SUMMARY: Achieving Global Water Security with Digital Innovations

Digital technologies provide important support to increasing global access to clean and safe drinking water. Not to mention, it boosts accountability of service providers to their constituents; allows for improved/faster data informed decision making; and, enhances monitoring of water, sanitation and hygiene initiatives in urban and rural areas. This webinar, organized by CRS and NetHope, featured speakers from SweetSense Inc., Safe Water Network, and Catholic Relief Services. Below is a brief summary of what was discussed.

Ian Moise, (at the time of the webinar) the Global Water Security Lead – CRS (now with DT Global), kicks us off with an overview of the importance of ICT for Water Security/WASH and where water fits in to CRS's 2030 Agency Strategy. He informs us that in 2018 the United Nations estimated that roughly 3.6 billion people live in areas vulnerable to water scarcity and by 2050 that number could reach as much as 5.7 billion. This would mean almost half of the world's population suffering from water shortage! Ian goes on to say that when we talk about WASH and the ways we can improve access for the poorest and most vulnerable parts of the population we look at two things. 1.) We look at the natural systems pieces that will limit the amount of water that's available for people; and 2.) we look at the human parts which are how do we communicate, how do we talk about, how do we get data and information flowing so that we can improve services. CRS' new 2030 Agency Strategy has a broad vision of "Water Security for All", and within that we have three priority areas. First, we have the typical WASH activities, which are **Wa**ter, **S**anitation, and **H**ygiene in the name of health. Next, we have Water and Sustainable Landscapes, which focuses mainly on water for agriculture but also looks up and down a watershed and where water is available or scarce and how the natural systems can be improved. Finally, our third focus area is water financing and governance, and this is really just addressing the question 'how do we reconcile the huge financial gap there is for achieving UN Sustainable Development Goal (SDG) number 6'.

After Ian's very helpful overview, we get into his discussion of where ICT fits into the equation. He claims, "the primary role for technology for us [CRS] is really to enable the poor and vulnerable to benefit from services that they might not have access to". Specifically, we are called upon to think of technologies that provide real-time information, especially from remote areas, to those with the power to improve WASH. Another example of innovative technology comes in the form of using satellite monitoring to look at vegetative cover, which improves soil moisture that is essential for good agricultural yields. Finally, CRS

looks at payment systems and then efficiencies that make finance systems more accessible to water service providers (metering systems, leak detection, etc.).

Next up, we have Styvers Kathuni, Regional Director of SweetSense Inc, to talk about some of those technologies that Ian had just finished discussing. Styvers' topic is 'use cases and challenges of applying sensor technology for near real time monitoring of water supplies,' which is what SweetSense provides to a number of Projects – including the [Kenya RAPID Project](). The SweetSense Platform is designed to combine a variety of accessory sensors with cellular and/or satellite internet-cloud reporting connectivity. Currently SweetSense has almost 400 monitors in place in East Africa that monitor for 3 things – functionality, pumping hours, and amount of water being pumped.

Styvers then gets into some of the key success factors that he sees when rolling out cellular or satellite connected sensors. First, you need to be clear that you are tracing a 'felt need' that is not based just on data and research but is a felt need by governments and communities as well. Also, informing them that having a sensor will make monitoring the functionality of the boreholes a bit easier on them, and is a solution that will serve to keep their wells functioning longer and have less downtime for maintenance. The second success factor deals with knowing whether you need to use a cellular or a satellite-based sensor. This involves knowing which is most appropriate for each particular borehole. For instance, in an area with poor cellular signal, you would want to use a satellite sensor. Next, Styvers suggests that projects should have a very clear rollout plan including development and installation plans, knowing when they are piloting, when they are scaling up, and when they are doing replication. The last success factor that Styvers mentions is probably the most important as it has to do with sustainability. For example, having a plan in place to ensure that the sensors continue to work for an extended period of time. Styvers' claims that this can best be accomplished by getting the government and private sector partners involved with whatever project that is utilizing the sensors. A few challenges that they face when rolling out cellular/ satellite connected sensors where the community has unrealistic expectations. For instance, the community or the government thinks the borehole will be working all the time, but there might not be enough repair technicians to make repairs that quickly. Another challenge they've witnessed is with government delays surrounding approvals; however, he mentions that he usually is able to get their approvals in time – but it is certainly challenging at times.

