



Interview with Martin Fisher (Kickstart International)

Ashley Hopkinson

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Ashley Hopkinson: Hello, if you can introduce yourself, describe the problem you are working to address, and how you're addressing it.

Martin Fisher: Great. I'm Martin Fisher, Co-Founder and CEO of KickStart International. The real problem we're trying to address is that the poor in Africa don't make enough money, and that's why they're poor. We reckon if you're poor, your number one need is really only one thing, and that is a way to make a lot more money. The truth is, everybody makes enough money to survive. Because they live in a cash economy, they need some money, otherwise, they literally wouldn't survive. They just don't make enough to get out of poverty. That's the problem we were trying to solve. How do we enable millions of people to make a lot more money?

Ashley Hopkinson: How have you found you've been able to address it? If you can break down KickStart International, the philosophy, what do you do on the ground to be able to help address those issues with poverty?

Martin Fisher: The reality, like I said, is everybody makes a small amount of money, otherwise, they wouldn't survive at all. They just don't make enough to get out of poverty. If you look at the reason for that, of course, is if we want to make money, we get a job. In Sub-Saharan Africa, there's very, very few formal jobs. In Kenya, about 6% of the labor force has a job in the private sector. In other countries, it's much less. Even in India, where we think the private sector is doing really well, it's only 10% who have a job in the private sector. Everybody else is really informally employed, so somehow self-employed.

The vast majority of the informal sector are people doing petty trades, sitting on the side of the road, buying and selling the same products, competing with each other. That's about 80%. Then you have about 10 other business models, metalwork, carpentry, tailoring, food preparation, hairdressing. It's about 10 other things that 99% of the people together are doing. They're all competing with each other, all making small margins, surviving, but not getting out of poverty. When we looked at that, we said, "Well, what's the problem?" The problem is they're all doing the



same thing. They're all in the same business, they're all competing. Of course, it's hard enough for you and I to come up with a new business idea. It's not an easy thing.

Even if we could come up with a business idea, or even if they could come up with a business idea, and some of them could, they couldn't access the tools and equipment required to make that business viable. Throughout history, it's always been some kind of technology, tools or equipment which have been a different business, because it enables you to make brand new, lower cost, and better quality products and services. We said, "Let's solve those two problems. Let's identify businesses that millions of people could start with a very small investment that would be very profitable, design the tools and equipment they need for those businesses, have them mass-produced, and put them on the local market and say, 'Okay, instead of doing petty trade, or instead of doing hairdressing, you could start this business. Go out and buy this set of tools and equipment, almost like a business in a machine, and start this business instead.'"

That's what we set out to do, and it's a nice idea, but the question is, what kind of business can millions of people start? We said, "Well, the first question with any business is who are your customers?" Now, if you're living in Africa and you're poor, you don't know any farmers, and you know very few wealthy people. Your customers are other people like yourself, people who don't have a lot of money. We say, "Well, what do those people buy? What do they spend money on?" They spend money on, obviously food and shelter, really, the basics, clothing, education, healthcare when they have to. There's a list of about 10 things that they spend their money on. You better be selling them one of those 10 things or you don't have a business.

At the same time, we know the poor everywhere in the world pay a very high price for the worst quality goods and services. They, for example, will buy cooking oil literally by the tablespoon because it's the most they can afford. That's all they can afford. It's the most expensive cooking oil in the world, but that's what they buy. They buy water by the jerry can. Per unit it's the most expensive, and it's probably dirty too. You'll buy electricity by the dry cell battery, which is the most expensive in the world, per unit of energy, but that's what they pay. We figured those markets shouldn't be too hard to disrupt.

We actually started with building materials. We said, "Look, everybody's got to build a house eventually. People usually build their own houses in Africa. Obviously, they get help from builders, but they have their own place, and they build a house to live in. They can either use sticks and mud, which is basically free, or they could use concrete blocks or fire brick, which is pretty expensive. There was nothing in between.

The first thing we did was design a machine for making very strong building blocks from soil with just a little bit of cement at a very high compaction, so much cheaper than a concrete block, and



much better than sticks and mud. Then we set up a small business in Nairobi manufacturing those machines. Today, they've sold tens of thousands of machines. Probably about a million houses have been built using that block press over the years.

We said, "Great, that's one business. What other business could people start?" This issue of cooking oil, well, like I say, people pay a very high price for cooking oil. If you're a farmer, and you're growing sunflower seed, you can't process it. It's really hard. You can't get oil out of it. You have to sell it to a middleman who takes it to the city, who sells it to the factory, who processes it, who brands it, who comes back to another middleman who sells it to you by the tablespoon. There's a lot of money to be made in that supply chain, and the farmer is not getting any of it. We said, "Okay, if we have a machine for making cooking oil from sunflower seeds, someone can make a lot of money." We designed a machine for making cooking oil from sunflower seeds. Again, we set that into the local private sector. We trained local manufacturers, and they sold thousands of those machines to individuals that started very profitable businesses.

