

ANAROCK[®]
VALUES OVER VALUE

Go GREEN

The Mantra for Sustainable Living

March 2018

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Introduction

Over the past few decades, fast-paced economic development coupled with rapid population growth and urbanization has led to a rapid depletion of natural resources. The accelerated rate of resource consumption and rise in greenhouse gases' emission has resulted in significant environmental degradation. This degradation has resulted in climate change, the rise in average temperature and deterioration of air quality.

The building sector is one of the major consumers of natural resources such as water, energy and other raw materials. The sector generates a large number of wastes and pollutants during three phases of its life cycle viz; construction, maintenance and deconstruction. As per an estimate, the sector consumes an approximate 25% of water and 35-40% energy, apart from other raw materials. Additionally, it emits 40% of global wastes and 35% of greenhouse gases. Looking at the rampant environmental degradation, it has become imperative to take measures for the optimal use of natural resources, reduction of wastes and restricting the pollution. The use of green building practices can help in addressing these concerns along with giving an impetus to build a sustainable environment for future generations.



Green Building Defined

Green building is the practice of using processes and technologies which are environmentally friendly and energy efficient throughout the building's lifecycle from siting to design, construction, operation, maintenance, renovation and deconstruction.

Green Building Defined

Green building practices can improve the environment's ecology in numerous ways. It can reduce the energy consumption by 20% - 30%, water usage by 30% - 50% and significantly reduce waste generation by extensive recycling. Additionally, usage of green building practices leads to;



Better air quality



Low electricity consumption



Enhanced productivity



Enhanced daylight



Superior health & well-being



Protection of biodiversity and ecosystem



Green Building Defined

Across the different countries, there are several programmes and agencies that define, categorize and certify green buildings. To name a few; LEED (USA), BREEAM (UK), DGNB (Germany) and CASBEF (Japan). In India, IGBC and GRIHA have taken the forefront of promoting the green building programmes and certifications. Certifications are done on various parameters such as;



Water conservation & efficiency



Energy efficiency



Type of building materials and resources



Indoor environment quality, health & comfort



Innovation & development



Site & facility management

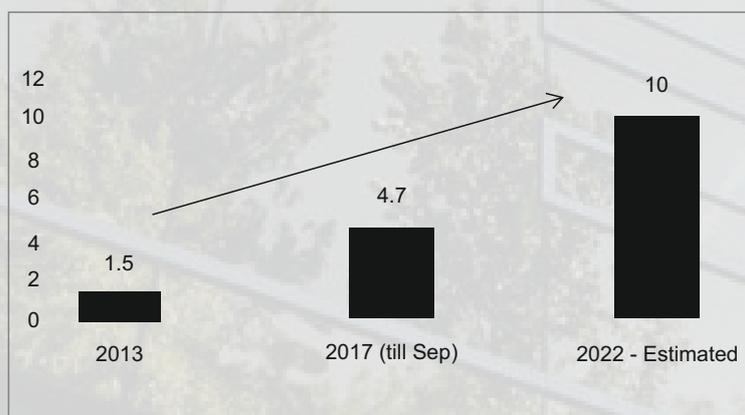


Emergence of Green Buildings in India

Though at a nascent stage, India has emerged as one of the leading countries in terms of green buildings' projects. India ranks only second after the U.S. in terms of the number of green technology projects and built-up area. As of September 2017, more than 4,300 projects with an approximate 4.7 billion sq.ft. of built-up area registered for green technology.

