

## MASS HOUSING: FEATURES, CHALLENGES AND ITS IMPLEMENTATION

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### ABSTRACT

The paper's main objective is to study Mass housing, its current status, various challenges, and planning for its implementation. Different megacities are experiencing a massive trend of Urbanization, which led to Slum Settlement. There are widespread poverty, rising accommodation prices, and inadequate housing bank loans and land development systems. Mass housing Projects are unique traditional building projects in the construction industry that require special management skills and approaches. The study aims out to identify what constitutes the unique features of mass housing projects. An understandable and orderly understanding of Mass Housing Projects' unique features is vital for developing effective project management practices and critical skills towards successfully delivering currents and futures mass housing projects. Mass housing scheme enables different organizations to produce housing for sale at affordable prices to low and medium-income groups in the city. Providing central ideas for accomplishing the concept of Mass housing by knowing various challenges and their implementation for the people's betterment concludes this study.

**Keywords:** Urbanizations, Mass Housing, Mass Housing project, Affordable, Sustainable, Mass Housing Scheme, Housing Policy, Slum Settlement.

### I. INTRODUCTION

Rapid Urbanization and the availability of jobs in urban areas attract thousands of people worldwide seeking work opportunities, which caused unplanned Urbanization and low-quality building stock [1]. Mass housing, as the name suggests, is intended for the masses. It can define as dense and repetitive housing solutions that have emerged as a complement of urban regeneration projects to cover the acute shortage of housing, especially in the big cities. Mass housing's basic concept is speedy construction. The cost will be reduced if similar construction work can be grouped, and techniques can be employed where skilled labour is available easily[2]. New approaches that involve collaboration among an increasing number of stakeholders are resorted to deal with these challenges. Public-Private Partnerships (PPP) is one of the most promising forms of such partnership. PPP is widely accepted as the framework "for resolving the needs/demand gap in the shelter provision[3]. Mass Housing projects are individual and thus require exceptional managerial skills and approach in their delivery. Mass Housing projects share unique physical, organizational and operational characteristics that make their management inherently challenging compared to traditional projects. The unique particularities of any project dramatically impact the task and the various management functions in its project management practice. The unique characteristics of MHPs affect communication performance and require exceptional, contextual skills towards practical implementation[4]. This study aims to determine and classify mass housing projects' unique characteristics, design criteria, and housing production planning. Hence, this study's findings and its implications for management are very significant towards ensuring effective project management practices on current and future mass housing projects for improved delivery performance and success[5].

### II. MASS HOUSING DEFINE AND CONCEPT

Mass housing is nothing more than a multi-story apartment house that meets the demand for generating superior homes suitable for middle-class families. It can define as dense and repetitive housing solutions that have emerged as a complement to urban regeneration projects to cover acute housing shortages, especially in large cities. The basic concept of mass housing is rapid construction. Today, mass housing has become synonymous with low-cost accommodation, and all the national effort in this field has diverted towards the production of a cheaper house. However, the numbers involved are of such magnitude that any cost-cutting

exercises cannot provide the solution to housing everyone. The mass housing project is defined as: 'the construction of several standardized domestic units, usually in the same or in several geographical locations, carried out within the same project scheme and under the same management and contract.' Respecting the United Nations Economic Commission's recommendation of an annual production rate of 10 household units per 1,000 inhabitants for developing countries to meet their current and future housing needs [6]. The fundamental shelter requirements are the same for the rich and poor. Everyone needs light, ventilation, healthy and clean environments, access to facilities, etc. Providing mass housing for those who need it most will reduce the housing shortage that arises with Urbanization.

### III. UNIQUE FEATURE OF MASS HOUSING PROJECT

Each project shares its characteristics, and these characteristics require specific skills and abilities from teams, organizations, and companies to manage and execute them effectively. Mass housing projects share attributes that are significantly different from unique construction projects. These attributes of Mass Housing Projects influence operational, organizational, and managerial actions during the construction process. Mass housing projects are carried out in various geographic locations. The design units are repetitive and standardized in schematics compared to traditional construction projects. Traditionally, mass housing projects are composed of housing units in separate locations, geographic locations, and defined contextual work and specialized subcontracting in works. Mass housing projects are inherently unique in the procurement, labour management, Planning, and site management systems. Mass housing generally involves smaller units of several simultaneous engineering elements. Mass housing projects are advantageous to smooth manufacturing, increase construction speed and promote accompanying engineering elements. Although mass housing projects show several common characteristics, such as size, technological and institutional complexity, political involvement, and public awareness with other traditional solitary megaprojects, they also exhibit unique characteristics that require unique and different management approaches. This study, therefore, seeks to reveal the unique features of Mass Housing Projects[5]. The knowledge gap identified from the literature review was the lack of studies that define the exact physical, operational and organizational characteristics of Mass Housing Projects to evolve their uniqueness based on their physical, administrative, and functional attributes, as shown in Table 1.[6]