We said, "Great. What other business?" Then we looked at animal feed. If you're a farmer, and you have a small plot of land, and you want to keep a cow, because a cow is good for milk, of course, you want to keep a cow, but you can't let it graze. It'll eat all your crops. You have to keep it in a pen. If you keep it in a pen, in the rainy season, it's okay. You can sort of plant some napier grass between your crops and you can feed it. In the dry season, you can't. You have to buy hay and transport hay to feed it. Bale hay has to be baled, otherwise it rots, it's very expensive. It's only a few big ranches that were baling hay with big machines. We designed a machine for baling hay. All these machines are manually operated machines. A bale of hay on the side of the road was selling for between two and \$5 in the dry season. We designed that machine where you can make 80 bales a day with three people, three operators. Again, we put that into the local manufacturer, and they sold many hundreds of those machines. We said, "Great."

We can create tens of thousands of businesses for tens of thousands of people, but what business could millions of Africans start? 80% of the poor are smallholder farmers, scraping out an existence in these little plots of land. We said, "Okay, what business can they start to make a lot more money?" It turns out, the best thing for millions of them to do is to move from rain fed farming, where they all wait for the rain, they all plant at the same time, all harvest at the same time, sold into a crowded market, get very low prices, and a lot of the crops rot in the field before it's eaten or sold. Then a few months later, there's no food. Move away from rain fed farming to irrigated farming, because with irrigation, you bring out crops throughout the year, independent of the rain, and especially in that long dry season between the rain fed harvest, which they call the hungry season, because with no food, prices are very high. If you could irrigate, you can grow crops there, and you can make a lot of money, especially high value crops like fruits and vegetables. It turns out, there's virtually no irrigation in Sub-Saharan Africa.



The rest of the world is pretty irrigated, like across Asia, 40% of farmlands are irrigated. In India, over 50%. In Sub-Saharan Africa, it's 4%, only 4% of farmland is irrigated. Most of that is actually in South Africa, and Madagascar, and a bit in Sudan. Most countries where we work, only 2% to 3% of farmland is irrigated. There's literally no food in between the rains that harvest. The opportunity is absolutely huge.

Africa is a continent with a huge amount of renewable surfacing groundwater. Something like 20% of all farmers can actually access, and they have right on their farm, renewable surface groundwater, which means within about seven or eight meters deep, if they dig a shallow well, they can get water, or they actually have surface water on their farm. A huge opportunity, but at the same time, no available technology. Petrol pumps are very expensive. It's hard to get petrol. They flood, they have to store that petrol in your house. They put out too much water, and there's no electricity in the rural areas. We designed human powered irrigation pumps that a farmer could take and pull water from a shallow well up to seven or eight meters deep, push it through a hose pipe, like a garden hose pipe, and water with a nozzle or power sprinkler, or even push it up a hill. These are human powered pumps that look like little pumps, like a little take home stair master machine. Literally, you walk back and forth, step back and forth, and you pull water out of the shallow well, and push it through a hose pipe, and one person can be spraying it on the crops. The whole machine is very lightweight. It weighs less than a jerry can of water, so you can take it to the field, and it doesn't take any tools to install it or maintain it. You can take it apart with your hands and put it back together.

We designed those, and then we installed them in the private sector, meaning that we have it mass-produced. We started with mass-producing it in Kenya in a local factory that is trained to do high quality mass production. Then we actually also did that in Tanzania, and then sold through local retail shops. It has to be locally available, and so the pumps and the spare parts are locally available in the retail shops. We did that, and we started in Kenya, then we went to Tanzania, then we went to West Africa, Mali, and then down to Burkina Faso, then down to Zambia. We really introduced those pumps in about 2000. We started KickStart in 1991, but we introduced these pumps in 2000. This is something that could have an absolutely huge impact, because millions, literally millions, of smallholder farmers could irrigate.

Ashley Hopkinson: What would you say makes the approach to the work that you're doing distinctive?

Martin Fisher: The most important thing is we say that poor people can create their own businesses. What they need is that tool. If you can make that tool locally available, absolutely, and make people aware of it, then there's a lot of training that has to happen too, because people have never irrigated. There's a huge behavior change to go from rain fed farming. You wait for the rain,



and then you plant, and you wait for the harvest. For irrigation, you get up every day, you irrigate, you cultivate, you harvest. It's very different.

Saying, "Yes, we're going to sell those tools, and each of those tools is going to create a business." An entrepreneur is going to buy that tool and create a profitable farm. That was pretty unique, and still is pretty unique, in terms of people who are selling tools. Other people might sell solar lanterns, right? Each person who gets it, it's a tool they use in the house, but it doesn't make money for them. Selling MoneyMaker tools, that, in fact, is our product name, the brand name for all our products is the MoneyMaker.

These are MoneyMaker pumps because people want to make money, that's their most important need is to make more money. It's MoneyMaker pumps, MoneyMaker block press. Now, today, we only do the irrigation because the potential is so huge. Those other tools, the block press and things are still being sold, but we only promote irrigation. I think that's what makes us unique. At the same time, understanding that there is this massive market failure. You can't just put a new tool out there and expect people to buy it and use it. There's a huge amount of education that has to happen. Farmers are extremely risk averse, poor farmers, and they have to be, because if they invest in a tool and it doesn't work, they're going to go hungry. They won't feed their kids, they won't send their kids to school. They don't have a lot of money to waste to invest. They're very risk averse. There's a lot of education that has to happen there. We started manufacturing these tools in private safety companies in Kenya.

