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The Greener the Better: A Short Study on

Green Buildings Movement in India

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Abstract

The real estate sector is one of the largest industry in India.Not only it provides large scale employment to masses but also contributes tremendously to country's GDP.While one side we see that expansion of this sector is hugely driving country's growth , the other side the fact remains that this growth is harming our environment.

The concept of Sustainable Development comes to rescue here. Sustainable development is all about reducing the destruction of natural resources and ensuring efficient use of energy resources. The perfect example of this is Green Buildings. This article will throw light on India's take on green buildings ,how far we have come and posing challenges which needs to be overcome. *Keywords:* Environment, Sustainable Development, Natural Resources, Efficient use of energy, Green Builldings

Introduction

Modern buildings of today are undoubtedly par excellence in terms of artichecture, design and technology but they are adverselv impacting the ecology. Construction sector which accounts for large portion of green house gas emissions needs to realize that it needs to play a responsible role towards preserving the environment and natural resources. In this regard,green buildings can play an important role in addressing environmental issues and concerns. As a result, the green building concept has become more widely adopted over the past ten years. Different countries have already set up guidelines and objectives for achieving some green targets. The UK has set a target that all new buildings will have to meet zero carbon



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standards from 2019 onwards - France established a similar target and it will be in effect in 2020. Moreover, governments of some major countries in Asia such as China, India and Singapore have also established directions or blueprints for green building development. Based on these governmental policies, it is predicted that there will be more and more green elements in the design, construction and operation of the building industry supply chain in the coming decades.

A 'green', or 'sustainable' building', is a structure designed to be environmentally friendly and resource-efficient. Green buildings are basically the ones which enhance efficiency in the use of energy, water or other resources, and generate minimal non-degradable waste. The concept was developed in response to resource limitations and concerns about pollution, so green buildings are often constructed using products and materials that are reusable and which reduce consumption of natural resources.

Green technologies like efficient cooling systems have sensors that can sense the heat generated human body from and automatically adjust the room temperature, saving energy. It applies to lighting systems too. Green buildings have a smarter lighting system that automatically switches off when no one is present inside the rooms. Simple technologies like air based flushing system in toilets that avoids water use by 100%, Use of energy efficient LED's and CFL's instead of conventional incandescent lamp, new generation appliances that consume less energy, and many other options help in making the buildings green and make them different from conventional ones.That is why this concept is being widely accepted by all the sections of the society.

The Green Building movement in India was triggered off when CII-Sohrabji Godrej Business Centre building Green in Hyderabad was awarded with the first and the prestigious Platinum rated green building rating in India. Since then, Green Building movement in India has gained tremendous impetus over the years.With a modest beginning of 20,000 sq.ft. green built-up area in the country in the year 2003, today (as on January 2015) more than 3,003 Green Buildings projects coming up with a footprint of over 2.63 Billion sq.ft are registered with the Indian Green Building Council (IGBC), out of which 572 Green Building projects are certified and fully functional in India. This growth has been possible with the participation of all stakeholders in the green building movement. Today all types of buildings are going the Green way- Government, IT Parks, Offices, Residential, Banks, Airports, Convention Centre, Institutions, Hospitals, Townships, Hotels. Factories, SEZs, Schools, Metros etc.

Benefits of Green Structures

Benefits of green buildings are abundant.Besides providing environmental benefits,it also provides economic benefits and health and community benefits



- The most tangible benefit is in reduction of operating energy and water costs right from day one during the entire life cycle of the building
- Buildings consume atleast 40-50 percent less energy and 20- 30 percent less water vis-versa conventional building.
- The green buildings use interior materials with low volatile organic compound (VOC) emissions. This improves the indoor air quality and comfort of occupants.
- Green buildings use non toxic ,renewable and recyclable products. It also incorporates latest techniques and green technologies.
- And above all it conserves the natural resources and protects ecosystem and biodiversity. It has a significant impact on the worldwide climate crisis. Builders, contractors and government are also quickly realizing the additional economic and environmental benefits of this approach.

