There is a substantial body of evidence on the effectiveness of WASH interventions – investment in reviews is needed

Lack of access to and use of water, sanitation and hygiene (WASH) causes 1.6 million deaths every year, of which 1.2 million due to gastrointestinal illnesses like diarrhoea and acute respiratory infections like pneumonia. Poor WASH also diminishes nutrition and educational attainment, and causes danger and stress for vulnerable populations, especially for women and girls.

Sustainable Development Goal (SDG) 6 calls for the end of open defecation, and universal access to safely managed water and sanitation facilities, and basic hand hygiene, by 2030. WASH access and use also underpin progress in other areas such as SDG1 poverty targets, SDG3 health and SDG4 education targets.

What is the aim of this evidence and gap map (EGM)?

The aim of this EGM is to show all the available evidence from systematic reviews and impact evaluations of what works in water, sanitation and hygiene (WASH) promotion in low- and middle-income countries.

Researchers and funders should consider carefully where there is the need for new primary evidence, and new syntheses of that evidence.

What studies are included?

The map includes 367 rigorous impact evaluations of WASH interventions in low- and middle-income countries (LMICs), nearly three-quarters of which have been conducted since 2008, plus 43 systematic reviews.

WASH impact evaluations have been done in 83 LMICs, covering over 5 million participants. There is a high concentration in Bangladesh, Kenya and India, each having over 50 studies.

What are the included studies about?

Over the past 15 years, the focus of impact evaluation research has shifted from WASH technology provision to promotional interventions. There has been an increase in studies of behaviour change communication, particularly for hand hygiene using social marketing and community-led total sanitation.

Carer-reported diarrhoeal illness among children remains the standard health impact measure.
used, and is by far the most commonly reported outcome. The map includes 186 studies measuring diarrhoea morbidity.

Analysis of mortality is less common: just 27 studies have examined impacts on child survival in LMICs, despite mortality being the main component of the global burden of disease due to inadequate WASH. Only 35 studies measure acute respiratory infection.

The most commonly reported behaviours are handwashing, water treatment and handling, and latrine use. Nearly 50 studies specifically collected data on handwashing before food preparation, and over 20 report other hygiene behaviours. There are also five studies of menstrual hygiene management.

The opportunity costs of women and children’s time spent collecting water, or illness in childhood due to inadequate access to water, sanitation and hygiene, include education and economic impacts. Twenty-three studies measured various aspects of time savings and alternative uses of time due to water supply improvements. However, only six studies measured labour market outcomes.

What do the findings of the map mean?

The map shows there is a sizeable evidence base for WASH interventions. Researchers and funders should consider carefully where there is the need for new primary evidence, and new syntheses of that evidence. This study suggests the following priority areas:

• impact evaluations of interventions targeting understudied outcomes, such as sustainability and slippage, in understudied places of use, such as health care facilities, and among populations that are disadvantaged;

• improved reporting in impact evaluations including full reporting of participant flows, as per CONSORT guidance, and clearer reporting about intervention and control conditions, including the availability of water supply (accessibility and reliability);

• natural experiments that can measure the impacts of WASH on mortality rigorously, ethically and with sufficient statistical power;

• new and updated systematic reviews in areas with sufficient impact evaluations, such as for diarrhoea mortality, acute respiratory infections, time use, WASH in schools, and decentralisation;

• more high confidence systematic reviews, which systematically incorporate unpublished studies, and use mixed methods to analyse intervention processes and outcomes along the causal pathway.