarianism and development. The best way to actually understand it is to Google humanitarian principles, because they're humanity, neutrality, impartiality, independence. Those four principles, if you kind of dig into them, you realize that, impartiality in sort of humanitarian parlance means providing aid solely on the basis of need, of unmet need, not on identity or anything.

[00:15:07] **Ivan:** Which is obviously in contact with neutrality. Which a, a sort of naive interpretation of neutrality is, you know, provide aid to both sides. Neutrality, by the way, is an operational principle, not a, not an ethical one. Neutrality is a bargain that we make with you know, parties in conflict that if you agree not to shoot at us, we agree not to take sides.

[00:15:26] **Elizabeth:** You provide aid to the winning side so that you can provide it to the losing side.

[00:15:31] **Ivan:** Rather we take visible, transparent steps to ensure that we're not helping one side or the other in their, you know, conflict in exchange for being unmolested. And then the winning side also knows that their own people and themselves or whatever are, are gonna have potentially access to care if they need it.

[00:15:50] **Ivan:** it was, you know, this is the thing that was kind of worked out in, you know, the eighteen hundreds. So Henry Dunant, the, the Swiss medical student who founded the, the International Committee of the Red Cross, that independent, independence and neutrality were a bargain rather than an ethical principle.

[00:16:06] **Ivan:** Whereas impartiality is that we as humanitarians, sort of assert our right to help people on the basis of their unmet need alone. That that's an ethical bottom line. humanitarianism then is that sort of unilateral work on the basis of that principle of impartiality, we demand the right to help our fellow humans.

[00:16:28] **Ivan:** So development, you know, my, my litmus test is if you were to support the government or the local power system or the local society and work together with them, would that basically lift all boats? If yes, you have yourself a development context where you can, and are, I believe, ethically constrained to work with the society rather than unilaterally.

[00:16:54] **Ivan:** If your answer is, if I were to provide resources to the, you know, the power structures, the government, et cetera here, that would result in people suffering and dying more. Now you've got humanitarian context, the context of deliberate harm, and so you have a right, maybe even some kind of duty to get in there and help the people on the short end of that.

[00:17:16] **Ivan:** so humanitarianism is only allowable, in my view, in a context, a current context of deliberate harm.

[00:17:23] **Ivan:** And of course, you know, you asked about MSF, do they, is that all they do? Well, no, because an actual. According to Hoyle, humanitarian context is limited in both time and space. Wars end. And you can't just, you know, sort of build that hospital in Burundi and keep going after the de-demobilization and, you know, continue doing that work. Doing it in that particular area of Burundi right now would be wrong 'cause it's no longer in conflict.

[00:17:51] **Elizabeth:** That was a short-term emergency that you intervene on.

[00:17:56] **Ivan:** Right.

[00:17:56] **Elizabeth:** does MSF do long-term permanent engagements?

[00:18:00] **Ivan:** Absolutely. Yeah. For a number of reasons. Okay? One, because you don't just bail on the hospital once the war's over, you do a transition plan. Two, because if you're in a place where, you know, you have good reason to believe that there might be a disaster and you don't want to have to ruck in after there's been, you know, a bunch of death and suffering that you could have avoided if you were already present, then you're allowed to function as a development agency to be present. Those are what we call strategic projects.

[00:18:28] **Ivan:** You're allowed to go and run a hospital with the local system, not unilaterally. No fun, very frustrating.

[00:18:37] **Ivan:** So I'd actually say that probably 70, 80% of MSFs work in any given day is development. Sometimes we do it quite badly and that's one of the reasons why I've become more skeptical of aid is because we're not that good at development. But it is reasonable, in my view, to practice development in order to be present and quickly able to mobilize when the shit hits the fan.

[00:19:01] **Elizabeth:** Did you ever do any projects that were development instead of emergency humanitarian aid?

[00:19:06] **Ivan:** yes. my third mission was in the Central African Republic. And we were in a place called Paoua where we were up in the north of the Central African Republic. We were running this hospital and I was disgusted. It was a development project. It was clearly something where we were just, you know, working with the local I system, which was grossly corrupt.

[00:19:32] **Ivan:** I immediately felt like we were doing harm, we were doing poor development. And I was days or weeks away from submitting my resignation saying, I don't wanna work here. This is garbage. We're doing harm. When the presidential guard sent a convoy of trucks up and destroyed 12 villages, I mean, like burned to the ground, massacred everyone, and I went, "oh, well, shit, okay" good strategic project. I will shut the fuck up". And, and then suddenly from this project that I felt,

[00:20:01] **Elizabeth:** What a well timed lesson.

[00:20:03] **Ivan:** oh God, yeah, no, it's, it's lucky for me actually that, that, that, oh God, that sounds terrible . I am fortunate that I didn't bail on the situation through my stupidity, you know, arrogance before it became clear why we were doing that and why it was actually a hell of a good idea.

