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## **A Comparative study of low-cost housing between Bangladesh and Malaysia**

**O. M. Karim<sup>1</sup>, N. Jahan<sup>2</sup>, M. A. Islam<sup>3</sup>**

<sup>1</sup>Department of Building Engineering & Construction Management, RUET, Bangladesh ([shihabmostofa123@gmail.com](mailto:shihabmostofa123@gmail.com))

<sup>2</sup>Department of Building Engineering & Construction Management, RUET, Bangladesh ([nishatjahan.ruet17@gmail.com](mailto:nishatjahan.ruet17@gmail.com))

<sup>3</sup>Department of Building Engineering & Construction Management, RUET, Bangladesh ([mdasadulislam095@gmail.com](mailto:mdasadulislam095@gmail.com))

### **Abstract**

Housing is a basic requirement for all humans. However, house loans and mortgage interest rates, as well as the high cost of land, have recently increased. As a result, building a home for low- and middle-income families becomes extremely difficult. Based on these statistics, it is clear that low-cost housing will fulfill the dream of lower and middle-income families by providing a comfortable indoor environment. The social structure of Bangladesh and Malaysia, both emerging nations, is significantly impacted by the building of low-cost housing. The governments of both nations offer a lot more resources and accommodating laws to carry out this kind of construction. Low-cost housing has a positive effect on a nation's social, economic, and environmental aspects. This paper aims to present the current state of low-cost housing in Bangladesh and Malaysia, with comparisons based on various technologies, materials, and measures. This paper concludes with some discussions to make them more cost-effective, environmentally friendly, and long-term.

*Keywords: low-cost housing; technologies; sustainability; low-cost materials.*

### **1 Introduction**

A house serves as more than just a place to stay; it also serves as a symbol of people's security and contentment and a piece of infrastructure that conveys their socioeconomic standing. It has a specific market price. One of a person's basic needs is a livable shelter. A community's housing composition is significantly influenced by its socioeconomic situation, raw material availability, and environmental variables. A population with a low income profile is compelled by nature to build their homes using low-cost materials. To offer a cost-effective return, these homes must be sturdy and robust structurally. These houses must also meet a minimum standard for safe water supply, sanitation, fuel, and lighting facilities. Prior to presenting these low-cost solutions, some crucial factors like longevity, structural stability, affordability, and the skill of local construction and maintenance teams were taken into account. When housing costs are within 30% of gross monthly income, housing is considered affordable. The current housing system goes above this cap for those who are willing to construct or rent a home for them. The problem is made worse by the high cost of building materials and construction. The provision of affordable housing began prior to Malaysia's independence during the British colonial period with the First Malaya Plan (1956–1966) (Aziz, 2007). Housing has traditionally played a significant role in policy formation in Malaysia. The political plan of the government includes housing as a means of achieving both social and economic objectives (Aziz, 2007). In Malaysia, there are four different types of housing: low-cost housing, low-medium-cost housing, medium-cost housing, and high-cost housing. The First Malaysia Plan (1966–1970) was the first to formally establish low-cost housing, which was carried out by the state with financial support from the federal government in order to "promote the welfare of the lower income population" (Economic Planning Unit [EPU], 1965, p. 182). The majority of the low-cost housing built during the First Malaysia Plan was built for rental purposes and to relocate squatter populations in metropolitan areas (Aziz, 2007; EPU, 1965). In Malaysia, low-cost housing is also a required component of housing development; according to housing developers, low-cost housing must make up 30% of all new construction (Aziz, 2007; Real Estate and Housing Developers' Association Malaysia [REHDA], 2008). Administrative procedures are used to impose the policy, which requires developers to set aside a certain percentage of their projects for affordable housing in order to receive local government clearance for their projects (Aziz, 2007; REHDA, 2008). Given that it is not the

primary undertaking of private developers and is only done for approval purposes, this cumbersome way of delivery puts the quality of construction in jeopardy (Aziz, 2007; REHDA, 2008).

