The *Lancet* Commission on water, sanitation and hygiene, and health

In 2010, access to water and sanitation was recognised as a human right and, in 2015, an ambitious Sustainable Development Goal (SDG) of achieving universal access to safely managed water, sanitation, and hygiene (WASH) services by 2030 was agreed. Half a decade later, SDG 6 is off-track,¹ and the COVID-19 pandemic has highlighted how limited access to WASH services undermines public health efforts² and exacerbates health and social inequalities.³ Important inter-related trends, including climate change, rapid urbanisation, increasing humanitarian crises, and persistent gender and income inequalities, compound this challenge.

The deficit is huge—almost half the world's population did not have access to safely managed sanitation services in 2020.¹ But achieving this ambitious SDG must not be dismissed as beyond reach. For diverse reasons, including public health, gender equality, and social and environmental justice, achieving this goal is imperative. Yet the reality is that many national systems have inadequate plans, financing, and capacity to deliver on the promise of the SDG.

The public health case for investing in WASH services is clear and increasingly urgent in the context of climate change, antimicrobial resistance, and rapid urban growth. Effective WASH services prevent various infectious diseases and their sequelae,⁴ reduce exposure to naturally occurring and synthetic toxic chemicals,⁵ and reduce pressure on health-care services. Beyond public health, WASH shapes people's living conditions and their opportunities, particularly for women and girls.⁶

Many WASH investments do not realise these potential returns. Results from large trials of low-cost WASH interventions report little or no health impact, even when delivered with high fidelity and sustained compliance.⁷⁻¹⁰ Other research has revealed the early onset of asymptomatic enteropathogen carriage in communities without safe WASH services¹¹ and its longer-term consequences, including childhood stunting.¹² This situation has led to calls for "radically more effective" WASH interventions.¹³

Low-cost household interventions focusing on individual behaviours also risk shifting responsibility

for public goods from the state to the individual. Such interventions often demand a large investment of time and financial resources from those least able to bear the costs, and underestimate or overlook the structural challenges faced by people living in poverty. Moreover, the true costs of these so-called low-cost approaches are often born by women as the de-facto water managers or caregivers who are tasked with additional responsibilities, reinforcing gender inequalities.¹⁴

International attention focuses almost exclusively on low-income and middle-income countries (LMICs), suggesting WASH is no longer a truly global concern. This focus neglects the challenges faced by many disadvantaged groups in high-income countries (HICs), such as populations in rural¹⁵ and urban¹⁶ settings in the USA. The near exclusive focus of the global WASH sector on LMICs reinforces an international architecture and outlook still shaped by colonial legacies.¹⁷

Against this backdrop, *The Lancet* announces a new Commission on water, sanitation and hygiene, and health. The aim of the Commission is to reimagine and reconstitute WASH not only as a central pillar of public health, but also as a pathway to gender equality and social and environmental justice. The work of the Commission will be informed by the latest evidence but will also be grounded in critical reflection on the evolution and priorities of this global sector.

The Commissioners are diverse across research disciplines, geography, and career stages, gender balanced, and are supported by a wider global network of scientists undertaking supporting research. The UK Foreign, Commonwealth and Development Office and the Bill & Melinda Gates Foundation have provided funding for research that will inform the work of this Commission.

At the first Commission meeting, three priority areas for its work were agreed. First, the necessity of achieving universal access to at least safely managed WASH services must be clearly argued. The continued pursuit of narrow, low-cost household interventions in the Published Online September 3, 2021 https://doi.org/10.1016/ S0140-6736(21)02005-5





face of growing evidence of their insufficiency distracts from the central challenge of building national systems capable of delivering universal access to safely managed services. The Commission will assess the health, social, and environmental consequences of slow progress towards universal access to safely managed WASH services, and delineate the scale and distribution of these deficits.

Second, the cost of achieving universal access to at least safely managed WASH services will be immense but so too are the potential benefits. The Commission will assess the financial costs of achieving universal access to at least safely managed services, as well as other barriers to progress. But we will also provide a comprehensive assessment of the potential benefits of such an achievement, encompassing public health gains, financial returns through improvements in human capital and productivity, and other benefits relating to social and environmental justice and gender equality.

Third, the Commission will make concrete recommendations for reform focused on the establishment of national systems that are capable of both professionalised delivery of WASH services for all and responding to key challenges such as climate change and rapid urbanisation. Public health, gender equality, and broader social and environmental justice will be at the heart of our recommendations. The focus will be global, recognising that WASH-related inequalities exist in HICs and LMICs, as does the potential for further health and social gains.

For the website of the Commission on water, sanitation and hygiene, and health see www.WASHcommission.com As our work progresses, we will engage policy and practice actors and post interim updates on the Commission's website. The current pandemic shows we cannot afford to slide further on our international goals of improving access to WASH, and renewed action is needed now.

Commissioners of the Lancet Commission on Water, Sanitation and Hygiene, and Health oliver.cumming@lshtm.ac.uk The Commissioners of the *Lancet* Commission on Water, Sanitation and Hygiene, and Health are: Argaw Amebelu, Radu Ban, Jay Bhagwan, Joe Brown, Clare Chandler, Roma Chilengi, John M Colford, Jr, *Oliver Cumming, †Valerie Curtis, Barbara E Evans, Matthew C Freeman, Raymond Guiteras, Guy Howard, Jean Humphrey, Gagandeep Kang, Robinah Kulabako, Claudio F Lanata, Maggie A Montgomery, Clair Null, Amy J Pickering, Jennyfer Wolf, supported by Jocalyn Clark and Ana Mateus from *The Lancet*. †Valerie Curtis died on Oct 19, 2020.

