International Journal on Emerging Technologies **8**(1): 12-15(2017)

ISSN No. (Print) : 0975-8364
ISSN No. (Online) : 2249-3255

Green Rating Systems in India "A Landscape Perspective"

Manju Yadav*, Krishna Kumar Dhote** and Saurabh Popli*
** SPA, Bhopal, (Madhya Pradesh), INDIA*
***MANIT, Bhopal, (Madhya Pradesh), INDIA*

(Corresponding author: Manju Yadav)
(Received 17 December, 2016 accepted 03 January, 2017)
(Published by Research Trend, Website: www.researchtrend.net*)*

ABSTRACT: Environmental sustainability is the need of present times and there is lot of consensus over the issue at global level. Rating system for green buildings is a step towards achieving a more energy efficient, eco-friendly ad environment friendly development. Though the roots of rating system are in west many nations has evolved their own rating system, which are more appropriate in their context. The rating system gives due importance to overall siting of the building, the building envelop and the surroundings. The landscape or the surrounding and setting of sites play an important role in contributing in achieving green. In India we have diversity in terms of climate and socio-cultural backgrounds. Passive techniques of harnessing the nature in different ways is well embedded in vernacular practices. It is well-established fact that the landscape plays a vital role in controlling the microclimate, water conservation and enhancing the liveliness in the building. The present study largely depends upon the available literature and the expert's opinion, which includes landscape architects involved directly on certified projects. Main agenda of the discussion was to capture their first reactions towards the rating systems and analyzing why they think the way they are portraying their opinion based on their experiences. The present paper aims to understand the landscape considerations in Green Rating Systems in India. By evaluating them in their present outlook the role of landscaping could be assessed and the commitment towards environmental and ecological issues can be ascertained.

I. INTRODUCTION

In India the enforcement of Energy Conservation Building Code (ECBC) is in its primary stage, efforts are also made by The Energy and Resource Institute (TERI) and have developed Green Rating for Integrated Habitat Assessment (GRIHA). In its rating system although research team includes landscape architect but main objectives behind developing these rating system was the business and ecological benefits at that time. So one cannot presume that the rating systems are related to only who design and built the project but they are equally related to the owner, market and users. The stakeholders of green building are in a wide range.

It is evident that in the prevailing rating systems, concept has come to India from United Kingdom and United States although they have standardized to suit in every situation but context, culture, climate, professional and users are very different in every country. Moreover in India it is developed by Industries persons (CII- Confederation of Indian industries) so obviously they have created to have profits and probably made gaps to escape from the actual motive. So there may be gap between the expected outcome and real outcome while applying ratings.

To make the study more practical and applicable It was very important to know the perspective of both the experts (Rating systems expert and Landscape Architects), after analyzing and comparing their views, only one can conclude the best practices to be adopted. This illustrative study will also explain that how much these rating systems are sensitive towards landscape applications and what constraints are stopping them to achieve the main objective i.e. sustainability. In which areas of landscape they are more vulnerable to apply the best practices.

This study in a landscape perspective will illustrate that how the rating tools that are currently available in India needs to have an integral approach to sustainability. It will also focus about the problems faced by Architects-designers/Landscape architects involved in the sustainable projects/ rated projects to incorporate parameters with assurance of environmental sustainability complex task.

Along with rating systems evaluators, Architects, landscape Architects and Owner the Multi-disciplinary actors in the construction industry has to make efforts to facilitate the success of rating systems to achieve environmental sustainability.

Green building Rating System: Green rating systems are basically evaluation tools to measure the different environmental related issues to know the performance of the project. It usually comprises of a set of criterion covering various parameters related to design, construction and operation of a green building. Each criterion has pre-assigned points and sets performance benchmarks and goals that are largely quantifiable. In a Green building, the aspects of building design are looked into for an integrated way are Site Planning, Building envelope design, Building system design (HVAC, AC, Lighting, Electrical and water heating, integration of renewable energy sources to generate energy on site, Water and waste management, Selection of ecologically sustainable materials with high recycled content, rapidly renewable resources with low emission potential and Indoor environmental quality considerations.

Need of rating system: The Globally, buildings account for : 40% energy use, 42%water consumption, 40% solid waste, 50% raw material use, 50% of air pollution, 42% GHG emission, 50% water pollution, Total energy use in buildings is growing rapidly owing to economic development, increasing urbanization and improved lifestyles, predominantly due to increased space conditioning load.

India has the world's second largest population and continues to grow at 1.34% per year during the years 2007 and 2008. India is among the 10 fastest growing economies in the world with an average growth rate in the GDP of 5.8 percent during the first decade of economic reforms (1992-2001). The continued annual GDP growth was affected by the global financial crisis over the past two years (Source: Sustainable building and infrastructure, 2012). There was a need for setting up or supporting institutions for the promotion of energy efficiency services. These include industry associations such as Confederation of Indian Industry (CII), the Indian Green Building Council (IGBC), Financial Institutions (FI), such as the Indian Renewable Energy Development Agency (IREDA), Industrial Development Bank of India Limited (IDBI Bank) and ICICI Bank, as well as the National Productivity Council (NPC) and research institutes, such as The Energy and Resources Institute TERI - (The Energy and Resources Institute), a dynamic and flexible organization with a global vision and a local focus, was established in 1974.

TERI has also introduced GRIHA, a rating system in 2006 to adjudge the 'greenness' of buildings, which has now been adopted by the Ministry of New and Renewable energy, Government of India as a national rating system. GRIHA is the National Rating System followed in India. It has been designed according to Indian climatic conditions and in particular usage of non-AC buildings GRIHA addresses the Issues in three stage Pre-construction, During construction and Post construction.

