Editorial

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Welcome to the August 2018 edition of *Engineering Sustainability*. We are privileged to have three papers that cut across important themes of sustainability which are: infrastructure construction in developing nations, urban underground spaces as part of the built environment and building materials, specifically cement-stabilised clay.

The first paper (Roohnavaz, 2018) provides a response to the skills shortage, inhospitable locations, outdated engineering practices and technology common among companies operating under fixed-period concessions, that characterise oil and gas and extractive industries, which face the constant challenge of locating new resources in remote parts of the developing world. These projects often use foreign skilled workers and large volumes of imported materials and equipment and thus place huge time pressures on the exploration and production cycle. Furthermore, the cost and carbon dioxide emissions associated with logistics alone are enormous.

Roohnavaz (2018) reports on the implementation of a sustainability management and resource training framework by a foreign consulting and advisory firm. The framework examines in-country labour skill sets, natural resource and technology relevant to project needs and identifies constraints and knowledge gaps. Innovative engineering solutions that maximise use of local workforce, materials and technology were subsequently designed in line with project timelines. Case studies from Central Asia, the Middle East and Africa demonstrated that the framework is an effective tool for human resource development and sustainability management.

The second paper (Zargarian *et al.*, 2018) is premised on the greater use of underground space as one of the proposed solutions for developing sustainability of the built environment. As such, one way to measure the efficacy of such solutions is by using sustainability indicators. However, a detailed review of the current construction sector sustainability indicator systems shows that there is a need for a bespoke sustainability indicator framework system, designed specifically for urban underground space.

In addressing this shortfall the role of underground space in urban areas was discussed, and a new framework for sustainability indicators called Uspear was proposed. This was based on the use of an innovative weighting system adopted through extensive stakeholder engagement, developed on the basis of the Sustainable Project Appraisal Routine framework revised and restructured specifically for application on urban underground space projects.

The third paper (Kalipcilar *et al.*, 2018) is a response to the problem of sulfate attack on cement-stabilised soil, which is a durability problem that directly affects the sustainability of foundations.

In this study, an experimental framework was established to evaluate the effects of sulfate attack on the strength and penetrability properties of cement-stabilised kaolin clay.

The results revealed that an increase in cement content and curing time led to an evident increase in strength and decrease in penetrability. They also showed that magnesium sulfate salt adversely affected hydration bonding between soil and cement in stabilised specimens. Furthermore, an increase in cement content caused increases in unconfined compressive strength; however, the rate of strength gain decreased in specimens exposed to sulfate attack.

It is expected that the outcomes of this study can be used for estimation of the degree of the strength losses and permeability increases in cement-stabilised clays of different compositions after being exposed to sulfate attack in different environments.

I wish you pleasant reading!

REFERENCES

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