Green Buildings –Viability and Myths

It is a myth that there are lots of investment in the green buildings. If the designs are right then the overall incremental costs varies from 2% to 5%. The construction costs of a green building would be marginally 5% to 8% higher for a Platinum building than a conventional building, but the incremental cost gets paid back within 34 years with substantial reduction in operational costs.Therefore constructing green buildings makes business sense too.

Although green building has made tremendous growth in the last few years, there remain many who still are unconvinced of its advantages due to numerous myths and misconceptions surrounding the main stream construction.Some myths regarding green buildingsare:-

- Green buildings often lack the aesthetic quality of conventional buildings
- Green building products are often difficult to find
- Green building products do not work as well as the traditional ones
- Building green is too difficult and complicated
- It is difficult or not possible to convert existing conventional buildings into energy efficient buildings

In reality, it is proven that all these are the misconceptions of the people, all it needs it better implementation and educating the people about the concepts and contexts of building green.

GovernmentInitiativestowardsGreenBuildingsMovement in India

In the past ten years, the number of certified and registered green building projects have



increased rapidly thanks to initiatives undertaken by developers as well as state and central governments. Some of the notable initiatives and bodies formed for this purpose are discussed below:

CII (Conferderation of Indian Industries) -Sohrabji Godrej Green Business Centre

CII-Godrej GBC was established in the year 2004, as CII's Developmental Institute on Green Practices & Businesses, aimed at offering world class advisory services on conservation of natural resources. The Green Business Centre in Hyderabad is housed in one of the greenest buildings in the world and through Indian Green Building Council (IGBC) is spearheading the Green Building movement in the country. CII - Godrej GBC, offers advisory services to the industry in the areas of:Green Buildings Management, Green ,Energy Companies, Renewable Energy, Green Product Certification, Waste Management and Cleaner Production Process. CII-Godrej GBC works closely with the stakeholders in facilitating India emerge as one of the global leaders in Green Business by the year 2022.

IGBC

The Indian Green Building Council (IGBC), part of the Confederation of Indian Industry (CII) was formed in the year 2001. The council offers a wide array of services which include developing new green building rating programmes, certification services and green building training programmes. The council also organises Green Building Congress, its annual flagship event on green buildings.

ECBC

The Energy Conservation Building Code was launched by the Ministry of Power in May 2007, for promoting energy efficiency in building sector. ECBC norms are to be adhered during construction, installation of lighting system, electrical system and water heating and pumping systems. ECBCcompliant buildings are projected to use 40-60% lesser energy than similar buildings designed and constructed during the same time frame.

GRIHA

GRIHA is an acronym for Green Rating for Integrated Habitat Assessment. GRIHA is a rating tool that helps people assesses the performance of their building against certain nationally acceptable benchmarks. It evaluates the environmental performance of a building holistically over its entire life cycle, thereby providing a definitive standard for what constitutes a 'green building' With the entire lifecycle of a building from construction to operation and then demolition consuming various resources like energy, water, materials, etc., besides emitting wastes, GRIHA attempts to minimize consumption resource and wastage, thereby environmental impact through enhanced tools.. assessment Reduced resource consumption and pollution, and enhanced user productivity are the advantages extended by the adherence of GRIHA.



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BEE (Bureau of Energy Efficiency) Star Ratings

BEE was set up by Government of India to develop policies and strategies that reduces energy intensity of the Indian economy.BEE star rating of office buildings conduct energy audit to analyze energy efficiency and track improvements in comparison to other buildings. A comparison of actual performance to specific energy usage provides insight on where you stand in the 1-5 Star scale. The program aims to accelerate energy efficiency activities in buildings. Today greener buildings have proven to be of higher quality and easier to maintain, promoting lower utility costs and promising enhanced earnings.

