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Editorial

Claire L. Walsh BSc, PhD
Lecturer in Water Engineering, Newcastle University, Newcastle, UK

I write this editorial during the fourth week of lockdown due to the Covid-19 pandemic, and on the 50th anniversary of Earth Day. Each year Earth Day celebrates and demonstrates support for environmental protection, and the theme for this year is climate action. Given the global situation of lockdown perhaps more people than ever are taking part, regardless of their awareness. The demand for, and of the infrastructure systems and the services that they provide that we rely on daily has changed. Fewer people are driving their cars and using public transport, industry has been reduced and retail has been stripped back affecting supply chains. This is inevitably contributing to lowering carbon dioxide emissions and improving air quality, as seen in some of the startling contrasting photographs of major international cities such as Delhi and Beijing. Similar trends are being recorded in the UK – for example, in Newcastle through Newcastle's Urban Observatory dedicated website (Newcastle University, 2020), showing the effect of measures on pedestrian and traffic flows around the city as well as air quality indicators. The current Covid-19 situation is leading to shifts in how infrastructure and our cities are perceived, used, managed and evaluated. Can we learn from this, enhance the resilience and sustainability of our engineering, and while reducing our emissions? This edition closes with a book review of *Methods for Sustainability Research* by Keaton. The subtitle of the first chapter of this book is, 'Introducing pathways to hope', perhaps quite pertinent as with time we come to consider the opportunities to reimagine our engineering following our current crisis.

This edition consists of four papers. The first three consider the impacts of damaging footprints, and ways to reduce them, at a range of scales. The fourth paper broadens the discussion to considering sustainable-development-goal impact targets in design stages of infrastructure projects.

Siew's paper reviews a Malaysian property and construction company's approach to develop an in-house sustainable development index, covering a range of sustainability-related issues such as waste and water management (Siew, 2020). The resulting sustainability strategic plan includes embedding sustainability clauses in contracts with contractors to encourage them to account for sustainability performance, the outcome of which is reflected in an improved track record for future contracts; a dedicated employee to consider carbon dioxide, water and waste footprints – a common role in many companies and organisations of various scales; education and training sessions for employees on conserving water, which included valuable visits to countries where water is a scarce resource; and the establishment of an innovation hub where employees can present ideas to improve sustainability practices.

One such innovation related to the construction industry is presented by Khaloo *et al*. (2020) who explored using waste glass and microsilica fume as a partial replacement for sand and gravel aggregates for cement in concrete. Saxe and Guthrie (2020) consider a challenge related to the construction of Jubilee line extension (JLE) in London, UK. Their study considered greenhouse gas (GHG) emissions associated with construction, operation, ridership and changes in urban density associated with the provision of the new metro rail infrastructure; a timely contribution as the transportation sector accounts for a growing percentage of total emissions in many cities. Whereas the initial mode shift from other rail lines and long-term mode change from automobiles result in yearly GHG savings from riders, a lack of land-use intensification around the JLE could be described as a missed opportunity to save GHG emissions.

The contribution by Mansell *et al*. (2020) used empirical evidence to determine linkages to embed sustainable-development-goal impact targets into design stages of infrastructure projects. They propose that this would in turn provide a more robust investment appraisal at the project design phase, and help evaluate project success in terms of economic, social and environmental outcomes and associated impacts.

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