



# Editorial: WASH evidence – linking research and practice

*Richard C. Carter*

At the Stockholm Water Conference this year I chaired a panel-led discussion organized by WaterAid which examined how the interface between research on the one hand and policy and practice on the other could be improved. After the session a summary was drawn up, and this editorial includes the main points and quotations from that report. As this journal attempts to bridge the divide between academia and practice, it seems appropriate to reproduce it here.

We started from the recognition that generating sound and convincing evidence about the impact of complex interventions such as those in WASH is difficult. We brought together a mix of panel members and participants drawn from academia, government, donors, and WASH implementing organizations to share ideas on how evidence-generation could be made more relevant and effective. The panel members (Professor Sanya Tahmina, Office of Director General of Health Services, Bangladesh; Dr Khairul Islam, WaterAid Bangladesh; Dr Guy Howard, UK Department for International Development; Professor Stephen Luby, Stanford University; and Dr Robert Dreifelbis, London School of Hygiene and Tropical Medicine) included two of this journal's Editorial Board members, and three other influential and experienced individuals. The quotations reproduced here are mostly verbatim, but in some cases paraphrased for clarity.

We have a tendency to want to boil complex pieces of research down to simple conclusions ... the real world is much more complicated than this ...

## **The need for evidence**

Governments and NGOs which implement WASH programmes, as well as those who fund them, need evidence of the effectiveness, value-for-money, and impact of those interventions. This is especially so when there are competing demands for financial resources.

As a policy maker, I can say that evidence really matters ... choices have to be made ... donors need to focus on value-for-money and economic aspects ...

## **The complexity of WASH**

Each WASH intervention is different in many respects, including: the biophysical context; national and local resources and norms; its antecedents; the culture, expectations and responses of the population; and the institutional context and political economy. Standard methods for synthesizing evidence, such as Cochrane Reviews and meta-analyses, can often mask the underlying diversity behind each individual WASH intervention.

We should expect heterogeneity ... we need to learn to think in a less mechanistic way ...

## Research

As in all fields of human endeavour, there are gaps in knowledge and evidence in the WASH sector(s). Research studies contribute to reducing that gap, but they must ask the right questions and use methods of investigation which are appropriate to those questions.

As a policy maker, I am frustrated with research which answers the wrong questions ...

Identifying relevant and useful research questions requires dialogue between the various stakeholders – the questions which are important to a donor over a relatively short time scale may be different from those of importance to governments which need to turn evidence into policy; academics and others also have their own perspectives on research priorities.

We need to be more intelligent in how we ask questions ... as researchers we need to be answering the questions which matter to donors ... we need to explain better why our questions are relevant.

It is clear that no individual research approach or method is universally superior to the rest; multiple strands of evidence contribute to our understanding. In a complex social-technical intervention such as WASH, context and implementation are highly location- and time-specific. Understanding the true impacts of WASH interventions will require flexibility in approach and diversity of designs.

WASH is not like taking a de-worming pill ... making the analogy with health interventions is really tough ...

We need multiple threads of evidence ... relying on a single research design is not safe ...

A randomized controlled trial provides rigorous evidence of the impact of a particular intervention in a particular place at a particular time. However, there is a trade-off between their high degree of internal validity and their very limited external validity. In the absence of parallel process evaluations and other studies of context and political economy, it may be difficult to identify why a study's findings are as they are.

... randomised controlled trials are really good at controlling for confounding so they're really good at being internally valid, but they're terrible at external validity.

Any individual research study represents, as it were, a single data point. What matters is the cumulative body of evidence which builds from multiple studies using a variety of investigative approaches.

## Short-term and long-term impacts

Even in the short term, there are many potential benefits associated with improvements to WASH services and practices than extend beyond the traditional definition of public health. The World Bank Water and Sanitation Program's work on the economics of WASH, for example, tabulates 33 benefits of which only a handful are monetized. In regard to health impacts, while we know that the use of safe sanitation and water services and the practice of good hygiene are essential, we know too that achieving short-term impacts on diarrhoea, stunting, and other health indicators is challenging.

It's hard to see health benefits within a period of 3–5 years ... on the other hand I know from the long-term historical studies that you do not have healthy societies unless they have functioning water, sanitation and hygiene ...

There's an inter-generational pay-off associated with mothers being able to spend more time with their children ... we need to take a punt at trying to identify these longer-term impacts.

Furthermore, the less tangible benefits should not be ignored in favour of those health and time-saving benefits which may be quantifiable.

We looked at time savings in Mozambique ... we found that the hour-and-a-half to two hours these people were saving ... they weren't chaining themselves to sewing machines ... they were hanging out with their frickin' kids ... that's bad, right? [!]

## Tensions

There are tensions between practitioners who may emphasize the human rights dimensions of WASH interventions and researchers interested in the epidemiological dimensions and health impacts of WASH. This can be a constructive tension if it encourages dialogue between practitioners and academics.

I think there are some core tensions here ... there really needs to be a commitment to a learning agenda ...

As well as conventional research, more real-world studies – operational research, programme evaluations – are needed. These provide grounded evidence in a way which more controlled experimental research studies (especially those studying efficacy rather than effectiveness) cannot.

One step we could take is to do more rigorous and routine evaluation of programmes ... there's so much experience out there, and that needs to filter out ... we would get a lot of learning out of that ...

## Learning

In a situation where rights-driven practitioners and health-focused epidemiologists may be 'talking past each other', the key requirement is a commitment to joint learning.

... and we need to be open to the fact that not all the news is always going to be good news.

### **Communicating evidence**

Finding the right messages and the right language with which to communicate the findings of individual research studies and bodies of evidence is crucial. Communicating research findings and evidence has political and ethical dimensions.

[the findings of a health impact study] made a storm in the health sector ... actually this is a problem ... [failing to communicate the nuances of the research] is very troublesome to Government ...

### **The need for better dialogue**

When major pieces of research are planned and implemented, it is essential to involve and fully represent the views and perspectives of all stakeholders including government, policy makers, implementers, academia, donors, and research consumers – in identifying the right research questions and appropriate methods, drawing the right conclusions from the data, and communicating the findings in responsible ways.

How often does interaction between the various stakeholders happen before large-scale trials are undertaken?

*Richard C. Carter*

As one of the articles (Villeminot et al.) in this issue of the journal was being finalized in July 2018, the surviving authors learned of the death of co-author Francis Alerte in a tragic accident in Haiti. We therefore honour his passing by dedicating this issue to the memory of Francis Alerte, former Head of Department for Action Against Hunger in Haiti.