

## Editorial: WASH Economics and Financing: towards a better understanding of costs and benefits

### INTRODUCTION

The case for investment in water, sanitation and hygiene (WASH) has been convincingly made. WASH is essential for protecting public health, is a human right and investing in it is compelling from a fiscal and economic point of view. While the estimated \$114 billion per year of capital investments required to meet universal access to safely managed water and sanitation services by 2030 is often portrayed as a hefty price tag, current best estimates of benefit-to-cost ratios leave little doubt about its value.

What is less clear is how to allocate resources efficiently. There is limited evidence on the cost efficiency and cost effectiveness of various policy and implementation choices. The underlying drivers of demand for (new) technologies and solutions are, for example, poorly understood, as is beneficiaries' willingness to pay (WTP), leading to open questions about pricing policies and sustainable business models.

This is in contrast to other infrastructure sectors, such as energy and transport, where active literature on the economics and financing of services has been more helpful in defining national and international policy. Our objective with this Special Issue is to encourage the WASH sector to follow suit and start to effectively engage and research these issues.

At the heart of this Special Issue therefore, are papers which highlight some of the specificities, and challenges of conducting full economic evaluations of WASH interventions, provide a deeper understanding of potential solutions, and present new findings on costs and outcome measures, thereby contributing towards a fuller picture of WASH cost-effectiveness.

### OVERVIEW OF THE SPECIAL ISSUE

We started this editorial by saying that the case for WASH investment has been convincingly made, which implies, in

economic terms, that the benefits of doing so outweigh the costs. This is generally accepted, despite the fact that many benefits are yet to be quantified or even shown to be statistically significant. Two important challenges in doing so are addressed in this special issue: the assessment of complementarities between (components of) WASH investments (and other investments) and the quantification of intangible and difficult to measure benefits. [Orgill-Meyer \(2020\)](#) sheds light on the interaction between village-level latrine coverage and the availability of school latrines and [Augsburg & Rodríguez-Lesmes \(2020\)](#) provide empirical evidence on household-level economic and non-pecuniary benefits of sanitation.

The complexity and heterogeneity of WASH systems implies not only non-monetary benefits but also non-monetary costs, or negative consequence, which have to be added to a full economic cost assessment of WASH. Monetary cost assessment is therefore particularly complicated in WASH, and the WASH sector has some way to go before providing a clear and transparent cost assessment. Indeed, WASH is characterised by highly empirical and applied investigations of transactions, as opposed to a more theoretical approach that is typical of economics and management disciplines, e.g. institutional theory, transaction cost theory, agency theory. [Sainati \*et al.\* \(2020\)](#) highlight the lack of costing standards and of unambiguous terminology in the WASH sector compared to other infrastructure sectors and takes a step towards closing this gap by introducing a proposed standard cost metric for urban sanitation. One of the difficulties in this process is the required heterogeneity in WASH infrastructures, not only across WASH components, but also within, as highlighted by [Grant \*et al.\* \(2020\)](#) for water schemes in the context of rural Vietnam. The same study also shows that few of the assessed schemes are profitable based on a 20-year design life assumption and can only be sustained with subsidies. The difficulty of WASH costing and financing is a recurrent theme: [Deal & Sabatini \(2020\)](#)

assess actual and potential market penetration and market share of small-scale water utilities in rural Ghana showing suboptimal market penetration even if water is free, driven by the perceived attractiveness of alternative sources. Nagpal *et al.* (2020) similarly highlight that alternative water sources pose challenges for cost recovery through tariffs and Abramovsky *et al.* (2020) demonstrate that existing tariff structures for piped water consumption fall well short of recovering the costs of service provision in ten analysed countries. There is a lot to learn and understand about effective financing instruments that can lead to a sustained supply of safely managed WASH services. The choice and combination of instruments can improve efficiency and effectiveness in service provision by – among other things – improving monitoring systems and fostering innovation (or not), as discussed in Howard & White (2020).

Although Abramovsky *et al.* (2020) reveal that subsidies delivered via the water tariff largely fail to achieve the goal of improving the accessibility and affordability of piped water among the poor, other studies demonstrate that other modes of subsidy remain relevant and justifiable in the WASH sector. This is largely because of public benefits or externalities: Radin *et al.* (2020) draw attention to this through a comprehensive cost-benefit analysis which shows that community-led total sanitation (CLTS) combined with a well targeted subsidy would be more effective in the context of Ghana, than CLTS only. Similarly, Peletz *et al.* (2020) compare the financial structure of approaches to determine the feasibility of expanding safe faecal sludge services to low-income areas in urban Kenya and reveals that even the approach found to be most cost-effective requires subsidies to be sustained.

This provides an example of the importance of understanding willingness to pay and the corresponding financial incentives needed to achieve desirable outcomes for policy or programme design. Tidwell (2020) demonstrates the difficulty in eliciting this information, showing important variation in the level of WTP for urban sanitation services depending on the choice of demand assessment method chosen.

And this is where we come full circle: Who is willing to pay for WASH services, and how much, depends on who benefits and by how much, and whether these benefits are internalised and understood.

## REFLECTIONS ON THE CURRENT STATE OF THE ART OF RESEARCH IN WASH ECONOMICS AND FINANCE

This special issue is grounded in the belief that the use of economic evidence is, and should be, instrumental in transparent and consistent policy-making, based on efficient spending decisions. The special issue provided an opportunity to review, analyse and evaluate the current status of WASH economics and its use.

