

# Planning and estimation of affordable housing using Sustainable Materials.

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**Abstract:** *By 2050, Indian cities will be home to 900 million people (FICCI, 2011). The rapid pace of urbanisation owing to the rural–urban migration is resulting in a strain on the urban infrastructure in these cities. As urban development steams ahead, a growing concern for urban planners is the massive urban housing shortage plaguing the country. The shortage, prominent within the EWS (economically weaker sections) and LIG (lower income groups), is estimated at 18.78 million households in 2012 (Ministry of Housing and Poverty Alleviation, 2012). It is opined that this trend is likely to continue on the back of robust economic development across the country. Given this scenario, it becomes critical to fill the existing gaps in the country's strained urban infrastructure and in particular, housing. Primarily, it would be important to address the need in the EWS (economically weaker sections) and LIG (lower income groups), which currently account for 95 percent (Ministry of Housing and Poverty Alleviation, 2012) of urban housing shortage in the country.*

## 1. INTRODUCTION-

Affordable housing refers to housing units that are priced below the market rate, making them more accessible to low-income households. The lack of affordable housing is a major problem in many parts of the world, as rising housing costs can push low-income families into poverty or force them to live in overcrowded or substandard conditions. There are several approaches to introducing affordable housing, including government subsidies, tax incentives, and public-private partnerships. Government subsidies may be used to provide developers with funding to build affordable housing units,

while tax incentives may be used to encourage private developers to build more affordable housing.

Public-private partnerships can also be an effective way to introduce affordable housing, as they allow governments and private developers to work together to finance and build housing units that are affordable to low-income households. Additionally, community land trusts and other non-profit organizations can play a role in creating and maintaining affordable housing. To make affordable housing more accessible, governments may also implement zoning regulations and land use policies that require a certain percentage of new developments to be designated as affordable housing units. This can help ensure that low-income households have access to affordable housing in areas with high housing costs and limited availability.

In addition to government policies and programs, there are also innovative approaches to introducing affordable housing. For example, modular construction and 3D printing technology can be used to build housing units more quickly and affordably, while community land trusts and co-housing models can provide alternative ownership models that reduce the cost of housing. However, there are also challenges to introducing affordable housing, such as opposition from existing residents who may be concerned about property values, traffic congestion, and other issues. Additionally, funding for affordable housing programs can be limited, and bureaucratic obstacles can delay or prevent the construction of new affordable housing units.

Despite these challenges, the need for affordable housing remains critical, and addressing this issue requires a coordinated effort from government, private developers, non-profit organizations, and community members.

## 2. LITERATURE REVIEW –

### 2.1 General Introduction:

A literature review is a critical analysis and summary of published literature on a particular research topic or question. It involves an in-depth analysis of scholarly articles, books, and other published sources related to the research question, and aims to identify gaps in knowledge, inconsistencies, and opportunities for further research.

#### 2.2.1 Urbanization and Growth of Slum Population in Jharkhand: A Spatial Analysis (2015):

Slum growth is not good for the city progress which requires to be resolved. This needs to be done for understanding the growth around the city. In the future slum will become a great barrier to the state development to handle the slum in a conventional way. In the urban areas the issue of transportation, growth of population health and safety are the major problems of the slums. Like the other state of India Jharkhand, it also too facing the problems of slums.

After the separation of Jharkhand from Bihar in 2000, the rate of urbanization and also the rate of growth of slum had gone high. In the absence of any affordable housing there has been growth of slum in the urban area of the country. To better understand the relationship between urbanization and the growth of slum population in Jharkhand Rahul Harshvardhan and Dr.V.K. Tripathi conducted a special analysis using Geographic information system (GIS) techniques. They analysed data on the distribution of slums and urbanization across the state and identified several key findings. First, they found that slums tend to be concentrated in areas with a high population density and low levels of economic development.

#### 2.2.2A Case Study of slums in Kerala, INDIA (2017):

In particular they found that slums tend to be clustered around industrial areas, suggesting that slum populations may be driven by employment opportunities in these areas. Second, they found that the growth of slum populations is often driven by rural-urban migration.

The study reveals that the average income of households in the slum is very low, and most households struggle to meet their basic needs such as food, shelter and healthcare. The lack of sanitation facilities in the slum also leads to health problems specially for children and women. The study also highlights the challenges we speak by the residents of the slum in surveying basic service such as education and healthcare. The poor quality of Education in the government schools in the area coupled with the lack of health care facilities declines the problems faced by the residents of the slum. The study recommends several measures to improve the socio-economic conditions of slum including the provisions of basic amenities such as water and sanitation facilities the development of infrastructure and the provision of access to education and healthcare.

#### 2.2.3 Rental Housing Policies and Associated Legal Covers: Case of Middle-Income Formal Housing in Karachi" aims to explore the policies and legal frameworks surrounding rental housing in Karachi, Pakistan. (2022)

The study also underlines the need for greater awareness and strengthening of the residents of the slum to improve their own living conditions. Overall, the study provides valuable insight into the socio-economic condition of slum in Kolkata and high and highlights the needs for concerted efforts to improve the living condition in the urban poor.

The study found that most slum households lived in small overcrowded residence with inadequate excess to basic amenities such as water sanitation facilities. The study also found that the slums were located in

areas with poor access to transportation and other public services.