[00:20:17] **Ivan:** Because that was one of the most compelling experiences of my entire life, is actually being in place there and having the resources. I made a phone call, which resulted in two DC eights full of Land Cruisers and the Land Cruisers were full of medicines and supplies being dispatched within 24 hours.

[00:20:34] **Ivan:** It took longer to get those planes out of the air, like get that stuff out of the airport than it did to scramble them from the, the Logistics Center in Belgium. That was exhilarating. Being in a context of extraordinary need and having this system that just like could deal with it, oh my God. 'Cause it's not just me being able to do something, it's actually this monstrous machine being able to swing it action and work and save people.

[00:21:02] **Ivan:** So, God, that was compelling. And I've been in a couple of those where there's like massive, shocking levels of emergency need. And at our fingertips, even my fingertips, there's these just unthinkable resources. It's, well, it's, it's addictive. Which is a hazard- a hazard in and of itself because you can get addicted to that power.

[00:21:29] **Elizabeth:** Did you see anyone who got addicted to the power or was in it for the wrong reasons? And how did that end up affecting people?

[00:21:37] **Ivan:** probably only the ma- only, you know, a little over half the people that do that kind of work.

[00:21:43] **Elizabeth:** oh that's all

[00:21:44] **Ivan:** yeah. So, yeah, it's a problem. It's one of, it's one of the reasons for my skepticism of humanitarian aid. I still think, you know, somebody kind of has to do it, but it is full of people on power trips.

[00:22:01] **Ivan:** I mean I was probably on a power trip at some point. 'cause it, it's trippy to have that kind of. You know, I mean, agency feels good, power feels good. And when you can tell yourself that it's for the greater good, you know, and your self-worth depends on not realizing when it no longer is, eh, it's tricky.

[00:22:22] **Elizabeth:** Do the people who are on a power trip do a worse job?

[00:22:27] **Ivan:** They don't necessarily do a worse job technically day to day. Sometimes they do a better one, because they spend less time, I guess, you know, agonizing about things. But when push comes to shove, they can make the wrong decisions that can be catastrophically harmful.

[00:22:45] **Elizabeth:** like where to intervene or what kind of intervention?

[00:22:47] **Ivan:** Yeah. Or, well, I mean, I, I have an example of one, which was, in a genocide. I'm gonna try to keep this anonymous here. They're all fleeing the country. And they were, and they were going out via land to a land border.

[00:23:03] **Elizabeth:** being MSF or

[00:23:05] **Ivan:** Yeah. The MSF staff, the MSF staff, the MSF staff were pulling out, they couldn't be there anymore because it was too dangerous. They're pulling out, they brought some of their staff at risk with them. And one of the staff at risk was pregnant. And at the border, the guard said,, she's of the right ethnicity and can leave, but her, but her unborn baby is of the wrong ethnicity and, cannot be admitted out. so you have to leave her. And most of the expats said, no, we refuse. And, and we're taking her with her, with us, and you have to kill us before that, before you can take her.

[00:23:43] **Ivan:** And the project coordinator said, no. We, we have to, you know, obey their instructions. protocol says we cannot do that. So, he forbade them to insist on bringing her out against the guard's will. And, you know, he, he might have saved them from being shot, but what he wound up doing was having them watch the woman chopped to bits with the machete in front of their very eyes.

[00:24:08] **Ivan:** The team turned away from him and never spoke to him again. they refused to, to even look at him, let alone work with him ever again . he did not continue with MSF and whether he was on a power trip or not, I don't know, but I know that he made, he failed to recognize when all bets were off, when it was no longer business as usual, and you could no longer follow the rule book.

[00:24:29] **Elizabeth:** Too much of a cooperator instinct.

[00:24:32] **Ivan:** Maybe it's a cooperator instinct, but maybe it's, maybe it's a martinet instinct. It's like, these are the rules and I'm in charge.

[00:24:38] **Elizabeth:** I'll be hon-, this one doesn't sound like a power trip to me with the details you've given, it sounds like

[00:24:44] **Ivan:** Might not be.

[00:24:44] **Elizabeth:** terrified and listening to existing authorities.

[00:24:48] **Ivan:** , As I said, perhaps the guy wasn't on a power trip. I don't know.

[00:24:52] **Ivan:** I guess if you want an example of, of, decisions made on power trips, that, that I, I sort of, you know, observed or felt were decisions based on power trips, there have been plenty.

[00:25:07] **Ivan:** two separate times I've come into projects as a head of mission. , I came into a couple of projects where we had a project coordinator who had become so married to their project and their team that they sort of like bunkered and were, you know, saying, you know, " what we're doing is the most important thing in the world. We're not getting support from the, from the country direction. You know, we are, you know, it's us against the world." Refusing to understand when their project was no longer relevant. Turning their expat staff against MSF saying, "you know, I'm the only one who can save you from this agency that wants to abandon our patients" and losing sight of the reason we're in the country in the first place.