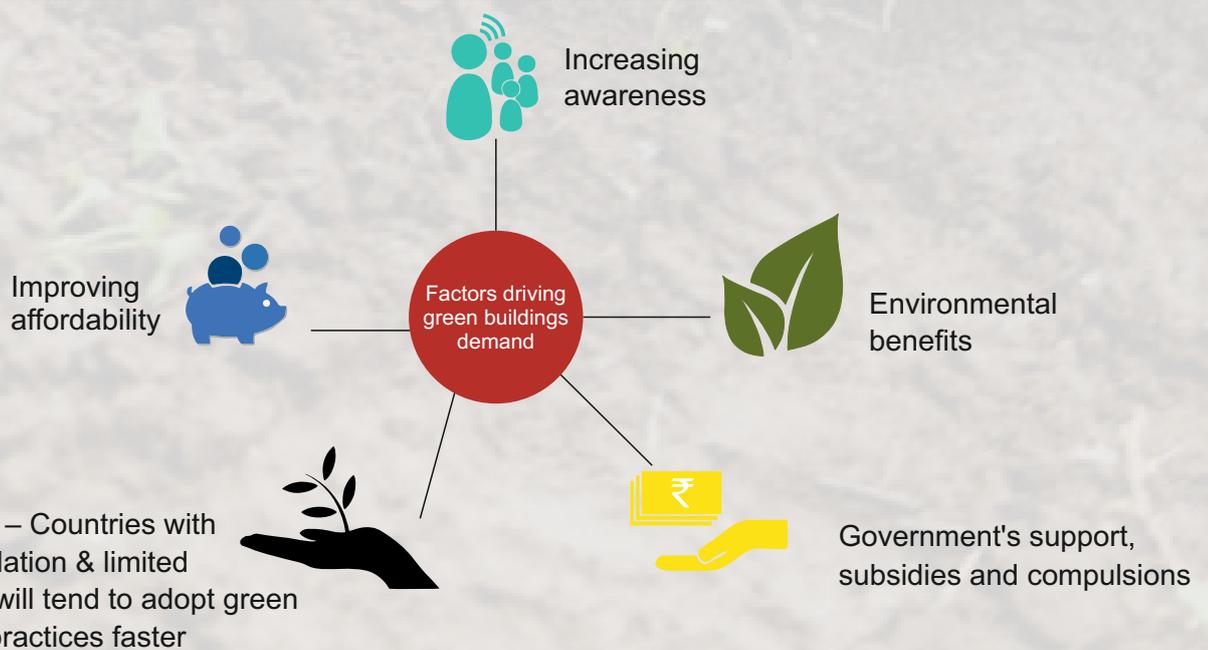
However, this is only about 5% of the total buildings in India, indicating that there lies a tremendous potential for further penetration of green building technology in India. Growing at an exponential rate, the Indian green buildings' market is expected to double and may reach around 10 billion sq.ft. by 2022, valued between \$35 billion - \$50 billion.

Growth in Green Buildings - India
Built-up area in billion sq.ft.



Key factors driving Green Buildings' practice

Although the initial costs of a green building may be higher (up to 15%, depending on various factors) than the conventional buildings, however, the long-term benefits such as low operating costs along with potential health benefits for the occupiers, makes it a viable option. Below are the few key factors that are likely to drive the green buildings' demand.



Emerging Trends & Technologies in Green Buildings

Green buildings aim to build a sustainable environment through efficient use of energy and conservation of natural resources. The efficiency of a green building can be maximized by usage of innovative construction materials and cutting-edge technology. Whilst there are many technologies used across different countries, listed on the next page a few notable ones.

Emerging Trends & Technologies in Green Buildings

Biomimicry:

Also known as biomimetic, this is a concept of imitation of the various models, systems and elements of nature and incorporating it in buildings' design and architecture. It has led to the adoption of many innovative designs to optimise the of buildings' air ventilation along with better cooling and heating control. Eastgate Centre in Zimbabwe is a great example - Biomimicry of Termite Mounds.



Green Roofs:

Also known as living roof technique, the roof of the building gets fully or partially covered with vegetation and soil, on a planted waterproofing membrane. It moderates the heating and cooling of the building along with improving the air quality.



Vertical Gardens or Living Walls:

In this technique, the plantation is done vertically on either side of walls. This technique helps in degrading the pollutants and enhancing the air quality.



