



Episode 10: Innovating Rural Water Supply: Insights from Sean Furey on Sustainable Solutions and Community Empowerment

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Hisham Allam

Hello, everyone. Welcome to DevelopmentAid Dialogues. Our new project exploring the heart of humanitarian aid's most pressing topics. I'm your host, Hisham Allam. Today, we are honored to have Mr. Sean Furey, the Secretariat Director of the Rural Water Supply Network. With his extensive expertise in the field of water management, we will be delving into the latest methodologies and initiatives, discussing everything from the state of groundwater pumping technology to the role of private sector providers improving rural and town water supply. Good morning, Sean, and welcome to DevelopmentAid Dialogues.

Sean Furey

Good morning. Thank you. Thank you for inviting me.

Hisham Allam

I'd like to start with a tough question about funding. Obtaining funding for water projects can be difficult. What innovative financing mechanism do you see emerging to support long term sustainability initiatives?

Sean Furey

Ah, very good question. So funding, first of all, part of the sustainability problem of reward supplies in that word that you mentioned projects in that, rural water is not and shouldn't be a project - it's a service and so traditionally, there's been funding available for projects where an organization goes in, builds hardware, trains a community, maybe does some capacity development with government, and then leaves and then expects it to just like run itself. And the experiences from around the world is that sometimes works, but quite often doesn't. So, the thing that's really shifted over the last couple of years is this move towards performance-based contracting and the emergence of rural water operators. Some are purely private; some are social enterprises set up specifically to deliver them and some that are existing non-governmental NGOs that have decided to go in that direction. So, the funding model at the Uptime Consortium has been developed with research backing of Oxford University and funding backing from numerous private and philanthropic funders has been that, you know, operators are paid on the basis of the service they deliver. So, they're incentivized to do



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a good job, but they get the right level of financial support and technical support to be able to deliver on that promise to the end users.

Hisham Allam

The Rural Water Supply Network is known for its data driven approach. How can data collection and analysis inform future water security strategies, particularly in rural areas?

Sean Furey

Data is a huge challenge in rural areas. Data collection is very expensive, very time consuming, about 12 years ago, the first water point mapping tool started to emerge when mobile phones started getting more, deeper penetration into sub-Saharan Africa and Asia and Latin America and some of these app-based tools started to emerge and people started collecting data.

But then the problem was that sometimes-quality issues with how good that data was, because if you've got someone that physically does a physical water point, and they're recording what status that water point, whether it's a hand pump or tap stand or rainwater tank. There's a slight, subjective as to what the status was.

And of course, the moment that person leaves that site, the data point is out of date. I mean, it's like, it's only a fixed point in time. So it was, it was useful sort of back in 2012, 2013, when a couple of countrywide studies were done in places like Sierra Leone, uh, Liberia and Tanzania, because it highlighted not just the extent of the challenges, but also the geographical, kind of resolution of where some of the challenges were. And in the case of Tanzania, that unlocked a lot of investment from the likes of the UK and other funders to really address, try and address this problem through institutional reform. But today data is still a huge challenge. And there are kind of, I see it at three levels of data that's needed.

One is political data. This is the data that we see from the joint monitoring program of UNICEF and WHO. And that's great. You can go to the JMP website. You can find a country like Ethiopia or Vietnam or whatever. And you can find a whole load of data on the water and sanitation and hygiene indicators and that's great because you can just about every PowerPoint presentation from the wash sector for the last 10 years starts off with JMP figures. This is how many people are unserved. This is the scale of the challenge, things like that. Then, then you've got at the other end of the spectrum, kind of got the operational data that the nuts and bolts data that the person on the ground really needs to know where they are, where are their assets, you know, where are the pumps, where are the pipes, what, how reliable are the water sources in terms of quantity and quality, what are the revenues, who's paying, who's not paying, where are the costs, all that sort of really detailed data. And then in the middle is less discussed and that's kind of the planning data. This is where, like national governments and that like development banks or whatever that want to support national or subnational programs. It's knowing where people are living? What, what are they being served, with, uh, at the moment?



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What are the priorities? How do we make the difficult trade-offs? Uh, when, when it comes to the politics and the economics of it. So, we try to encourage people to be data-driven, but it's difficult because collecting that data is difficult. And, um, there have been some innovations, for example.