Growth of Green Building Construction Industry in India

Spearheading the green building movement in India is Indian Green Building Council (IGBC) of CII. The movement was triggered off when CII-Sohrabji Godrej Green Business Centre building in Hyderabad was awarded with the first and the prestigious Platinum rated green building rating in India. Since then, Green Building movement in India has gained tremendous momentum over the years. As on 8 August 2013, over 2,155 green building projects amounting to over 1.52 Billion sq.ft of green building footprint are registered with IGBC, making India one of the top three countries with largest green building footprint in the world. In 2003, there were very few products and employment opportunities in this sector. However with the spread of the green building movement across the country, the sector has witnessed tremendous growth opportunities. Today, many new products are many being introduced and new employment opportunities are being generated. Today, India is one of the leading exporter of green building materials & technologies and is actively forging new international collaborations to develop more superior products. Technologies and materials like waterless urinals, CO₂ sensors, VOC paints & coatings, high performance glass, wall & roof insulation, High CoP chillers, wind towers, etc., are today becoming widely accepted. Reuse of old materials which many architects earlier were shy of even discussing is gaining due importance in the design philosophy.

India is well poised to develop more of innovative and futuristic materials and technologies which are not only eco-friendly and energy efficient but will significantly address the rapid depletion of resources and play a catalytic role in preserving and protecting Planet Earth. India's green building footprint has grown from 20,000 sq ft in 2003, to projects covering 761.93 million sqft by mid-2011.Going by the present growth rate of 30 % year on year, by the end of 2017, it is expected to cross 4 to 5 Billion Sq.ft of green building footprint.

These trends suggest significant and growing market opportunities for green buildings in India. It is apparent that the market is large and is expected to grow exponentially. Hence there is going to be a serious demand for experienced professionals, material manufacturers and



service providers in this area. This gives plenty of opportunities for budding entrepreneurs in this sector. Opportunities in India for green building services include:-

Architectural and engineering services for high-rise structures, theme parks and hotel Urban planning and design Other niche architectural services like creating designs inspired from the traditional Indian architecture and Energy efficiency consultancies.

Market Challenges for Green Building Industry in India

Though the concept of green buildings is slowly picking momentum with real estate developers in India, yet there are many challenges in the growth path of such buildings. Given below are some of the major bottlenecks in the path of eco-friendly buildings.

Not enough experienced workforce:

Lack of experienced workforce is a major problem in India. There are not many experienced consultants in this field, who can make customers accept the concept of eco-friendly buildings. There are many untrained service providers, who lack the required expertise in green construction.

Lack of awareness and leadership:

In India, many people are still not aware about green buildings and its benefits. While buying new apartments, they hardly consider its green aspects. The local administration needs to be more mobile and dynamic in its approach to create awareness about these buildings. Today, India needs strong leadership to drive and promote the concept of sustainable development.

Uncertainty over green building techniques:

Though interest in green homes is growing, yet real estate developers are quite uncertain over green building techniques. They are skeptical about costs, economic benefits and performance of such buildings. Because of this, most developers feel uncomfortable while taking up green projects.

Non-existence of sustainable architecture practice:

Sustainable architecture practice is almost non-existent in India. Architectural sustainability means to work with nature, and not working against it. Most architects fail to design structures that have the basic principles – green roofs, open layout design – of green homes. There is an urgent need to promote and extend the technological understanding of eco-friendly structures.

Policies for Developers:

Government should come up with tax rebates and tax saving policies for builders who go for green structures. This will definitely inject some positive sentiment in the real estate market overall. Realising that energy use and air pollution are important issues, the Indian government came up with the Energy Conservation Act



(ECA) in 2001. The act promotes energy efficiency and conservation. The country needs clear vision, leadership skills and the right mix of policies to make eco-sensitive buildings more popular among buyers and builders.

Conclusion

The study above indicates that India has the tremendous opportunity to increase its level of sustainability. Achieving just a portion of vield this potential would immense economic and social benefits that would not only enable India to maintain its rapid rate of growth and increase its energy security but also increase the quality of life of its citizens by expanding energy inclusion, increasing access to quality food and water, and improving air quality. Thus the green building movement is for the benefit of individuals, society, country and global environmental concerns at large.

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