That's the other thing that's very unique about us is we believe very much in the local private sector, and so local private sector importers, distributors, retail shops, as opposed to setting up a parallel system, which so many social entrepreneurs do, where we are kind of competing with the local private sector, we actually believe the local private sector is what has to be supported, as opposed to competed with. That makes us, I think, quite different from most of the other social entrepreneurs you'll talk to also. It's not easy, because these private sector players that, yes, they're entrepreneurial, yes, they are hardworking, but they still need a lot of help and education. Then, like I said, the behavior change with the farmers, initially what we did is we hired literally hundreds of local agents who would go out and meet farmers, and train them about irrigation, and literally door to door, farm to farm, convincing them that they should irrigate, and they should go down to the shop and spend a lot of money to buy this new tool.

Now, when I say a lot of money, they're pretty cheap. Our best-selling pump right now is about \$180, including all the hose pipes and the spare parts. On average, these farmers are making \$700 profit in their first year, which is a transformational amount of money, and they make it throughout the year, instead just making it as if they had a cash crop, just making it once or twice



a year when it rains. Now, it's spread throughout the year, especially in that dry season when they need the money.

Therefore, they can invest this and make other investments as well. It's a transformational amount of money, and the cashflow is transformational too for them. So we put it in the private sector, and we sort of had these hundreds of staff out there going farm to farm, convincing farmers to irrigate, and they did. We sold pumps in Kenya. We sold pumps in Tanzania that way. Then we went to Mali, and Burkina Faso, and then down to Zambia. By 2015, 2016, we did a lot of impact monitoring. We'd sold about 275,000 pumps by that time, and we could demonstrate that a million people had literally used those pumps to climb out of poverty. One example, I've literally met kids in the subway in New York City who saw the branded t-shirt and they said, "My mom bought one of those pumps. She paid for my primary school, she paid for my secondary. Now I'm here at NYU." That's the kind of change.

Ashley Hopkinson: Can you share an example that illustrates the impact of your work. Does anything else come to mind? I love that New York example.

Martin Fisher: Yeah, we have so many stories. We have a guy who bought one of our previous pumps which pumped like a bicycle pump but was too hard, so we changed the ergonomics of it to make it so much easier to do. We introduced this hip pump, which was about then retailing at about \$120. Just recently, we've launched a new pump, which is literally retailing at under \$80, including all the hose pipes, and including a spray nozzle, and everything else. In Kenya, it's actually under \$75 for this pump. We continually make the pumps cheaper and cheaper.

I'm telling you the stories about some exceptional entrepreneurs, but this particular guy got the first model of that hip pump, the first prototype six years ago. Outside Nairobi, he had been working in a coffee factory, and he was making about \$50 a month in the coffee factory, and he just couldn't support his family. He quit his job, and he and his wife rented a little plot of land next to a little stream, about a quarter of an acre they rented. They started irrigating it with buckets. That's when we met him, and we wanted someone to test this first prototype of this pump. We actually gave him the pump. Immediately, this guy, he rented two acres of land along the river. He employed four people. He was pumping literally 12 hours a day in the light, starting to make a lot of money. I went back to visit him recently, and not only had he, he was irrigating there, and he had upgraded to one of our solar pumps as well. He had a solar pump that he could use on sunny days, and then on cloudy days, he could use the manual pump, because solar pumps didn't work on cloudy days. I asked him, "What have you done?" He said, "Well," and he's a transformed individual. When we first met him, he was so shy, he wouldn't even look at you. Now, he's the boss.



He said, "Well, I'm doing all right. I built a big house in my home place," because in Kenya, people always come from their home place, which is their tribal place. They have a plot of land. He said, "I built a big house there. Both my kids now are in college, good colleges. My wife started a shop." Then I said, "What else?" He said, "Well, I've saved a bit of money." I said, "Well, how much money have you saved?" He said, "I've saved 50,000 US dollars. I'm buying a plot of land in Nairobi." Like, oh, my God. In six years. I don't know if you could save 50,000 in six years, but...

Ashley Hopkinson: That's amazing. That's the problem that you're trying to solve, right?

Martin Fisher: Yeah, people make money.

Ashley Hopkinson: To get above the poverty line, but you are able to make a generational shift.

Martin Fisher: Exactly, a generational shift so they can educate their kids. When we think about families getting out of poverty, what we think about is they're no longer worried about paying for their kids to go to school, where the school fees are coming from. They're no longer worried about feeding their family, clothing their family, and covering small medical expenses. They're no longer worried about day-to-day life. On top of that, they have some money to invest in the future. Now, what they do with that, they start other businesses. They send their kids to college, they build their house. Obviously, that's their choice, but many of them diversify their business. They'll buy a cow, a dairy cow, start a dairy business, buy some poultry, as well as having irrigation. Overall, they're getting four times their farm income on average, and then many of them are making much, much more.

Very large impacts as a result. It's not only that, but once you're making money, then all sorts of other good things happen. It turns out that you have less reason to fight with your spouse. Marital violence has gone down. It turns out that your kids no longer go through the hungry season and are stunted, so huge reductions in stunting. These are proved with RCTs, randomized control trials. It turns out that the teenage girls in your family don't have to sell their bodies anymore to survive, so there's much reduced risky teenage sex behavior, and all sorts of other things that you would expect when families are now making more money. Of course, food security throughout the year, and those things.

