

Critical Review of Sustainable Built Environment Policies and Rating Mechanisms in India

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ABSTRACT

“Sustainable development is a myth if it isn't paired with efficient urbanisation and the best planning for critical and optimal resource use. The ongoing degradation of the environment has been largely attributed to rapid urbanisation and industrialization. There is already a deliberate restriction on industrial growth due to the presence of obvious obstacles. Urbanization cannot, however, be completely suppressed in order to support the green movement, and vice versa. The goal to include significant market actors and legislative incentives has started to have an impact among the various initiatives the Indian government has taken to increase energy efficiency and the sustainability of the built environment. Since the advent of GRIHA (Green Rating for Integrated Habitat Assessment), IGBC (Indian Green Building Council), and BEE (Bureau of Energy Efficiency), the main actors have disagreed over the best ratings, creating a confusing view due to the numerous regulatory indexes and boundaries. There is a considerable margin of error because many governments' rules, ratings, and other systems for maintaining the energy efficiency of the built environment are incompatible. The involvement of sufficiently empowered local entities becomes essential for the effective implementation of these programmes. This cannot be accomplished without first looking at how current laws and frameworks affect how much energy is used and how well-built environments, which includes both residential and commercial structures, perform.”

I. Introduction

The Intergovernmental Panel on Climate Change reviewed a special report on the feasibility of maintaining the annual warming of the world below 1.5 degrees Celsius, as stipulated in the Paris Agreement,¹ in 2018.² The paper claims that it is unlikely to achieve the desired temperature simply by reducing emissions. From 2030 to 2052, the world will exceed the limit due to existing emissions. One of the ideas is to build the as-yet underdeveloped and experimental Carbon Dioxide Removal Technology. An important recommendation that applies to both established and developing economies is the need for swift and comprehensive changes in the energy, land, urban, and infrastructure (including transportation and buildings) in order to reduce carbon emissions.³ Important figures in the global campaign against climate change, as well as national governments, policymakers, and even judges, have primarily seen the amount of carbon emissions via an industrial lens. However, it becomes very clear that reducing climate change and ensuring the sustainability of urban infrastructure are interdependent. Urban development will need to proceed at a speed that balances green development objectives, which call for routine audits of a building's energy emissions. Although energy efficiency in buildings has received a lot of attention internationally, India's policymakers have opted for suggestive methods and voluntary ratings rather than requiring audits and frequent checkpoints throughout a building's.

The World Green Buildings Council, a conglomerate of independent, non-profit organisations made up of companies and organisations in the building and construction industry, stated that these green buildings promote 09 out of the 17 Sustainable Development Goals⁴ of the United Nations Development Programme.⁵ The judicial discourse has been restricted to the relocation of hazardous industries away from residential buildings and petitions for denied possession where the builders have exceeded the permitted storey limit by appropriate municipal authority due to the lack of a mandatory legal document relating to energy efficiency with available sanctioning power to appropriate authorities on the building construction and regulations.⁶⁷ However, the National Green Tribunal has recently become more aware of its obligations after ordering a green audit of Delhi's

¹ The Paris Agreement, Adopted Dec. 12, 2015; entered into force Nov. 4, 2016

² Intergovernmental Panel on Climate Change, AR6 Synthesis Report: Climate Change 2022

³ Id, Chapter 6 – Cities, Settlements and Key Infrastructures

⁴ United Nations Development Programme, 'Sustainable Development Goals', <<https://www.undp.org/content/undp/en/home/sustainable-development-goals.html>> Accessed at 07th October 2020

⁵ World Green Building Council, 'Green Buildings and Sustainable Development Goals', <<https://www.worldgbc.org/green-building-sustainable-development-goals>>, Accessed at 07th October 2020

⁶ *MC Mehta v Union of India*, AIR 1996 SC 2231

⁷ *Padamchand J. Kothari v State of Maharashtra* Bombay High Court O.S. Writ Petition No. 920 of 1985; *Pratibha Cooperative Housing Society Ltd. v State of Maharashtra* AIR 1991 SC 1453; *West Coast Builders (P) Ltd. v The Collector* Bombay High Court Appeal No. 92/1994 in Write Petition No. 391/94

buildings to monitor air quality.⁸ Additionally, the NGT has begun to levy steep fines on private builders who failed to get the required environmental approvals in accordance with the 2006 Environment Impact Assessment Notification.⁹ A built structure that directly violates the Water (Prevention and Control of Pollution) Act of 1974, the Water (Prevention and Control of Pollution) Cess Act of 1977, the Forest (Conservation) Act of 1980, the Air (Prevention and Control of Pollution) Act of 1981, the Environment (Protection) Act of 1986, the Public Liability Insurance Act of 1991, or the Biological Diversity Act of 2002 may be subject to any type of environmental sanction as mandated by the NGT under the National Green Tribunal Act 2010. Although thorough judicial activism on the issue first demands technical understanding of the need for low carbon technology in India's building stock, it also necessitates firm and obligatory legislative texts with sanctions that give interested parties locus standi before the courts.

