Housing and Urban Infrastructure Management: Sustainable and Green Development

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Abstract

This research paper on green housing and urban infrastructure has comprehensively dealt on the facets of sustainable development and optimal management of natural resources. It emphasized on the spurt of population boom and need for affordable housing; without harming ecology. Implementation of sustainable strategies, planning and policy is becoming important for the planet. Ensuring an eco-friendly quality living standard, amidst competitions has become the issue. Like excellence, quality is a kinetic concept which needs to be accomplished. These dimensions to building of houses, infrastructures, local communities, natural resources and technology have to be seen with green. Private public participation in housing has to have quality attainment with customer focus, and sustainable.

The paper introspected on the green building design striking a balance between home building and the sustainable environment. It says that this can be done by cooperation between design team, architects, engineers, and client besides other stakeholders of the environment. This concept complements the concerns of economy, utility, durability, and comfort. Leadership in Energy and Environment Design (LEED) on rating system and other rating systems have been cross examined with other global parameters. It analysed on the Life Cycle Assessment (LCA) of housing and Agenda 21 of UN for sustainable development.

The research paper is a platform for collection of ideas and views from the multiple aspects of thought; highlighting on sustainable housing and urban processes catering to socio-economic development. It has reviewed on the research articles and reports for resolving with the issues and challenges. The paper is an outcome of the discussions.

Keywords: Sustainable Housing, Urban Infrastructure, Assessment, Environment, Stakeholder Partnership.

Prologue

Housing is important for shelter. Population boom require affordable housing. Housing has remained the core of human interest for habitation. Housing with urban infrastructure is a convenience. Primitive people lived in caves. Process of social development came up with various types of dwellings for safety and securities. Sustainable housing and urban infrastructure is becoming important. Implementation of sustainable strategies and planned policy is becoming utterly needed for a congenial environment. Sustainable housing and urban infrastructure management is essential for redefining strategies. But the spectrum of erratic business competitions in the domain of housing and urban infrastructure sector is quite visible. Ensuring a better quality of living standards, amidst fierce competitions has become a himalayan task, and of prime importance to the governance trans-nationally. Excellence in the quality of work in all sphere of development is the urgent need of the hour, for sustainable growth and development of the society broadly.

If we analyze threadbare, we understand that, like excellence, quality is a kinetic concept herein referred to as healthy habitation. Quality standard firms propagating values across the horizon, typically evaluate and understand the cross-functionalities, inter-relations and inter-dependency rationally. But yet they benchmark with the best practices, with an unstinted response to stimuli, which becomes all the more difficult every time and all the time. And it is more accurately required in the frontiers of Housing and Urban Infrastructure sector, to sustain with the strategies, plans, policies, regulations, instructions and enforcement.

Sustainable Housing and Infrastructure

Eventually sustainable housing and urban infrastructure sector in its various portals should recognize the essence to pursue quality and deliver its best to all the stakeholders of society and cater a friendly and congenial environment to the citizens. These dimensions of approach to the areas for contributing to building of houses, Infrastructures, local communities, value additions, natural resources and technology, are urgently needed to be poised with the polity.

Any real estate development organization, private or public, understands quality attainment with respect to customer focus. It enables and makes the real estate builders enterprise excellent and sustainable with an organizational image designed. And it will determine the success and failure of the government mechanism of the country if not employed with cross-subsidized facets. This quality of

sustainable housing and urban infrastructure management can be viewed with the backdrop of an environment comprising of landmass, water, energy, building materials, houses, roads and Urban Infrastructure and qualified builders. It arbitrarily should move around, policy decisions, processes comprising of quality of curriculum, technologies and systems for the monitoring progress.

Changes in Liberalisation: Privatisation

To manage with better housing and urban infrastructure, with excellent provisions and services, management system is all the more important. Population boom and migration has resulted in the increased stake holder power today. The quality of living under a business environment holds equally well for Housing and Urban Infrastructure, for the people and places. The recent new economic changes in the face of liberalization, free market economy and global competition, Housing and Urban Infrastructure has emerged with the business of varied forms and size. Ownership in the privatization process have become pivotal in the economy. Eventually, the burgeoning cost of house building materials have made the real estate organizations, maintain quality standards, which is imperative for the business of living. This is apparently paramount, looking in to the business of bettering the values of shelter and community welfare. This aspect of Housing and Urban infrastructure in the business shall have to sustain threats from the foreign players and market forces, which are evident. Thus, it is logical that Housing and Urban Infrastructure is integrated to the worldly business and therefore, it needs to generate expertise in approach, to be successful in offering a lifestyle.

