



Chris Rogers  
Chairman, Editorial  
Advisory Panel

## Editorial

C. D. F. Rogers PhD, CEng, MICE, MIHT

This issue of *Engineering Sustainability* presents three papers and three briefings covering a remarkably diverse range of topics. The first briefing by Hall (2010) describes a 'client-led programme to reduce the level of carbon emissions by encouraging the innovation of working practices and processes within the construction industry.' The client is encouraged and supported via the built environment supply chain transformation (Best East) programme, which 'enables clients to take a broad view of good governance, particularly broadening the understanding of sustainability in the much overlooked social arena'. It is a good example of providing advice directly on the 'how to' of sustainability, which this journal specifically seeks to report, and importantly it facilitates 'top down' direction. This is not, therefore, a case of working to inform the client of benefits from an engineering perspective and as such it creates immediately the potential to generate more sustainable developments since informed clients will naturally seek the early involvement of all necessary disciplines. These arguments reflect two of the core principles for effective work in this area that constantly permeate the literature, and indeed recur in my own research (Hunt *et al.*, 2008a; 2008b): involvement of the complete range of disciplines and engagement at the very start of the development process (i.e. the conceptual phase).

The second briefing (Goodhew *et al.*, 2010) provides a fascinating and rounded account of straw bale construction. It demonstrates a truism that humankind has always been innovative in creating shelter, and more latterly what we would recognise as housing, since we are told that straw bales were used as a form of walling soon after they were created in the mid-western US. Moreover, it is equally true that humankind has always been entrepreneurial, given that patents for the use of such construction date back to the 1880s. The final truism is that we appear to readily forget what has gone before, albeit in a different context, and reintroduce as novel approaches things that we are subsequently surprised to find in historical records. Interestingly, Goodhew *et al.* capture this dilemma of what is new/innovative and what is old. The authors cover many of the important issues associated with straw bale properties and construction, and as such the briefing provides an excellent introduction to the subject. It also raises a number of questions, for example, the observation that straw bales are manmade and vary according to the type of straw used – what variety of wheat seed was used to grow the wheat and what was it grown for: length and strength of stem, hence resistance to lodging? When baled, what tension was specified on the strings and thus what

target density was used, and is this dependent on water content of the straw and does the density reduce on subsequent drying? There would appear to be scope for much interesting research here.

The final briefing (McColl and Young, 2010) strays into the realm of governance, regulation, markets and the artificial influencing of markets. This is a most important subject for consideration in the debate of how we move towards more sustainable developments, and perhaps more specifically how we move from aspiration to delivery on our promises of carbon reduction. It is also a highly topical subject considering the coalition government's pronouncements on a preference for removal rather than proliferation of regulations, and the need in the current financial climate to ensure that markets are robust rather than apparently robust due to artificial interventions. The general lesson here is that what might appear to be a set of worthy aspirations that we would all sign up to can result in a set of sustainability indicators and performance targets that become impossible to meet; delivering on one target compromises the ability to deliver on another. This is the core argument presented by Hunt *et al.* (2008b) and is a timely warning that we must tread carefully if we are to deliver a holistic solution to the need for one-planet living, not least because we only have one opportunity to get it right.

The last observation might be considered unduly dramatic, and we often hear of the assurance that technology will help to deliver a solution to the one-planet living problem, yet my observation was in large part influenced by a recent joint workshop with a group of Indian researchers on sustainable cities. When one considers the vast increase in urban population growth in India (from 340 million now to an estimated 590 million by 2030), the need for the creation of affordable new homes (an estimated 38 million by 2030 in India) and estimated growths of demand for water and sewerage (2.5 times the present capacity), car ownership (5.8 times), public transport (2.7 times) and solid waste (5.0 times) in the same period, perhaps it is not. What this emphasised to me was that local context is all important when developing our actions towards sustainable development and, once the shock of the above statistics and the initial despair has subsided, we must put our own houses in order. This is a somewhat clumsy introduction to the first full paper by Bernier *et al.* (2010), although the sentiments hold true. The scale of the improvements we need to make to our existing housing stock is equally vast if we are to

reduce our ecological footprint and in so doing meet the government greenhouse gas reduction targets (a 26% reduction in emissions by 2020 and an 80% reduction by 2050, when plotted against a 1990 baseline). The authors describe six case histories, and this is immensely valuable, but they also provide a crucial reflection on the need to rethink our rating systems. This rounded approach, one of constant reassessment of how we should set our targets as the evidence base on performance grows, is exactly what is needed and the authors are to be commended.

The second full paper (Thompson, 2010) picks up on the theme of rating systems, but in this case changes have been made to enable the principles to be taught to university students. Thompson reports that the students engaged enthusiastically with this process, but points out that their initial reaction to a subject in which there is considerable complexity of the interacting factors and no right answers is a matter for concern. The truth is that there is a degree of uncertainty permeating all we do, and a need to move out of one's disciplinary comfort zone when dealing with the issues surrounding sustainability. It is all too easy for those of us who work with the issues on a routine basis to underestimate the difficulty that the uninitiated have with the general area. Another truism here is that there is nothing quite like teaching a subject for highlighting many of the subtleties of the topic area as well as the need to clarify arguments and principles. Here is a valuable lesson and one that might be used to advantage in practice for graduates who have not, for whatever reason, been exposed to sustainability assessment frameworks in their formative years. This cohort is not, of course, limited to recent graduates – I would expect that all of us who graduated more than 5 years ago from civil engineering undergraduate courses would fall into this category. We might do well, therefore, to take notice of this paper rather than think it has a relevance only to students, teachers and engineers at the very start of their careers.

The final paper by Berg *et al.* (2010) appears to take us into another sphere altogether, yet when the core arguments are considered it is evident that we are dealing with another type of rating system, or sustainability assessment framework, that is, rightly, intimately shaped to the local context. The authors start by suggesting that quantitative indicators are often used as universal tools for assessing the performance of communities, cities and regions in sustainability terms, yet they point to the need for such quantitative indicators to be supplemented with 'ways to understand the local context'. This is one of the core recurrent findings from my early case study research on Birmingham Eastside, a second being that the past and the present must inform the future (see [www.esr.bham.ac.uk](http://www.esr.bham.ac.uk)). What is interesting about the choice of areas considered in this paper is that although linked by their association with the Baltic Sea, they have very different histories and therefore local contexts. The approach taken in the paper is wholly refreshing, starting as it does from first principles, and yet it is equally encouraging that the outcomes are consistent with the findings from the large body of literature contained in this and other journals.

The conclusion to the above discussion on what appears to be a very diverse set of papers is that there are, necessarily, common recurrent themes and considerable reinforcement of the lessons. At the recent Institution of Civil Engineers award ceremony the Trevithick Prize for papers published in *Engineering Sustainability* in 2009 was awarded to the paper by Thomas *et al.* (2009). Attending the awards ceremony, it was evident that several of the papers that received awards might just as easily have been directed towards this journal, and this is, of course, how it should be; papers dealing with matters of sustainability should be distributed amongst the various disciplines. I stated when I first became the Honorary Editor of *Engineering Sustainability* that the need for the journal should ideally disappear with time, since all branches of the civil engineering profession should, as a matter of course, deal with the topic comprehensively, holistically and in depth. We have not yet reached that point, but I would argue that we are moving in the right direction. The fact that common lessons are becoming apparent and are being embraced in practice is also an encouragement that we are moving towards more sustainable outcomes.

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