Smart hand pump technologies by the likes of the University of Oxford and Charity Water and others and Sweet Sense that where you put a device on a hand pump and it measures how much that pump is being used, how much water is flowing, whether the pump is broken or not and that's helpful, particularly as a research tool.

It's been extremely valuable, but as an operational tool, it's proven challenging because maintaining the monitoring system is almost more problematic than maintaining the pump itself. So, there's again, it's around, tradeoffs and how do you use scarce resources most effectively, effectively.

Hisham Allam

So, what kind of challenges do you face in data gathering in Africa?

Sean Furey

A lot of it is around transport costs, that we're talking about countries for example, Democratic Republic of Congo is about the size of most of Europe. So, the distances are vast. Just getting around and visiting these sites is very challenging. Then, you have the whole kind of dry season, rainy season, aspect to it, which introduces biases because, generally people can only get around the countries in the dry season and in the wet season, many roads become impassable, and that is particularly important for like groundwater monitoring because then if groundwater is only being monitored at a particular time, say during the dry season, it's going to create biases in the data where you have an incomplete picture about the behavior of these complex aquifers. Telemetry and remote sensing definitely have a role to play. But particularly with remote sensing from satellite data and things like that, in principle, that's great. But anything you measure from satellite data needs an element of ground truthing.

Hisham Allam

How can the SCAD Foundation and the Rural Water Supply Network support communities in adapting their water management practices to a changing climate?

Sean Furey

A lot of it is around helping to connect people. Um, because we're a very small organization we're a small network in many ways I mean, the RWSN has around 16,000 members worldwide. We've got now nearly just under 30, 000 people in our LinkedIn group, which is great. But in terms of the market, as it were, the number of community organizations running water systems, the number of municipalities, it's into the hundreds of thousands. Just last week, we're talking to an organization in Ecuador, and they have like six and a half thousand, Junta de Agua, sort of boards committees and



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supported by 220 municipalities. And that's in Ecuador, which is not a huge country. So, the scale of the connecting challenges is huge, but we're using online tools to try and broaden the network.

And the big push that we're going to be trying over the course of this year is really trying to unlock the potential of WhatsApp and AI to be able to provide a useful service to connect people to the information they need, but also to connect people to each other, because there is something as complex as climate change, where there are so many different factors and some of it is very context specific that the global experts, there's only so much that can be done. A lot of it really comes down to helping people at the more, more local and national levels connect and self-organize and develop their own strategies for dealing with the changes that are coming and understand the changes that are coming.

It's easy to point the finger at climate change, but they're quite often other things going on, such as deforestation, such as soil erosion, or there are many other factors of which climate change is an amplifier, but it's not the primary kind of cause of a problem.

Hisham Allam

Yeah, I totally agree. What is the current state of groundwater pumping technology now?

Sean Furey

There's a big shift towards solar powered pumping, which is great in many ways. Because, certainly in rural and small towns, the most widespread are in Sub Saharan Africa, it's like hand pumps, or diesel-powered submersible pumps. Where possible, electric from the grid, but quite often, grid connections for electricity aren't reliable, and so people still need a fuel powered generator for the pump in more hilly mountainous areas of the world there are a lot of gravity systems from springs or pump systems. So, what we're seeing really is that there is a real appetite to adopt solar powered pumping for a couple of reasons. One is to just overcome the energy issue of expensive fuels, the supply chain for the fuels for the pump, and also an expectation that pipe systems are desirable, ideally household pipes connections are the kind of the safest and most desirable form of domestic water supply. So, people really want funders and implementers and even households themselves want to go in that direction. The challenge is what is the implication on the water resources. Now for domestic water supply, probably there would not be that much impact in all but the most constrained aquifers, such as in very coastal areas or small islands where you have just vulnerable lenses of fresh water. But they're also taking off in the agricultural sector and where you're getting, where you take away the energy as a constraint to pumping, then that's where you're likely to lead to over-abstraction of groundwater resources. Famously, this is what's, what's being documented a lot in, in India, though.

That was the reason that happened was not because of solar pumping, but because of a deliberate policy to subsidize energy for farmers, for pumping as part of the sort of the green revolution. So yes, it unlocked a lot of agricultural productivity in the subcontinent, but it also led to a lot of exploitation and a race to the bottom of the aquifers.



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Hisham Allam

The NDL example is very interesting but could you elaborate on the opportunities and the challenges faced by the pump manufacturers and sellers? I believe that you have a lot of information about this.