**Table 1:** Deriving the unique features of Mass housing projects from traditional one-off projects[6]

S/No.	LITERATURE SOURCE 'ONE-OFF' PROJECT FEATURE	AUTHORS						DERIVED COMPARATIVE MASS HOUSING PROJECTS FEATURES
		Behm, (2005)	Favie and Maas, (2008)	Kipp et al., (2008)	Chua & Goh (2005)	McKay et al. (2002)	Manu et al, (2010)	
1	The single construction site for the project	√			√			Multiple construction sites for various housing units under each scheme
2	'One-off' unrepeated unit design	√		√	√	√		Various multiple standardized unit-designs under each scheme
3	Easily defined source of Environmental impact		√	√		√	√	Multiple sources of Environmental impact from various units
4	The scheme often located at one geographical location	√			√			Multiple geographical locations for various schemes

5	Relatively easier sub-contracting		√		√		√	Multiple interdependent sub-contracting under various schemes
6	Relatively controlled complimenting 'One-Off' Infrastructure.'	√		√			√	Series of several complimenting 'One-Off' Infrastructure,' e.g., roads, water, etc.
7	Relatively Simple Procurement Systems in material and services		√				√	A complex network of Procurement Systems in material and services
8	One-off preliminary activities for the project			√	√			Multiple-Collinear repeated 'preliminary' activities on each unit
9	One-off interrelated skill tasks on the project		√				√	Repetitive interrelated skill tasks on standardized housing units
10	Controlled and Low extent of Virtual Team participants			√				High-level Virtual Team participants
11	A simple network of team relationship			√			√	Complex Network of Team relationship on various units and schemes
12	Quickly determinate Construction Method to a single project	√					√	Complex Construction Process/Method
13	A relatively fewer known source of risks		√				√	High anticipated/related complex network of risks on schemes
14	Single duration for the project			√			√	Multiple duration for various standardized design-units under schemes

Source: Authors compilation from Literature

#### IV. CHALLENGES FACED IN MASS HOUSING

- **Urban Population Growth and Housing Deficit.**

Worldwide population growth is around 83 million or 1.18% per year. It has grown from 1 billion in 1800 to 7.3 billion in mid-2015, with only about a billion added in the last twelve years. It is expected to continue growing, with an estimated total population of 8.5 billion in 2030 and further increasing to 9.7 billion in 2050, reaching 11.2 billion by 2100 (United Nations 2015). While the resulting challenges of this rapid growth are diverse, population growth in cities, either as demographic change or as migration from country to town, has triggered or remains the most significant challenge for the mass supply of housing. Over half (54%) of the world's population in 2014 was an urban population, up from 34% in 1960, and is expected to continue to grow (World Health Organization 2015).

Even in underdeveloped countries, it depends by 2017; the majority will live in urban areas. In a historical timeline, growth over the past 200 years has been enormous and dramatically affects living standards, natural resources, and the built environment. Unfortunately, only a few governments in developing regions have provided land, services, facilities, and housing for their rapidly growing urban populations. Mexico's results to Jakarta, Lagos, and Mumbai are cities in crisis, unregulated settlements, limited facilities, increasing overcrowding, and severe social complaints. Rapid urban growth has resulted in an enormous shortage of urban housing worldwide. This deficiency harms the economically weaker area, the low-income and middle-income groups, and is more pronounced. Governments, city planners, and real estate agents envisioned the development of mass or low-cost housing projects to meet low- and middle-income families' needs, most often designing and constructing multi-story residential buildings[7].

The challenges of offering mass housing in developing regions initially lie in local production capacity to satisfy an increasingly growing urban population's market demand. In developed areas, challenges are sometimes determined by different criteria, such as an ageing population that requires a flexible approach to providing housing or an existing old building stock that is experiencing quality and performance issues (Healy 2004; Krieger and Higgins 2002; Saegert et al.2003; Maisel et al. 2008)[7].

- **Urban Land Scarcity and Resources Availability.**

The high population density in existing cities generated a massive demand for urban land, which has speculatively increased urban land prices and limited popular housing options. In countries like Japan, Singapore, and Hong Kong, the lack of arable land in urban areas is the most common way for most residents. For these environments, where high density is inevitable, there is an essential support for this type of compact urban approach as a form of sustainable urban development. (Wong, 2010)[7].

