Editorial

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Greetings everyone from London. I had the privilege of being elected to the Institution of Civil Engineers (ICE) Council recently, which has further inspired me to address the big challenges facing our planet. In addition to the ongoing pandemic, we will need to tackle climate change, urbanisation, conflict and equity for human development. This will require creativity, innovation and collaboration.

As part of his inaugural address, ICE president Ed McCann (2022) challenged engineers to be imaginative in developing and operating infrastructure that maximises the benefit to our communities. Our society is diverse and hence the engineering community needs to reflect this. Fostering diverse perspectives and teams will enable the engineering community to be inclusive and creative. When we design infrastructure, understanding varied lived experiences is key to meeting needs of local communities. ICE's Anti-Racism Toolkit (Barney, 2021) and *Fairness, Inclusion and Respect Action Plan* (ICE, 2021) are a step in the right direction. More needs to be done by all stakeholders in engineering and construction in 2022 to influence and shape discussions on engineering sustainability in a just and equitable manner.

We are delighted to bring to you diverse perspectives on engineering sustainability from authors around the world. It is important to showcase regional, national and global best practice in waste management and resource efficiency to provide opportunities to learn from each other.

The first paper of this issue kicks off with exploring feasibility of waste-to-energy plants using municipal solid waste in Oman. Umar (2022) uses mixed methods – quantitative and qualitative – to explore technical feasibility, social acceptance and willingness to segregate waste at source and potential emission reductions. The waste samples collected indicate a good volume (~50%) of combustible waste that can be used in a waste-to-energy plant. More than 70% of the interviewees were willing to segregate waste at source if appropriate training was provided. The waste-to-energy plant had the potential to reduce emissions, thereby addressing the goal of climate change.

Duraisamy *et al.* (2022) explore replacement of ordinary Portland cement (OPC) with industrial by-products to reduce the carbon dioxide footprint associated with cement production. Whilst there

have been studies on use of fly ash, there has been limited work on understanding packing densities and strength of composite cements with higher replacement levels. The authors test 11 combinations in India based on the maximum packing density to explore trade-offs between cement reduction and strength. The early-age strength is influenced by the packing density of composite cements, whereas the later-age strength is influenced by the amount of OPCs.

Continuing on a similar topic, Atkins and Lambert (2022) look into the loss of embodied energy associated with corrosion and degradation throughout the life of a structure. The authors review corrosion and protection methods from the perspective of whole-life embodied carbon dioxide. They present examples on low embodied carbon dioxide options for different environments for steel and reinforced concrete.

Lastly, Kolaventi *et al.* (2022) tackle an important issue of construction waste. Circa 35% of construction waste goes to landfills globally. Using a combination of expert interviews, site visits to six construction sites and survey questionnaires the authors explore barriers to recycling of construction waste in India. Key barriers include lack of guidelines for recycling of construction waste and legal requirements on environment protection. The authors recommend behavioural, legal, technical and marketing interventions such as: enforcement of use of recycled materials in government construction projects; development of code provisions for acceptable quantity of recycled construction waste in various building components; higher landfill charge with strict penalties for illegal dumping; and increasing sales outlets for recycling material.

We are looking for new authors, reviewers and panel members from the UK and overseas, especially from industry, who can engage with our readership on innovative solutions applied in their countries, which may have a global relevance. So please do get in touch with us and send us your publications and/or CV if you are interested in being more involved. The journal publishes its most recent articles Ahead of Print on its Virtual Library homepage.

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