The recently enacted Real Estate (Regulation and Development) Act, 2016, and the NGT's authority to impose environmental sanctions under the aforementioned environmental laws conflict. The Act proposes to establish a Real Estate Regulatory Authority to oversee and advance the real estate industry. The authority under the legislation, in order to promote growth and promotion of a healthy, transparent, efficient and competitive real estate sector make recommendations to the appropriate Government of the competent authority for "measures to encourage construction of environmentally sustainable and affordable housing, promoting standardization and use of appropriate construction materials, fixtures, fittings and construction techniques"¹⁰. According to the Act, the Central Government, Delhi or Puducherry in the event of a Union Territory without a legislature, and the State Governments in the case of a state territory are the "Appropriate Governments" to whom the Regulatory Authority may make recommendations. When it comes to the topic of the environmental effects of built structures, the National Green Tribunal's and the Real Estate Regulatory Authority's authorised punishments may conflict. The former has the authority to make decisions while integrating ecological balances into urbanisation and natural justice concepts. The latter, however, has the authority to make decisions that would best serve the major players in the real estate market.

II. Demand for Sustainable Built Environment

⁸ Radhika Khosla & Ankit Bharadwaj, 'Green court's order for an audit of buildings in Delhi is a new frontier in the fight for clean air', Scroll.in, Jan 05, 2017 <<https://scroll.in/article/825734/green-courts-order-for-an-audit-of-buildings-in-delhi-is-a-new-frontier-in-the-fight-for-clean-air>> Accessed 23rd July 2020

⁹TK Rohit, 'NGT says Environmental Clearance a must before starting construction projects, The Hindu, January 22, 2020<<https://www.thehindu.com/news/national/tamil-nadu/ngt-says-environmental-clearance-a-must-before-starting-construction-projects/article30613176.ece>>

¹⁰ Real Estate (Regulation and Development) Act, 2016, Section 32 (e)

A report by Architecture 2030 claims that the building materials and construction industry is responsible for 11% of all global carbon emissions.¹¹ Additionally, the sector of building operations accounts for 28% of the same.¹² The amount of natural resources used by this industry at such a rapid rate worries proponents of sustainable development. However, this also offers a chance to promote the strategies and tactics required to reconcile the requirement for rapid urban growth with the preservation of the natural balance. In various legal rulings, the Indian Supreme Court has referred to the principles of intergenerational equity and sustainable development. The idea of a sustainable built environment is essential if urban development and sustainability are to be pursued together. By incorporating sustainable architectural designs to reduce energy consumption, providing rainwater harvesting techniques attached to the building complexes, developing solar based technology of energy output, formulating effective drains and sanitation facilities, and many other aspects, the concept of energy efficiency, if brought into the building construction, materials, and operations sectors comprehensively, will lead to a sustainable output toward the built structures.

III. Green Buildings – Meaning and Importance

A green building is unavoidably a constructed structure that relies substantially on environmentally friendly practises across all of its design, functions, and operations. The objective is to encourage healthy and sustainable lifestyles among the local population in addition to emitting fewer carbon compounds into the environment.¹³ Modern architecture has not established the idea of energy efficiency in built structures. Ancient architecture placed a lot of emphasis on the elements of nature that provide nutrition. The five basic elements of nature were stressed in Indian Vedic philosophy.¹⁴ A mixture of these features was used to build efficient historical architectural constructions. In addition to this, the historical residential buildings were created using the Vastushastras, an old Vedic science for architecture.¹⁵

Buildings' central areas were left open to improve lighting and cross-ventilation in adjacent rooms. It was planned for prayer rooms and water storage spaces to face northeast so that early sunlight would help sterilise the supplies that would be used during the day. The south-western portion of the dwellings used to experience strong winds and rain because of the monsoon and retreat monsoon. Keeping that in mind, the area facing south-west once had thick walls. Simply put, the aforementioned could be referred to historically as the bye-laws for civil construction in India.

¹¹ Architecture 2030, 'Buildings generate nearly 40% of annual global GHG emissions', <https://architecture2030.org/buildings_problem_why/> Accessed on 01st September 2021

¹² Ibid.