Finally, we have Gillian Winkler, Senior Business Development Manager - Safe Water Network, who speaks primarily about designing and implementing mobile phone prepayment programs. Safe Water Network works on developing an active market for small water enterprises in India, Ghana, and beyond. They use a market-based approach to treat and sell affordable water to communities of approximately 3,000 to 5,000 people living in large rural towns and peri-urban areas where hand pumps are overwhelmed by the size of the community. Gillian goes on to say that she plans to highlight what Safe Water Network has learned from their digital finance and mobile money program in Ghana. Specifically, they looked at prepaid meters for household connections wherein treated water from their small water enterprises piped directly to the households, water ATMs which are automatic water dispensing units that uses a prepaid card to retrieve water, and mobile money integration for both. They've developed a mobile money system that can be used to pay for both of these types of services using a feature phone. They decided to roll out all of these innovations mainly because they are tied to the most important thing driving consumer purchase of water – *convenience*. Greater convenience boosts revenue, making these types of systems more financially viable for long term sustainability. Not only that, it enhances the use of safe water for more purposes in the household, reduces non-revenue water, and helps to make sure there are enough revenue to cover operating costs.

One of the good practices for designing and implementing mobile money programs around safe water use that Gillian discusses is understanding the importance of building and maintaining trust in your decision making. Without trust in your services, people will get their water elsewhere – even if it is of poorer quality

or more expensive. Adding mobile money means they need to trust the water service and the fact that you are managing their money properly. For many of their consumers, removing cash from the equation caused a lot of concern. They need to understand that this is the best way forward to ensure the sustainability of the water services in their area. Another good practice is designing for transparency. Design your mobile money software to be as transparent as possible. For instance, getting text notifications for account balances. This was really key in ensuring confidence in their mobile money system. When they first rolled out mobile money for their prepaid meters without text notifications, they saw only an adoption rate of less than 10%; however, once they added text notifications regarding money being topped up – they saw more an 80% adoption rate. Finally, Gillian suggests that the water provider or supplier bear the cost of the mobile money transactions to cut costs for the consumer, as this may help with adoption rates.

After each presenter addressed their predetermined topic, the question and answer portion of the webinar began. Ian was asked the first question which was regarding how to keep data secure across multiple partnerships, which the attendee notes seem very important to WASH and Water Security. His response largely has to do with the front-end training of data security best practices with those that are using the ICT tools and those that may be benefiting from them as well. Ian ties this to the importance of investing in leadership, as this will enable people to succeed. This segues nicely into the next question for Styvers, as he is asked to describe the plan for handing over to local community and build their capacity. As SweetSense is a private company and not an NGO, they are not there to 'pop in and pop out' and will stick around to provide support and make sure that each sensor is functioning properly. Styvers goes on to say that they make sure they understand how the community around each borehole's response to repairs takes place; they make sure the community understands what kind of data is being collected; they make sure they know what sensor components are installed on their borehole, and what they are monitoring. Another important point that Styvers mentions is that the data that is collected is used to create a public facing dashboard for anyone to be able to see which boreholes are functioning and where.

Sticking on the topic of data, Gillian is asked how they use data to show impact to donors and sponsors in real time. Safe Water Network has a mobile monitoring system that they use to track their operational and financial performance at the enterprise level; however, the data from the water Atm and prepaid service is brought into a management platform so that it can all be seen at one place, but Gillian feels there is a lot of work that remains in this area. They can show investors and donors the impact of different campaigns, promotions, pricing levels, when they make tweaks to their models, or if they do a particular marketing campaign on the use of mobile money, on ATM usage, or other services. This allows them to inform their activities in such a way as to maximize revenue – which is key for these services staying operational and successful throughout the dry season.

To conclude, Styvers discusses some topics that he is really excited about. Most notably, he mentions how NGOs and governments are beginning to adopt what he describes as a 'Business Unusual Model' that focuses on how best to make the solution sustainable rather than simply drilling a borehole, educating the community on how it works, and leaving them with the name of a plumber. After all, what's the point to all of these efforts if the borehole, water atm, or other service stops working the minute an NGO pulls out?

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