



Cost Effective and Eco-Friendly Housing in Kerala: Need and Relevance of Green Houses

KEYWORDS

Green Housing, Green House Rating, Jerry Buildings, IGBC, AGRB

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ABSTRACT

The concept of 'Green Houses' has become all the more significant in the contemporary centrality as part of the waves of green movement sweeping across the world. Apart from benefits that such houses promise to the environment, they are cost-effective too. Thus, both from the environmental protection perspective and from the affordability perspective green buildings and habitats are significant. Equally significant is the need for rating buildings for assessing their compliance with laid down norms. In this context, with reference to Kerala state in India, this paper studies the relevance and significance of green houses and green house ratings, their relevance and implications on the environment and society, and such other aspects. Based on the study findings the paper gives suggestions for promotion of green housing for betterment society and environment.

Introduction

Housing is a basic necessity of human life that comes after food and clothing. Apart from a roof over our heads, the concept of housing has got a much broader perception. For the vast majority of the common people, home ownership denotes fulfillment of a life-long dream for themselves, families, and the dear and near. A safe and secured home always gives people a sound foundation for everything in their day to day life. Ownership of home is also required for the fulfillment of many other fundamental objectives such as better quality family life, improved educational and health amenities. Home also stands as a physical asset for the individuals, which indicates the capacity and capabilities of the individuals. For many people this is the dream come true-owning their own home. No matter what shape it takes, how much it costs, it is always a big investment- of funds, time and emotion (Betty Crocker, 1975) [14]. As far as the economy is also concerned, the housing sector is an important sector which generates significant level of employment and income. Building sector generates demand for building materials, development of transport infrastructure and job opportunities for the masses, both skilled and unskilled. It is estimated that the overall employment generation in economy due to the additional investment in the building industry is eight times that of the direct employment. As per the information received from the contractors who are active in the construction field, the cost of labour and materials in the total construction cost of a building in Kerala is estimated at the ratio 2:3. Recently, the housing sector in Kerala experiences significant challenges as a result of increased land prices and the material costs. Besides, people find it harder to get housing finance at a rational rate of interest. The house-builders are also now experiencing problems and difficulties in their business environment and are waiting for favourable conditions.

Relevance and Significance

A safe and protected house is one of the essential needs of human beings and the right to shelter has been recognised as a fundamental human right in international spheres. According to the International Covenant of the United Nations (UN) relating to economic, social and cultural rights, to which India is a signatory, right to adequate housing is to be treated as a basic human right. Constitution of India has defined the protection of life and person-

al property which includes the right to shelter and right to livelihood (Article 21).

Properly designed and structured houses and buildings would be harmonious with nature. These buildings should be environmental friendly. The structure of home reveals the character of the individual and the concretization everywhere influences the surroundings and the echo system in total. Housing investment has got multiplier effects on the economy because of the vast linkages, both forward and backward of housing to more than 350 other industries. So, housing is a national priority for most nations of the world including India. It is a fact that in our society a vast majority of the people seek to possess their own home. This has emerged as an integral component of the economic life of the individuals and families and at the same time it is more than the monetary figures.

In India large number of people live without any form of shelter at all, or living in deteriorated and unhealthy shelter conditions. While this problem is severely felt by majority of the low-income earners, unemployed and the underemployed people. Rising wealth and affluence over the last decades have helped many people to construct a moderate home as their own. At the same time, recently the supply of materials and other inputs needed for the construction sector failed to keep up with demand. This has increased the cost of construction in various dimensions and began to badly influence common man. Their dreams are disturbed as the prices went up beyond their earnings. Affordable and eco-friendly housing is an imperative today

Past Studies and Research Gap

It has been pointed out that housing is an essential element of life in respect for most people and that the modern concept of housing does not limit housing merely to the provision of shelter' (Naik, 1981) [2]. A recent study on green homes in the Kerala context, 'Prospects and Challenges of Green Affordable Homes: A Study with Reference to Ernakulam, Kerala' by Manoj P K, 2013 [1] has pointed out the vital significance of green housing in Kerala due to the growing environmental degradation and the unaffordable nature of housing for the majority of the population in the state. It is noted that over 90 percent of the households are unaware of the concepts like green

housing, green finance etc. Because studies in the Kerala context are very rare this study seeks to extend the earlier study viz. Manoj P K, 2013. [1].

Objectives of the Study

- To assess the problems relating to Jerry buildings and its environmental impacts;
- To examine the significance of Green house rating and to assess the impact of Green house rating in the housing sector;
- To suggest strategies for promotion of Green houses and such other eco-friendly housing practices for the benefit of the society at large and its living environment.

