

Are Green Buildings Sustainable?

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Illustration by Lolith TK

Over the last 20 years, Indian architects have been confronted with three new ideas for buildings: bio-climatic design (now called sustainable design), Vastu and building automation. While each of these has a profound effect on the building form, they do not find place in the regular curriculum of schools of architecture in India. In case of Vastu and building automation, it is the client who understands the requirements better than the architect and it is he who ensures that the architect consults a specialist. Instead of using Vastu and building automation as powerful design tools, most architects are

content merely to use the ideas passively and sometimes grudgingly. Neither the Indian architect nor the Indian client has understood the value and power of the third new idea viz, bio-climatic building design, and it has remained an idea to be used only in special projects.

The international community understands the limits on the availability of natural resources and the carrying capacity of the earth. International protocols require Western countries with developed economies and with high levels of consumption to reduce energy use and emission of green house gases. This has made it necessary for architects and builders in these countries to think of less resource intensive buildings. This has become a movement and we find newly coined terms like 'green buildings' and 'sustainable architecture' being used commonly. Clearly the time for this

the technological means to build a new personal transport (a car if you like) whose safety would not be measured just by how safe it is for the driver but also by how safe it is for others outside. We do have some models today that are close to doing this. It would be rare for an auto rickshaw with its limited speed (and polluting engine) to kill a pedestrian in an accident. There are other technologies that are available today that enable us to reduce flying, even if it happens to be to a conference on green technologies. Sustainable projects must include non-violent technologies in them.

Swadeshi (indigenous) is another concept that Gandhi promoted in the context of a foreign power colonising India. To promote local entrepreneurship, Gandhi asked people to use indigenous products and eschew the use of foreign imports. E F Schumacher, the author of 'Small is Beautiful' took Gandhi's idea of *swadeshi* further in his concept of decentralisation. Schumacher's idea of decentralisation is more complex than simply breaking up a larger unit into smaller units. He proposed that 'smallness must work within bigness'; in other words, a large organisation must behave like a related group of small organisations. This philosophy prescribes an orientation toward 'regional' development strategies, which involve primarily local production for local use. He left no doubt that the use of local materials, by itself, is energy-efficient and resource conserving. The use of local resources is a cornerstone of the sustainable design movement. However, this concept is overshadowed by the desire to be part of a global economy. It is common for rated 'green buildings' to use expensive imported products that are certified as being energy-efficient by the US Green Building Council.

Another powerful concept of Gandhi is *aparigraha* (non ownership). Although Gandhi first talked about industrialists as trustees of the wealth of the nation, his idea is easily extrapolated to mean that human beings as powerful creatures must be trustees of the wealth that nature has bestowed upon them, taking away only that which is rightfully theirs. They must hold

in trust the resources that belong to generations that are yet to come. Gandhi was against a wasteful lifestyle. One of his famous quotes is 'the earth provides enough for everyman's needs but not for every man's greed'. We must not appropriate nature's bounty simply because we can. Sustainable design cannot be achieved by applying unsustainable lifestyles. 'Green Buildings' are being built in India taking the US standard of living as the norm and one is reminded of Gandhi's words on bringing the British standard of living to India. "It took

Sustainable design demands a level of autonomy (Gandhi's *gram swaraj*). To be robust and thus able to survive the vagaries of nature, building complexes need to be designed to be independent of imports of resources, be it food, water or energy; and of troublesome exports, particularly waste and pollution.

Britain half the resources of the planet to achieve its prosperity. How many planets will a country like India require?"

Sustainable design demands a level of autonomy (Gandhi's *gram swaraj*). To be robust and thus be able to survive the vagaries of nature, building complexes need to be designed to be independent of imports of resources, be it food, water or energy; and of troublesome exports, particularly waste and pollution. The Gandhian model of village economy was aimed at building self-reliance and self-respect in a villager, through biomass production and utilisation and locally available renewable sources of energy. This concept is valid in sustainable

design as use of local materials and locally available renewable energy to meet the needs of local population. Gandhi's *gram* (village) can be seen as any identifiable unit of population.

The Indian model of sustainable development needs to be built around a set of values that seem to militate against what are called green buildings today. It would use non-violent technology, energy and materials for construction and the forms the buildings would take would be visually non-violent as well. The means of transport would be non-violent and characterised by universal access. The buildings would make full use of what nature has provided - natural light, ventilation, views and landscape and create an inside-outside continuum. The landscape would have local species of plants and be useful for food production as well. Renewable energy would be collected from the site and it would house only so many people as can be sustained on locally available resources. It would collect, reuse and recycle rain water to provide for the residents' needs. It would not produce waste that would harm either the immediate surroundings or the global environment. It would provide for the safety of children and women, not just men.

