Editorial

Stephanie Glendinning BSc, PhD

Chairperson, Editorial Advisory Panel; Reader in Environmental Geotechnics,
Newcastle University, UK

A very strong theme of the human dimension in engineering sustainability has emerged once again in this September 2011 issue; the importance of balancing both environmental and social considerations with economics in order to achieve true sustainability. Readers should be aware also that human dimensions feature in two out of the three papers recently selected for the newly-launched 'Best of Research and Practice' for which several of the most popular papers from recent editions have been made freely available via the ICE Virtual Library. If you would like to sign up to our Best of Research and Practice mailing list to receive alerts on the latest free papers available, visit <http://academic.icepublishing.com/ps/best-of-research-and-practice-emails>.

In this issue of *Engineering Sustainability* there are two briefings: the first of these, Glass (2011), examines the definition of responsible sourcing of construction products, highlighting the importance of 'equal consideration of ecological, economic and social development goals'. The author calls for research in both technical issues (in terms of manufacture, specification and construction) and in the human and management systems that develop responsible sourcing strategies. Both are seen as key barriers to the delivery of responsible sourcing in practice. In the second briefing, Massoud (2011), the total lack of consideration of either environmental or social impacts of the Cairo Metro 2 project seems shocking, so the realisation of the resulting 'multi-faceted' social impacts is therefore unsurprising. It is interesting to learn of some local ideas of mitigation measures which could be implemented in future projects if participation in decision making could be achieved in Cairo's potentially new political future.

In the first of the papers, Bell *et al.* (2011) present a very strong argument for reframing engineering as a hybrid 'socio-technical profession'. As a result the adversarial nature of technology versus society would be broken down, engineers would work with communities from the outset of projects with the aim of delivering 'publically acceptable, sustainable... systems', rather than merely delivering technically robust, economically viable solutions. An example of the conflict of engineer as technical expert working in opposition to concerned public is presented in the context of meeting water shortages in Australia using indirect potable reuse of water. It

is suggested that working more closely with the public to jointly discuss advantages, disadvantages, risks and alternatives at the outset might have led to a different outcome.

In the second paper, Mitchard *et al.* (2011), a new framework for assessing the social impact of road schemes again highlights how engineers need to move from just considering environmental impacts and now place equal emphasis on social impacts. Major road schemes have traditionally included early public consultation as set out by the Planning Act (2008). However, it is suggested that a more robust methodology is required to assess social impacts of major schemes and shows how this could be delivered by an extension to the Design Manual for Roads and Bridges (HA, 1993). Perhaps such a framework could deliver 'publically acceptable, sustainable (road) systems'. Indeed, the authors go on to say that their framework could be adopted for other types of project beyond road building and so, for example, be used to deliver 'publically acceptable, sustainable (drinking water) systems' too.

In the third paper by Zhang *et al.* (2011), multi-stakeholder engagement is also seen as key to delivering another major civil engineering scheme: bridges. The paper calls for bridge-project-specific guides, but perhaps a global shift of mindset from engineer as technologist to socio-technologist as advocated by Bell *et al.* (2011) would mean that more generic guidance of the type presented by Mitchard *et al.* (2011) would suffice. Furthermore, early engagement of communities with projects in order to identify potential issues and risks is advocated, in a similar way as proposed by Bell *et al.* An additional conclusion is that engineers need to develop new skills in, for example, judgement and decision making, again echoed in the second paper. Education and training of engineers to meet the challenges of sustainability is a subject being proposed for a future special issue of this journal.

The final paper (Hemmingway and Long, 2011) discusses issues related to implementing geothermal energy schemes in Cork, Ireland. Although the paper does not touch on social issues directly, the authors highlight that the human desire for energy is requiring new non-fossil-fuel schemes to be explored, which may themselves have unexpected and adverse impacts on both natural and built environments.

This issue concludes with a discussion (Vukotic *et al.*, 2011) of the way in which the embodied energy in timber presented by Vukotic *et al.* (2010) is calculated. It exposes the need for clarity and consistency in the use of single figures, and a transparency in the way they are calculated, particularly when comparing materials over whole (potentially very different) life-cycles. This is an area of emerging interest and one that this journal is currently seeking contributions from key researchers and practitioners.

REFERENCES

- Bell S, Chilvers A and Hillier J (2011) Briefing: The socio-technology of engineering sustainability. *Proceedings of the Institution of Civil Engineers, Engineering Sustainability* **164**(3): 177–184, doi: 10.1680/ensu.900014.
- Glass J (2011) Briefing: Responsible sourcing of construction products. *Proceedings of the Institution of Civil Engineers, Engineering Sustainability* **164**(3): 167–170, doi: 10.1680/ensu.1000011.
- HA (Highways Agency) (1993) *Part 8 Pedestrians, Cyclists, Equestrians and other Community Effects*. Design Manual for Roads and Bridges, volume 11. Environmental Assessment, Section 3 Environmental Assessment Techniques. See <http://www.standardsforhighways.co.uk/dmr/vol11/section3/11s3p08.pdf> (accessed 23/04/2010).
- Hemmingway P and Long M (2011) Geothermal energy: settlement and water chemistry in Cork, Ireland. *Proceedings of the Institution of Civil Engineers – Engineering Sustainability* **164**(3): 213–224, doi: 10.1680/ensu.1000024.
- Massoud OW (2011) Briefing: Human impact of Cairo Metro line 2. *Proceedings of the Institution of Civil Engineers, Engineering Sustainability* **164**(3): 171–175, doi: 10.1680/ensu.2011.164.3.171.
- Mitchard N, Frost LC, Harris J, Baldrey S and Ko J (2011) Assessing the impact of road schemes on people and communities. *Proceedings of the Institution of Civil Engineers, Engineering Sustainability* **164**(3): 185–196, doi: 10.1680/ensu.1000019.
- Planning Act (2008) c. 29. Her Majesty's Stationery Office, London.
- Vukotic L, Fenner RA and Symons K (2010) Assessing embodied energy of building structural elements. *Proceedings of the Institution of Civil Engineers – Engineering Sustainability* **163**(3): 147–158, doi: 10.1680/ensu.2010.163.3.147.
- Vukotic L, Fenner RA, Symons K and Watson A (2011) Discussion: Assessing embodied energy of building structural elements. *Proceedings of the Institution of Civil Engineers – Engineering Sustainability* **164**(3): 225–226, doi: 10.1680/ensu.2011.164.3.225.
- Zhang C, Canning L, Dubois L and Vipham M (2011) Multi-stakeholder engagement for sustainable bridge delivery. *Proceedings of the Institution of Civil Engineers, Engineering Sustainability* **164**(3): 197–212, doi: 10.1680/ensu.2011.164.3.197.