The Bangladeshi Constitution lists housing as one of the three fundamental human necessities, along with food and clothes, and the Bangladesh National Housing Policy of 1993 recognized this. Housing offers its owner protection, comfort, and a sense of security. A suitable shelter needs to be inexpensive and accessible and must provide security of tenancy, protection from the elements, utility services, including safe drinking water and sanitation, and other necessary services. Housing is currently regarded as essential to survival and widely accepted as a human right. Housing status is frequently a key indicator of an individual's and family's economic and social foundation for development (Haque, 2007). Because of the rise in home demand, low- and middle-income people are no longer able to afford construction supplies. The Government of Bangladesh (GOB) has recognized housing issues as one of the major barriers to improving housing conditions for middle-class and lower-income households (Loton, 2004). The seriousness of this situation is known to the government. To give this sector a boost, they want to build a welcoming and supportive environment nationwide. The government is working to provide housing for all Bangladeshis through a variety of initiatives, rewards, inspiration, planning, and administration. There will be special housing initiatives for low-income groups, the underprivileged, and the disabled in both the public and private sectors. The Construction Industry Standard, commonly known as CIS 1: 1998 (1-2 storeys) and CIS 2: 1998 (high-rise flats), is another standard guideline that must be followed when building affordable housing (Ismail, 2003; Sufian, 2007). In order to ensure that "housing estates for low-income dwellers are developed to minimum standards suitable for human habitation," the Construction Industry Development Board (CIDB) produced CIS 1 and 2, which outline basic design and planning requirements for low-cost homes (Ismail, 2003, p. 2). Two standards are utilized for low-cost residential construction, and they provide the bare minimums for layout, space, and configuration in relation to four different aspects of habitation: security, suitable infrastructure, physical and mental health, and community (Ismail, 2003). Low-cost housing is a new idea that deals with effective budgeting and following techniques that help reduce construction costs by using locally available materials along with improved skills and technologies (Kumar, 1999; Civil Engineering Portal, 2008). This is done without sacrificing the strength, performance, or lifespan of the structure. By adopting less expensive procedures and materials than the standard ones, low-cost housing technologies strive to reduce the cost of construction. It involves the use of regional and indigenous building materials, regional expertise, energy-saving techniques, and environmentally beneficial choices.

## 2 Research Objectives

1. To examine the current state of low-cost housing initiatives in Bangladesh and Malaysia, including an overview of policies, programs, and government involvement.
2. To compare and analyze the affordability and cost-effectiveness of low-cost housing options in Bangladesh and Malaysia, considering factors such as construction technology, materials, and affordability for low-income households.
3. To identify the challenges and barriers faced in the implementation and maintenance of low-cost housing projects in Bangladesh and Malaysia, including issues related to land availability, infrastructure, and government policies.
4. To propose recommendations for policy improvements and innovative solutions that can enhance the effectiveness and sustainability of low-cost housing programs in both Bangladesh and Malaysia.

## 3 Research Methodology

This research paper used primary and secondary data from previous research papers related to low-cost housing in Bangladesh and Malaysia. After collecting the data, this paper compares these two countries and shows their strengths and weaknesses. After evaluating these points, this paper tries to figure out the best realistic options for both countries and how low-cost housing can be sustainable.

## 4 Table

Factor	Bangladesh	Malaysia
Construction Technology	Innovative building material such as thermal block, 3D panel, ferrocement technology, cellular lightweight concrete	IBS technology, Prefabrication
Strength	Low labor cost, affordable building	Advanced construction technology

	material	
Challenges	Land	Land, infrastructure, financial resources
Government policy	Focus on ensuring affordable housing through land optimization, utilizing idle lands, and urban land banks.	Focus on providing accessible housing via various schemes, financial support, and urban development strategies.

## 5 Construction Technology

Different types of construction technology used in low-cost housing of Bangladesh and Malaysia. These technologies help to the quality of life for the residents.

### 5.1 Industrialized Building System (IBS)

IBS is widely used in the Malaysian construction industry, including low-cost housing systems. A building method known as an industrialized building system (IBS) involves the placement and assembly of components that have been created in a controlled environment, either on-site or off-site. IBS is a word that is frequently used in the construction industry in Malaysia, but it is also known as pre-fabricated construction, modern method of construction (MMC), and even off-site construction. PR1MA Homes, Rumah Selangorku, MyHome, and PPR (Program Perumahan Rakyat) are the low-cost housing programs where IBS is used.

### 5.2 Innovative Building Materials

Innovative building materials are used in some low-cost housing projects in Bangladesh to increase affordability and sustainability. For instance, dirt, cement, and stabilizers are combined to create compressed stabilized earth blocks (CSEBs). CSEBs provide a less expensive, more environmentally friendly option to conventional bricks. The Housing and Building Research Institute (HBRI) built a five-story low-cost house using innovative alternative building materials. Different building components like door and window frames, walls, slabs, louvers, and staircases are designed using Ferrocement technology. This technology reduces 30%–35% of construction costs, which shows its economic feasibility. Bangladesh also uses thermal blocks, 3D panels, and cellular lightweight concrete (CLC). In Malaysian low-cost housing projects, several innovative building materials are also used. AAC is a lightweight, precast building material made from a combination of cement, lime, and sand. It is available as panels or blocks. It is quite energy-efficient and lightweight. AAC is strong and lightweight, won't burn, acts as a superb fire barrier and insulator, and can bear relatively heavy weights.

## 6 Strengths:

In the perspective of cost effectiveness, Bangladesh has some strong points like low labor cost, affordable building material, and government subsidies. Bangladesh has lower labor cost which is definitely a cost saving opportunity. Besides the most of the low cost housing materials are locally available such as bricks, bamboos, compressed stabilized earth blocks. And Bangladesh government also provides subsidies and financial assistance programs that makes the low cost housing more easily available.

