

Appropriate Technology: The Haitian Energy Problem

<https://mindmatters.ai/podcast/ep208>

Robert J. Marks:

Greetings. Welcome to Mind Matters News. I'm your appropriate technical host, Robert J. Marks. Not all countries need the latest technologies. Those in third world countries don't need high powered computers or the latest car from Tesla. They have more fundamental concerns like, how do I feed my family tomorrow? Where do I get clean water? And where can I get energy? Where can I get power? These needs typically do not involve the latest edge cutting technology. This effort of supplying needed technology is referred to as appropriate technology. It's technology needed by the poor and the marginalized. Appropriate technology is what today's guests do. They are with an organization called Just Energy. It's a small nonprofit that works in northern Haiti doing solar energy systems for hospitals and clinics and schools and orphanages. Some really important work. I'm a big fan of just Energy.

Robert J. Marks:

This podcast is associated with the Walter Bradley Center for Natural and Artificial Intelligence. The Bradley Center has financially supported the work of Brian in Haiti previously, and I tell you, this is a hard case to make for me. I'm not a big fan of most charities and rarely make contributions to them because many are actually bloated. An example is salary of some of the CEOs. United Way makes \$1.5 million annually, a guy named Brian Gallagher. That's pretty good for United Way. And when you contribute to United Way, you're contributing to his \$1.5 million salary. I like charities that really are charities and their heart is in it. An example is Just Energy. Another one is the Salvation Army, by the way, which is a Christian-based organization where their CEO makes a good penny and they make a little over 200,000 a year. But still, compared to the order of magnitude salary increase of some of these other larger charities, that's not very much. I can vouch that no one had Just Energy is getting rich.

Robert J. Marks:

They do things out of love and compassion on a shoestring budget. And among other things, they have volunteer engineering students travel to third world countries like Haiti to assist in the development of appropriate technology, and they don't pay for the travel. The students typically raise their own support. I'm an engineer. Those at Just Energy are engineers. Engineers are said to love things that don't love back. The people that Just Energy are engineers that do love back through applying appropriate technology to poor countries. Representing Just Energy today is Kayla Garrett and Brian Thomas.

Robert J. Marks:

Brian is an electrical engineer and Kayla is an environmental engineer. Kayla, Brian, welcome to the podcast.

Brian Thomas:

Thank you very much.

Kayla Garrett:

Yeah, glad to be here. Thank you.

Robert J. Marks:

Great. Your work has focused primarily on Haiti. In the United States, we hear about the Ukraine, we hear about Russia, we hear about China. We don't hear much about Haiti. Tell us more about Haiti and some of the work that you do there.

Kayla Garrett:

Yeah, so Haiti, in the areas that we work around Cap-Haitien, it's really only an hour long flight from Florida. So it's kind of shocking that we don't hear more about the ongoings in this country. So our nonprofit, as you said, is we're fairly small, but we work in northern regions of Haiti doing solar energy installations at civil work societies like hospitals, clinics, schools, orphanages. And this is done in a place where people, on average, are living on less than a dollar a day in many cases. And Haiti is the poorest country in the Western hemisphere. So this work is crucial to the livelihood and flourishing of many people. Our team in the US, as you said, we're all volunteers. We all have our own day jobs and gigs that we're doing, but we also partner with a team of Haitians in country on the ground that are part-time employees that do a large part of the heavy lifting in these operations. And together with that team is where we're designing, installing, and maintaining these solar energy systems with our main mission being to create jobs and increase energy access.

Robert J. Marks:

That's great. Brian, you turned me onto a documentary about how many charities hurt the countries that they're trying to help. Do you remember the name of that?

Brian Thomas:

I think that was Poverty, Inc.

Robert J. Marks:

Poverty, Inc. And it was astonishing. A lot of organizations go into these third world countries and they hope to help, but they actually end up hurting the countries. I found that documentary very, very astonishing.

Brian Thomas:

We find it very sobering.

