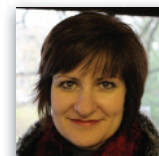


Editorial

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In this issue there are three briefings and three full papers, covering topics from the specification of concrete to delivering the transport scheme for the London 2012 Olympics site. Nevertheless, there seem to be some broad issues that emerge which, in fact, link back to the March themed issue on future-proofing urban regeneration and point at the value and context of future planned themed issues on participatory planning and engineering education.

The paper presented by Pearce *et al.* (2012) provides a nice framework within which to set the remaining contributions. The authors describe the development of a systems-based framework to support and enable decision-making, assessment and management of sustainable development issues. The approach breaks down the complexity of sustainability-driven options appraisal and develops sustainability criteria in collaboration with a range of stakeholders. As is increasingly recognised by practitioners and researchers in this field, it aims to ensure that sustainability, rather than being an add-on to the development process, becomes a source of added value. Leaders of practice in this area are realising that any tool that aims to support sustainable development can never be a ‘one size fits all’ and must capture, in a fundamental way, the unique features of any particular project. This tool (named Halstar) aims to build sustainability into projects and programmes by guiding decision-making and appraisal within the unique context of a project, working with its various stakeholders around their needs, priorities and aspirations. The authors stress that, whilst Halstar provides a common framework, it is sufficiently flexible to be tailored to the specific needs of any one project, no matter the scale of the project or its position in the development process.

The paper also describes how Halstar is continuously updated and revised as it is applied to different projects and the learning from those projects is integrated. Furthermore, the authors aim to build in futures thinking, enabling solutions to be tested against multiple future scenarios in the manner described by Rogers *et al.* (2012).

The other papers and briefings within this issue can be divided into those which deal with the sustainability issues of particular materials used in construction, and those which deal with ‘whole development’ aspects of sustainability. Nonetheless, in each of these papers, the necessity to approach sustainability on a

site-specific scale is evident, whether this is explicitly discussed in the paper or not. Indeed, Pearce *et al.* (2012) show how their sustainability framework can incorporate tools such as Breeam and Ceequal. Perhaps the true value in the application of the ideas presented in the remaining briefings and papers would emerge if they could be incorporated into a sustainability framework such as this, which integrates all the various and often competing complex issues around delivering sustainability.

Ciancio and Boulter (2012) present a complex interdisciplinary and context-based argument in order to justify their stakeholder-driven research into the engineering properties of rammed earth. They show how the very place-specific issues of the Dampier Peninsular in Western Australia create an environment where rammed earth is a highly sustainable material for affordable housing construction. These issues include: the availability and high transportation costs of materials to such a remote region; availability of local labour; the appropriate training and skills for a local indigenous population; and the legacy provided by home ownership. They also present some results of engineering testing on rammed earth and discuss the problem of how a lack of formal guidance and data on a material can prevent its use in practice. They show how, in delivering sustainability, there needs to be a balance between societal need, economics and meeting a technical specification, a theme that is picked up by Higgins (2012) in his briefing on specifying concrete for sustainability.

Higgins (2012) stresses the need for a more holistic approach to sustainability considerations around using concrete in construction. The briefing urges the balanced consideration of the quantification of embodied carbon dioxide and material property requirements when specifying concrete for any particular job. Higgins argues that although a particular cement replacement might reduce the embodied carbon dioxide in the material, if the setting time and strength are compromised this may actually make the material less sustainable when considered in the context of a particular construction project. If the ideas presented in this briefing were considered within a sustainability framework (such as the one proposed by Pearce *et al.* (2012)) then site-specific considerations such as local availability of materials, and whether or not setting time was an issue would be taken into account in an holistic assessment of the sustainability or otherwise of the use of concrete for a particular construction.

Harrison and Collins (2012), in their paper on the sustainable use of natural resources, are attempting to develop a single indicator for different construction products. This indicator includes the costs of transportation, extraction and manufacture. It also places this in the context of the scarcity of the materials and their subsequent availability to future generations. Some will no doubt question whether a single indicator can ever be developed for any material, and this is highlighted in the previous discussion of the need to contextualise sustainability. However, as Ciancio and Boulter (2012) state, it is often the lack of data, guidance and specification that can prevent the use of materials in practice. If an indicator system such as this can be used to aid the selection of particular materials, then perhaps this is a starting point to get new materials adopted. The danger of course is that the use of indicators is perpetuated and thinking never moves on, so that decisions are compromised, so again, the ideas presented would be best applied within the context of a sustainability framework which can integrate all the relevant issues for a project.

In her briefing on green infrastructure, Grant (2012) refers to the new CIWEM publication on multi-functional green spaces and questions whether national planning and policy guidance are able to deliver such integrated approaches. In the opening briefing of this issue Vicat and Rooney (2012) show how a participatory process was successful in delivering the environmental and traffic management schemes to mitigate the effects of the Olympic Park for the London 2012 Olympic Games. The paper describes the production of the Olympic Park transport and environmental management scheme framework: another example of a holistic and integrated approach which builds in the desires and needs of multiple stakeholders in order to deliver a successful outcome.

This leads very nicely into the next planned themed issue (due for publication in early 2013), which focuses specifically on participatory planning. Furthermore, this issue clearly shows how sustainability is about the integration of multiple disciplines in balancing a whole range of interdependent issues. In a themed issue planned for 2014, *Engineering Sustainability* aims to consider the engineering education requirements for

engineers who can take on these types of projects. It is hoped that the contributions to this themed issue will deal with questions around what makes an engineer, and what education and training needs to be provided to ensure that they can deliver, for example, the emerging concept of 'whole life value' as described in the March themed issue editorial (Rogers, 2012).

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