Besides Malaysia is more focused to the advanced construction technology such as industrialized Building System (IBS) and prefabrication. This type of technology reduces construction time, labor dependency, and maintain the quality control.

## 7 Government policies

The Malaysian government has implemented various initiatives and policies to ensure that low-income and middle-income households, including young people and newlywed couples, have access to affordable housing. The Eleventh Malaysia Plan (2016-2020) aimed to develop 606,000 residences for low- and middle-income households, with a focus on building or rehabilitating 47,000 houses for the needy. Several affordable housing schemes were introduced, such as Rumah Wilayah Persekutuan (RUMAWIP), Perumahan Rakyat 1Malaysia (PR1MA), and 1Malaysia Civil Servants Housing (PPA1M), making affordable housing available to middle-class households. The government also prioritized housing for low-income families in both urban and rural areas through programs like Program Bantuan Rumah (PBR) and Program Perumahan Rakyat (PPR). The plan emphasized the development of major cities, including Kuala Lumpur, Johor Bahru, Kuching, and Kota Kinabalu, to enhance economic opportunities, livability, and access to affordable urban housing. Financial assistance programs, such as special interest rate loans and financing schemes like My First Home Scheme, Youth Housing Scheme, and My Home, were implemented to support low- and middle-income families in purchasing homes at reasonable costs. The government also focused on improving housing quality and

maintenance through renovation programs and the establishment of housing maintenance funds. The plan aimed to foster a fresh approach to development, shifting from exclusive and expensive projects to affordable and accessible housing options. The construction sector experienced significant growth during the plan period, meeting housing demand, particularly from the middle-income group. The government also implemented measures to address rising living costs, including expanding access to healthcare, establishing a social safety net, and improving financial management programs. Amendments to housing development laws were introduced to better protect homebuyers and hold negligent developers accountable.

Whereas Bangladesh is also concerned for her lower income people group. The national housing policy in Bangladesh, implemented in 2016, aims to ensure that individuals from all social backgrounds have access to affordable and decent housing. The policy focuses on several key strategies to achieve this goal. Firstly, the government plans to maintain low land prices, construction costs, and house rents to encourage home ownership. Secondly, the policy discourages the allocation of individual plots and instead promotes the allocation of plots based on floor area ratio to accommodate more people on a single plot, thus saving land. Thirdly, the policy requires government, semi-government, and independent organizations to report any idle lands they own in urban areas for more than ten years to the housing and public works ministry and the land ministry. The government intends to use these lands for housing projects, prioritizing the housing needs of the population. Additionally, the government plans to establish urban land banks in metropolitan areas in collaboration with the land ministry to utilize unused khas lands for housing development projects. This will help provide affordable housing options and reduce apartment costs. The national housing policy in Bangladesh encompasses various initiatives aimed at ensuring access to affordable housing for people from all walks of life.

## **8 Challenges:**

However, due to Bangladesh's significant land shortage, the cost of land increases swiftly in urban areas. Therefore, the government needs to take the appropriate actions to acquire property in the right manner. Several rules governing compulsory land acquisition should be passed in order to enable the government to promptly and affordably purchase land for public housing purposes.

For Malaysia, land has a high value in metropolitan areas and is mostly controlled by the federal and municipal governments. The other landowners are investors wanting to cash in on a quick deal. Due to this, more individuals, notably the poor and middle class who most need land but cannot afford premium prices, are now unable to access it. Besides, Low-cost housing is hampered by lack of supporting infrastructure. Housing development is severely constrained by the financial bottleneck. Few sources of funding exist, and those that do are expensive. Despite the fact that there is currently a shortage of housing, the requirements for qualifying for mortgages are still excessively high.

## **9 Conclusion:**

This paper highlights the efforts made by both countries to meet the housing demands of their respective populations. In both nations, several programs and regulations have been put into place to support low-cost housing and enhance living circumstances for low-cost housing development. Bangladesh has proven to be adept at implementing cutting-edge building techniques like ferrocement and bamboo, which provide affordable and environmentally friendly substitutes for conventional building materials. Malaysia, on the other hand, has demonstrated strength in implementing sustainable neighborhood development and green building methods, promoting energy efficiency, and environmental preservation. Bangladesh has strength on cost effective perspective as labor cost and material costs are low but Malaysia has advanced technology using their low-cost housing construction. Both countries facing lack of lands. Therefore they should focus on multistoried low-cost housing building. The both governments making good policies for their betterment.

Sharing best practices and lessons learned can help both nations. Malaysia can benefit from Bangladesh's experience with cutting-edge building techniques, especially when it comes to the utilization of bamboo and ferrocement, which can offer long-lasting and affordable solutions. To further improve the environmental features of their low-cost housing projects, Bangladesh should take inspiration from Malaysia's green building regulations and sustainable neighborhood development strategies.

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