Ashley Hopkinson: What insights or lessons from this work have you gleaned that you feel like you could share with someone else? What advice would you give to someone who wants to replicate what you did, or what did you learn?

Martin Fisher: There are many lessons, but let me just tell you what happened when we reached a million people in 2016. Our data showed it was a million people who've taken a major step out of poverty. Not everybody, not every family who gets a pump steps out of poverty. Some are wealthy



people already. They don't step out of poverty. Other people send it to a kid in the rural area or their parents, who don't use it. Others get a job instead, and they have other ways of making money. We are very confident that 75% of people who get a pump take a major step out of poverty. In fact, all that data shows it's more than 85 % to 90%, but we say 75% take a major step out of poverty. Then with five people per family, that's how we get to a million people who've taken a major step out of poverty, and with a lot of studies to show that. We reached that number in about 2016, and then we said, "Great, but it's taken us too long and it's been too slow."

This door to door sales, you have to get out to meet the farmer, you have to create a trusted relationship with that farmer. You have to come back many times. You have to demonstrate the pump on their farm, because they're risk averse. It's a big, big purchase for them. It's like you and me buying a yacht or something, which is huge. It took a long time, but it worked. Then meanwhile, one of our staff had said, "Well, let me get on a bus and go to Malawi, and try to sell pumps," and he'd come back, and he had managed to sell pumps to a nonprofit, and that nonprofit had bought a hundred pumps, and another nonprofit had bought 200 pumps. Then he found a distributor who had said, "I'll sell these things," and a distributor who had bought 500 pumps, without going door to door. It turns out, these other organizations have a trusted relationship already with all the thousands of farmers that they work with. Their sort of marginal cost for convincing to change their behavior was much smaller than ours.

Now, we had been very, very opposed to this concept, because my history before that, Nick, my co-founder and I had come out of ActionAid, which is a big international nonprofit similar to Save the Children. We had seen that giving things away, the way these nonprofits work generally, has very little impact. In fact, it often does more damage than good. You're competing with the private sector, you're putting it out of business, because you're giving things away. Farmers don't really appreciate what they're getting. We discounted those impacts that he was telling us about, this one staff member. On the other hand, one staff member was out there selling a lot of pumps. We decided, "Okay, well, let's do something differently. Let's study the impacts that they're having on those pumps that are going through these other organizations, compared to the pumps that are going through a retail shop where somebody actually buys them."

All of these organizations, the nonprofits that were buying pumps, had different models. Some of them were giving loans for pumps, like microfinance loans. Some were giving partial subsidies for a pump, some were giving them away completely to the poorest people. Some had families share a pump, all different models. We actually discovered that the impacts were virtually as good as if somebody went and bought a pump. These organizations still insisted that there was some skin in the game. We threw out our sacred cow, and this is what you've got to be willing to do is throw out some of the sacred cows. That was one of our sacred cows, that individuals had to go to the local shop and buy the pump. We threw that out. We said, "Okay, let's work with these other



organizations instead." We completely pivoted our whole model away from direct sales, which we'd done, but it was very expensive, now partnering with organizations in the field who already had a trusted relationship with hundreds or thousands of farmers where, like I said, their marginal cost for convincing them to change their behavior is much lower than ours.

To do that, we literally changed out our whole sales team, from having about 350 sales staff who were talking to farmers. We now had to come down to a place where today, we have about 30 sales staff, who are talking to country managers of Save the Children, and World Food Program (WFP), and Food and Agriculture Organization (FAO). We partner today with 350 partners who are using our pumps or piloting our pumps in their programs.

These are all the biggest international NGOs, the local NGOs, UN government agencies, FAO, WFP, all these people use our pumps, microfinance institutions and organizations, agribusinesses are using our pumps with their farmers, cooperatives, community-based organizations. We said, "Let's partner with as many as we can, and just get as many pumps out there as we can." We really threw out those sacred cows of having to sell it. The one we didn't throw out was that we still need a private sector supply chain.

We're still selling our pumps, so they are locally available in a shop. We said that the most sustainable thing is the local private sector. The other sacred cow we threw out is we always believed you had to have, preferably, local manufacturing. I am a mechanical engineer. I literally spent 15 years of my life proving that we could manufacture locally in Africa, and train these manufacturers to produce high quality goods and products, these irrigation pumps. They hadn't done any mass production before. The raw materials we were buying, the steel sections, just an example, if you have a steel section that's normally two inches by one inch, there's a hollow section. In Kenya, it would be plus or minus 15% in each direction, usually minus. Trying to do mass production from core quality material was difficult, but we figured out how to do that. We figured out we could do very good mass production in Kenya. We trained people to do it. Then when we started trying to expand into other countries, manufacturing in Kenya announced selling these pumps into other countries was virtually impossible, because internal transport across Sub-Saharan Africa is almost non-existent.