Concept of Green House

Concrete structured houses and other buildings have become an integral part of modern life. Recently the intensity of these concrete buildings has increased irrespective of urban and rural areas. However, the magnitude of this problem is much higher in urban areas. There are various issues related to the jerry buildings. Time and space have significant influence in the construction of buildings. Inadequacies of these always make problems. Effective studies are required for assessing the future and economic impact of such issues. Really the multistoried flats and apartments have disfigured the earth and environment permanently. Economic growth, modernization and growing population are leading to the hyperactive construction everywhere. As a result of these irrespective burning of natural resources also takes place. Recently, the shortage of sand, wood and water has become a reality. Rising temperature and declining water levels are adding fuel to these problems. The official statistics show that the construction sector is consuming around forty per cent of the total energy consumption. Mounting garbage and the solid waste management are serious concerns of current, modern life. Studies have indicated that globally, construction sector accounts for production of as high as 25- 45 per cent of the greenhouse gas emissions. In Kerala the growth of building sector will be much higher in the future when compared to the last two decades. How far it will negatively influence the environment would be a serious matter of thoughts and studies.

The notion behind the green housing is nothing but the construction of concrete buildings without violating the nature and the eco system. Green buildings can offer hope for environmental protection to a certain account. According to the estimates of the Indian Green Building Council (IGBC) in the next twenty years building sector in India is projected to grow much higher than the growth witnessed in the past fifty years. The built up area in the green building sector is expected to reach hundred billion square feet by 2030, which would register a growth rate of 400 per cent.

Green House Rating – The Australian Model

The Australian Government has introduced a scheme for rating the buildings, which is known as the Australian Government Greenhouse Rating (ABGR) to help the building owners and tenants across the country. ABGR is used as a benchmark for the purpose of rating buildings and their premises regarding their greenhouse performance. For this rating they take into account the consumption of electricity, gas and other products like fuels. ABGR rating provides a rating of a building's energy efficiency. Buildings with better ratings will consume less energy than buildings with poor ratings. Reduced energy consumption

helps to reduce the Green house gas emissions. ABGR provides a star rating to buildings according to their actual performance, using one year's energy data. The star rating is derived from the actual amount of energy used by the building/tenancy consumes in a year and also takes into account some operational factors. The rating reflects the way through which the energy is managed as well as how efficiently the building is designed. This benchmark provides comparison with the greenhouse performance of other buildings. The Energy Efficiency in Government Operations (EEGO) Policy for office buildings stipulates minimum design and operational energy performance standards. For office buildings, energy performance is to be measured using specific measurement tools. ABGR rating is suitable as it focuses on building energy efficiency and is relatively simple vis-à-vis other indicators, and it rates buildings from zero to five stars (in half star increments). 'Five stars' denotes exceptional performance.

Annual assessments are done by ABGR assessors to provide current performance measurement. An ABGR rating below 4.5 star standards will be considered in specific circumstances such as heritage listed buildings, particular security requirements etc.

Green Movement and the Eco-Friendly Houses

In India, the green movement started on a small scale a decade ago. Hyderabad is the hub of various IGBC activities in the country. According to them the passion for green building is slowly and steadily growing in Kerala. Recently green building rating system has been launched for commercial buildings. Several buildings of IT companies and banking institutions have been built as per the IGBC norms and many of them have received ratings from the agency. It can be significantly lengthened to other types of buildings such as residential buildings, apartments, special economic zones and other corporate buildings. The first green building in the residential sector in Kerala was built in Kochi. Now a days people are much concerned about the health factors. Therefore they are ready to set up water harvesting options. Those who are constructing new houses are giving prime considerations to free and unrestricted passage of air and for getting adequate light. All these can minimise the consumption of energy. Even though people began to think about green buildings in the state during the last few years, there is much more to be done in this arena. In near future there will be huge opportunities in designing and constructing energy saving and eco friendly green buildings in the state.

Jerry Built Buildings and Its Economic Impact

Building codes establish minimum regulations for the construction of residual structures, electrical and mechanical components. A building code contains standards of performance and specifications for materials, systems and methods. Codes also cover fire resistance and adequate light and ventilation standards. There are two types of building codes; specification and performance. A specification type code establishes construction requirements by reference to certain materials. A builder may not use any other materials even if it is cheaper and superior in use to the specified item of product. A performance type code does not limit the selection of materials to a single type but establishes the requirements of performance for building components. Such a code establishes design criteria without specifying materials or methods (Joseph G Micneill, 1973) [13]. As a result of the increased demand for new houses and other buildings and the boom in the construction

sector, there are many possibilities for the jerry buildings. Quick and immediate construction processes coupled with the shortage of quality building materials and the wide spread contract based constructions are responsible for this. There are many issues relating to Jerry buildings and its future. So there is a need for a scientific assessment of its economic impact.

