

EDITORIAL: FEBRUARY 2016

Editorial

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Welcome to the February issue of *Civil Engineering*, the flagship journal of the *Proceedings of the Institution of Civil Engineers*. First let me wish a Happy New Year to all our readers, including those of you who will be celebrating Chinese New Year this month.

Anyone who has worked in Hong Kong knows the breath-taking speed at which infrastructure is delivered. Our first paper, by Tam *et al.* (2016) modestly titled 'Design and construction of Sai Ying Pun station, Hong Kong', succinctly describes the highly complex construction of a 228 m long cavern and four shafts up to 76 m deep through 26 m of soft ground into rock. Figure 2 graphically illustrates the difficulties of squeezing the four station entrances in between existing tall buildings and constructing connecting passageways under their deep foundations.

The construction method frequently changed as different ground conditions were encountered, with each change potentially leading to a myriad of consequential design changes. It is also interesting to see the use of ground-freezing in soft clays – something civil engineers in the UK do not often see.

The second paper, by Ellis *et al.* (2016) on management of combined sewer overflows, is particularly apt as I write this editorial, with over 300 mm of rain having fallen in north-west England in the past 24 h, resulting in widespread flooding. In contrast with the first paper, the solutions are relatively small-scale (bioswales, roadside planters and so on) but are sympathetic and enhancing in a green way to the streetscape.

Retrofitting a sustainable drainage system into a busy and utility-packed urban setting is described together with stakeholder participation and engagement. The latter was essential to overcome public concerns about the disruption and loss of car parking during construction. The system seems to work well, with significant reduction in flow. It will be interesting to get feedback on long-term maintenance and whether performance does increase with time as the vegetation matures.

Galera-Zarco *et al.* (2016) then review approaches to 'servitisation' in civil engineering, which is essentially about firms developing capabilities beyond their traditional offering. Being a partner in a business that has grown from 90 to 800 staff, I can tell you servitisation is not linear or easy, but it is rewarding. The authors set out a smart-technology-based strategy in terms of the pre-construction stage (visualisation, virtual reality and project monitoring), project delivery stage (information transfer) and post-project stage (monitoring all components to assist maintenance, diagnosis and repairs).

With ongoing advances in computing power, monitoring equipment, nanotechnology and the like, there are certainly exciting times ahead in this area. But let us hope the monitoring data are used in a timely and fruitful manner – unlike some well-known past projects where large amounts of data have been accumulated but never analysed or taken heed of.

The final, three-professor paper, by Clarke *et al.* (2016), starts with a critical overview of Britain's incremental rather than transformational geotechnical and structural engineering research. Based on a two-day workshop, the future key drivers of UK research are identified as climate change, urbanisation, ageing infrastructure and resource scarcity, plus cross-drivers of low-carbon-dioxide engineering, adaptable infrastructure and sustainability, and reduced energy and water footprints.

Ten target research themes are then described: hazards, material behaviour, design, construction processes, smart structures, asset management, intervention, 'decarbonisation', building performance and adaptation. Let us hope the money is found (and spent), enabling civil engineers to realise the innovation and value creation we seek. As John Armitt says in his presidential address (Armitt, 2016), research and innovation are vital to our ability to shape a better world.

References

- Armitt J (2016) Civil engineers: shaping ourselves and our world. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **169**(1): 3–8, <http://dx.doi.org/10.1680/jcien.2016.169.1.3>.
- Clarke B, Middleton C and Rogers C (2016) The future of geotechnical and structural engineering research. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **169**(1): 41–48, <http://dx.doi.org/10.1680/jcien.15.00029>.
- Ellis C, Cripps R, Russ M and Broom S (2016) Transforming water management in Llanelli, UK. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **169**(1): 25–33, <http://dx.doi.org/10.1680/jcien.15.00027>.
- Galera-Zarco C, Bustinza O and Fernandez-Perez V (2016) Adding value: how to develop a servitisation strategy in civil engineering. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **169**(1): 35–40, <http://dx.doi.org/10.1680/jcien.15.00023>.
- Tam HW, Lee CK and Kwok R (2016) Design and construction of Sai Ying Pun station, Hong Kong. *Proceedings of the Institution of Civil Engineers – Civil Engineering* **169**(1): 17–24, <http://dx.doi.org/10.1680/jcien.15.00055>.

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