[00:25:51] **Ivan:** In both cases, this was, in Nigeria and, Haiti. Both of these cases, these are strategic projects which have been established in order that we can respond effectively and quickly if and when the shit hits the fan, then the shit hits the fan and they're like, "no, we can't spare the resources to respond to this emergency. This is the most important thing in the world."

[00:26:12] **Ivan:** My mentor in MSFA woman who, who kind of is most of the reason why I was able to rise up to, to sort of leadership level, she actually encountered that as well coming into an emergency situation. the earthquake happened in Haiti. She took a plane from Amsterdam to the Dominican Republic, purchased a taxi and drove to the capital city.

[00:26:35] **Ivan:** And walked into the MSF office and said, stand down, I'm in charge now. And the guy refused, because he was, he had been there for a long time and he was so attached to his baby project that, he wasn't willing to let the emergency team come and respond to the earthquake that had killed 275,000 people in a 30 second event.

[00:26:57] **Elizabeth:** Like,

[00:26:58] **Ivan:** so that,

[00:26:59] **Elizabeth:** I imagine up to that point, he was probably very good at his job because he was

[00:27:03] **Ivan:** oh, yeah. Oh yeah. And, and I mean, and he was, I think on a power trip and was really enjoying that and probably was, as you say, doing quite a good job because to continue that power trip, you've gotta, you know, kind of perform. but boy, if it hadn't been for my hero and mentor, blasting him outta the way, then he would've done an awful lot of harm by trying to hang onto that position and what he was doing.

[00:27:30] **Elizabeth:** So you mentioned that your attitude towards aid has changed over time. What is your current attitude

[00:27:37] **Ivan:** Yeah.

[00:27:38] **Ivan:** my pre current attitude is that the overall aid industry probably does more harm than good. but, you know, baby bathwater. It is needed. It is a legitimate and vital impulse to say we are not citizens of one country or members of one tribe or whatever. We are humans and we have a right and a duty to come to the sucker of our fellow humans when they're being deliberately harmed.

[00:28:10] **Ivan:** And there's nothing wrong with even the, the development impulse of like, yeah, it's just a better world for everybody if we aren't so spectacularly unequal. And if people in, you know, whatever Malawi have better education and food and healthcare and so forth.

[00:28:27] **Ivan:** I still believe that that impulse is valid and that, what, for example, Elon Musk and Donald Trump have just done, which is feeding, a very flawed and problematic and possibly more harmful than good aid system into the wood chipper. They've actually entered into, you know, the sort of elite club of, of, mass murderers on the scale of Stalin and Mao. The death toll of feeding USAID into the wood chipper, despite the fact that USAID perhaps deserved to die. I wouldn't, I wouldn't disagree that USAID might be, have been doing more harm than good, but shutting it down in the way that was done was a tremendous crime against humanity.

[00:29:12] **Elizabeth:** One of your principles I'm

[00:29:13] **Elizabeth:** getting from this is, you can't do fly by aid. You have to consider what dependencies you're creating and then live up to whatever dependencies you chose to create.

[00:29:25] **Ivan:** as best you can,

[00:29:27] **Elizabeth:** Yeah.

[00:29:28] **Ivan:** I'm pretty sure that my overall score is in the positive. In Haiti, the team that I was part of leading, we treated just over 200,000 people with cholera. I. During the three months that, you know, I was the head of mission there and those 200,000 people would not have been treated in any way, shape or form if we, if we weren't there.

[00:29:54] **Ivan:** And the mortality rate outside was 40% in, in our clinics it was 0.9. So like, what'd you do on your summer vacation? Right. Like that, you know, that, that, that is a pretty good score, I think.

[00:30:08] **Ivan:** Directly that I know of. I'm responsible for 12 deaths. I persuaded a village- there was a mobile clinic that we wanted to do, and there was a landmine on that road, an anti-tank mine, so you could walk over it, ride your bike over it, and it wouldn't go off. But if you drove a land cruiser or a tank over it, it would, it would blow up.

[00:30:28] **Ivan:** And everyone knew that mine was there. And I walked around it and went to that village and I persuaded them to remove the mine so that we could go to our mobile clinics. And early the next morning, the Chadian Army blasted along that road and shot up the village and killed 12 people right there.

[00:30:49] **Ivan:** I was stupid, but I was also arrogant. I was proud. I was showing off to my team that I have the ability to persuade people of doing things like that. I'm a good salesman. I can make people do stuff. I was proud of that. Watch this, I'll get the mind outta the way. Ha ha. And I did. 12 people died. And I didn't shoot them, but it is, I mean, I'm responsible for that, for sure, for sure.

[00:31:18] **Ivan:** So that one's on me. And that was, you know, may that arguably, I, you know, probably somebody would Say that was a power trip. Maybe I can even say that was a power trip. never made a mistake quite like that again. and I made some pretty good calls and I definitely saved some people. I've actually, I. Stood in front of a gun for 20 minutes one time and said, you can't shoot him without shooting through me. So, you know, you kind of, you win some and you lose some and you know, the, the consequences of Western outrage and bravery are rarely born by the Western people themselves.