¹³ Narendra D. Patel and Nikesh P. Shah, 'Green Housing- Review, Rating and Implementation', The Indian Concrete Journal, September 2007 <<https://www.yumpu.com/en/document/read/18879191/green-housing-the-indian-concrete-journal>>

¹⁴ Ibid.

¹⁵ Ibid.

Critical Review of Sustainable Built Environment Policies and Rating Mechanisms in India

The Ministry of Power, Ministry of Environment, Forest and Climate Change, and Ministry of Renewable Energy collaborate to develop policies for the energy efficiency of the country's building stock. Three main rating systems, namely GRIHA (Green Rating for Integrated Habitat Assessment), IGBC (Indian Green Building Council), and BEE (Bureau of Energy Efficiency), have historically been used to promote this notion. Not only do urban residents' requirements contribute to the growing burden. Although the need for residential complexes is significantly more pressing than any other element of economic development, this is because a population's living conditions directly affect other public health issues as well as how quickly an economy may grow.

Rural areas rarely experience this imbalance, yet in every economy, a large number of individuals move from rural to urban settings in pursuit of work. Environmental problems associated with construction exist in India as well. Due to yearly increases in both household and commercial energy consumption, building energy consumption has gone up. Buildings require a lot of water both during construction and operation. Managing construction and demolition garbage as well as solid waste produced by building tenants is another significant challenge. There is an uncontrollable "heat island" effect as a result of increasing urbanisation.¹⁶ Reducing the demand for non-renewable resources, improving the efficiency of those resources while they're being used, and maximising the reuse, recycling, and utilisation of renewable resources are the objectives of green building design. Green buildings consume 40 to 60 percent less energy than conventional ones.

Environmental problems associated with construction exist in India as well. Due to yearly increases in both household and commercial energy consumption, building energy consumption has gone up. Buildings require a lot of water both during construction and operation. Managing construction and demolition garbage as well as solid waste produced by building tenants is another significant challenge. Urban landscapes that replace vegetation and tree cover with large expanses of asphalt, buildings, and other constructions eliminate the cooling provided by vegetation through both shade and evapotranspiration. This causes ground-level ozone to form, which is bad for human health. Additionally, this elevates temperatures, which increases the need for air cooling, which in turn increases the requirement for energy production and results in the release of greenhouse gases.¹⁷

¹⁶ Erin Burg Hupp, "Recent Trend in Green Buildings Laws: Potential Pre-emption of Green Building and Whether Retrofitting Existing Buildings Will Reduce Greenhouse Gases and Save the Economy", 41 Urb Law 489 2009, Available at: http://heinonline.org/HOL/Page?handle=hein.journals/urban41&div=30&g_sent=1&collection=journals(last accessed on 08th January 2022)

¹⁷ Erin Burg Hupp, "Recent Trend in Green Buildings Laws: Potential Pre-emption of Green Building and Whether Retrofitting Existing Buildings Will Reduce Greenhouse Gases and Save the Economy", 41 Urb Law 489 2009, Available at: http://heinonline.org/HOL/Page?handle=hein.journals/urban41&div=30&g_sent=1&collection=journals(last accessed on 08th January 2022)

Therefore, it makes sense to draw the conclusion that one of the main pollutants influencing urban air quality and causing climate change is caused by buildings. The need for green building design grew as a result, with the intention of solving every one of these problems holistically and rationally. A green building is one that includes elements that are good for the environment.¹⁸ In this scenario, the natural world is represented by the colour "green". Owners and operators of commercial buildings are getting more and more interested in green buildings.

IV. Regulatory policies related to Green Buildings

The National Building Code 2016 was published in 2016, and it includes contemporary and international standards. In order to guarantee the correct fulfilment of duties for the completion of a building project, the amended Code includes new requirements for the participation of need-based experts and agencies. With the aim of ensuring ease of doing business in the built environment sector, a detailed provision for streamlining the approval process in respect of various agencies has been incorporated in the form of an integrated approval process through single window approach for enabling expeditious approval process, avoiding separate clearances from various authorities. The built environment's accessibility standards for the elderly and individuals with disabilities have undergone a significant makeover. To address the challenges of today's complex building types, especially high rises, the regulations for fire and life safety have undergone rigorous revision. In order to guarantee structural safety of structures, particularly against disasters, the most recent structural loading, design, and construction codes, such as those concerning wind loads, earthquake-resistant building design, steel design, and foundations, have been implemented. Additionally, the Sustainable Development Principle has been put into practise. Additionally, there are new regulations for the use of glass in structures, escalators and moving walkways, technologies that enable information and communication, solid waste management, and asset and facility management.