If you try to ship a pump from Kenya to Mozambique, it's not that far, but if you try to ship it from Mozambique, it's impossible. If you try to ship from Kenya to Nigeria, forget it. You're dreaming. We actually gave up on local manufacturing, and instead we went to China, and did mass production in China. We'd created a few hundred jobs in manufacturing, but it was just a few hundred jobs. We'd created one and a half million people getting out of poverty through the pumps. We said, "Okay, let's give up on [local manufacturing]." We threw out that sacred cow too and moved our manufacturing to China, because it's cheaper to ship from China to anywhere than



it is from Kenya. I think the lesson is to distill what's really most important to get impact, and you hold onto some of these sacred cows, but actually, a bunch of them, you can dismiss. That's one big lesson.

Another insight lesson is that behavior change is hard. Convincing people to change their behavior is not easy. Initially, we thought we could reach a tipping point, where after a few years of seeing these pumps, everyone would be telling their neighbor, and all their neighbors would just start pumping, and they're buying pumps. That doesn't work. To begin with, it turns out word of mouth is very, very slow in rural areas. You say, "Well, why would that be?" The reason is because of a wonderful thing, which is what they call "African socialism." If you get ahead, you sort of by default have to look after your extended family. This is a fantastic thing, but at the same time, it means that your second cousin once removed can come to you and say, "I desperately need school fees," or, "My mom is sick," and you feel you have to pay. If you get ahead, if you're making a lot of money, you don't go and tell all your neighbors and your friends, "Hey, I made a lot of money." Good news about making money from these pumps didn't really spread. We literally had people who were making money, and their neighbors decided they were communing with the devil, because this good for nothing guy, how is he sending his kids to school? How's he building a new house?

Word of mouth is much slower than you want, but even in America, if you think about behavior change, if you look at something like cell phones or personal computers, it took 15 years of marketing, with billions of dollars of marketing, for us to get to 15% penetration of usage before sales took off. 15 years of adoption of cell phones or personal computers. That wasn't a very big behavior change. Behavior change of any kind takes a long time. That's another thing that I think we learned is that we thought we could reach these tipping points. We actually tried in western Kenya, where we took a very small area, and we just dumped a huge amount of marketing into one area for about two years. Literally every corner, that was a demonstration of a pump. We had dozens of demonstrations every day, and we had music playing, and competitions, and all this stuff. We created a huge amount of awareness, something like 80% to 90% of the people knew about the pumps, and even knew what they were for. We got to the point where we had 11% of the farmers buying a pump. It was one in nine. If you put a three by three grid, you don't have to go far to find the next farmer. Still, getting that tenth farmer to buy a pump was hard on the next farmer, because it still hadn't reached that tipping point.

Ashley Hopkinson: Did you find in the lesson that the door-to-door work wasn't yielding the same results as these larger partnerships with people who already had the investment and the shortcut to the change?



Martin Fisher: Absolutely, in terms of cost-effectiveness it wasn't nearly as cost-effective, and was taking much longer. We made that pivot starting in 2016, 2017, and we thought it would take about a year and a half. It ended up taking three years, four years, and then we got hit with COVID, but we literally changed out every one of our staff, because it was a completely different sales mechanism.

Then we also expanded into 17 countries. We were operating in five countries, and we expanded to 17, but we needed a much lighter footprint, where we only needed one person in the country. Now, they're talking to the head of FAO, they're talking to the head of Save the Children. Then yes, they have to go demonstrate to their farmers and convince the farmers that they want this thing, because even FAO is not going to give out pumps to farmers unless they want it. It is much more cost-effective to do this. Again, throwing out that sacred cow, where we said we would never work with these big organizations because they don't know what they're doing, to a place where we said, "We want as many pumps out there as possible. We don't mind how they get to the farmers. Actually, the point is we want the impacts on the ground." Our pumps are being used in the north of Nigeria in the areas, for example, where there's a lot of violence going on up there.

Catholic Relief Services gives our pumps to very poor farmers who are fighting over land up there, so they can get ahead. They're even being used in Northern Mozambique where there's, again, a lot of violence, a huge number of internally displaced people who are now using our pumps to get back on their feet and grow vegetables. It's used in situations like that. It's used in places whereby private companies who have outgrowers who want to increase the income of their outgrowers, who are growing products they're buying.

For example, there's a company called Fair Oils that buys a lot of essential oil crops. That could be eucalyptus, it could be thyme, mint, specialized crops that they make essential oils for export, but they want those farmers to be producing the oil, seeds, and the oil crops year round. They need to irrigate. They're giving our pumps to their farmers, at the same time as allowing those farmers now to diversify their income, and grow fruits and vegetables in the dry season, and make more money. The private sector is using it.

Our pumps have been used all over for empowering women and girls. In fact, I did a survey not long ago, and we found half of the pumps in Southern Africa were specifically in projects empowering women and girls, because in Africa, collecting water has always been a woman's job. The household water, they're stuck with buying and collecting. Also, little kitchen gardens, where people are growing a few little vegetables, has always been sort of a woman's job, as has been selling vegetables.



It's interesting that when we brought these pumps into families, or when families adopted them, very often, when you bring in a new technology, it's always the man who takes control. With these pumps, because they were close enough to what the woman had been doing, with the vegetables and with the water, very many of these pumps are actually managed by a woman. Those that aren't managed by women, the vast majority of the others are managed by the couple. They work together and on the farm. That's why we're seeing things like marital violence depreciate. I've literally had a woman come to me and say, "I saw this pump, and my husband was a good for nothing drunk." Why are men good for nothing drunks? Well, because they're depressed. They need to look after their family. To look after their family, they need to make money, and there's no way to make money, so they get depressed. She said, "And I convinced my husband that we should get this together, and now we work on the farm together every day, and we reset our marriage vows."