Robert J. Marks:

Very sobering. Yeah, it's very sad.

Brian Thomas:

We don't want to end up in somebody else's documentary about how to do it wrong.

Robert J. Marks:

You want to stay out of the documentaries. I can see that. But one of the things that you do is you work together with the Haitians. You don't go in with this air of superiority. You work with them and some of the businesses that you start and some of the enterprises that you start, you turn over to the nationals.

One of the things that I remember talking to you about is work you did in Haiti. Now, this was a while back where you went around to individuals and set up solar panels so that people could come and recharge their cell phones and you turned that over to the nationals.

Brian Thomas:

That's right. We wanted to create little family businesses. And so yes, that little cell phone charging business is based on a single solar panel. And you're right, we want to work ourselves out of a job. We don't want to be in the business of making sure things stay up and running or replacing parts when they need to be replaced. One of the things we've done more recently with larger systems is, we do recognize that they're going to need maintenance. And so what we've done is established a team of Haitians to provide that maintenance and they get jobs out of that. So again, we are trying to get ourselves out of the work by enabling and empowering the Haitians to take care of each other.

Robert J. Marks:

That's wonderful. So you talked about energy. Where do the Haitians currently get their energies, electricity, for example?

Kayla Garrett:

Typically most of this electricity is from privately owned gasoline or diesel generators, which is distributed across private poles and wires. And typically, even under normal conditions, which are not happening right now, but under normal conditions, only about 20 to 40% of the population of Haiti has access to a major electricity grid. But of that group that has access, nobody has access 24/7. And so mostly it's privately owned household or business owned generators. But that's problematic in a lot of ways in that Haiti does not have any petroleum reserves of its own, that all has to be imported.

Robert J. Marks:

So let me get this right, they're individually owned and they are generating electricity. And do they make it available to their neighbors? Is that what you mean by a micro-grid?

Brian Thomas:

Well, sometimes they do. It kind of depends on the owner. There's, let's say a bank or a business, they'll run their own generator, they're not going to share. But if it's maybe an orphanage or a school, they'll have their own generator. And when they fire it up, maybe they have some outlets that are made available for public use. And so people can hear the generator roaring and so they come walking over to the orphanage or school or hospital and they plug in their cell phone to recharge it, or they plug in a rechargeable light that they can then take back home.

Robert J. Marks:

I see. You mentioned most of these are generators which are run by petroleum products. You shared with me the history of fuel shortages that occurred in Haiti. Could you walk through that? I found this very sobering.

Brian Thomas:

Yeah, there's a history of fuel shortages in Haiti. I've been there a few times when there's a fuel shortage. Let me tell you what it looks like to buy gasoline or diesel in Haiti. There are gas stations just

like we have gas stations, but they're subsidized. And so the price of gasoline is kind of locked. And it turns out, at least in today's conversion rates, it's about \$2.15 cents a gallon, which sounds like a pretty good deal. The government subsidizes that price for the poor people to be able to afford it. But the lines get pretty long and sometimes they run out altogether. When they're long lines, sometimes people have to wait all day long in order to fill up their car or their taxi, or even just a couple of plastic jugs that they use for storing gasoline. In fact, a lot of individuals, they buy cooking oil in these one gallon jugs and after the cooking oil has been used, they use that plastic jug to store gasoline in their homes, which is a bit of a fire hazard. I can tell you stories about that.

Brian Thomas:

But there's even violence, the closer you get in get to the pumps in these long lines, the more people want to cut in line and push ahead. And people, they turn out, they get in fights and it's ugly. But really even more pressing than that is they run out, these subsidized gas stations run out of fuel, and then the gasoline has to be sold on the black market by what we call street sellers, what they call street sellers. It is definitely illegal and there are definitely people profiting off of it. So some individuals are buying large quantities of gasoline either from the subsidized gas stations or they're going over into the Dominican Republic and getting it, or it's being captured by gangs. And then fuel is then resold a gallon at a time by these street sellers. And the street sellers, you'll see them on the corner, you can ride your motorcycle up there and you don't even have to get off the motorcycle, they'll just pour right in the tank for you and you pay them in cash.