It is clear that the economics and finance of WASH is particularly challenging. Two reasons stand out: For one, the generic ‘problem’ of WASH is that it encompasses three areas – water, sanitation and hygiene – that each individually necessitates the matching of demand with supply, ensuring safe services and technology, at the right location and the right time. The fact that individual WASH components are closely interlinked and now also more and more seen as a relevant factor in integrated, multisectoral approaches to achieving SDGs introduces further complexity. Second, the decision about who pays how much for what, when and how needs to be considered in view of WASH carrying key traits of public goods, where much of the benefit is public. In other words, public finance of WASH can be justified by its inherent externalities. Little, however, is understood about how much *society* is willing to pay for promotion of health, dignity and a cleaner environment through WASH, and whether and how this WTP can be moved. There is a need to shift the academic and policy debate beyond the focus on the front end of WASH, the interface with beneficiaries, which includes an understanding of their WTP, and increase the scope to the back end of WASH system, including supply chains, overall business models, instrumental markets for the design and development of underlying infrastructure, and governance and institutional implications derived from economic and financial transactions in WASH.

One important learning coming from the special issue is that this complexity is clearly not an insurmountable problem, but rather an academically interesting and policy relevant challenge, that researchers are beginning to tackle. In order to achieve improved outcomes for the poor and services that are efficiently delivered, we need at the same time more, better, and better consolidated knowledge on the selection and financing of WASH interventions.

There are strong individual researchers working on it from their respective disciplinary angles, but bringing the research cohesively together is an achievement yet to be made. For example, many academic disciplines put a lot of efforts into obtaining robust estimates of WASH benefits, particularly in terms of health but increasingly also covering non-health outcomes. The sector has seen very productive and fruitful cross-disciplinary research projects doing so. What the majority of such efforts seem to be lacking though, is an equally robust estimation of costs. Rather than striving for an approach that can yield the underlying cost function with proper confidence intervals, a pure accounting perspective is typically taken to assess costs, at best.

To date, decisive and consistent answers to questions relevant for improving the delivery of WASH services are not available. Barriers to adopting new products, technologies, and solutions need to be identified systematically, underlying factors that affect demand need to be estimated to inform pricing policy, shed light on information gaps and the role of credit. The variability of these factors needs to be understood in different geographical, institutional, cultural, and political contexts. There is further a need to systematise and integrate the current academic debate so that the results can be directly used by practitioners and activists.

We believe that this special edition from the Journal of Water, Sanitation and Hygiene for Development makes a timely and useful contribution to this debate and stimulates further work on both the theory and practice of WASH economics and financing. We look forward to reading many new and challenging contributions to this debate in the years to come.

#### Guest Editors

**Britta Augsburg**

Institute of Fiscal Studies, UK

**Tristano Sainati**

School of Civil Engineering, University of Leeds, UK

#### REFERENCES

- Abramovsky, L., Andrés, L., Joseph, G., Rud, J. P., Sember, G. & Thibert, M. 2020 [Unpacking piped water consumption subsidies: who benefits? new evidence from 10 countries.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 691–715.
- Augsburg, B. & Rodríguez-Lesmes, P. 2020 [Sanitation dynamics: toilet acquisition and its economic and social implications in rural and urban contexts.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 628–641.
- Deal, P. T. & Sabatini, D. A. 2020 [An assessment of penetration for pay-to-fetch water kiosks in rural Ghana using the Huff gravity model.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 670–679.
- Grant, M., Foster, T., Van Dinh, D., Willetts, J. & Davis, G. 2020 [Life-cycle costs approach for private piped water service delivery: a study in rural Viet Nam.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 659–669.
- Howard, G. & White, Z. 2020 [Does payment by results work? Lessons from a multi-country WASH programme.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 716–723.
- Nagpal, T., Rawlings, H. & Balac, M. 2020 [Understanding water demand and usage in Mandalay city, Myanmar as a basis for resetting tariffs.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 680–690.
- Orgill-Meyer, J. 2020 [Interaction of village and school latrines on educational outcomes in India.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 618–627.
- Peletz, R., Feng, A., MacLeod, C., Vernon, D., Wang, T., Kones, J., Delaire, C., Haji, S. & Khush, R. 2020 [Expanding safe fecal sludge management in Kisumu, Kenya: an experimental comparison of latrine pit-emptying services.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 744–755.
- Radin, M., Wong, B., McManus, C., Sinha, S., Jeuland, M., Larbi, E., Tuffuor, B., Biscoff, N. K. & Whittington, D. 2020 [Benefits and costs of rural sanitation interventions in Ghana.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 724–743.
- Sainati, T., Zakaria, F., Locatelli, G., Andrew Sleight, P. & Evans, B. 2020 [Understanding the costs of urban sanitation: towards a standard costing model.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 642–658.
- Tidwell, J. B. 2020 [Users are willing to pay for sanitation, but not as much as they say: empirical results and methodological comparisons of willingness to pay for peri-urban sanitation in Lusaka, Zambia using contingent valuation, discrete choice experiments, and hedonic pricing.](#) *Journal of Water, Sanitation and Hygiene for Development* **10** (4), 756–767.