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Editorial

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Welcome to the August 2019 issue of *Civil Engineering*. The themes of this issue are very varied, from foundation design and construction to structural challenges, technology and humanitarian work. It also covers projects from different parts of the world, giving a truly international perspective on civil engineering.

The first paper (Cui and Shen, 2019) presents the techniques adopted while excavating a large-scale multi-use underground development in Shuzhou, China. The method used for construction is bottom-up and the excavation is in soft ground.

The challenges of this massive project were overcome by adapting many innovative solutions such as mini-pits, reserved soil berms and composite slope stabilisation. Application of an observational method shortened the construction programme by 9 months and saved £5 million in costs, without compromising safety. Observations and lessons learnt from this project can be adopted in other large underground excavation projects.

The next paper (Climie and Shackman, 2019) is the second of two on construction of the Queensferry Crossing in Scotland. The first, published in our May issue, was on the foundations, towers and superstructure. This second paper covers the approach viaducts and roads; structural health monitoring system; deck finishing works; community engagement and benefits; outturn cost and programme; and the opening.

The paper describes the viaduct deck launching process in detail, as well as assembly of the girders. The maintenance, monitoring and inspection section is particularly interesting as it shows advanced technology adopted for this important structure, such as an advanced structural health monitoring system and access facilities.

The third paper (Gao *et al.*, 2019) is all about technology and building information modelling (BIM). It describes how BIM was used in the design and construction of a pharmaceutical project in Beijing, China to find and eliminate design errors, in particular in terms of clash detection.

BIM was also used in construction management for planning earthworks, improving buildability and optimising pipework. Quality during construction was controlled by feeding a real-time record of check results and site inspections to a weekly quality meeting. A five-dimensional platform was adopted by linking the three-dimensional building model to the construction programme and budget, shared by way of a cloud system linking desktop and mobile devices. This resulted in a programme reduction, improved quality and reduced costs.

Our fourth paper (Towler *et al.*, 2019) takes us to another, much simpler bridge. This one was built in partnership with the charity Bridges to Prosperity, which aims to eliminate poverty due to rural isolation. The charity has so far constructed over 250 bridges around the developing world, including this 40 m suspended footbridge in Rutaka, Rwanda.

The team of volunteers adopted an innovative deck-launch method at Rutaka. Rather than installing the deck in situ, which required extensive working at height, the team developed and used a technique that made use of a temporary works platform near one of the abutments, from which 2 m of deck could be installed and pulled across the span using ropes. The team succeeded in pulling the entire deck across the span using a construction method that resulted in a safer and more controlled environment.

My thanks go to everyone who has been involved in producing this diverse and interesting issue, and in particular to the authors who have given their time to share their knowledge and experience with their peers. Please note that the most recent articles accepted for publication in *Civil Engineering* can be read online in the Ahead of Print section on the journal's home page. You can also find details here on how to publish with us if you want to write about your own inspiring projects.

References

- Climie D and Shackman L (2019) Construction of the Queensferry Crossing and approach roads in Scotland (part 2). *Proceedings of the Institution of Civil Engineers – Civil Engineering* **172**(3): 121–129, <https://doi.org/10.1680/jcien.18.00047>.
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