[00:31:54] **Elizabeth:** It sounds like MSF sent you in with like no experience and already making some pretty serious decisions. At some point, you were in a position where you were negotiating with the local village about their

landmines. seems like that's the kind of mistake that's going to happen without really extensive training that MSF is not doing.

[00:32:19] **Ivan:** those, those were, you know, the early double oughts, we were really kind of out there on our own. We didn't have much contact with headquarters. Nobody would have wound up with the level of responsibility and, and, power that I did early in my career now. So in that sense, things have like evolved and moved on. It's a lot more, you know, professional than it was.

[00:32:42] **Ivan:** But at the same time, you can't train shit like that. You can't train someone to understand how to, how to comport themselves in a war zone. It, it, it just doesn't work that way. If it looks to a fair extent, like MSF, just like chucks people in the deep end and see if they swim, it's because people have been trying for, you know, one and a half centuries to like train and prepare people for that kind of thing. And to a first approximation, you can't, you can give them some pointers.

[00:33:12] **Elizabeth:** even by shadowing someone in the job?

[00:33:14] **Ivan:** Yeah, yeah. Apprenticeship does work like more . And I got lucky with a couple of people that I was able to work under who, you know, showed me the way. I guess there's a calculus of like, do we put somebody this inexperienced in charge of things? At some point that question becomes do we do anything or not?

[00:33:32] **Ivan:** And sometimes MSF gets that decision right and sometimes they get it wrong. In at least one case they had given me too much responsibility for what I could handle with my level of wisdom and maturity at the time. but again, pretty sure my overall score. I mean, just in terms of like, you know, raw life and death is, is pretty, pretty positive, like numerically very positive.

[00:33:59] **Ivan:** If I could erase all of that stuff for the 15 years and restore those 12 people in Dokabi I wouldn't do it.

[00:34:09] **Elizabeth:** This is really interesting to me because I would say if I was gonna caricature our previous conversations, I would be the greatest good for the greatest number person, and you would be the every life matter persons.

[00:34:23] **Ivan:** I still ultimately. will go deontological rather than utilitarian. It's the principles, not the numbers. In this case, I rightly or wrongly reconcile the decisions I made the same way. First off, as stupid and arrogant as I was, I was trying to help. I was proceeding under principle that was universalizable,

you know, the content thing of, is, is it okay to, you know, ask people to facilitate when I'm trying to help lots and lots of people with, you know, lot lifesaving care.

[00:34:55] **Ivan:** From a deontological perspective, do I still believe that despite how careful I should be and everyone should be, and we have to be, it's still justifiable to risk harm, to help people who need it to, to, to, to render assistance to our fellow humans.

[00:35:16] **Ivan:** Again, I come back to, you know, the fundamental impulse of humanitarianism to me is we have a right, and I particularly feel a duty to help our fellow humans when they're being deliberately harmed and

[00:35:32] **Elizabeth:** is the deliberately important?,

[00:35:33] **Ivan:** we get to do that. Yes, very,

[00:35:35] **Elizabeth:** Why is that?

[00:35:37] **Ivan:** because if they're not being deliberately harmed, then it's a, as I said earlier, it's, it's wrong to unilaterally help them without sort of going through the full consultation process. It's only permissible to act unilaterally when somebody already is on the other side.

[00:35:56] **Ivan:** I have a right and, and, and even a responsibility to, try to make it better among other things because I benefit from that stuff. They don't make guns in the Central African Republic. The reason there are guns there is because those people are confined by the global apartheid system of borders. They can't leave, they can't choose their own leaders.

[00:36:23] **Ivan:** Whoever controls Chad or the Central African Republic or the Democratic Republic Congo, it's not whoever the people choose or, you know, consent to the governor or any of that. It's whoever's got the fucking guns and who has the guns? The person who plays ball with the international community and is allowed to buy those guns or rather exchange those guns for the natural resources of their country, which is how the guns come in there.

[00:36:43] **Ivan:** And in one sense, you know, I am angry that I benefited from that system all my life and was an unwitting and unwilling participant in what is to me, a form of slavery.

[00:37:00] **Elizabeth:** Let's talk about what you are doing now

[00:37:03] **Ivan:** I got into mapping for cholera in Haiti, doing the, the John Snow Trick, , the British doctor who helped control the cholera epidemic epidemic in Soho in 1854 by making a map and then figuring out where the water pump was that, that old hoary story. I did that in 2010 in Haiti.

[00:37:18] **Ivan:** So I had this like mapping and sort of tech thing that was now part of my, my stuff that I do. And in 2014, in West Africa, I was working in this Magburaka treatment center and, you know, working on medical records and noticing that the contact tracing, which is the most critical part of controlling an Ebola outbreak. So contact tracing whereby you have to like, "Hey, sir madam, I noticed that you're bleeding from the eyeballs. Where exactly did you just come from? Because we are gonna go there, and see who else you got." And they would go, "Marbuka". And you'd go, okay, there are 12 villages. Yeah, where the hell is that? Yeah.