Brian Thomas:

Now, the police will chase them off if they see them, but they'll always come back because the retail gas stations, the retail filling stations, they run out. And so what are we going to do? We don't have any. So sometimes during these shortages, the price gets really high. The longer the retail gas stations have been out, the higher the price gets. Recently, we saw prices as high as \$25 a gallon.

Robert J. Marks:

\$25? Wow. That's worse than United States.

Brian Thomas:

If you think about that too, in the fact that these people make a lot less money.

Robert J. Marks:

Have to work a month. At a dollar a day, you have to work a month for a gallon of gas, roughly.

Brian Thomas:

Yeah.

Kayla Garrett:

On top of trying to supply every other basic needs of your family.

Robert J. Marks:

Yes, oh my goodness. That's rough.

Brian Thomas:

So one of the results of this sort of thing that the businesses shut down, the banks shut down, they don't have any electricity. And even scarier, the hospitals shut down. In fact, this happened last fall, fall of 2021. And there's another one going on in fall of 2022, and there's a good friend of ours, in fact he's the general manager of our operations there. His wife was expecting a baby and she had a bit of a rough pregnancy and they had decided that she needed to have a C-section. They had the C-section scheduled, but what they didn't schedule was the fuel shortage. The fuel shortage came and the hospital ran out of gasoline, ran out of diesel, and they had no electricity. So when they went for their checkup, maybe about a month before the C-section, they were told that they were going to need to bring their own gasoline to run the generators in the operating room.

Robert J. Marks:

You're kidding? So not only do you have to rush your wife to the hospital, you got to bring your own gasoline.

Brian Thomas:

That's right. Bring your own gasoline, if you can get it.

Kayla Garrett:

And store it in your house with your pregnant wife.

Robert J. Marks:

That's terrible.

Brian Thomas:

Exactly. Okay, so let's stop and think. What does that do? If gasoline is 20, \$25 a gallon? Well, and even if it's not, even it's \$10 a gallon and you make very little money or you don't have a job at all. Then gasoline is, what is that? It's like cash, you can sell that. You can turn around and sell that. So gas gasoline is like money.

Robert J. Marks:

Gotcha.

Brian Thomas:

So what happened in December, 2021 is that a tanker truck was coming in to fill up some of the gas stations there. This is after the gas shortage that I mentioned in the fall. It had ended by that time. This gas truck, the gasoline tanker truck overturned, and it was laying on its side and it was leaking gasoline. And people were so desperate that they ran out with every little container they could find. This was in a neighborhood, by the way, not an industrial area. And they started scooping up to all the gasoline they could. It was spilling into the ditches. People were scooping it up because it's free money.

Robert J. Marks:

They had to have a lot of mud and dirt in the gasoline they scooped up, probably.

Brian Thomas:

Yeah.

Robert J. Marks:

Wouldn't be pretty high quality, would it?

Brian Thomas:

No, I'm sure it wasn't very high quality. But I guess more importantly, after a while, the puddle of gasoline spread to a trash fire that had been smoldering off on the edges. And then the whole thing blew up and over 90 people were killed, burned to death. It was really quite horrific. I was there at the time. We were working in a hospital on a solar project, and I heard the news and in fact a lot of the burn victims were taken to the hospital where we were working and they were bringing people out in body bags as we were there. It was traumatic. There's a saying in Haitian Creole, it's a greeting and it goes like this. One person says, "Sak pase" and the other person says, "N'ap boule" Yeah, "N'ap boule". And the question is, "What's happening?" Or kind of like que pasa in Spanish, "What's happening?"

Brian Thomas:

And the answer is "N'ap boule" means, we're burning or we're blazing or we're burning up. And there's sort of an ironic sarcasm in that. It means in one hand, "Hey, I'm all right. I'm doing okay. I'm making it. I'm making it by. Yeah, I'm getting by." On the other hand, there's also a recognition of how hard life is in Haiti and it's saying, basically, we're on fire, but we're doing ... Anyway. So in that day it was literal and it really affected me. It really kind of broke my heart.

