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JOURNAL OF HUMANITARIAN ENGINEERING

engineers without borders australia

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.

For more information, visit: www.ewb.org.au/journal.

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:
Top - El Guarango dragon fruit plantation by Ann-Perry Witmer
Middle left: EWB project team by Ann-Perry Witmer
Middle right - Dr. Andreas Braun working with satellite images by Universität Tübingen / Christoph Jäckle
Bottom: Rocafuerte Treatment Plant by Ann-Perry Witmer

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GUEST EDITORIAL

We are excited to provide the guest editorial for this issue of the Journal of Humanitarian Engineering as the new co-Editors in Chief of the journal. Our sincere thanks and appreciation go to Dr Dani Barrington-Francis for her leadership and work on the journal for the last 8 years. It needed two people to fill her big shoes!

We join the journal at a time of global heartache and upheaval as COVID-19 is fundamentally changing the ways we live and work. From a Humanitarian Engineering perspective, it poses a double-edged sword. While making the value and importance of our work more apparent than ever, it also brings disruption and threats.

Like most crises, COVID-10 amplifies societal inequities and highlights the important role humanitarian engineers play in eliminating these. Pandemics do not affect all equally. Vulnerable groups once again bear the brunt of the burden, not least because COVID-19 disproportionally affects older people and people with low immunity. But vulnerable groups are also more likely to live in tight quarters, making social distancing challenging, and are more likely to lack access to health services and information. They are more likely to lose their jobs, may be unable to buy in bulk, and may find home-schooling more challenging. For us, as humanitarian engineers, COVID-19 especially brings to light the disparities in access to technology we, as a global society, are still facing. It is impossible to wash your hands for 20 seconds to halt the spread of disease if you do not have access to clean water or soap. Approximately 2.3 billion people globally are in this situation. Furthermore, more than 20% of health services in least developed countries have no water and/or no sanitation and/or waste management services. How can medical workers save lives under these conditions?

The COVID-19 pandemic also highlights the important role engineers play in urgently managing humanitarian emergencies. Engineers have, for example, responded to COVID-19 by rapidly designing low-cost face masks, face shields, and ventilators, and promptly converting manufacturing facilities to fulfil the growing demands for PPE. Engineers have also provided crucial data to support policy making by modelling and tracking the spread of the disease. One example is the dashboard developed by the Centre for System Science and Engineering at John Hopkins University in the U.S., which has had over 1 billion usage requests per day. These, and many other remarkable efforts by engineers, will continue to play a crucial role in the long battle against COVID-19.

While the current crisis highlights the importance of humanitarian engineering, it also disrupts our work, and makes it more challenging. So much of what we do every day, whether internationally or locally, requires us to build strong relationships and work directly with vulnerable and marginalised groups to co-design solutions that improve life and well-being. COVID-19 threatens to weaken or even break those relationships by replacing face-to-face collaboration with online interactions, which the world is now discovering is a poor substitute. We must find new and innovative ways of empowering our collaborators from afar and continue to support them through the crisis.

COVID-19 also threatens the important work the Humanitarian Engineering community has done to transform engineering education over the past decade. Engineers Australia, and other engineering peak bodies, have long recognised the need for engineers to apply their practice ethically and collaboratively. However, until recently, this has not been reflected in the way engineering students have been educated. Engineers have often paid lip service to community consultation as another tick that gets big infrastructure projects approved. Humanitarian Engineering educators have, in collaboration with Engineers

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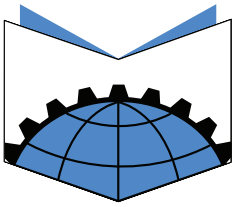
without Borders Australia, played an important role in changing this. Over the last 10 years, we have seen a number of courses and programs developed at universities across Australia and New Zealand that aim to train the next generation of engineers with the skills to lead our profession in human-centred design. What will happen to these efforts as engineering education moves online and universities across the region are looking to cut budgets?

In these uncertain times, we should, as a community, band together to take advantage of this unique opportunity to demonstrate the value of our work, while finding ways of collectively navigating the current and potential future challenges and threats. We believe the Journal of Humanitarian Engineering provides an important avenue for doing this and warmly invite you to join the conversation.

Dr Tanja Rosenqvist
Lecturer Humanitarian Engineering, School of Engineering,
RMIT University, Australia

A/Prof Fiona Johnson
Associate Professor, Water Research Centre - School of Civil and Environmental Engineering,
University of New South Wales (UNSW), Australia



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