[00:37:56] **Ivan:** So it turned out that, by sending a bunch of people on motorcycles with cell phones and GPSs, and tag 2000 villages with not only the name, but also like the, the district, the chiefdom, and the section so we could disambiguate which Buca you're coming from.

[00:38:12] **Ivan:** and then that actually resulted in going from maybe 30% of the patients having a known origin location to 70%, which, you know, was hugely impactful in being able to control the epidemic So that, so fast forward after I left Wave where you and I worked together, me and Ping took our severance package and, and, went to Sierra Leone and did more of that, for preparedness.

[00:38:36] **Ivan:** We went to map a bunch of villages so that we would have that informational infrastructure for contact tracing, if ever there was another outbreak. And that was fun, Ping and I had fun doing that. And I actually genuinely believed in it.

[00:38:52] **Ivan:** That was pure development work because we were working together with a local hospital , providing the resources for local people to put themselves on the map. It was all voluntary. Like they wanted to be on the map. Like we, we had, we had, you know, people telling us "my village was left out! Why? Why aren't we in yet?" I so you, well, sorry,

[00:39:10] **Elizabeth:** Fill out this form

[00:39:10] **Ivan:** we, we can't do the whole country. Yeah, right. so. You know, the, the, the Humanitarian Open Street map team, what we actually did, Ping

and I, we gave our money to them, got Wave to match it because they were a 501(c)3. They gave us a briefcase full of cash. We took it like they took 10%, gave us travel insurance, put us on the sort of, you know, payroll.

[00:39:28] **Ivan:** And we went off and did that. And then the humanitarian open street map team in the World Bank noticed what I was doing and said, "Hey, do you, do you want a job in Tanzania?" And I said, no. Tanzania is like, where humanitarians who don't care anymore go to die because they want to, you know, have some cushy job where they live in a nice tropical place and lord it over the local people and make money.

[00:39:49] **Ivan:** And they said, well, "can we at least just put your name on a project proposal?" And I'm like, yeah, fine, whatever. Not thinking. And then of course, you know, they got the job. can you go do it now?" fine, I'll go do it. Like ad interim. And I show up and there's these, you know, Tanzanian University students that I'm teaching how to, how to do all kinds of technical stuff and it's fucking great. And I fall in love with that. .

[00:40:17] **Ivan:** Something I rarely got to do within MSF is actually developing people instead of doing shit myself, actually, like really giving people the tools and power to do stuff. We went through like a thousand or more kids through the, the years I was there in Tanzania, but there's like a dozen that now have their own NGO.

[00:40:36] **Ivan:** They do work for like many different clients, both private and, you know, sort of UN and public. They've, some of them been hired by the private sector. You know, the guy that I, that I taught how to fly and make drones, he now runs like swoop arrows operations in Congo. There's probably 12 people that have radically different life trajectories because they met me and their overall global intact will probably be greater than anything I could have done in, you know, 20 more years of humanitarian work.

[00:41:06] **Ivan:** So, so that you can use all that information for stuff like public health and land rights and, you know, all kinds of good stuff. I, I, I'll go into some more detail on that. But the, the key to it is that I'm not mostly making the map. Mostly what I'm doing is creating the tools and the capacity and the sort of like, just the realization that we can do it for lapping mapping to be locally owned and locally led.

[00:41:32] **Ivan:** So I wrote a blog post somewhere called [Free Software Is Racial Justice](#) or something like that. Where I made the case that if you're using proprietary tools in development work, you're, you're perpetuating a system

where poor people can't participate because they don't, they don't have access to learn how to use the tools. When we use these sort of proprietary and exclusive tools, we create a colonial aid and development system where it's always the foreigners who are doing the, the real work.

[00:42:09] **Ivan:** , The missing maps and the teams that, that I'm working with are shifting that we're shifting a lot of the power and ownership to people by. Insisting on free and open tool chains. I have this motto that I developed in Tanzania, which is, local people, local devices, and open knowledge.

[00:42:29] **Ivan:** You asked about ethical versus operational principles. Here's an operational principle that leads to a good ethical outcome for you: do all of your work on commodity equipment that's available in the local markets everywhere. Then what you do is not only arbitrarily scalable, it's also equitable. If I start, if I start using,

[00:42:48] **Elizabeth:** because you're participating in the economy.

[00:42:50] **Ivan:** no, because anybody in the local economy can do the same thing I am.

[00:42:55] **Ivan:** If I go around doing mapping with a \$2,000 Trimble unit, I'll make a map that might be more accurate than the one that I make with a mobile phone. But if I take the time and trouble to develop systems whereby you can make really good maps with a mobile phone, and I publish that and I share all those tools, now I've actually, em empowered everyone to make those maps.

[00:43:18] **Ivan:** My pet project right now is drones. I like drones. 120 second primer on, sort of the way I conceive of, of mapping three, three layers of sort of data. The first layer is sensor data. It's GPS traces, it's imagery, it's, it's, you know, photographs, whatever. It's messy sensor data about the world.

