

Editorial

The aim and focus of the editorial comments in the first six issues of the Journal of this millennium year is to draw the attention of all our readers to the horrendous problems and issues facing the construction industry today, and in the future. The world we live in never stands still – however, the changes in general are slow and gradual, and they occur over a period of time, so that we hardly notice or feel their implications and impact on our day-to-day life. But the situation is very different when the change is fast and immediate, and the effects are huge as when an earthquake or heavy floods or cyclones and hurricanes occur. We do not necessarily have to personally experience these environmental turbulences to feel the damage and destruction these events bring in their wake. Those who have seen, even if from a distance, the havoc brought about by the recent earthquakes in Turkey, Greece and Taiwan, or the supercyclone in Orissa in India or the endless expanse of flooded land in Mozambique will know that the lives of those affected would have been changed topsy-turvy for the rest of their lives. Upheavals – whatever be their source or nature – are like that – they change our lives for good.

Such an upheaval occurred in the world during the latter half of the 20th century. These changes were, individually and by themselves, slow and gradual, and probably hardly perceptible or felt deeply, but over a period of five decades or so, they have totally and dramatically changed the scientific, technological and social face of the world. The world at the beginning of the 1950s was very different from the world at the end of that century. The advancements that have taken place in every facet of human life during this period have been unbelievable and unimaginable – but the benefits of these changes have been reaped by only a small proportion of the world's population. It is not only the “changes” that are staggering – equally staggering is the fact that our world's material and energy resources have been available to and depleted rapidly by only a small proportion of the world population. The “disproportionality” will dawn on us when we realize that whilst 200 babies, on average, die every hour in Africa due to disease and malnutrition, and whilst about a fifth of today's world population live on less than \$1 a day, some 25% of us in the world consume about 75% of the world's material and energy resources and some 4% of

the world population belch out nearly 25% of the world's carbon dioxide emissions! Some of us consume out of all proportion and we pollute our world out of all proportion! What a travesty of life, and what a topsy-turvy world we live in!

So what is the ultimate effect of this topsy-turvy world? – a massive, horrendous Infrastructure Crisis – a crisis brought about by global warming, by human conflict and alas, by world poverty. It will take us several decades and several billions of pounds just to replace and regenerate what the polluted environment and human conflict have destroyed, and what human poverty cannot share and have. But the Environmental Crisis that we have created – the damage to and pollution of the world we live in, the destruction of nature's eco-balance, and the creation of waste is something that only WE can stop.

The Infrastructure Crisis seems to be aggravated and fuelled by a “Durability Crisis” – our inability to use materials, and design and build structures that can withstand the effects of time, and the vagaries of exposure conditions, climatic changes and micro-climates. We do not seem to have a clear idea of how materials and structures behave in real environments. We are capable of the most sophisticated theoretical modelling but we are unable to develop realistic models of service life because we do not fully understand the time-dependent processes and mechanics of the initiation and progress of damage.

Now then what hope do the peoples of the world have to enhance their quality of life? There is only one answer that comes, loud and clear – concrete and the construction industry. Of all construction materials, concrete is the most eco-friendly material, and incorporating pozzolanic and cementitious by-products, we can produce a durable, environmentally friendly and sustainable concrete, that can bring hope and life to all peoples of the world. But sustainability in construction is not a simplistic process – sustainability is an issue at all levels – local, national and global. It involves many complex processes and embraces various aspects where construction is involved in some form or other – in buildings, bridges, transportation, water supply and so on. But perhaps the most significant factor that would contribute substantially to sustainability is durability of

construction. We can achieve sustainable growth of the construction industry only if the materials we create and use, and the structures we design and build give durable service performance, are cost-effective and if their engineering capabilities are fully utilized and maximised in

their service behaviour. It will be readily seen that sustainability is by no means an easy goal to achieve – but we have to achieve it if this planet and our society are to survive.