Considering the above critical dimensions to research, it can also be viewed that sustainable global approach to housing and urban infrastructure management shall entail the role of environment, traditional values and participation through effective decision making. And therefore the Town planners, architects, government and civil societies shall have to play a pivotal role in launching diverging thoughts in different nations, states and cities comprehensively interpreted. The recent emergence of privatization has been dramatically changing the concept of real estate development. This privatization approach is in fact, no way different from the privatization of trade and commerce and shall be customer driven.

Public Private Partnership

The provision of housing and urban infrastructure as a state subject has undergone a stage of devolution in the governance. Incidentally the adopted operational strategies to tackle the target of managing the

booming population, needs a public-private-participation approach, as a proactive mechanism to rightly reform the actions of state power. The new regulatory framework for sustainable housing and urban development should accommodate private sector participation with public agencies to chase the target of population sustaining the welfare measures. PPP housing and urban infrastructure business contextually can be classified as Public-Sector, Private-Sector and Public-Private sector. Wherein, the later two sectors view the topic of housing or urban infrastructure as business. Governments globally as a matter of fact, opened avenues for private developers quite late and its development gathered speed belated. Therefore, all the nations, central and state government should design matching rules and regulations to encourage private housing and urban infrastructure development for meeting to the shortfall to sustaining the cities and towns growing with time.

Green Housing and Sustainable Housing

Sustainability may be defined as meeting the needs of present generations without compromising the ability of future generations to meet their needs. Green housing is also known as green building or green construction. It refers to both, a structure and the using of processes which are environment friendly and responsible and resource efficient across the building's life-cycle. It is from the phase of design, construction, operation, maintenance, renovation and demolition.

In other words, green building design involves finding the balance between home building and the sustainable environment. This requires close cooperation of the design team, the architects, the engineers, and the client at all project stages. The Green Building practice expands and complements the classical building design concerns of economy, utility, durability, and comfort. Leadership in Energy and Environment Design (LEED) has a set of rating systems for the design, construction, operation, and maintenance of green buildings which was developed by the US Green Building Council. It is the source for all countries to abide by the macro standards.

Though innovative and new technologies are developed to support and complement the current practices in creating greener structures, the common objective is same. Green and sustainable buildings are designed to reduce the overall impact of the built environment on human health and the natural environment. They make efficiently using energy, water, and other resources, protecting occupant health and improving employee productivity and reducing waste, pollution and environment losses through degeneration.

The International Energy Agency estimated that existing buildings are responsible for more than 40% of the world's total primary energy consumption and for 24% of global carbon dioxide emissions.

Sustainable Development

The concept of sustainable Development is traced to energy reduction and (especially fossil oil) crisis and environmental pollution concerns between 1960s and 1970s. Rachel Carson authored a book named 'Silent Spring in 1962, which is considered to be one of the initial landmark efforts to describe sustainable development on green building. The motives for building green, housing includes environment, economic, and social benefits. Modern sustainability initiatives call for an integrated and synergistic mix. Green building brings together a vast array of practices, techniques, and skills to reduce and ultimately eliminate the impacts of buildings on at the cost of environment. It believes in renewable resources by utilizing sunlight and using plants and trees and reducing rainwater run-off. They differ from in technologies from region to region. The philosophy of designing a building that is in harmony with the natural features and resources surrounding.

Life Cycle Assessment (LCA) of Housing and Agenda 21

Agenda 21 is a programme run by the United Nations (UN) related to sustainable development. It is a comprehensive blueprint of action to be taken globally, nationally and locally by organizations of the UN, governments, and major groups in every area in which human impact on the environment in the 21st century. LCA is recognized as the way to evaluate environmental impacts of buildings. ISO 14040 has a recognized LCA methodology. Yet life cycle impacts are critical to the design of environmentally responsible buildings. In North America, LCA is rated to some extent which is included in the Green Globes® rating system, which is a part of new American National Standard based on Green Globes. LCA is also included as a pilot credit in the LEED system. In UK, the BRE offers ratings for 1,500 building materials.

