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Editorial

1987 was the International Year of Shelter for the Homeless. Whether that year achieved anything at all is hard to say, but the problem of human habitat still remains with us. It is only when one considers that housing is as much a problem for the developed nations as for the developing countries that the enormity of the problem and of the challenge to engineers, material scientists and architects dawns on all of us. In 1987 it was estimated that some 600 million dwellings needed to be built before the end of that century if every family in the world was to have a roof over its head. Looking at the present day world, there is absolutely no doubt that not even a fraction of that need was achieved, let alone providing a roof for every family in the universe!

The world has moved on since then. We seem to have now a somewhat better idea of the changes taking place in the world today, and of the problems of housing confronting us. We all know that there is now an insatiable demand for the world's material and energy resources.

This demand and need have risen primarily from an endless process of global urbanization that started about five decades ago, and which is the result of continued population growth and evolutionary industrialization. We now know that the present day world population of 6 billion is likely to increase to, if the previous trends in population growth are anything to go by, about 8 billion by 2036 and 9.3 billion by 2050. A staggering increase, which one doubts very much, if the world would know how to deal with the resulting consequences. But the process of urbanization is equally dramatic. A mere 3% of the world population lived in towns and cities at the beginning of the 19th century. Today, some 50% of the world population work and live in and around cities rather than in rural areas.

But it is not just the process of global urbanization that is alarming. The pace at which the force of urbanization that is taking place is equally worrying and demands urgent attention and positive solution. In the industrialized nations of the world, more than two-thirds of their population live in towns and cities. This urban population is now expected to increase by about a third in Europe and by about one-half in North America and the regions of the former Soviet Union. But the contrast in the developing nations has been more phenomenal. By the late 1970s, less than a quarter of the population lived in cities – but the last quarter of the last century has seen an unprecedented rapid pace in the force of urbanization. It is now estimated that the urban population has doubled in East Asia, increased by two-and-a-half times in South America, and almost trebled in Africa! In the third quarter to the last century, the number of cities with a million plus inhabitants nearly doubled, from 48 to 91 in developed countries but quadrupled from 23 to 90 in the developing nations. Today we have more than 30 urban areas with more than 10 million inhabitants and hundreds of cities with a million plus people living in them.

One of the most expensive components of this world attitude to working and living is in the area of human dwellings. The solution to the world's homeless is however, extremely complex. Should housing policies be based on non-interference by governments but supported by a liberal economic policy and initiatives of local and national groups? Or, should governments themselves actively participate in housing construction? Obviously there is no single solution but the need for an integrated approach is undeniable – an approach that combines the search for technical solutions with economical and social considerations.

There is no argument, however, that technical aspects deserve special attention. Building materials are important components in any physical development, and can form a major part of financial investment. It then becomes clear that the problems related to building materials, of housing and of construction technology need to be looked at and solved from two different points of view – the urban problems, and those of the rural communities. The problems are different – in developing low-income housing, building materials alone can sometimes cost as much as 70–80% of the total cost – but both need foresight and forethought if we are to solve them.

But it is becoming clear that the needs of the Third World housing are totally different. There are still large proportions of the population in developing countries without shelter, or living in slums, shanty towns and squatter settlements that are below accepted standards of hygiene and health. Over the decades time, environment, neglect and human conflict have reduced the infrastructure of these peoples to a state of dis-repair, and often, non-existence. This situation is heavily aggravated by the damage and destruction inflicted by storms, floods, land slides, mud slides and other climatic changes brought about by global warming. Even portland cement, a relatively cheap building material, is too expensive to provide the basic shelter for them.

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In improving the built environment, it is necessary to aim for the optimal use of resources, and this includes not only building materials and building technology but also skilled manpower, plant, equipment and financing. An inevitable constraint which has hindered wider adoption of local building materials is the lack of standards and specifications for indigenous materials. Such standards are necessary to ensure cost-effective and durable building materials, and sustainability of construction. We need action on several aspects – alternative materials and sustainable technologies, standards and specifications for testing and quality control, training and education, application of research results and bridging the gap between knowledge and its usage. Each of these would need planned national action and coordinated international support if the dreams of 1987 are to be transformed to reality.