

Journal of Humanitarian Engineering

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ENGINEERING**





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Journal of Humanitarian Engineering (JHE)

The Journal of Humanitarian Engineering (JHE) is an open access publication that publishes outcomes of research and field experiences at the intersection of technology and community development. The field of “humanitarian engineering” describes the application of engineering and technology for the benefit of disadvantaged communities. The field spans thematic areas from water to energy to infrastructure; and applications from disability access to poverty alleviation. The JHE aims to highlight the importance of humanitarian engineering projects and to inspire engineering solutions to solve the world’s most pertinent challenges.

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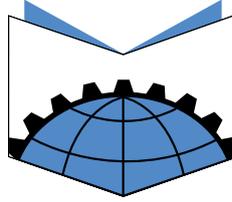
INDIGENOUS AUSTRALIAN ACKNOWLEDGEMENT

EWB respectfully acknowledges the Traditional Owners of the Country on which we work.

To learn more about our commitment to reconciliation, read EWB’s Reconciliation Action Plan.

Cover photos:

All images are courtesy of Gilliam et al (this issue). Top - Affordable green houses utilised by women’s cooperatives in South Mozambique; greenhouses increase the yield production of crops throughout the year allowing for increased financial stability for local farmers; Middle - Farmer Daniel Mucachua showing his tomato harvest; Bottom - Farmer Daniel Mucachua’s seedlings growing in thermocol crates in a greenhouse in Southern Mozambique.



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EDITORIAL

The papers in this issue all demonstrate out of the box thinking, and are not the traditional forms of studies that many of us with engineering backgrounds are used to. I find this hugely exciting, as

Journal of Humanitarian Engineering was initiated to widely share innovative thinking, particularly through free publication and access, and prompt the important conversations which may not arise from traditional journal publications.

For example, many of us have seen news images of people impacted by conflict or natural disasters fleeing their homes. There are global political debates about where these individuals and families can seek refuge in the longer term. But little is discussed in the mainstream media about the quality of their lives when they arrive in an intermediate country or region. I work in the field of water and sanitation, so I often think about whether there is adequate access to clean drinking water and safe toilets in “short-term” (we know that many families raise multiple generations here, so in some cases this is a misnomer) shelters and camps. But I have to admit that until I read Greene and Chao’s paper, I had never considered the implications of poor sleep quality, particularly on a population potentially experiencing so many other physical, mental and emotional traumas and threats. Read their paper to understand more about how improving flooring structures in temporary shelters can lead to a measurable increase in well-being.

Eseonu and Cortes’ paper highlights something that is often not at the front of students’ minds when they hear the term “humanitarian engineering” – that it is globally applicable. This should be recognised more widely than it currently is, particularly as the Sustainable Development Goals must be achieved universally, not just in countries considered to be “developing”. The paper presents an approach where university students and communities of the Pacific Northwest worked together on product, workforce and economic development. This “differs from existing project or trip based approaches – outreach – because the focus is on local communities with which the university team forms a long term partnership through weekly in-person meetings and community driven problem statements – engagement”. Such a participatory approach empowers everyone involved to bring their own skills to the table.

The final two papers by Gilliam and Mehta are the culmination of many years of research and practical work on engineering projects in low resource contexts. They discuss the myriad of failures they have witnessed over the years throughout the design, implementation and maturity phases of agricultural technologies ventures, and how the majority of these have not been due to technical issues. Gilliam and Mehta then present a taxonomy of the modes of such failures, with suggestions of how they can be addressed before projects begin, a “pre-mortem” of sorts. As engineers it is common for us to discuss failures within our own institutions or over a beer, but often as a sector we do not formally recognise and learn from them. I commend the authors on proposing a way in which agricultural engineering researchers and practitioners can self-reflect on past failures so as to prevent future ones.

I hope you enjoy reading these papers as much as I did, and that they spark some new discussions within your group of friends and colleagues.

Dr. Dani Barrington

Editor-in-Chief, Journal of Humanitarian Engineering

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