Aim of the Study: Objectives of this study are to understand the rating systems and its components. After understanding the rating systems their strength and weaknesses will be calculated. It will further help in understanding the approach and processes of these rating systems in India. Following points will be evaluated in the light of landscape architecture.

- To know the role of landscape architecture in the rating systems for good practices
- Up to what extend these rating systems are minimizing the demand on non- renewable resources.
- To know that how rating systems correspond to designer expectations in terms of design and sustainability.

II. METHODOLOGY

To critically evaluate the rating systems, two sources of information are being applied literature and expert's perception. As one source of information was not sufficient to critical evaluation so efforts were made to explore the parameters of green rating systems through the above stated sources.

Literature, which comprises of the manuals of rating systems and related research papers are giving the facts and figures of the rating systems. It also explains all the criterion and guidelines with their intent and weightages. Second and most important source of information are the experts who are using the rating systems. As they have to face the challenges in applying the rating systems and end result will be seen in totality. By knowing their perception about the applicability and reliability of the rating systems, there are chances of improving the practicability of the rating systems.

Evolution of Rating System: In earlier days, as the scale of settlement was small, the urban agglomerations were limited in number and size. The traditional vernacular practices were self sufficient. The exploitation of natural resources like land, water and forest was in balanced manner.

The rapid urbanization has changed the usage pattern of natural resources, the modernization; industrialization has further increased the load on environment contaminating air, water and land. The dwindling natural resources and rapid growth demands for mechanism to redirect the growth into sustainable development. The rating system is evolved as monitoring tool.

The prevailing norms and standards and even code like National Building Code (NBC) were framed to ensure basic minimum requirements, similarly codes were framed time to time to take care of different aspects of sustainability like disaster and energy efficiency etc. Role of bye-laws was to enforce the above in true spirit. In the same way these rating systems came into existence in 21st century. Because of need of development in India we have to face the consequences of the developments also there are some restrictions faced by the industry to apply the correct practices and these rating systems can act as a measure of their sustainability criteria.

For Indian climatic zones, several passive design techniques effectively control the indoor environment quality, solar gain, and day lighting. These time-honored techniques, developed through sometimes have various names and forms in India and abroad under similar climatic situations but works on same basic principles.

Integrating Social, Economic and Cultural factors

Initially main agenda of the rating systems was to explore and examine the business and ecological benefits in architectural design so it has to do with sustainable practices and it is related to not only who design and built the project but the owner, market and users are the key drivers in the practice of green building. Researchers have discovered that building based on more ecological approaches lead to social and economic benefits for the developers. Which means base of it was to do with BUISNESS. So they worked out on four parameters –

- Better life cycle costing
- Improved production
- Better social relationship
- Enhanced image for building and organization

So framework of social, economic and environmental sustainability was the starting point while making the green rating systems. Although it applies across building types but initially it was made for commercial buildings like offices, schools and hospitals. In case of offices it was for value enhancement in real estate terms, staff productivity and company share provides evidence that it was business oriented.

Landscape design and Sustainability: A sustainable landscape typically requires minimal water, fertilizers, pesticides, labor and building material. Creating a sustainable landscape means working towards a thoughtful balance of resource used- during construction and maintenance. Landscape architecture has a fundamental relationship with environment and understanding of land/site is one of most essential part in landscape architecture. To understand the land/site, different natural features like terrain, topography, soil qualities, wind directions, native flora and fauna are taken into account and these factors affects the environment directly which are basic components of landscape. So it would be difficult to achieve sustainability without considering the landscape design which is integral part of any man-made project. At the same time it's extremely important to examine strength and weaknesses of rating systems in the context of landscape. According to Maggie Roe (author of landscape sustainability –an overview) Many commentator believe that some kind of finite state of sustainability is achievable in landscape terms. It is encouraging to see how good research is influencing the policy and practice in relation to other issues. (source: Maggie Roe- Landscape sustainability).

III. DISCUSSIONS AND CONCLUSION

Rating, Landscape and Sustainability: Green building is also known as high performance building. They look at sustainability in terms of smaller scope, such as typical building or construction in an area of developed world, perhaps life of a building. According to US environmental protection agency definition of green building as "practice of creating structures and using processes that are environmental responsible and resource efficient throughout a building life- cycle from siting to design, construction, operation, maintenance, renovation and deconstruction.

It is evident that green building movement encouraged the creation of several green rating systems. Although many building owners as well as the design and construction industry have gradually accepted the rating systems into mainstream practice, as evidenced by dramatic growth of LEED/GRIHA rating projects over the past few years but early involvement and more substantial participation during all phases of the project is lacking. During early stages of rating systems, many developers, owners were reluctant to embrace it. However their reluctance has diminished dramatically but a substantial increase in green building research is vital to achieve the environmental sustainability.

After analysis it is clear that there are many challenges and obstacles along the way of trying to achieve sustainability and landscape consideration needs to be understand in a holistic way it has a great potential to achieve the results if efforts are to be made consider its value and implementation. This transformation in rating systems can attribute to a series of global pressures and trends ranging from natural disasters, climate change, and biodiversity conservation. Owners, local bodies and professionals who are asked to design and built sustainable projects should help in defining their goals and priorities for environmental sustainability and help the design and construction team from start to finish the project and afterwards as well.

REFERENCES

[1]. Teri- Publishers-The Energy and Resources Institute (TERI), 2011, GRIHA Manuals.

[2]. Liv Haselbach -"Engineering guide to LEED- New construction".

[3]. Linda Reeder, AIA - "Guide to green building rating systems".

[4]. Annie R. Pearie "Sustainable buildings and infrastructure" .

[5]. Marni Evans- Sustainable SITES Initiative – ASLA

[6]. Sam Kubba Ph.D. - LEED AP -LEED Practices, Certification and Accreditation.