Editorial

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Welcome to the August 2021 issue of *Civil Engineering*. There are four excellent papers in this issue covering different aspects of infrastructure delivery and its impacts across the world. Collectively they draw together the challenges of dealing with historic locations and structures, and highlight the constraints these place on civil engineers. They also showcase the opportunities to design solutions that are fit for purpose today and help to rectify issues from the past.

We have all seen a change in recent years in the way we work and how we assess and deliver infrastructure projects. The papers in this issue draw on inspiration, collaboration, location and logistics to deliver a series of diverse solutions that will be inherited by future generations in a better state than many of those left to us.

The authors highlight the unique challenges of each project and provide an insight into how these were overcome, from working in historic settings through to reducing impact on the environment. In particular they address the reparations needed as a result of past engineering decisions that did not fully account for the effects of their delivery. We need to learn from these mistakes of our predecessors to avoid repeating them.

Mallié *et al.* (2021) start by describing the task of designing and delivering a 70 m long footbridge that was both functional but above all sympathetic to the historic and mythical landscape of Tintagel Castle in Cornwall, UK. It effectively replaced a high-level path that was built on an unstable rocky ismthus and crumbled into the sea centuries ago. The bridge's location on a remote rocky outcrop with limited road access was a real logistical challenge for the Anglo-Belgian delivery team. Their competition-winning twin-cantilever design was therefore built in small sections using a cable crane, and has become a tourist attraction in its own right.

Parker *et al.* (2021) next report on the ICE 200 Award-winning redevelopment of London Bridge station as part of the £7 billion Thameslink programme to create a north–south railway across the UK capital. The work involved removing many of the vast building's original Victorian features to provide a modern commuter station while maintaining operational integrity throughout the construction period. They show that through collaborative working, many legacy issues could be turned into opportunities and, with appropriate adaptations, demolition could be sequentially phased with construction.

Shimmin and Paramithiotti (2021) then explain how a water supply crisis in Dhaka, Bangladesh, caused by unsustainable over-extraction of groundwater, is finally being resolved. The US\$1 billion multi-phase project involves connecting the city to a surface water source nearly 40 km away as a more sustainable alternative. They focus on the procurement process

and how the design and construction contracts were adapted to include a relatively short 3 year operation and maintenance period, allowing the client time to build its own operational capacity before handover.

Finally, Mahmoud and Deab (2021) demonstrate how value engineering can be used to reduce unnecessary carbon dioxide emissions on a selection of infrastructure projects in the Middle East. They share their lessons learned on three case study projects, demonstrating that with appropriate open-mindedness and objective thinking, a better-balanced engineering solution can be developed to benefit future generations.

All the papers show that whatever the scale of the engineering problem, and however long running it has been, there will usually be a more sustainable solution that can be developed and delivered. However, we need to understand and learn from the lessons of past engineering shortcomings, and I am grateful to all the authors for sharing these.

I hope the articles and papers in this issue will help to inspire some 'out-of-the-box' and 'blue-sky' thinking in all of us: it is never too late to learn.

References

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