[00:43:40] **Ivan:** You look at your sensor data and you go, well, all these GPS traces seem to congregate along this path. That's probably a road. And you draw a line.

[00:43:47] **Ivan:** That Polyline represents the road. So it's a one-to-one representation of a feature. It's a point, it's a line, it's a polygon, or it's a 3D volume. But, you know, the difference between that layer one, which is sensor data, and layer two, which is the features, is that every feature is a one-to-one representation, geometric representation of a real thing.

[00:44:07] **Ivan:** A building is represented by a polygon or volume. A road is represented by a polygon. And then finally there's like the attributes thereof. What's the name of the road? What's the address of the building? how many stories, like all that stuff.

[00:44:18] **Ivan:** So there's your, your three layers, your sensor data, your, your geometrical representation, you know, map features, points, lines, polygons, volumes, and then your attributes that are attached to those features of what is this thing. And you know, what about it, which is of course, infinite, right? There's no limit to the number of attributes you can attach to a building. You know the color of every brick if you want. But, the real, sort of the operationally relevant feature of that third layer is that you have to be there.

[00:44:45] **Ivan:** You have to actually go to that building to go, okay, what's the address here? What do they sell here? Or what kind of building is it? Or how many people live here, whatever. So that whole stack then of like, what are the tools by which you can make maps? The bottom layer, the, the sensor data, it's traditionally been satellite data, which is completely out of the sphere of influence and control of local people in. Soon as the Open street map community in Sierra Leone gonna be launching a satellite. so it's a dependency.

[00:45:17] **Ivan:** Microsoft Bing has for many, many years allowed Open Street Map and other open mapping communities to digitize features from the bank, satellite imagery. And the, the technical wording here is to share on an open license derivative products from the imagery, not the imagery itself, but derivative products thereof. So you're allowed to go onto Microsoft Bing, take that satellite imagery, trace roads, buildings, water courses, whatever, and then share those traces with a copy left open license. Not the imagery, but the derivative products. Okay, cool.

[00:45:51] **Ivan:** And then the company, digital Globe did the same and then they became Maxar and then they were acquired by private equity. And they revoked that license because private equity being private equity, you know, they're not gonna give shit away.

[00:46:03] **Ivan:** And when that was pulled, I'd actually seen it coming. ' So I already, before they pulled the license, I was starting to work on, we gotta get drones. Because aerial imagery is actually, it's possible for local people to gather their own and not rely on satellites, but it's not gonna be with, you know, airplanes or satellites. It's gonna be with little drones. So I'd already started working on that.

[00:46:24] **Ivan:** Then when the Maxar imagery was pulled, it became much easier for me to get funding for that because, you know, everybody was in crisis. Shit, where's our imagery? and so, I'll, I'll come back to the drones in just a sec, but just to sort of go to the, the other bits of the stack, the next part, the digitization.

[00:46:42] **Ivan:** There's a bunch more stuff we can do. We actually have really good 3D imagery now, so we need, like, you know, somebody to help us develop ways to digitize not 2D imagery, just clicking around points, lines and polygon. We need to be able to, you know, digitize volumes. I'm working right now on trying to figure out something with the Unity game engine to be able to move around in a 3D environment that you can get from drone imagery and, and digitize, from that 3D, not just from the 2D straight down view.

[00:47:09] **Ivan:** If we're gonna use these machine learning models, we should, we should actually begin training them on imagery from these local contexts and it should be free and open and accessible to people. People should be able to actually not just use the results of the ML models, segmentation of buildings and roads and so forth, but actually train those models and, and tweak them themselves and own them.

[00:47:32] **Ivan:** Someday i'd like for every, every city, every neighborhood, every village to have their own model that takes any new imagery that you might get and digitizes it. So, you know, you, you, you train, an AI on Dar es Salaam. You get new imagery every year and you rerun that model. At some point, you're literally running the model on the same thing.

[00:47:57] **Ivan:** What you're getting then is change sets incredibly valuable. So there's tooling that's needed there. On the sort of field mapping thing, we've got these tools that we've been working on, that I've been working on, like field mapping, tasking managers, thanks to coordinate hundreds of people to go around and visit lots of buildings and, and gather attributes.

[00:48:12] **Ivan:** but since the foundational blocker was the imagery, I've been working really mostly on solve the imagery problem.

[00:48:20] **Ivan:** Now, traditional drone mapping means using a Swiss made \$20,000 fixed wing thing with an expensive camera in it that flies around for hours and collects, you know, maybe 20 square kilometers per day of imagery. The thing costs 20,000 bucks. and I kept thinking, shit, there's gotta be a way that we can use, you know, smaller things.