Price is important for sustainable housing. Photo-voltaics, new appliances, and modern technologies tend to cost more money. Financial benefits of green building, "Over 20 years, the financial payback typically exceeds the additional cost of greening by a factor of 4-6 times. People in the U.S. spend about 90% of their time indoors. EPA studies indicate indoor levels of pollutants could be ten times higher than outdoor levels. LEED-certified buildings are to have healthier, cleaner indoor environmental quality.

LEED and Energy Star certified buildings achieve significantly higher rents, sale prices and occupancy rates as well as lower capitalization rates potentially reflecting lower investment risk.

Green Building Rating System

Construction building rating systems like BREEAM (United Kingdom), LEED (United States and Canada), DGNB (Germany), CASBEE (Japan), and VERDE[GBCe] (Spain) help consumers determine a structure's level of environmental performance. They award credits for optional building features that support green design in categories such as location and maintenance of building site, conservation of water, energy, and building materials, and occupant comfort and health. The number of credits generally determines the level of achievement. The major building environmental assessment tool currently in use include International Green Construction Code (IGCC).

Green Building in India

Green building uses less water, optimises energy efficiency, conserves natural resources, and provides healthier spaces for occupants, as compared to a conventional building. Residential building sector is one of the largest consumers of electricity in India. Continuous urbanisation and the growth of population resulted in increasing power consumption in buildings. Indian Green Building Council (IGBC) has licensed the Leadership in Energy and Environmental Design (LEED) Green Building Standard from the U.S.. Green Building Council and is responsible for certifying LEED-New Construction and LEED-Core and Shell buildings in India. The energy efficient building known in India is RMZ Millenia Park a Chennai, It is the India's largest LEED gold-rated Core and Shell green building. IGBC is formed by the Confederation of Indian Industry (CII) in 2001. This is continuously working towards adoption of eco-friendly and green building concepts in the Indian industry.

The Confederation of Indian Industry (CII) – Green Business Centre building in Hyderabad is one of the green buildings in India. There are five primary Rating systems in India. They are : GRIHA, IGBC, BEE, EDGE and LEED. IGBC promotes a whole-building approach to sustainability, based on the principles of five elements of nature (the *Panchabutas* viz. earth, water, fire (energy), air and sky). It preferably recognize performance in the following five key areas. They are sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. First green building in India is CII-Sohrabji Godrej Green Business Centre in Hyderabad done as per the LEED (Leadership in

Energy and Environmental Design) rating system. This is of 20,000 sq ft (1,900 m2) green built-up area built in 2003. Till today around 1,724 projects in India have been registered under the IGBC Rating programmes, with a total footprint of over 1.2 billion sq. ft. These developments include various kinds of buildings like corporate offices, hotels, hospitals, airports, IT Parks, SEZs, Townships, Gated Communities, Residential Buildings, government offices, Schools, Colleges etc.. India has 267 certified green buildings, which are fully functional and operational. IGBC Green Homes Version 2 is designed for rating new residential buildings, such as Individual homes, Gated communities and High rise residential apartments, etc.. The council has crossed milestones and has over 1 billion sq ft (built-up space) of registered green buildings in India, 1,300 strong IGBC member organizations and Green Building Congress since 2001.

Literature Review

As a matter of fact the need of the hour is enforcement of quality in housing and urban infrastructure and defining sustainable housing standards. To find out the attributes of quality Housing and Urban Infrastructure business, researcher work should attempt to define the core objective of becoming performing organization. Performance is key to convergence of all the functionality in symphony and is synonymous to stakeholders delight. Sustaining a perfect housing and urban infrastructure is ultimately important with the variety of avenues of approach; corroborating issues and challenges. The aforesaid interpretation of standard in essence entails the researchers to identify the stakeholders in the Housing and Urban Infrastructure business. Is it excellent living condition or what? what shall be the outcome of proper Housing and Urban Infrastructure activities? This has to have strategies in line with the expectations of the evolving society.