Robert J. Marks:

So one of the things that you are doing is you're installing solar panels. We'll talk more about this in a little bit, but are you making a little glitch in the use of fossil fuels to power these generators?

Brian Thomas:

I think we are. And we're reducing the usage, and we're sometimes making electricity available when it otherwise would not be, when there otherwise would be no electricity. Zero. Just because at \$25 a gallon, you just can't afford to turn on the generator.

Kayla Garrett:

And the state owned grid is not accessible or operational.

Brian Thomas:

Yeah, that's a good point. Kayla. In the United States, we get our power from the grid and it comes from some magical place off on the horizon. But there is no functional grid in Haiti, or if it is, as Kayla mentioned earlier, maybe 20% of the people, and that's largely in the capital city of Port-au-Prince, have access to power. Nobody gets it 24/7 and places out like the suburbs of Cap-Haitien, there is no grid. There is no grid.

Robert J. Marks:

Wow. Okay. So the fall of 2021 is when you had to take your own gasoline to the hospital in order to deliver a baby. There was also a fuel shortage in the fall of 2022, just recently. What was going on there?

Brian Thomas:

That's right. In fact, that's going on right now. And what's going on is that there are some heavily armed gangs and there's one particular gang led by a fellow who goes with a nickname Barbecue. And he has taken control of the two ports where fuel is imported into Port-au-Prince, the capital city.

Robert J. Marks:

So crime is, wow, that means there's lots of crime there.

Brian Thomas:

He's essentially kidnapped the fuel. He's holding it hostage. He's not allowing it to flow out into the rest of the country.

Robert J. Marks:

Doesn't the government push back on this at all?

Kayla Garrett:

There would probably be, if there was much of a government standing at the moment. Last summer, the president of Haiti was assassinated and currently the previous prime minister is the acting president. And there's very little political stability in an already tumultuous situation.

Robert J. Marks:

Wow.

Brian Thomas:

Yeah. In fact, just yesterday, Bob, the Prime Minister asked the international community for armed intervention, armed help. He invited them in.

Robert J. Marks:

Who did they ask? Did they ask the United States or somebody else?

Brian Thomas:

I'm not sure. The newspaper story I read just said he invited the international community. I think it was maybe a global announcement, but presumably it would be the United Nations or the Organization of American States, perhaps the United States. I don't know. I can't see that happening, but-

Robert J. Marks:

Well, we certainly send a lot of money to Ukraine for military reasons. It seems that we could help out in Haiti also. Unfortunately, anytime the United States gives money, it arrives in leaky buckets and it doesn't get to where it's supposed to go many times.

Brian Thomas:

If there's not an infrastructure to receive it properly either, it's scary because then it just goes to empower the people who are causing the trouble. Another complicator too is cholera. They have, in the last week, has outbreaks of cholera.

Kayla Garrett:

Which hasn't happened in years.

Brian Thomas:

It hasn't because they've had clean water, but because of the lack of fuel, they can't operate water purification facilities and cholera is a waterborne disease and so it's starting to spread. And now, add that to the fact that the hospitals don't have electricity to treat those people and we're looking at a pending humanitarian crisis, in my opinion.

Robert J. Marks:

Oh my goodness. So what are the hospitals doing? Are they still trying to operate without power? Are they closing down? What are they doing?

Brian Thomas:

Some of them are trying to operate. Some of them are operating on limited hours. Some of them have solar energy systems that we've put in, and they're actually able to do-

Robert J. Marks:

To do it.