Ashley Hopkinson: That's amazing. You're sharing all of these great threads. How do you measure success? How do you view the organization as making progress? What is a success metric for you?

Martin Fisher: Ultimately, our mission is for millions of people to climb out of poverty by making a lot more money. Ultimately, it's the people who manage to use this pump to make money, and as a result, have year-round income, and can step out of poverty. To me, that's the most important metric and the most important thing that has to happen across Sub-Saharan Africa. It's not only for the existing farmers, but Sub-Saharan Africa is growing very, very quickly. The population is going to double by 2050. By 2100, it's going to be 3 billion more people in Sub-Saharan Africa. The rest of the world will grow by a billion. Sub-Saharan Africa is going to grow by 3 billion, and those people need jobs. We need livelihoods, and they need real money, not what subsistence farmers make today, which is basically nothing. They need real money. Irrigation has a potential to create a lot of jobs for youth and across Sub-Saharan Africa, if we can irrigate Africa.

Our bigger mission is to irrigate Africa, and to irrigate Africa we're really looking at three things. We need a set of innovations. Yes, we need the right set of tools and equipment, but we also need innovations around financing pumps, around educating people, and reaching farmers, educating them, teaching them, as well as, better ways to grow crops and water in efficient ways.

The second thing we need is a proof point, where we need as many people to accept and adopt these innovations and use it. We're trying to do that with as many as we can by getting the pumps out there, in any and every way that we can, in any and every partnership that we can.

Then finally, of course, we need systems change. That system change is going to be around advocating for the right policies, to put the right policies in place to support smallholder irrigation,



and the right investments, the right funding, and the right subsidies. If you look at agriculture around the world, there's nowhere in the world that agriculture has taken off to be successful without very smart subsidies being in place, and subsidies by the government. To do that, we need to have the evidence, we need to have the example, and that's what we're building as the evidence base. We're building the example by getting to many farmers, that this thing really makes a difference.

Then the evidence base in terms of different types of studies, all the data I told you about, stunting, risky sexual behavior...We want governments to actually put in place these subsidies, and take off taxes on imported irrigation equipment, not just ours, but all irrigation equipment. We want the donors to put money in to support the governments to do this, and we want the governments to put irrigation into the curriculum at the schools. Right now, you study agriculture, you don't learn about irrigation. It's crazy. The extension workers don't know anything about irrigation. There's a lot of policy changes that also need to happen. We want to advocate for that. That comes about by really proving the example, proving what can work, and then building an evidence base. We're starting to see that. For example, in Rwanda, the government has a 50% subsidy on our pumps right now for a farmer.

Our newest pump, which we are just getting that subsidy for our newest pump, is going to be retailing at about \$35 or \$40 in Rwanda, which makes it extremely affordable. Then not only innovating on the technologies, but also innovating on new ways to reach and educate farmers. For example, with One Acre Fund, who is another entrepreneur you might know about, we're piloting a program that we've been thinking about for a long time and developing. We call it Rent to Try and Buy. What we found is that about 20% to 30% of the farmers with our pumps are already lending the pumps out to either a neighbor or relative. On average, actually, each of our pumps is really being used by about 1.4 or 1.5 families. Now, we haven't counted that in our impacts when I talk about one and a half million people. Actually, it's much, much higher, but they're being rented or lent out. We said, "Why don't we start a program where we have an irrigation agency person who actually owns five pumps?" Now, they go to farmers who want to try irrigation, but don't have the money to invest in a pump, and they can rent the pump for a day. This irrigation agent can train them how to make money with that pump. You don't irrigate every day, so maybe you only need the pump two times a week. They can train that farmer how to make money.

If they have five pumps, they can probably be renting pumps to 15 farmers, because each pump can go to three farmers. The agent now has a way to make money, and then if any of those farmers end up buying a pump, the agent will also get a commission from the seller of the pumps, and also get a commission on the inputs that those farmers are using. One thing about irrigation is you use a lot more inputs, because you have multiple crops per year. You're growing every day,



in fact, as opposed to once or twice with the rain fed harvest. We're just piloting this. We've just trained the first 35 agents, and as we learn about how it works, scale that up. There's a lot of innovation.

Ashley Hopkinson: What else do you think is needed from other actors in this space in terms of being able to move towards some systems change?

Martin Fisher: I think there's a lot of pushback and lack of understanding amongst the major stakeholders in this field. Even people who are agriculturalists. Time and again, we find agriculturalists talking about the impact of irrigation being about supplementary irrigation to increase the yields of the rain fed crops. If you're growing maize and it's a dry day, you want to put in a little bit more water so you can get a better yield. That's true, you can do that, but that's not the reason to irrigate in Africa. The reason to irrigate in Africa is to grow high value crops in the off season between the rain fed harvests. That's when you make the money. People haven't really understood that yet. It's very interesting, because now with climate change, people are getting upset that the rain fed crops are failing, because people plant and then the rain stops.