Sean Furey

Yeah, so we did a survey last year amongst our members and many of our members are kind of engineers, project managers, they're on the implementing side and planning side of rural water services and they very much see that the solar pumping is the future, but many, particularly in large parts of Sub-Saharan Africa, still see that solar pump, I mean, hand pumps will have a role to play because of these remote communities, very low-income communities.

It will continue to be the most appropriate technology for those contexts so for manufacturers, the challenge is to get the right tradeoff between price, quality and reliability, because these are very tough environments, quite often that really take their toll on hardware and equipment there, as we were talking earlier about the problems around roads and road access, just the logistics of servicing, pumps or providing a service agreement to come in and fix things is difficult and expensive. So, before you get very far, you end up with either a real, robust pump that is really tough, very well protected electronics, corrosion resistant, and well serviced by the supplier or the manufacturer. But that then means that it's probably beyond the affordability of many, remote rural communities, particularly in low-income countries or low-income areas of countries. So yeah, that's kind of the challenge even with technological innovation. It's hard to see how much you can squeeze it to make pump technology even more robust and cheaper. It's kind of like one or the other to an extent.

Hisham Allam

Beyond the hand pump quality and the manufacturers, what are the biggest challenges facing sustainable groundwater management in Sub-Saharan Africa?

Sean Furey

A lot of it is just knowing how much there is and where it is, so a pro research program that we were part of a few years ago called, unlocking the potential of groundwater for the pool, built on existing groundwater maps that had been done at continental scale and tried to understand at a more local scale what the groundwater resources were and how they could best be used for economic and social development.



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Hisham Allam

And what are the outcomes? What did you find out?

Sean Furey

That groundwater is going to become more important with climate change, but the rainfall patterns are going to shift, in particular in dry land Africa, to an extent that you're actually going to get more ground water recharge, and that's a really significant finding. It was published in Nature, because that has implications for using groundwater more in Sub-Saharan Africa going forward, but managing it carefully and not necessarily getting looking at India and going, okay, India was a mess. Therefore, Sub-Saharan Africa is going to follow the same path. Doesn't have to follow the same development trajectory at all.

Hisham Allam

How can we leverage a private sector investment in rural water supply while ensuring affordability and equitable access for all?

Sean Furey

Private sector involvement in rural areas is really difficult. It's been generally limited to small medium enterprises, but where there are large, private sector actors. So, for example, one of the upgrade research projects in Kenya at Oxford University was working with a titanium mine.

And that for them as part of that kind of corporate social responsibility, they could have just paid for some water projects in the area, but by investing in one of these, trust funds that support the service provider. It means that the service to their local community is much better and much more sustainable.

And it's much more effective use of CSR funds than just something that couldn't easily be accused of just being cosmetic.

Hisham Allam

So, the private and public partnerships in this sector are tough. It's hard to achieve.

Sean Furey

Yeah, it's starting to get there, but it's just not, it's how do you make it attractive to the private sector, because in terms of, you know, hard financial returns rule is never going to be, is never going to look good, but in terms of a triple bottom line of looking at social environmental, benefits as well. It's more attractive and that's why recently you've seen the likes of Apple and others have kind of invested in some of these schemes because it makes sense on several levels not just in terms of the hard return on investment for cash.



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Hisham Allam

Who can give a push to just project governments or international bodies like the UN.

Sean Furey

I think it's a mixture of both and all the researchers and NGO community are doing so many fantastic, really interesting, innovations. It's encouraging. NGOs document what they're doing in a rigorous way and it encourages researchers to document what they're doing in an accessible way. What I mean by that is, is that academic literature is often rigorous but it's not clear in terms of, so what? Okay, you've done this research. Okay, what do we do with that? So that needs to be clarified. And then it's for development partners like UNICEF, like WHO to really help use that research to kind of set standards, set guidelines, work with the national, and local governments to establish, you know, norms and ways of doing things, so that a variety of actors can come and find where they are most likely to add value, whether it's a big urban water utility pushing out into a rural area, or if it's a micro enterprise that's growing in a small town, or if it's individual households investing in their own cell supply of water.

Hisham Allam

Rural Water Supply Network is known for not just building boreholes and wells, but also for training rural water service providers and connecting people and the rule of the water sector for mutual learning. Can you share some examples of how this approach has made a difference in the communities you serve?

