The buildings sector and peoples’ activities in buildings are responsible for around 30% of global final energy demand. In most industrialised countries this rises to up to half of national energy use and consequential CO2 emissions (in the UK it is some 45%).

The construction sector therefore has a hugely influential role to play in designing, constructing and maintaining buildings and infrastructure that are energy efficient and rely less on fossil-based energy sources.

Of course, energy use and CO2 emissions are not the only environmental problems. The construction sector consumes the highest proportion of material resources by mass of any other industrial sector in industrialised economies, and generates large amounts of waste every year – up to 2 tonnes per person per annum in the UK. Typically, much of this waste is not re-used or recycled but dumped in landfill sites. Additionally, the production of many construction materials can have harmful environmental consequences – for example, deforestation arising from the unsustainable production of timber; air pollution from the production of steel, cement, glass and plastics.

Furthermore, the construction process itself can give rise to further harmful effects, including water pollution from uncontrolled “run-off” from construction sites; animal habitat destruction and a loss of biodiversity from site clearance and excavation activities. More environmentally aware construction processes that minimise material resources, reduce waste and avoid the potentially destructive effects of site activities have a significant role to play in improving the sustainability of construction.

While regional and national social and economic conditions exert a strong influence on what sustainability means in different countries around the world, all those concerned with sustainable construction face a range of similar challenges (to a greater or lesser degree). Key issues include:

- Legislation and Regulation – how do legislators avoid the burden on business/society and still achieve significant reductions in environmental impact?
- Policy – what skills are needed to develop more sustainable buildings and communities? How is the necessary cross-disciplinary collaboration encouraged and developed?
- Standards and assessment - what criteria should be assessed, and how should they be balanced between global impacts and more regional/local priorities? Which assessment systems do we use? Is LEED an appropriate system for Brazil?
- Motivation and awareness-raising – how do we motivate the market to demand Green Buildings? How do we demonstrate the value inherent in good green building design in ways that will be attractive to the market? How do we raise awareness more generally of the importance of sustainability in the built environment, and the significant improvements that good green building design can make?
- Adaptation and resilience – what key criteria do buildings need for future adaptation to expected global temperature and sea level rises?
- Resource efficiency- how important is material resource efficiency in the Brazilian construction sector?