It turns out that irrigation is by far the best way to adapt to climate change or any other solution, because to begin with, you plant independent of the rain, you don't care about the rain, right, because you're irrigating. On top of that, if your rain fed crops are there and the rain stops, now, you can save that crop. You've already paid for your irrigation pump with your high value fruits and vegetables. You have it there. You can save your rain fed maize, which is low value, but it's a staple food.

Then if your crops get washed away in a flood, which is happening very often too, because climate change is actually not only about dry areas, but it's about more rain, you can replant immediately after the flood recedes. You can use the residual water to plant, and then you can use irrigation to keep those plants alive. All the aquifers, of course, are refilled with the floodwaters, as opposed to having to wait till the next rainy season before you plant again, which you would if you didn't have irrigation.

In terms of adaptation to climate change, there's really nothing better than irrigation to adapt to climate change. Irrigation is finally getting a little bit more following, and we're proving that that can happen to save those crops. We are trying to reeducate people about the reason for irrigation, which is off season production of high value crops when you make a lot of money.

The other thing that's happened in Sub-Saharan Africa is there's really been no investment from the donors in irrigation since the mid-eighties. The reason for that is, if you look at the Green Revolution in India, it was all about better seeds, better fertilizer, and irrigation. They put a huge amount of investment into irrigation. That's what enabled the Green Revolution.



When it comes to Africa, people started putting some money into irrigation in the seventies and the eighties. They failed and there was a huge amount of corruption. The World Bank and other people said, "Well, there's so much corruption here, we're not going to fund these anymore." They stopped all funding for irrigation. What they did in India, actually, was they put subsidies on petrol, and subsidies on rural electrification, basically, and subsidies on big petrol pumps. The opposite happened there as individuals bought these pumps, which are highly subsidized, and got virtually free petrol and free electricity, and they over irrigated. That's why irrigation in India went from about 8% to 35% in a 30-year period, and now over 50% of farmers are irrigating, because they have these massive subsidies. Well, it works, but now they're over irrigating, so they're pulling too much water out of the aquifers. The aquifers are getting deeper, and they're bringing in arsenic into the aquifers because they're using big pumps. They're going 24/7 and they flood.

That's the other thing that we're pushing back against is people saying, "No, irrigation is bad for the environment. We don't want Africa to be irrigated." We're like, "No, but there's no irrigation in Africa." We're not going to make those same mistakes in Africa. We need to leapfrog to high quality irrigation. We're not going to do flood irrigation. We're not going to subsidize petrol in that way, diesel with these big pumps. We're going to leapfrog to smart irrigation, which would be hose pipe with a nozzle, or sprinkler irrigation, or eventually drip irrigation, which is still very expensive and hard to use and has a lot of problems, but for wealthy farmers, it makes sense. We're not going to subsidize petrol pumps and flood irrigation. The other pushback is that irrigation is bad for the environment. We're trying to say, "No, it's not."

Then there's a bias against manually operated pumps. People say, "Oh, those manual operated pumps here, that's tedium, that's drudgery." That's like saying riding a bicycle is drudgery or tedium. It's not. It's a lot better than walking. Just like you don't go from walking to driving a car, first, you get a bicycle, and maybe you get a motorbike, and then you get a car. These human powered pumps are the next step up from irrigating with a bucket, which means you're literally carrying a bucket, you're putting it down the well, you're pulling it up with a rope, you're walking to your field, you're dumping it, and then you're going back. This is obviously much, much better than that with a pump, where you can sit there and put water continuously to the field. We get a lot of pushback about that, even today. There are many big donors who tell us, "We won't fund you because it's drudgery," including some of the biggest donors in the world who tell us that.

Then when we moved from direct action, when we had hundreds of staff dealing directly with farmers, to now working through partners, a lot of the donors ran away from us. They said, "No, we want you to do direct action. We want you to be there, holding the farmer's hands at all times." They didn't like the partnership. It's too indirect. We said, "Yeah, but it's a lot more cost-effective."



Ashley Hopkinson: Aside from funding, because I know everyone's funding is something that's always at the top of the line, what would you say are the challenges that you're facing? We talked about some. Are there any other challenges that you're currently facing or you have faced in trying to do this work?

Martin Fisher: I think the other thing that's happened in this with smallholder farmers is there seems to be sort of a tendency to not only handhold these farmers, but to almost spoon feed the farmers, where we have people saying, "You need to give the farmers training, credit, inputs, and access to market. You need to give them everything." It's like, "Well, actually, with the irrigation, they don't need everything. They need an opportunity. That's what we give them, an opportunity, which is an irrigation."

Of course, we train them to irrigate, we train them on what we call entrepreneurship, how to make money from irrigation. We do that, but they don't need all this other stuff. They don't need access to markets. That's not a problem. In the off season between the rain fed markets, the buyers come to the farm because there's no food. They line up and they bid up the price, they don't bid it down. Inputs, they have money. They can buy inputs. They don't actually need a lot of credits. Maybe they need a credit for the first pump, but if it's cheap enough, maybe not even. They can repay that credit literally in three or four months. The first harvest, they repay for the pump, and that's one of our design criteria.