If buildings have to be built with sustainability in mind, it is important for building owners, users and operators to understand and appreciate the need for a sustainable lifestyle. Building bye-laws need to be modified to create the legal framework for construction of sustainable buildings. Architects and engineers need to understand the concept of sustainability and architecture schools to train architects with the necessary skills. A fair system of evaluation of building designs that recognises the difference between India and USA/Europe needs to be established. Building material manufacturers need to produce sustainable materials and people need to appreciate the difference between standard design and site-specific building design. ☸

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technology to move from 'experimental' to 'commonly used' has come. In India, sustainable building technology under the banner of 'green buildings' is being promoted by the Confederation of Indian Industry and it has become fashionable amongst corporate builders.

If architects do not understand or use the concept of sustainability in their work, history might repeat itself and we may have the situation where the architect will hand over the responsibility of creating sustainable design (as they did for Vastu and building automation) to a specialist and merely use the recommendations passively in some projects and not at all in others.

The concept of sustainable buildings deals with issues of energy use, water supply, materials availability, waste management, quality of indoor environment and general environmental emissions. The terms 'Green Building' and 'Sustainable Development' are sometimes used interchangeably, even though they mean quite different things. Sustainable development takes a long-term view of resource availability while green buildings are usually made to a set of standards that are acceptable at a given point of time. There is little evidence to suggest that green buildings made according to current American standards, that are being promoted by USGBC (US Green Building Council), will be sustainable in the long run. Green building standards are akin to automobile exhaust standards; they evolve and become stricter all the time. Automobiles will become truly sustainable only when their emissions become zero and when the resources they consume will be negligible! Will we ever have sustainable automobiles? Probably not. Should we try and replace a sustainable mode of transport like a bicycle by an efficient but not sustainable automobile? The situation of sustainable buildings in India is not very different.

India has over a hundred schools of architecture and about ten per cent of these offer courses in planning as well. Most of these schools are located in the plains and in what we might call the dominant landscape type of India. India has many

different types of climates and terrain that includes apart from plains, mountains, coastal areas, islands and cold and warm deserts and forests. Since the schools of architecture are located in the plains and most of the building activity happens in the plains, the problems of the plains have come to occupy a dominant position in our collective psyche and are often referred to as 'the environmental problems' of India. The style of architecture and the climate of these plains are all that we talk about as 'Indian architecture' and 'the Indian climate'! Deserts, mountains, forests, coastal areas and small islands are sparsely populated and less developed than the plains. Few of them are commercially important. The result is that the problems of these areas are poorly understood. Sustainable development for these areas presents entirely different challenges from that for the plains. Unfortunately, even in well meaning organisations, design for these special areas is seen as an extrapolation of design in the plains. We do need to develop professional expertise to create sustainable design for these areas.

The concept of sustainable design is not new to India; indeed it is not new to the world either. There are innumerable examples of communities in hardship areas that have lived with sustainable design and continue to do so even today. These communities have used immediately available resources of materials, energy and water without depleting them. It is the trained architect and modern builder that have forgotten the concept of sustainable design. India has had one person that moulded our thinking in the last century and that laid down the rules by which we should live sustainably.

The Father of the Nation, Mohandas Karamchand Gandhi introduced many principles like *ahimsa* (non-violence), *swadeshi* (indigenous), *aparigraha* (non-ownership) and *swaraj* (autonomy). While he enunciated his concepts in the context of the Indian socio-economic system as it existed in the early part of the last century, he ended up using them to create ideas about a sustainable way of living.

The most powerful of these is the

concept of non-violence. *Ahimsa* is not merely a question of non-violence against another human being but also against the environment, including all things living. What we call sustainable design today is no different from the Gandhian concept of preventing violence against nature. There are violent technologies that we use today that we do not recognise as violent. Most people are concerned about the violence that 'terrorists' have brought to the world. India spends a huge amount of money to control terrorism. USA spends many times more than that for the same purpose. Personally, I know not one single person who has been killed by a terrorist bullet or bomb, but at least twenty people who have been killed directly by automobiles, either as pedestrians or as drivers and

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passengers. While terrorists are recognised as a danger to society, the automobile is embraced as a symbol of personal power. There are studies that show that even in countries affected by terrorism, the risk of falling to the automobile is far greater than that of falling to bomb or bullet. The global impact of automobiles is not just that of death by accident, but of dangerous environmental pollution, and yet we continue with it completely oblivious of what violence we are wreaking upon ourselves. Flying by plane is another hugely resource consuming and polluting activity that few people worry about. We do this in the belief that there are no alternatives to the automobile and the airplane. One can question this premise. We do have the capability to walk, bicycle, use a rickshaw, a train or a ship. We also have