

WORK WITH NATURE

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QUICK BYTES

■ THERE ARE MANY BENEFITS TO SUSTAINABLE ARCHITECTURE

■ EVERY MILLION SQ. FT OF GREEN BUILDINGS WILL BENEFIT IN 12K TONS OF CARBON DIOXIDE REDUCTION

Sustainable architecture generally means use of environmentally conscious design techniques in the field of architecture. Sustainable architecture is framed by the larger discussion of sustainability and the pressing economic and political issues of our world.

In the broad context, sustainable architecture seeks to minimise the harmful environmental impact of buildings by enhancing efficiency and moderation in the use of materials, energy, and development space. The idea of sustainability, or ecological design, is to ensure that one's actions and decisions today do not inhibit the opportunities of future generations. The term can be used to describe an energy and ecologically conscious approach to the design of the building environment.

ture, forestry, recreation and urbanisation. Designing with nature at a building level is about recognising sun paths, breezes, shade trees and rock formations that can be used to create something people can inhabit comfortably, while recognising that natural features such as trees, animal tracks, habitats and natural drainage systems must be protected. For example, if one is to choose a device with high shading coefficient in the summer and a low shading coefficient in the winter, a vine may be used in place of a mechanical system. By adding rainwater collection, reed beds for sewage and perhaps wind or solar power for electrical energy, the building can be independent of imported service and exported waste, keeping its environmental footprint within the footprint of the site. The final archetypal visual image is one of an isolated, self-sufficient building dominated by its surrounding landscape.

The version of architecture described above is seldom practised in India.

BRIDGING THE GAP

The latest market-driven surge in green buildings has had some success at bridging the gap between current building practices and true sustainability. India is now the second largest market for green buildings. The trend is completely market-driven and has been achieved with very little government support. Government needs to increase its focus on this sector to drive home the importance of these practices as designing a green projects/ townships also result in:

- Efficient transit network to minimise vehicular pollution
- Pedestrian and bicycle networks in satellite areas

and restoration.

The benefits are many. Every million sq. ft of green buildings will benefit:

- 12K tons of carbon dioxide reduction
- 15000 MWH energy savings
- 45000 KL of water savings
- 450 tons of construction waste diverted from landfills
- If these methods are used in Building Management System (BMS) it minimises energy consumption and max-

imises indoor comfort making it a valuable tool for any sustainable design. It helps in saving 15-20% of operational energy, maintains comfort conditions, enhances indoor air quality and provides critical alarms and remedial actions.

While this sounds fantastic, there is an urgent need in India to extend technological understanding of sustainable architecture and incorporate socio-cultural aspects in its

production. In India, environmental agendas and green buildings are often based on precedents of developed countries. The issue of energy efficiency is more relevant for developed countries. When energy efficiency is used as the main criterion for green buildings in India, several critical issues tend to be ignored.

That being said, the western model of sustainability works very well and has measurable

benefits. However, economically speaking, it is difficult to be entirely convinced it is the best solution for India. It is essential that relationship between social, economic and environmental sustainability should become a critical consideration for the design of India's built environment.

Donella H. Meadows, in her book- *The Limits to Growth: The 30-Year Update* says "Sustainability is a new idea to

many people, and many find it hard to understand. But all over the world there are people who have entered into the exercise of imagining and bringing into being a sustainable world. They see it as a world to move toward not reluctantly, but joyfully, not with a sense of sacrifice, but a sense of adventure. A sustainable world could be very much better than the one we live in today." This should be the philosophy that needs to be largely adopted to make a significant impact.

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The key to architectural sustainability is to work with nature and not against it. One needs to be sensitive so that there is no damage to natural systems and processes. Architectural sustainability mirrors the view that it is necessary to

position human activities as a non-damaging part of the ongoing ecological landscape, with a belief that 'nature knows best'.

Any green building architect should identify places with intrinsic suitability for agricul-

- Enhanced quality of life
- Local employment opportunity
- Efficient use of resources
- Effective solid waste management
- Natural habitat preservation