An approach for evaluating a building's environmental performance over the course of its life cycle is the use of a green building rating system. Typically, it comprises of a collection of guidelines covering a wide range of green building design, construction, and operating issues. Each criterion defines verifiable performance goals and targets and has a set of previously given points. A project receives points once it satisfies the evaluation criteria. To establish the ultimate ranking of a project, the points are added together. A project must be evaluated by a neutral third party for rating systems to work, and numerous processes are in place to ensure a fair assessment. Grading systems for green buildings have played a vital role in promoting green building ideas all over the world. Most of

¹⁸ Sarah B Schindler, "Following Industry's LEED: Municipal Adoption of Private Green Building Standards", 62 Fla L Rev 285 2010, Available at: http://www.floralawreview.com/wpcontent/uploads/2010/01/Schindler_BOOK.pdf.

them are of a voluntary character. A few of the green building rating systems in use globally include the Building Research Establishment Assessment Method (BREEAM)¹⁹ created in the United Kingdom, the Comprehensive Assessment System for Building Environmental Efficiency (CASBEE)²⁰ in Japan, and the Hong Kong Building Environmental Assessment Method (HKBEAM)²¹. The majority of these grading schemes were designed with the country's construction industry in mind. Grading systems had to be developed that were specific to the needs and circumstances of India as a result. The following rating schemes were consequently developed. The three most important grading systems in India are GRIHA, IGBC, and BEE.

V. Comparative structure of Rating Mechanism in India

It is not difficult to identify the research gaps in the aforementioned policy objectives. Despite being governed by the proper laws, these rating systems are still consensus-based and voluntary. To obtain any of these grades, whether for a residential complex or a commercial building, depends on the developer. Another issue is that some states need BEE ratings for both residential and commercial structures, but because there is no enforcement mechanism, it is difficult to monitor the rating's accuracy. Additionally, the inclusion of Eco-Niwas Samhita, Part I in the construction bye-laws represents a step in the right direction for integrating urban local governments.

Recently, GRIHA has worked with many cities in states including Gujarat, Himachal Pradesh, Punjab, West Bengal, and Maharashtra in order to encourage the participation of urban local bodies in the process. The inconsistent nature of these rating systems and their markers presents another difficulty in the meanwhile. The ratings given by various bodies do not all follow the same marking guidelines. There is an urgent need to monitor policy implementation, including requiring these rating systems in many states, monitoring the actual implementation of ratings in those states that have done so, developing a uniform rating code for all ratings, and monitoring the role of urban local bodies since their inclusion in building bye laws.

It becomes vital for the relevant governments to work with rating procedures and consider the role of Panchayats from the development, regulation, and operation of built structures in the various regions, in addition to urban local bodies. For the seventh Sustainable Development Goal, the

¹⁹ Briefing Note, 'Building Research establishment Assessment Method (BREEAM)', Willmott Dixon, (December, 2010), Available at: <http://www.willmottdixongroup.co.uk/assets/b/r/briefing-note-16-breeam-2.pdf> (accessed on January 2022).

²⁰ Comprehensive Assessment System for Building Environmental Efficiency, "CASBEE for Market Promotion (tentative version)", Japan Sustainable Building Consortium, p 2, Available at: http://www.unepfi.org/fileadmin/publications/property/CASBEE-Market_Promotion_tentative.pdf (last accessed in January 2022)

²¹ Kevin Edmunds, HK-BEAM: "Improving the Life Cycle Performance of New Residential Buildings", Centre of Environmental Technology, Ltd, Hong Kong, Available at: <http://www.housingauthority.gov.hk/mini-site/housingconference/1999/en/events/conf/conferen/pdf/ekevin.pdf> (last accessed in January 2022)

United Nations Development Program advises panchayats to promote energy-efficient building designs, energy-efficient cooking appliances and practises, and adoption of energy-saving measures. The 'IGBC Green Village Rating System', which is offered by the Indian Green Buildings Council, assesses a village's performance based on its lifestyle, drinking water, sanitation, education, healthcare, solid waste management, clean energy, local initiative, and digital village initiative. The grade, however, has little bearing on how energy-efficient developed structures are.

The performance and testing of such built structures while taking into account urban development, environmental clearance, and subcontinental circumstances must be mandated by a set of uniform parameters endorsed by the appropriate government body. Authorities in the centre must work closely with governments and authorities at lower levels to develop a uniform yet precise set of rating mechanisms, one for each type of built structure—commercial and residential.