

## **Learning from Failure in Environmental and Public Health Research**

Authors: Barrington, Dani J, Sindall, Rebecca C, and Shaylor, Esther L

Source: Environmental Health Insights, 16(1)

Published By: SAGE Publishing

URL: <https://doi.org/10.1177/11786302221104067>

---

BioOne Complete ([complete.BioOne.org](https://complete.BioOne.org)) is a full-text database of 200 subscribed and open-access titles in the biological, ecological, and environmental sciences published by nonprofit societies, associations, museums, institutions, and presses.

Your use of this PDF, the BioOne Complete website, and all posted and associated content indicates your acceptance of BioOne's Terms of Use, available at [www.bioone.org/terms-of-use](https://www.bioone.org/terms-of-use).

Usage of BioOne Complete content is strictly limited to personal, educational, and non - commercial use. Commercial inquiries or rights and permissions requests should be directed to the individual publisher as copyright holder.

---

BioOne sees sustainable scholarly publishing as an inherently collaborative enterprise connecting authors, nonprofit publishers, academic institutions, research libraries, and research funders in the common goal of maximizing access to critical research.

# Learning from Failure in Environmental and Public Health Research

Dani J Barrington<sup>1</sup>, Rebecca C Sindall<sup>2</sup> and Esther L Shaylor<sup>3</sup>

<sup>1</sup>School of Population and Global Health, The University of Western Australia, Crawley, WA, Australia. <sup>2</sup>Independent Global Public Health Consultant, Leicester, UK. <sup>3</sup>UNICEF Product Innovation Center, Supply Division, Copenhagen, Denmark.

Environmental Health Insights  
Volume 16: 1–2  
© The Author(s) 2022  
Article reuse guidelines:  
sagepub.com/journals-permissions  
DOI: 10.1177/11786302221104067



**KEYWORDS:** Failure, WASH, sanitation, water, hygiene

**RECEIVED:** March 21, 2021. **ACCEPTED:** March 24, 2022.

**TYPE:** Learning From Failure in Environmental and Public Health Research - Editorial

**FUNDING:** The author(s) received no financial support for the research, authorship, and/or publication of this article.

**DECLARATION OF CONFLICTING INTERESTS:** The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

**CORRESPONDING AUTHOR:** Dani J. Barrington, School of Population and Global Health, The University of Western Australia, 35 Stirling Highway, Crawley, WA 6009, Australia. Email: dani.barrington@uwa.edu.au

Environmental and public health research endeavours regularly fail. Sometimes this means that programmes do not achieve their stated aims; other times these failures are setbacks that can be rectified with sufficient reflection and action.<sup>1</sup> In the worst cases, the purported ‘beneficiaries’ of research and practice are harmed through the unintended consequences borne of admirable intentions.<sup>2</sup> These tales of failure are rarely shared publicly, in part due to a culture of covering up things that go wrong, both individually and institutionally.

We have spent the past few years working on a water, sanitation and hygiene (WASH) initiative where we are encouraging colleagues and organisations within our sector to ‘speak-up’ when things go wrong. This has included hosting game shows at conferences,<sup>3</sup> conducting participatory research with front-line WASH staff,<sup>4</sup> writing editorials<sup>5</sup> and developing and promoting The Nakuru Accord: failing better in the WASH sector.<sup>6</sup> Given the successes we have already seen in shifting working cultures in WASH, we believed a journal Special Collection where a broader array of professionals from a variety of environmental and public health fields could share their experiences was a timely and valuable contribution to literature, research and practice.

The call for this Special Collection offered researchers the opportunity to share when things had gone wrong, or where their hypotheses had been proven wrong and returned null results. We also encouraged thought pieces on the importance of failure in innovation and how to incorporate failure, and its discussion, into the daily practices of organisations. We hoped that this sharing of lessons learnt would mean that other professionals could avoid making the same mistakes; investing in research which may waste time or money, or negatively impact the well-being of those involved.

We were not disappointed. The papers accepted for publication in this collection focussed on 3 aspects of failure:

- Failures in environmental and public health programme implementation, including a lack of community engagement in developing solid waste sites in Malawi,<sup>7</sup> the improper use of personal protective equipment to prevent COVID spread in Thailand<sup>8</sup> and the lack of diversity in senior levels of WASH organisations<sup>9</sup>;

- Failures in environmental and public health monitoring and measurement, including a discussion on how randomised controlled trials fail to capture the full complexity of WASH interventions within multi-sectoral systems,<sup>10</sup> why better standard procedures are needed for measuring phosphorous in wastewater,<sup>11</sup> how sharing soil testing data through mobile technology is a low priority for farmers in Ghana and Kenya,<sup>12</sup> and how plastic waste from water quality testing creates landfill, but there currently is no reliable method for reusing plastic filters without impacting on measurement quality<sup>13</sup>;
- How we can learn from failures in environmental and public health and embed these lessons into our organisations.<sup>14,15</sup>

Overall, the papers in this Collection demonstrate that failures happen everywhere: in the laboratory, when engaging with communities, in organisational leadership and even when talking about failure. Attempting to completely rid our work of failures is impossible, but we should work to fail better and ensure that we are not recreating the same failures time and time again.