Source: IGBC

Emerging Trends & Technologies in Green Buildings

Glass Fibre Reinforced Gypsum (GFRG) Panel

This is a very cost-effective and durable technique of development. It takes lesser time and requires lesser raw materials such as sand, cement and other products. Additionally, the core component - Gypsum is easily available at a cheaper price considering that a huge amount of it is generated as a waste from fertilizer and mining plants. Buildings which use GFRG panels have a better lifespan and do not require beams and columns.



Monolithic Concrete Construction

Unlike conventional techniques, in this method, all structures such as walls, floors, beams, columns, slabs etc. along with window and doors openings, are cast in a single operation with the help of modular formwork made of aluminum. With thinner walls and columns, it provides a higher usable area. It is one of the potential technologies that can be used in affordable housing on a large scale, and it also conserves natural resources.



Rain Garden

This concept helps in enhancing the groundwater absorption by reducing the amount of rain runoff. It uses planted depressions to allow water runoff to go through impervious urban areas, pathways, driveways, compacted lawns, roofs, parking lots etc. This technique allows more time for water to be absorbed in the ground that leads to an increase in groundwater levels, low soil erosion and reduced water pollution.



Apart from the above stated, there are many other innovative technologies and materials that are used in green building practices.

To name a few, Cradle-to-cradle design, smart glass, green concrete, passive building concept, cavity walls, lighting sensors and building management systems are also used extensively.

Source: IGBC

Challenges & Barriers for Green Buildings

Whilst the usage of green building practices is on a rise, there are few challenges and barriers too. Over the last few years, the slowdown in Indian real estate sector has led to a stash of huge unsold inventory. In addition, the impact of recent reforms amidst subdued demand has further dampened the market sentiments, and the majority of the developers are struggling to offload the existing inventory.

Current market conditions have made the developers skeptical about the usage of any technology that increases the cost of construction. Apart from this short-term market situation, below are the few challenges for green buildings' practice implementation in India.

Challenges & Barriers for Green Buildings

Lack of awareness about green buildings practices and its long-term benefits -

A big section of Indian users are still unaware of green building concepts and its enduring benefits. Majority of users perceive that green building practices are expensive and financially not feasible.



Inadequate Government's rules, standards & policies -

There is an absence of stringent and mandatory laws to enforce large-scale implementation of green building norms.



Higher cost of equipment and products -

The equipment and products used in the construction of green buildings cost higher than the conventional ones, and so small contractors and developers cannot afford it.



Lack of skilled resources and subject matter experts -

A majority of industry stakeholders such as policy makers, architects, engineers, contractors and workers don't possess adequate skills and know-how required for green buildings' construction.



Inefficient incentives and subsidies for developers -

There are very few incentive plans and vary across states or even cities, based on the governing bodies. Whilst in the majority of cases, incentives are in form of additional FAR/FSI, followed by a rebate on property tax and other schemes. However, these incentives have not been significant enough to encourage the developers and homebuyers.



Approvals and clearances -

Developers already face a tedious process of approvals and there is an apprehension that further addition of green buildings' related compliance may cause an additional delay.



Conclusion

The relentless degradation of the environment along with fast pace depletion of resources, rising pollution and climate change has affected the human life significantly. The deteriorating health conditions and livability quotients are alarming for the current and future generations. It needs a close attention and increased participation of countries across the globe to take measures to slow down the environmental degradation. The building sector which is one of the biggest consumers of resources and emits a significant amount of pollutants, as well as wastes, can play a vital role in building a sustainable environment by increased usage of green technologies.

In India, the growth of green buildings can be accelerated through standardization of norms, better incentive schemes, single window clearances, robust financial support system and most importantly creating awareness amongst all the stakeholders. The gradual rise in awareness about green buildings and its long-term benefits will surely create a huge market potential and this seems to be the only mantra for sustainable living.

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The ANAROCK Group is one of India's leading real estate services company having diversified interest across real estate value chain. The Group's key strategic business units comprise of Residential business: broking & advisory services to clients; Investment business: debt, equity and mezzanine funding and Research & Consulting business. ANAROCK's Investment arm has built a revolutionary business model of bulk-purchasing residential apartment inventory through a proprietary investment fund.

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