[00:48:43] **Ivan:** I, at one point saw. you know, an article in an innovation portal of, of a United Nations agency that shall not be named, I don't wanna say who it was because it was the World Food Program, and they said, you know, we've got this person who's developed a way for one person to fly five drones all by themselves. So instead of one expensive drone, we've got five little ones. So it's cheaper. And there's this picture right on the World Food Program's website of a white guy from Europe flying five drones while 20 Africans stand watching him. Like, you have fundamentally misunderstood the context in which you're working, and you are making the same kind of arrogant, stupid mistake that I've made on occasion, which I'm trying not to make anymore.

[00:49:29] **Ivan:** The correct way to do this is for those 20 African people to be flying a cheap drone. So, came up with this realization that. , If you create an ecosystem wherein people can earn a living by flying a drone to collect data and there's people buying this data, then yeah, it's, well, so I mean, I have the personal experience that if you go into Liberia, which is a desperately poor country, and you say, look, I've got some money for somebody who's got a drone, you find one.

[00:49:57] **Ivan:** Somebody rucks up 'cause there's a drone in Liberia. And I found it and they flew , an area that was home to 30,000 people for me. Now I'm just bringing the drones in and I'm trying actually to create, I'm actually working with a company in California called Geocene. Wonderful guys. They're trying to develop a little camera module for me so that we can make our own open hardware style drones running open source software that's actually better for mapping. 'cause instead of a quadcopter that's optimized for wedding videos and photography, it's optimized for mapping.

[00:50:25] **Ivan:** It means that it's plausibly accessible to local people. And a thousand dollars is outta the question for your average African citizen to buy for a hobby. But again, there are millions of people that earn a living driving a motorcycle taxi. And that thing is 1500 bucks. So if you set up the market for it, it works.

[00:50:43] **Ivan:** And for a civil society organization in Africa. The little NGO that I, that I mentioned that, you know, my, my colleagues in Tanzania founded, they can afford that. Like a \$20,000 Swiss drone? No, not really, but a little civil society organization, African buy a thousand dollars drone. So, you know, there're degrees of accessibility.

[00:51:02] **Ivan:** I was just in Sierra Leone, in March and oh, it was magical. So awesome. I brought five DJ I mini four pros, a thousand bucks each. And we

built this software called the Drone Tasking Manager, dronetm.org, if you wanna check that out.

[00:51:20] **Ivan:** that quadcopter at the time, the Mini four Pro, it didn't have what's called an SDK, the software development kit that allows third parties to create flight control software for it. But I built, you know, something similar open source that not only works, for lots of people to like get a little square that they can fly and then go do another one. But it creates a flight plan that can be injected into this drone that wasn't intended by the manufacturer to be able to fly these autonomous mapping missions. Now there's an SDK, so I've gotta re-implement the whole fucking thing again.

[00:51:51] **Ivan:** But fine, point is we developed this software, the drone tasking manager that allows us to chunk up the 75 square kilometers of, you know, the urban portion of Freetown into little 500 by 500 meter squares. And then the person takes this little quadcopter, injects this flight plan into the controller, pushes the go button on the controller that pushes the flight plan to the drone, and off it goes. And it flies those 500, by 500 meter squares that, quarter of a square kilometer. and so we're paying people right now, we start at \$35 a square kilometer. and I was hoping that they'd be able to do, one a day. Somebody did three in a day. Somebody went out and flew 12 fucking flights in a single day.

[00:52:39] **Ivan:** Okay. So there, I'm in Freetown. We've got this, we've got this software then where we chunk up Freetown into, I believe it was 340 little tasks. And there were people who were able to go out and do 12 of those in a day.

[00:52:52] **Ivan:** Watching that engine of, it's not just, you know, financial motivation, it's also competition, but you know, you, you put this thing on, it's a mix of like, you know, I want some money and that's great.

[00:53:02] **Ivan:** And at some point they started earning like really large amounts of money, not because we were paying them more per hour, but because they were becoming extremely efficient. They were learning all kinds of tricks, including many tricks that I hadn't thought of to optimize how they were able to cover areas.

[00:53:19] **Ivan:** So now I have like 135,000 photographs of Sierra Leone from 120 meters that we're turning into a 75 square kilometer data set of beautiful five centimeter resolution, 3D imagery. It's incredible.

[00:53:32] **Elizabeth:** So we've talked about, the epidemiological uses. What else are the maps useful for?

[00:53:40] **Ivan:** So the map itself is just more or less like, a canvas upon which the data goes. So like there's a, there's a trace for a road and there's a trace for a building, and it's the name of that building or that village and that road that allows you to describe to someone where they've gotta go to do contact tracing for Ebola.

[00:53:56] **Ivan:** But that leads to a bunch of other stuff too. If you have every building in a city digitized, you can do stuff like municipal services. You can figure out how many people you need to collect waste from. you can levy municipal property taxes and use that money to actually provide, you know, water, sewer, electricity, pothole collection, pothole fixing, whatever.