Jimma University, Jimma, Ethiopia (AA); Bill & Melinda Gates Foundation, Seattle, WA, USA (RB); Water Research Commission, Pretoria, South Africa (JBh); University of North Carolina, Chapel Hill, NC, USA (JBr); Centre for Infectious Disease Research in Zambia, Lusaka, Zambia (RC); London School of Hygiene & Tropical Medicine, London WC1E 7HT, UK (CC, OC); University of California, Berkeley, CA, USA (JMC, AJP); University of Leeds, Leeds, UK (BEE); Emory University, Atlanta, GA, USA (MCF); North Carolina State University, Raleigh, NC, USA; (RG); University of Bristol, Bristol, UK (GH); Johns Hopkins University, Baltimore, MD, USA (JH); Christian Medical College, Vellore, India (GK); Makerere University, Kampala, Uganda (RK); Nutritional Research Institute, Lima, Peru (CFL); World Health Organization, Geneva, Switzerland (MAM, JW); Mathematica, Washington, DC, USA (CN)

- WHO, UNICEF. Progress on household drinking water, sanitation and hygiene, 2000–2020: five years into the SDGs. Geneva: World Health Organization, 2021.
- 2 Brewer TF, Zhang M, Gordon D, et al. Housing, sanitation and living conditions affecting SARS-CoV-2 prevention interventions in 54 African countries. *Epidemiol Infect* 2021; **149**: e183.
- 3 Ekumah B, Armah FA, Yawson DO, et al. Disparate on-site access to water, sanitation, and food storage heighten the risk of COVID-19 spread in Sub-Saharan Africa. Environment Res 2020; 189: 109936.
- Pruss-Ustun A, Wolf J, Bartram J, et al. Burden of disease from inadequate water, sanitation and hygiene for selected adverse health outcomes: an updated analysis with a focus on low- and middle-income countries. Int J Hyg Environ Health 2019; 222: 765–77.
- Landrigan PJ, Fuller R, Acosta NJR, et al. The Lancet Commission on pollution and health. Lancet 2018; 391: 462–512.
- Caruso BA, Sevilimedu V, Fung IC, Patkar A, Baker KK. Gender disparities in water, sanitation, and global health. *Lancet* 2015; **386:** 650–51.
- Luby SP, Rahman M, Arnold BF, et al. Effects of water quality, sanitation, handwashing, and nutritional interventions on diarrhoea and child growth in rural Bangladesh: a cluster randomised controlled trial. Lancet Glob Health 2018; **6:** e302–15.
- Null C, Stewart CP, Pickering AJ, et al. Effects of water quality, sanitation, handwashing, and nutritional interventions on diarrhoea and child growth in rural Kenya: a cluster-randomised controlled trial. Lancet Glob Health 2018; 6: e316–29.
- Humphrey JH, Mbuya MNN, Ntozini R, et al. Independent and combined effects of improved water, sanitation, and hygiene, and improved complementary feeding, on child stunting and anaemia in rural Zimbabwe: a cluster-randomised trial. *Lancet Glob Health* 2019; 7: e132–47.
- 10 Knee J, Sumner T, Adriano Z, et al. Effects of an urban sanitation intervention on childhood enteric infection and diarrhea in Maputo, Mozambique: a controlled before-and-after trial. *Elife* 2021; **10:** e62278
- 11 Platts-Mills JA, Liu J, Rogawski ET, et al. Use of quantitative molecular diagnostic methods to assess the aetiology, burden, and clinical characteristics of diarrhoea in children in low-resource settings: a reanalysis of the MAL-ED cohort study. Lancet Glob Health 2018; 6: e1309–18.
- 12 Rogawski ET, Liu J, Platts-Mills JA, et al. Use of quantitative molecular diagnostic methods to investigate the effect of enteropathogen infections on linear growth in children in low-resource settings: longitudinal analysis of results from the MAL-ED cohort study. Lancet Glob Health 2018; **6**: e1319–28.
- 13 Pickering AJ, Null C, Winch PJ, et al. The WASH Benefits and SHINE trials: interpretation of WASH intervention effects on linear growth and diarrhoea. *Lancet Glob Health* 2019; 7: e1139–46.
- 14 Ray I, Smith KR. Towards safe drinking water and clean cooking for all. Lancet Glob Health 2021; **9**: e361–65.
- 15 Allaire M, Wu H, Lall U. National trends in drinking water quality violations. Proc Natl Acad Sci USA 2018; 115: 2078–83.
- 16 Bellinger DC. Lead contamination in Flint—an abject failure to protect public health. N Engl J Med 2016; 374: 1101–03.
- 17 Abimbola S, Pai M. Will global health survive its decolonisation? Lancet 2020; 396: 1627–28.

RB is employed by the Water, Sanitation, and Hygiene programme at the Bill & Melinda Gates Foundation and is contributing to this *Lancet* Commission in his independent capacity as an economist and WASH expert. JBr reports a grant from the Bill & Melinda Gates Foundation unrelated to the Commission. OC reports grants from the Bill & Melinda Gates Foundation and UK Foreign, Commonwealth and Development Office related to the Commission. MCF reports grants from the Bill & Melinda Gates Foundation both related to, and unrelated to, the Commission. AJP reports a grant from the Bill & Melinda Gates Foundation related to the Commission. All the other authors declare no competing interests.