

Taking stock: Are we being served – how suppliers and researchers can do better

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Technology to make water cleaner is hardly the most pressing problem that we have at the moment

The 2 billion people without a toilet do not always make it into the plea for assistance

IN MY ROLE AS THE focal point for watsan emergency equipment for a large humanitarian organization, I get phone calls from suppliers. A lot of phone calls. You probably do, too. If we are lucky it is a new supplier for a common piece of equipment hoping to compete by offering a lower price for standard quality. However, more often than not it is a well meaning inventor fresh out of the laboratory selling us what he or she assumes is the answer to all of our problems. The product is rarely different from what we have seen before. But in the suppliers' view, they have found it. The holy grail. The one thing that is going to solve this water problem we have all heard so much about. They start to tell us what level of microbiological contamination is removed ... and we are already thinking of what we will eat for lunch. By the time we have explained our actual needs and politely declined, there is a new offer waiting in the email inbox.

Being an engineer, deep down I always love a good gadget. While some of the products

on offer make one ponder the laws concerning hallucinogenic drugs in the inventor's country, many of them are quite ingenious and some of them even work. There is certainly room for improvement with the products and methods we use. It's just that technology, particularly technology to make water cleaner, is hardly the most pressing problem that we have at the moment.

So why are we repeatedly receiving the wrong sales pitch?

One reason, no doubt, is how we portray the watsan problem itself. The organization I work for is as guilty as anyone else of making sure every publication even remotely watsan-related has smiling children under a water tap. It is hardly in our sector's interest to stop World Water Day or the calls to action to assist the billion or so people lacking access to safe water. The trouble is that the full scope of the problem, such as the 2 billion people without a toilet, does not always make it into the plea for assistance. Colleagues in other humanitarian organizations have told me they are

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forbidden by their communications staff to talk about diarrhoea or toilets at fundraising events. Those kids under the tap bring the money. Unluckily for us, they also bring the inventors trying to solve a problem we do not necessarily have.

The other reason for the abundance of clean water gadgets is what I call the dirty little secret of watsan. Making water clean is usually really, really easy. A lay-person would never know that from talking to a refugee camp's watsan engineer, of course.

We, understandably, relish our image as the people who make water clean. However, most of the time it comes down to a few basic steps: finding the cleanest possible source, using chemicals or sand to clean it the rest of the way, and turning on the tap. A challenge in many contexts to be sure, but not exactly rocket science. Decades of work have provided us with solutions that can be called 'good enough for now', at least until we get the rest of our house in order.

The final, and least surprising, reason for the amount of interest from inventors is the potential money involved. Household water treatment chemicals and filters are far and away the most common products offered to us. None can exactly be called cheap. The numbers can be massaged all you like ('only pennies per litre!'), but an agency distributing treatment chemicals or filters at programme scale is undertaking an expensive en-

deavour. A commonly available family water filter costs about US\$35 and treats 18,000 litres of water, enough for about eight months of water for a family of five depending on context. An equivalent amount of chlorine tablets costs roughly \$27 and sachets which contain coagulants and disinfectant would cost \$90. 'Willingness to pay' surveys and 'bottom of the pyramid' theory will often be used to prove these costs are acceptable to end users and there is no doubt that in some times and places these products are part of the solution. However, one should not ignore the fact that a long-term development project can deliver safe water supply, sanitation infrastructure and hygiene promotion for more than ten years for less than \$50 per person. An inventor recently asked me to consider adding her experimental filter to the first year of a multi-year watsan development project, a move which would have more than doubled the project's budget. I cannot possibly consider this.

The inventors can be frustrating, but they are relatively easy to disregard when their product is irrelevant or just bizarre. It is a bit harder to ignore scientific research, even when it is just as problematic. A supplier is at least subject to market forces. If they do not make what we need they will go out of business. It is still unclear what, if any, leverage we have with academics. Their product does not meet our

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The treatments cannot be called cheap

needs, but we are still receiving the offers and, unlike the inventors, academia has the ear of our donors. The drum beat for 'scale-up' based solely on efficacy of products and methods is constant, despite the occasional bucket of cold water thrown on it (see Schmidt and Cairncross, 2009). We know the stuff works. Chlorine kills bacteria; this is not exactly a new finding. Surely there are better questions to ask before we go full speed ahead. How implementing agencies can improve use might be a good place to start.

There is a serious disconnect between how interventions are researched and how watsan is actually implemented. Many of us expend a great deal of time and effort convincing watsan technicians that household water treatment and safe storage (HWTS) in emergencies is a valuable tool for emergency response. Yet, every time we do we are forced to admit that we in the watsan sector are doing a really poor job of it just now. We have put the responsibility for making water safe on to the people we are supposed to help without assisting them in using the treatment method properly. The result, incorrect use or non-use, is hardly surprising.