Another slightly disturbing thing that's happened recently is individuals thinking we should dictate what farmers need to do. They should all do organic farming, they should all do regenerative farming, and that's nice, but that's because we didn't do it here, right? That's just to save the world from CO2. Yes, we want them to do smart farming. We want them to use minimum fertilizers. We want them to compost as much as they can, and if they can do regenerative, sure, but to dictate they all have to do organic farming and not use any fertilizer, not use any pesticides and herbicides, it's just condemning people to poverty.

Ashley Hopkinson: How do you feel like you've been able to manage the limitations or work with the challenges?

Martin Fisher: I think one of the wonderful things is what we're doing, and there's no silver bullets, but for smallholder farms, if they can irrigate, it really can be a silver bullet.

There's so many things that our pumps have been used for, and so many different impacts they have. Empowering women and girls, building resilience, adapting to climate change, promoting regenerative ag, food security, health, nutrition. We've really been able to work with multiple partners who have very different goals and objectives, but irrigation can come in and really help them to meet their objectives.



We're working with private sector companies. We're working with the big international NGOs. For example, our pumps have been used in Malawi and in Zambia by organizations that are trying to protect their animals and forestry. They work with communities to give them alternative livelihoods so they don't poach and so they don't cut down the trees. We work with partners who are doing that. We're working with African Fertilizer and Agribusiness partnership, which is promoting fertilizer across Africa. We are working with Care and Vision Fund, for example, in Zambia, where they have these Village Savings Loan Associations, where you have groups of women, usually 10 or 15, and they will put money into a box, and they take loans. Can we use that to have them finance pumps? We're doing a pilot on how they can finance pumps for that.

The Kenyan government and Nigerian government are giving out our pumps to youth groups and women's groups to create employment. I could go on forever, but that's one of the things that we've found with this partnership program, we're getting our pumps used.

Ashley Hopkinson: How do you see your work evolving in the next five years?

Martin Fisher: We need to get a huge number more pumps out there. We've got about almost 400,000 pumps out there. We've got one and a half million people who have taken a step out of poverty, 15 million people who are eating the fruits and vegetables from these pumps, but we've planted a hundred million trees with these pumps. Those are big numbers, but they're tiny numbers compared to the size of the challenge.

We need to accelerate everything we're doing now, as opposed to when we started, which was we were very much working in isolation, where it was us, it was us designing the pumps, selling the pumps, training all our salespeople out there. Everything we're doing now has to be collaborative, has to be in partnership, because that's where we're going to get the leverage.

Our target, our Big, Hairy, Audacious Goal, is a million more people having access to pumps, a million more farmers having access to pumps, irrigating by the end of 2030, so in six years. Right now, we've got 400,000 pumps out there. Now, we want to do a million more in much less time. Obviously, to do that, we need the money. We need the partnerships. There's plenty of other challenges working in Africa, the current season appreciating, the pumps are getting expensive. There's no foreign exchange to import pumps. I could list challenges for the next 10 minutes, but nonetheless, we have to find a way to overcome those. We also have to have the right innovations to, as I mentioned before, to get youth interested in farming. Already, youth don't want to do their parents' farming. Their parents' farming was digging in the soil with a djembe, a hoe, and a machete, only two tools, digging in the ground, making no money. No one wants to do that. Why would you want to do it getting paid once or twice a year? Now, really, irrigation is much better because you make money every day, but you still have to dig in the soil. Now, we're experimenting



with vertical gardens, where they don't have to do that. They can now actually have a vertical garden, which is about one meter in diameter, and they can have a hundred plants there, and you can have maybe 30 or 40 of those. It's much less work.

The average age of the population is about 19, but can those youth talk to the farmers who are 55? Will they listen? Can they teach them? We're just trying to figure out if that'll work. We're training those youth, giving them a lot of methods in order to talk to farmers, and then renting them the pumps.

We need the innovations around financing. We need the innovations around education that I talked about. Ultimately, the most important thing is we need the partnerships, we need the funding to make it possible. I'm very hopeful. To irrigate Africa, we reckon we need to get about 20 million farmers irrigating. There's about a hundred million smallholder farms in Sub-Saharan Africa, and we think that if 20% of them irrigated, so one out of five farms, we know that one farm can grow enough crops with irrigation to feed 10 families. If they're irrigated, they can feed the five families who move to the city, plus the other three or four families in the rural area.

We think if we can get to 20 million farmers irrigating, they can actually have a chance of feeding the continent. Right now, 40% of the people are hungry, chronically hungry. 30% of the kids are stunted. It's terrible. You're going to have 3 billion more people by 2100, and already 30% of the kids are stunted. It's going to be an absolutely awful situation if we don't figure out how to feed Africa. Irrigation is critical. With climate change, it's going to be even more important to do this. The good thing is there's a huge amount of surface and groundwater in Sub-Saharan Africa, renewable surfacing groundwater. If we can leapfrog, and do it responsibly, and not overuse it, leapfrog what they did in India, where they used hugely wasteful ways to irrigate, then it can be done.

Ashley Hopkinson: This has been a really wonderful conversation, thank you for talking with me today.



Ashley Hopkinson is an award-winning journalist, newsroom entrepreneur and leader dedicated to excellent storytelling and mission-driven media. She currently manages the Solutions Insights Lab, an initiative of the Solutions Journalism Network. She is based in New Orleans, Louisiana.

** This interview has been edited and condensed.*