Brian Thomas:

They're actually operational. Just this week we received a message from one of the clinics that we had worked on last year and got this new solar system put in for them. This is from, I'd say a medium-sized clinic that out. And this is outside the city of Cap-Haitien, just a little town outside of it. And the doctor says, in his note, he says, "This is to tell you how the solar system really helped at this difficult time. While the other medical centers are obliged to close or work limited hours, we are able to function as we used to saving people with asthma and those in need of oxygen by using electric oxygen concentrators. Our clinic performed 41 C-sections last month, partly because no one could get to Cap-Haitien." Yeah, there's no fuel for transportation, so they couldn't get into the cities. He says, "None of this would be possible without the solar system."

Robert J. Marks:

Boy, that's wonderful. That must give you a warm feeling that you were a part of supplying that.

Brian Thomas:

Yeah, it's rewarding to be part of that.

Robert J. Marks:

Congratulations. That's really a blessing that you've given them. So let's ask right now, where are you at? What do you need? Just Energy is a nonprofit organization, but most of your people, as Kayla said, are volunteers and you need money to hit the ground and to do things. So tell me, what are your needs right now?

Kayla Garrett:

Well, right now I'd say that our biggest need is donations. Money for propane generators to send in an instance of relief for just providing electricity right now in a form that can be used.

Robert J. Marks:

Just to give an example, how much would a propane generator cost? I'm sure they change depending how big it is, but kind of a ballpark.

Brian Thomas:

Surely. Yeah, we're looking at a smaller one. We think about a \$3,000 cost buys the generator, converts it from running on gasoline to be able to run on propane, and then helps with the transportation costs of getting it there. We're partnering with another NGO called Archangel Airborne, which is kind of private plane is going to be taking in some things for us and for some other groups.

Robert J. Marks:

Now, tell us how to financially contribute to Just Energy. And if you can't contribute specifically besides prayers, what can you do?

Kayla Garrett:

Yeah, so we do have a website, justiceandmercy.energy, and that's where you can find more information about the work that we're doing as well as make a secure donation through PayPal. Those donations can go towards paying for these propane generators, or in many instances, it pays the paychecks of our guys in Haiti doing maintenance and installations of all these projects and keeping the systems up and running that we can give them equitable pay for the service that they're doing. So justiceandmercy.energy is a great place to do that.

Robert J. Marks:

justiceandmercy, and all three words are spelled out without spaces. justiceandmercy.energy, not.com, but.energy. That's kind of cool. And is there a way that if somebody wants to mail you a check, I'm not a big user of PayPal, I'm a Venmo guy, or I like to send checks through my bank. Is there a way that you can send an address where you can send the send checks?

Brian Thomas:

A good address would be 1 Bear Place, Number One Bear Place, like the animal, and then that's PO Box 60003.

Robert J. Marks:

Okay. And that sounds like Waco, right?

Brian Thomas:

Yes. That's Waco, Texas 76798.

Robert J. Marks:

So let me repeat it. Number One Bear Place, Post Office Box 60003 in Waco, Texas 76798. What was the last two digits?

Brian Thomas:

98.

Robert J. Marks:

98. If you didn't get that and you're listening and you're interested, we'll put this in the podcast notes. So that is really great. Guys, what you're doing is incredible. And you're doing it on a shoestring, you're doing out of love and I don't know, you're astonishing. So God bless you for the work you're doing.

Brian Thomas:

Oh, thank you. Hey, Bob. We do have a Venmo too.

Robert J. Marks:

You do have a Venmo? Okay.

Brian Thomas:

Yeah, I'm trying to remember what the address is. It's the Creole word for Just Energy.

Robert J. Marks:

It's the what word for Just Energy?

Brian Thomas:

It's the Haitian Creole spelling of Just Energy. It's JizEneji: J-I-Z-E-N-E-J-I.

Robert J. Marks:

Okay, we'll put that in the podcast notes also. Brian, Kayla, thank you. You're an inspiration. We've been talking to Brian Thomas and Kayla Garrett from Just Energy about their current work in appropriate technology in Haiti. We're going to continue this dialogue because I want to learn a little bit more about what's going on there. But until then, be of good cheer.

Announcer:

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