The interdisciplinary nature of environmental and public health research, particularly WASH, means that there is a need to engage with a wide range of people and disciplines during projects. We need to recognise the strength that this brings to our work but also that it comes with challenges of its own. As such, we must learn how to better communicate between research fields and sectors, and how to apply learning and engagement tools that come from diverse disciplines. Whilst specialists are an important part of the puzzle of successful environmental and public health research, individuals who can build bridges and communicate ideas between those specialist areas are just as important, and their value is often overlooked.

In moving towards ways of working that encourage us to fail better, we must acknowledge that it is easier to accept and respond to failures where we can attribute failure to someone or something else. Recognising this is a vital first step in developing systems that allow individuals, organisations and sectors to approach failure in new and more fruitful ways. These systems need to be more accommodating of experimentation,



Creative Commons Non Commercial CC BY-NC: This article is distributed under the terms of the Creative Commons Attribution-NonCommercial 4.0 License (<https://creativecommons.org/licenses/by-nc/4.0/>) which permits non-commercial use, reproduction and distribution of the work without

incorporate greater flexibility into work and ultimately provide greater transparency so that we can be held accountable for both our successes and our failures.

We hope that this Special Collection will encourage further environmental and public health researchers, as well as editors of journals within this discipline, to publish more work on things that have gone wrong along the way. It is through learning from the missteps of others that we are able to avoid them ourselves, and ultimately, the people we work with, institutions we work for and donors who fund us, will thank us for wasting less of their time, money and patience.

## REFERENCES

1. Jones S, Greene N, Hueso A, Sharp H, Kennedy-Walker R. *Learning From Failure: Lessons for the Sanitation Sector*. UK Sanitation Community of Practice; 2013.
2. Barrington DJ, Sridharan S, Shields KF, Saunders SG, Souter RT, Bartram J. Sanitation marketing: a systematic review and theoretical critique using the capability approach. *Soc Sci Med*. 2017;194:128-134.
3. Barrington Dani J, Sindall RC, Shaylor E, Davis S. Blunders, bloopers and foul-ups: sharing failures in water, sanitation and hygiene programs. Accessed March 3, 2022. <https://www.engineeringforchange.org/news/blunders-bloopers-foul-ups-sharing-failures-water-sanitation-hygiene-programs/>.
4. Barrington DJ, Sindall RC, Chinyama A, et al. Research Brief: Amplifying Local Voices to Reduce Failure in the Water, Sanitation and Hygiene Sector. 2021.
5. Sindall RC, Barrington DJ. Fail fast, fail forward, fail openly: the need to share failures in development. *Journal of Trial & Error*. 2020;1:6-8.
6. WASH Failures Team the Nakuru Accord. Accessed March 3, 2022. <https://www.waterwomenworld.com/nakuru/>.
7. Holm RH, Chunga BA, Mallory A, Hutchings P, Parker A. A qualitative study of NIMBYism for waste in smaller urban areas of a low-income country, Mzuzu, Malawi. *Environ Health Insights*. 2021;15:1178630220984147.
8. Moolasart V, Manosuthi W, Thienthong V, et al. Optimized and non-optimized personal protective equipment use during the COVID-19 pandemic in Thailand: a national cross-sectional survey in a resource-limited setting. *Environ Health Insights*. 2021;15:11786302211013545.
9. Worsham K, Sylvester R, Hales G, McWilliams K, Luseka E. Leadership for SDG 6.2: is diversity missing? *Environ Health Insights*. 2021;15:11786302211031846.
10. Burton J, Patel D, Landry G, Anderson SM, Rary E. Failure of the "Gold Standard": the Role of a mixed methods research toolkit and human-centered design in transformative WASH. *Environ Health Insights*. 2021;15:11786302211018391.
11. Rosario P, Viswash R, Seenivasan T, et al. Potential pitfalls in wastewater phosphorus analysis and how to avoid them. *Environ Health Insights*. 2021;15:11786302211019218.
12. Mallory A, Parker A, Hutchings P, Sakrabani R. Why agricultural tools work in theory but aren't adopted in practice: a grounded theory approach to ICT in Ghana and Kenya. *Air Soil Water Res*. 2022;15:11786221221092782.
13. Zimmer C, Cassivi A, Baía CC, et al. Assessment of decontamination and reuse of disposable filter funnels used in microbiological water quality tests. *Environ Health Insights*. 2021;15:11786302211014400.
14. Vernon N, Myers J. Acknowledging and learning from different types of failure. *Environ Health Insights*. 2021;15:11786302211018095.
15. Weekly C. Lessons in failure: applying an organizational learning framework to understanding attitudes towards failure in development. *Environ Health Insights*. 2021;15:11786302211044348.