Sean Furey

So, we've really moved towards thinking about rural water supply, not just in terms of technology and hardware or even management systems, but really looking at the people and thinking of rural water supply as a profession, as a livelihood, as a career. And how can we systematically support more people to come into a reward supply, and choose it as a career to stay in it as a career and when they get to the end of their careers and start retiring, that they're able to share their expertise back to the younger generations. So, we've pioneered various things. Online courses in particular on groundwater and drilling professionalization where we've seen a specific niche or gap that needs to be filled, but more generally, we have a mentoring scheme, which is the latest round launched this month.

And that's been really effective at fulfilling a need for young professionals of under 35 who not just in rural water supply, but also in broader water management in water and sanitation, who just won't be able to talk to someone on a regular basis and get some feedback and help them with their careers.

So, in the last round last year, two of my mentees were PhD students that are coming to the end of their PhDs and just wanting to chat back. Okay. I'm not quite sure what I want to do next. What are my options? What should I be doing? How should I form my CV if I want to go for an academic position, or should my CV look different if I want to go for more consultancy, those kinds of those kind of advice or more broad brush around that, their development of their careers going forward and this is particularly important for women, because we're trying to encourage more women into



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leadership positions, not just in early career, but also mid-career as well, because our gender balance of the network is about, well, we've improved it from 80 20 to about 70 30, but there's still an important need to get more women into the profession, because when you look at rural water services around the world, it's often the responsibility of women at the household level to deal with water issues and sanitation issues.

So therefore, it's important they have a strong say in how it's delivered from all the way up there, all the way up the hierarchy. So, I certainly see it as one of the most powerful levers that we have for systematic change is through, supporting people to connect to each other and learn from each other and find the specialist training resources that they need of that suit them at whatever challenge they're facing their career now or they see in the future.

Hisham Allam

How can we encourage a stronger sense of community ownership and responsibility for managing water resources effectively?

Sean Furey

That's a huge, huge topic really and I think it's important in many contexts not just think about water, but also think about land, because quite often the two, the ownership of water relates to the ownership of land and land tenure and water tenure rights in many countries is linked back to colonial systems that were explicitly designed to disenfranchise the rural indigenous population from their communities their traditional rights and responsibilities. So, in those cases, there is a kind of a legal institutional rebuilding, reimagining that has to be done, going forwards. A lot of it really comes down to governance, and it's a highly political process. I think some people try to see it as quite a technocratic process of building, say, community ownership in a water scheme or water resources, but it's inherently political because there are so many actors involved and so many imbalances of power between different water users and also water rights holders.

And that's conversation that has to be facilitated as best as possible within the existing, you know, governance and civil society structures of wherever that debate is happening.

Hisham Allam

I came across the quote, change is the only constant in life, by the Greek philosopher Heraclitus on the SCAD Foundation website. It made me wonder, what does this concept of constant change mean in your perspective?

Sean Furey

Yeah, we're in a time of real change. I come from a very small village in southern England and there, there's sometimes a mindset that this is how things have always been, you know, and things change slowly. But the reality is that as much as you may want things to change slowly, things are actually changing all around us very fast. And all of us have to learn how to learn and we can't just sit still whether we like to or not. So, therefore that's really part of our ethos of being



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agile, of looking around for ideas, not just within our own specialisms, but looking at what other people are doing. So as one example, I'm particularly inspired through the work of Kelvin Campbell and others on this concept of massive small, which emerges from urban design of, really encouraging and capturing the small changes made by thousands of people is it's kind of more has more impact than like single big projects and the problem with like big thinking of like big projects is that they're quite fragile and not sustainable and don't achieve the visions that they intend. But actually, the wisdom of the crowds of people that can adapt to their situations and work together and collaborate and build trust. That change, it also leads to positive change and learning and adaptation and with all the different things that are happening in the world today, we need to really work together in an agile way to make the best of what's in front of us.

Hisham Allam

That was incredibly insightful, Mr. Sean. Thank you so much for sharing your expertise and important work that the Rural Water Supply Network is doing to ensure sustainable water access for communities around the world. Our listeners will definitely be inspired by the dedication and creative solutions you are developing.

Thank you for joining us on this episode of DevelopmentAid Dialogues. Stay tuned for more podcasts. Until next time, this is Hisham Allam signing off.