One of the important problems related to the jerry buildings is its sustainability. In normal conditions the life span of these homes and buildings will be less than fifty years. A long term continuous use of these buildings beyond this period may not be possible mainly due to its quality. This quality deterioration has become an imperative feature of contract buildings. The concretization of buildings already created problems and in addition to that concreting around the buildings especially homes and its premises are violating the nature. These attempts controls water absorption and ultimately lead to a decline in water level. Various reports say that in the state water level is alarmingly declining year after year. Huge flats on the other side cover the sky and sun shine.

Housing Problem in Ernakulam, (Kerala) and Green Housing

Large-sized air conditioners are attached to huge apartments that are not naturally ventilated homes. The presences of natural elements in modern buildings are disappearing. These are the new challenges related to the increasing density of huge buildings especially in urban areas. Today the construction activities are spreading out to coastal areas especially in Kochi region. As a result of this urban services are flourishing in these areas. The residents require basic facilities such as water supply, waste water disposal and the proper removal of garbage. Different issues are emerging day by day, in varying magnitudes. Practical solutions to such issues are really tedious and pain-staking.

'The problem of housing is more acute in Ernakulam than any other district in the state because of the fast increasing density of the population. Another major problem in this field is that about 20-25 per cent of the existing houses are unfit for human dwelling. Owing to various obvious reasons the problem of housing in the district is becoming more and more severe as the years passes' (Government of Kerala- Status Paper, Ernakulam District, 1980). Issues related to jerry buildings are the new dimensions of the problems associated with building sector. In this background green ratings for houses and other commercial buildings by considering various aspects like the energy consumption, method of construction, materials used for the construction and its ecological aptness. On the basis of a multi level rating the government can fix different rates of building taxes and thereby promote the concept of green homes and green buildings in the state.

Level of Awareness on Green Housing at Ernakulam (Kerala)

It is noted that vast majority of the households are unaware of the concept of Green homes and Energy-efficient homes. They are more ignorant about Green finance. Naturally, majority of them are unaware of the savings in operational costs because of adopting Green initiatives. Most of them are not prepared to make higher investments in Green Homes in order to derive the long-term savings by way of lower operating costs. In fact, Green finance is still in its infancy in Kerala, though some innovative financial institutions have developed an arsenal of green products

and practices that are being supported by government incentives for resource efficiency in development. The following suggestions are made, for promotion of Green Buildings, particularly Affordable Green Homes:

Strategies for Promoting Green Housing at Ernakulam (Kerala)

- Government should take initiatives to foster sustainable development through the promotion of green buildings, both residential and otherwise (like, commercial).
- Incentives be given for those who construct such homes in the form of subsidies, rebates etc.
- Either through grants and rebates, tax credits, fast track permitting or through other strategies, the public sector must encourage green buildings, residential or otherwise.
- Housing finance institutions (including banks, housing co-operative societies etc.) and other lending agencies should insist on compliance with green standards while extending their credit facilities or grants. Green finance should be encouraged always by all concerned.
- Policymakers should incorporate green compliance as one of the essential pre-conditions for regulatory clearance of all types of construction projects, both residential and commercial.
- As the general level of understanding of the common man on the need and relevance of green construction activities and green finance is virtually nil, initiatives are required at the governmental level for creating the requisite 'green awareness' through mass awareness programmes through different government departments.
- Promotional activities in the form of training, capacity-building programmes, workshops etc. be conducted or sponsored by the Government or its agencies.
- Local skill-base needs maximum encouragement so that it would support the construction of green houses and reduce the supply-side constraints.
- Local / vernacular materials and methods should be encouraged to be adopted by all stake-holders.

Concluding Remarks

As policymakers come to grips with hard questions about the sustainability of our current approaches to development, new strategies appear inevitable. The interests of businesses, governments, builders, consumers and financial institutions are converging to make green development part of the mainstream agenda. Thus, going green appears to be a natural corollary and also the sole remedy, for the multifarious issues facing the society and the governments, relating to long term sustainability, environmental pollution, depleting energy sources etc. It is high time that policy makers, governments and regulatory authorities insist on more stringent and more elaborate compliance norms, and also mass awareness programmes to educate the stakeholders regarding the urgency of 'Going Green' in all developmental initiatives, particularly construction of buildings. The earlier they initiate such measures the better. For instance, in the wake of the frequent oil-price rises, green homes will surely be an answer to India's ever increasing demand for energy.

It may be pointed out that the generally better awareness among the public, especially among the younger generation, regarding the need for eco-friendly houses is a welcome development. Hence, it would be easier for the Government and various promotional and regulatory agencies under it to promote green homes.

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