[00:54:19] **Ivan:** One of my favorites is this idea of community cadastres land rights. I'm obsessed with land rights . so super short version of the tangent. I was in Haiti and I encountered a situation where some Haitian American businessman had faked a title deed for somebody's land, bribed some cops to come in there and shoot them up and steal the land, and they got caught. By our team because they came into our hospital and we're like, what the hell's going on here?

[00:54:45] **Ivan:** And we figured out the story. And so they had done a really piss poor job of faking the title deed. So they were caught and they were, you know, for murdering those people and stealing their land. They were soundly punished, they were deported. It took them weeks to get back to Haiti. No other consequence.

[00:55:00] **Ivan:** and when I was talking with his Swiss human rights researcher who had helped us deal with it, she said " The total surface area of land claims in the country of Haiti is three times the surface area of the country." Oh. Every successive government, hands out land to their supporters. 'cause it's the one thing that as a government, it's, you know, you don't have to take, you don't have to divert the money from your own Swiss bank account pipeline to pay your supporters.

[00:55:25] **Ivan:** And, and what it means is that you've got, you know, for example, Monrovia and, Darsala and Freetown and Lagos, you've got like double digit percentages of people that are, that are living in informal settlements. In some cases, Monrovia, it's 70%. So that's a real, that's a real poverty trap.

[00:55:47] **Ivan:** I'm obsessed with this idea that even if the government doesn't want you to, have land title, if you and all of your neighbors get together and say, well, you know, I don't have an official title for this thing, because the survey regulations are built in such a way as to prevent me from doing that. But I've got this document which shows that me and my 199 neighbors all agree, this is the boundary of my land. This is where I live. And I couldn't take that to a bank necessarily, but I could take it to a microcredit lender. So there's a, there's a, there's an immediate benefit from this community cadastre idea.

[00:56:24] **Ivan:** So, you know what, I'm actually, you know, I'm 52 years old now. I might have 15 more years or so that I can be usefully productive. And I'm kind of thinking if I can solve land tenure for the bottom 2 billion, that'll be a, that'll, that'll be a good one.

[00:56:39] **Elizabeth:** Say you've convinced people they want to help with this mission. How do they help?

[00:56:42] **Ivan:** I need money because I need, I need to hire developers to improve these tools. Like I said, I built this drone tasking manager that does this KMZ injection onto the drones that needs to be a proper mobile app. I need a mobile developer for like, months, a proper professional one, not just somebody's weekend.

[00:56:59] **Ivan:** And that doesn't even necessarily have to be for free. It might just be like at a cut rate because I'm not completely broken this endeavor. But I can't pay like a Silicon Valley wage.

[00:57:09] **Elizabeth:** Okay.

[00:57:10] **Ivan:** hardware development, software development. specifically I need Unity game engine developers or similar, somebody who can deal with like web delivery of 3D data assets so that we can like, improve our digitization tools, mobile app developers that can, that can help me create the free and open source alternative to these proprietary, flight control softwares.

[00:57:33] **Ivan:** I need people who can like program F PGA so that they can help me develop the camera module that's gonna go on the open source drone that we're gonna actually replace all these closed proprietary, not very well optimized for mapping drones with., I need operational people who can coordinate this thing.

[00:57:52] **Ivan:** Oh, and the other thing I normally do not have much interest in blockchains, but for those of you who notice that there's an interesting problem here with the community cadastre of like, how do you have a, a tamper-proof distributed ledger that's updateable of these, of this land tenure. I actually do believe that that is a pretty sensible application for somebody who's a blockchain engineer to take at least a conceptual look at.

[00:58:18] **Ivan:** I'm not super keen on the whole AI thing at the moment. But, segmentation of 3D data. Oh man, would I ever like to have and, and a serious AI engineer take a proper look at instead of like the segment, anything kind of thing dealing with like 2D photos; what about 3D meshes and point clouds? Could we start to train machine learning models to recognize things in 3D because, oh boy, would that ever be a jump forward in terms of our ability to classify assets in the world or, you know, the world outside of Manhattan and San Francisco and London.

[00:58:55] **Elizabeth:** Mm-hmm.

[00:58:57] **Elizabeth:** And if people wanna do any of this, where do they find you?

[00:59:01] **Ivan:** You could go to hotosm.org, so HOTosm.org and there are like volunteer opportunities and so forth. Humanitarian open street map team. Abbreviation HOT, it's the worst name in the world. But that'll get you to the sort of generic ones and the email might not be checked by me. If you specifically wanna work on what I'm talking about, it's I-V-A-N dot G-A-Y-T-O-N at H-O-T-O-S-M.org. Ivan.gayton@hotosm.org.

[00:59:28] **Elizabeth:** These are potentially paid opportunities, although not Silicon Valley wage opportunities

[00:59:33] **Ivan:** Yeah

[00:59:33] **Elizabeth:** Okay. Thank you so much for taking the time to talk to me today. I'd also like to thank, EA Infrastructure Fund and our ManiFund donors for making this possible. Ivan, it's so great to talk to you.

[00:59:48] **Ivan:** thank you. This is awesome.