Eventually, the programmes for Housing and Urban Infrastructure development are operating through the earmarked agencies, internationally, nationally, state-wise and by local bodies in government, along with real estate developers. They are key to facilitating the processes, and making places and spaces (Kotler.P., 2004) suitable for living. Like food, water and cloth, shelter is also an emerging domain wherein skill is required for value addition (EVA).

Excellence in Housing and Urban Infrastructure is a comprehensive, inter-related and proactive process, designed into the sub-processes in an attempt to ensure the product and services delivered quality

oriented. It is nothing but, getting the things right, first time and every time. This universal concept is also applicable to all promoters, particularly, in the arena housing and urban infrastructure management. The processes employed in the systems and sub-systems in the governance, should boost the progress of work by its regulations and can snowball for a futuristic growth conducive to the changing climate (R.J. Sternberg, 1990). It is to promote healthy citizens, in a healthy society. Therefore, in order to come up with sustainable Housing and Urban Infrastructure, operational agencies has to proactively learn and process to ensure the best results. And hence, the literature on global experiences shall be collected shared and interpreted for an appropriate analysis of the problems, in the area.

Rationale of Approach

Assuring a generic approach to Housing and Urban Infrastructure management is a topic that is gaining momentum in recent times. The cutting edge market competitions in the field reveals that, only by virtue of excellent implementation, organizations can survive and sustain the wrath of competitions in the long run. Researchers are internationally attempting to quantify excellence in performance, particularly in Housing and Urban Infrastructure management which could protect the posterity for a congenial livelihood. Contextually, it can be said that the Indian regulatory bodies under the constitutional framework, has embodied rules and guidelines to regulate the activities, in terms of operations, but the enforcement laxity is curbing the streamlined growth. Similarly the environmental norms, and 73rd & 74th amendments, have substantially covered all the aspects of proper habitation, required for a comfortable living. Yet the need based decisions made at different agencies, selecting modern concepts from the world experience are not found to be fruitful. Evidently, there are plenty of variations in the agencies, responsible for arrayed promotion. These loopholes in the housing policy, administrative structures and inefficient management systems have ultimately hindering the private players for a level playing ground in the public-sector housing models, in most of the countries and as a result, housing and urban infrastructure development has been checked. To meet population demand, housing demand attracted private partnership in housing development business and critical research studies, analysis and evaluation of existing processes reveals that the prevalence of inefficiency in the government housing provisions need to be tackled strategically for due sustainability.

The growth and development of private sector housing and urban infrastructure business with the help of effective management decision is the cure for the existing housing problems. And circumstantially there are dire needs of cohesive models to understand and fathom the complexity of study in the field.

These models shall require the effective participation of all the stakeholders, starting from the vision of government to the public in the bottom line. But the role of different stakeholders has to be defined properly at all the levels, that could be national or local, urban or rural, in all the spheres and segments of human habitation. Recently it is seen that some vibrant private partners of development in the field of housing and urban infrastructure business sector, have shouldered the need of huge investments to be made by the government. And hence in the changing scenario, government should fillip the process of cross subsidization policy in promoting to the business environment, for a total democratic development. At this critical juncture, proper allocation and management of resources, with appropriate effective decision, will automatically lead to designing of a holistic model of housing and urban infrastructure development.

Under the above background, a modest attempt should be taken up to ascertain and redress the surging intricacies of housing and urban infrastructure market in India for offering constructive suggestions to sustainable private public partnership. In this endeavor, the research paper has handled the cropping up ideas meaningfully with argument. The management decision in the government agencies and participation of real estate developers, shall have to help the stakeholders and strategic partners mutually studied through various modes and perspectives.

Conclusion

This research paper provided an understanding on the significant attributes that are essential in achieving excellence in sustaining housing and urban infrastructure development. Certain arguments, interpretations and models have been discussed to make the organizations intelligent. It shall add substantial value in helping the organization and society, specially developers organizations, to develop performing processes that are quintessential for organization under the purview to attain excellence. It encompass areas of concern that contributes to the making of a sustainable environment for housing and urban infrastructure management. It needs all round approach to holistic integration and cohesion.

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