The real question for humanitarian agencies involved in HWTS is how those involved in promoting the product or method can improve their results. This needs to be the focus of the research rather

than an incidental issue. Lack of software activities including training on the use of products results in lower to no impact on diarrhoeal disease and is a terrific misuse of scarce resources. This issue saw its most horrible results in 2009 in Mozambique. Three volunteers from the Mozambique Red Cross involved in chlorine distribution and two police officers attempting to protect them were murdered by a mob because of a long-standing local confusion between the words for cholera and chlorine (Deutsche Presse Agentur, March 2009). It is hard to believe that past distribution of chemicals without training played no role in this tragedy.

The challenge of HWTS, as with almost every aspect of our work, is in the watsan software we implement, not what technology we have. Anyone who has heard the anecdotes of end-users who have swallowed chlorine tablets as cholera medicine or seen products resold in the market can come to that conclusion without a case control study. Yet we continue to study the product or method rather than the means of delivery. Adding new arrows to the quiver is not particularly useful when we do not know how to shoot straight. Until humanitarian agencies know how to achieve widespread use, the calls for HWTS scale up seem premature, and the characterization of it as the answer to all our problems misguided.

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Simply put, what we have works well enough and we are not desperately in need of a new chemical, filter or any other method of making water clean. Until our watsan technicians are training people and following up on proper use, we never need to see or hear about another household water treatment product. Show me something for sanitation or hygiene promotion, however, and I will probably take your call. A better proxy indicator for improved hygiene behaviour than the notoriously difficult to measure hand washing would be fantastic. Instead we receive another piece of research telling us that, under some conditions, UV light kills bacteria without any mention of the wider problem. Though, in all fairness, this is not a problem limited to HWTS.

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The academic and private sectors need to meet the demands of watsan programmers

Watsan professionals are repeatedly presented with 'hand washing is it', 'toilets are it', or 'HWTS is it'. Have we not been doing this long enough to know there is no 'it'? No serious watsan agency would build water supply without toilets and make any claims of best practice. Does this serve the interest of the beneficiaries or just drive funding to the area that shouts the loudest? Interventions are researched in this manner because of the nature of scientific research. The need to prove the health impact of watsan means breaking down the individual components and measuring the health impact, usually diar-

rhoeal disease reduction. This is sound science, but we cannot forget to put the puzzle back together again when it is time to actually do something. And getting the hardware and software aspects of a project to operate together smoothly is easier said than done. In fact, it is one of the most difficult challenges in watsan work in both emergencies and long-term development projects. Yet, while studying for my public health MSc, the environmental health faculty never talked about a comprehensive approach. We sat through lectures on individual interventions given by specialists and we heard about the handful of studies which purported to show how important a particular intervention was. But the challenge of carrying out both hardware and software in a single programme or how to get an engineer to work together with a hygiene promoter was never mentioned.

So, how do we get out of this?

The agencies involved in implementing watsan programmes have the right to demand more; the academic and private sectors need to meet those demands. As much as we might like to stop, we have to keep taking those phone calls. After all, watsan suppliers and researchers are colleagues; we are supposed to be in this together. First, we need to engage more and better define our needs. Rather than nod politely through another pitch for something we don't

need, we should be more honest. We need to stop telling the supplier that we will keep the brochure on file and tell them the truth. For research, much like the product offers, we will ignore what is useless, explore what is interesting and attempt to explain what it is we actually need in our work. Yet there is the opportunity to do more. We need to offer our resources to academia in order to get research we can really use to make a difference to those that we serve.

The organization I work for could improve on this and we are currently trying to get more scientific research into our activities. There are numerous practical challenges to this and our field personnel are, understandably, often wary about making space for research, particularly in emergencies. Nevertheless, the rewards of cooperation are obvious. We get to know if what we are doing works and others learn the same. We also need to be brave enough to try something new and utilize research institutions for more than just project evaluations. The Global WASH Cluster has indentified the need to open its doors a bit wider, at least on occasion. More academics and, yes,

private companies need a way of interacting with the agencies they are supposedly serving.

Until we are getting the support we need, we will continue to do our best to fill the gap. Earlier this year, faced with a sea of research on HWTS and nothing that could be put in the hands of someone without an engineering degree, we released a manual on HWTS for non-technical volunteers and staff (available at <http://www.ifrc.org/what/health/tools/index.asp#watsan>). A review of the manual in this publication cautioned that it was less 'valuable for responders seeking a more technical, research-orientated document'. Nothing could have explained our intentions better.

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More academics and private companies need a way of interacting with the agencies they are supposedly serving

References

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