- **Institutional Framework and Major Stakeholders of Housing Delivery.**

In addition to population growth and land availability, there are significant strategic challenges in the legal and planning institutional framework for housing supply. In most countries, a housing vision supports the values of equality and inclusion. Holistic and coherent, accessible, permanent, and quality housing is specified in the housing objectives. It is materialized in the housing policy and housing processes that guide the various actors in the housing sector. The main components allow housing production development through an adequate assessment of needs, housing policy, financing modalities, and industrial and constructive capacities (Fig. 1). The provision of housing is critically influenced by a combination of political, political will, governance, housing finance, and urban land management, economics, and design, technical, cultural, and social factors. The high diversity and the number of actors involved in providing collective housing often lead to delays in implementation (Alexander 2009). The lack of infrastructure and services is another problem that citizens and policymakers face in developing countries (European Network for Housing Research 2015). The realization of the national vision of housing through key housing development strategies developed globally in different settings but remained a challenge in many parts of the world, sometimes for various reasons.[7]



**Fig.1:** Mass housing production general framework[7]

## V. DESIGN CRITERIA OF MASS HOUSING

Today, mass housing has become synonymous with low-cost housing, and all national efforts in this area have been redirected to make a house cheaper. However, the numbers are so large that cost-cutting measures cannot provide the solution to accommodate everyone. IN. A&P Smithson, who in 1957 proposed a series of criteria for collective housing applicable to the European scenario[8]. The requirements must apply to all apartments, regardless of the number, type of floor, access type, etc. The most traditional and ingenious houses and plants can be examined just as quickly.[11]

### The House

- Adaption to different lifestyles.
- Unique identity to the home.
- Meaning of "architecture",
- the building should meet the standard of living expected for the house.
- The rooms should precisely be designed for their purpose.
- There should be a decent-sized, sunny open space that opens directly from the house's living area. There should be an outdoor place where a baby can be left behind (0-3 years).
- The apartment extensions (garden, terrace, etc.) can be seen from the inside.
- The climate could be enjoyed. The house is isolated from cold weather so it can be opened easily in good weather.
- There should be any place to clean or wash things without messing up the house.
- There should be enough storage space. (There is never enough storage space) - this is storage that is not of a purely residual nature (lofts, built-in accessories, etc.). There should be room for the prisoner class's belongings - poodles, lerrets, camping equipment, geraniums, motorcycles, etc.
- It should easy to maintain
- Houses should be assembled in such a way that it supports each other[11]

### The immediate extensions of the dwelling

- It should include playing space for children aged three to five years.
- The idea of the apartment should create a clear external image.
- There should be an indication that people have been aired ("apartments") and get somewhere.
- Development should not be isolated as it would look like a warehouse[11]

### The appreciated unit

- The department's size should be related to the size of the parent community(Adding a house can change the village's pattern. In the big city, an equivalent gesture may require a unit of 5,000 homes.)
- The community's work pattern should be understood, with all its implications for the unit (An imprint of work for families who travel to distant places is typical of cities and often also villages.)
- Development should offer protection on the same scale as the parent community[11].

## VI. IMPLEMENTATION OF MASS HOUSING PLANNING FOR HOUSING PRODUCTION

The mass construction planning for housing programs builds local capacity to implement construction planning and significantly provides municipal services. Mass Housing Plans for Manufacturing Programs Create regional building plans to implement your own manufacturing facility goals and deploy new mixed availability facilities. Mass Housing Plans for Manufacturing Programs will, over the years, support advisors to nonprofits who work hard to increase the availability of affordable housing[9].

The participating council will identify a problem that needs to resolve, resulting from local building plans—lack of suitable personnel needs for technical support or project / operational management. The state finances the financed projects. Mass Housing construction aims to fund projects that fall into two broad categories: Planning and building community development. The implementation of mass housing requires funding from various agencies to meet their housing needs. Partnerships (PPP) are one of the most promising ways to do this. PPP is widely accepted as a framework "to fill the need/demand gaps in housing provision. The Planning for

manufacturing program aims to implement municipal plans for a mixed growth housing estate. Mass Housing is ready to make many multi-year commitments on projects with exceptional skills and difficulty[9].

## VII. CONCLUSION

Mass housing is nothing more than a multi-story apartment house that meets the demand for generating superior homes suitable for middle-class families. It contributes to the growth of a nation's economy and generates global competitiveness, urban success, and prosperity. Knowledge of the 'unique features' of Mass Housing Projects is an important step that would engender unique management styles and frameworks and develop managerial competency models suitable for these projects. The strength of mass housing future development may lay in its capacity to meet these challenges discussed earlier. The implementation of mass housing requires funding from different agencies to meet the housing need for the same. Thus by providing central ideas for accomplishing the concept of Mass housing by knowing various challenges, its design criteria, and their implementation for the people's betterment concludes this study.

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