The study found that inhabitants had poor health outcomes compared to non-slum inhabitants with higher rates of morbidity and mortality from communicable and non-communicable diseases. The study also found that slum dwellers had limited access to healthcare services with many households relying on informal sources of healthcare such as traditional healers and unlicensed medical practitioners.

### **2.3.4 Strategic use of land policy instruments for affordable housing – Coping with social challenges under scarce land conditions in Swiss cities (2020):**

The slum inhabitants are mostly involved in unskilled labour and their income levels are low. The living conditions in the slums are unhygienic and the lack of basic amenities makes the residents occupants to various health issues. There is a need for the government to provide basic amenities to the slum inhabitants and improve their living conditions. The government should also focus on the improving education levels one of the slum inhabitants which can help them break the cycle of poverty.

In the context of this study, it is sufficient to consider social capital to consists of indicators of social networks (structural: bonding), social support, and the diversity of friendship indicators. Thus, it aims to facilitate social exchange according to Karen networks of trust developed under conditions of risk and uncertainty. According to Larsen bonding, social capital is composed of association and trust between neighbourhoods. The number of resources accessible through one's personal network can be expressed and measured as individual social capital. Therefore, this study will not only focus on one form of social network. In light of the above-cited literature, it can be argued that the social capital that the slum dwellers accumulate with their co-habitants of the slum is a major contributor to the lack of the desire of these dwellers to move or be removed from the slum. Them being moved to a different place outside the slum, even if objectively a better place, has negative consequences for the accumulated social capital of these dwellers. Hence, they keep on residing in the same place over the years even if they are presented with better alternatives. They can, therefore, be said to be stuck in slums.

## **2.2.5 Socio-Economic Characteristics of Slums in Srinagar City J&K India (2020)**

Housing is a shelter that provides primary living conditions. Even in developed countries, low-income families often have no housing due to economic reasons. Sustainable architecture is mainly embodied in the overall planning of ecological, economic, and social and cultural sustainability. Sustainable housing is guided by the concept of sustainable development, carries out reasonable planning and design, effectively utilizes resources in the process of construction and use, minimizes the impact on the environment, and provides residents with health and comfort. A safe space, a living carrier that enables people to be satisfied in an elegant environment. Sustainability is an essential subject in the housing research area, and it is a challenging theme for city inhabitants, builders, and architects around the world. And it is a complex theme for city inhabitants, builders, and architects around the world. In general, a sustainable building is environmentally friendly high-tech architecture. It strives to minimize the negative impact on the environment through the efficient and thoughtful use of materials, energy, space, and the ecosystem.

Various strategies used for achieving Socio-cultural, Economic, Technological, environmental Sustainability are participatory housing, land tenure, promotion of Technology innovations water conservation, dissemination of Technology land management community involvement easy finance building standards and regulations energy conservation provisions of public infrastructure and services minimum housing needs, process waste management technical supervision basic infrastructure and much more.

## **2.2.6 Affordable housing in China (2019)**

Literature review Affordable housing in China a employer based system, land policy, (price to income ratio), housing provident fund. Introduction of the research is Housing Provident Fund—a compulsory housing savings system to provide subsidized loans to employed homebuyers. Low-rent public housing is provided by the govt. to low-income urban households. The literature review of this research is Literature review on affordable housing in Man's literature review on affordable housing in China highlights the current state of affordable housing in

the country and the policies and initiatives implemented to address the housing problem.

### **2.2.7 Slums proliferation in Nigeria: exploring the spatial manifestations, formations and implications (2019)**

The trends above portend big challenges to developing nations as the urban populations living in slums keep rising. The Nigeria's slum annual growth rate of 4.96 is behind those of east African countries. However, the density of the slum population cannot be matched by any other African country in the table, which implies that a very significant proportion of the population in Nigeria lives in urban slums. This certainly poses a serious threat to the socioeconomic development of the slum dwellers in particular and the entire country at large. Thus, this study sets out to interrogate the existing literature on the spatial manifestations, formations and implications of slums on national development. Slums have been defined in different ways. However, regardless of the obvious variations, some characteristics tend to predominate in almost all the definitions. For instance, the United Nations (UN-Habitat, 2007) describes slums as areas usually inhabited by the urban poor, and which are characterized by substandard dwellings lacking basic social amenities such as clean water and regular electricity supply.

This definition largely agrees with the description of slums as densely populated dirty run-down urban areas characterized by high rates of social vices and poverty. This implies that slums are those areas of the city that are underdeveloped, and which usually counteract the official urban plan. Slums are also conceived by Fourchard (2003) as blighted urban areas which feature predominantly urban people of low income and low educational attainments. However, the proliferation of slums in major Nigerian cities such as Lagos and Abuja, where many civil servants reside in slums, is evidence against Fourchard's (2003) assertion that slums are inhabited by poor and illiterate folks of the cities.

## **2.2.8 A Case Study of slums in Kerala, INDIA (2017)**

### **2.2.8.1 EVOLUTION OF BUILDING MATERIALS**

**1930:** Mud, laterite stone, bamboo, Palmyra leaves, coconut leaves, timber, sun-dried mud bricks, grass, and rubble

**1940:** Mud, laterite stone, bamboo, Palmyra leaves, coconut leaves, timber, sun-dried mud bricks, grass, coconut stem, lime, and rubble

**1950:** Mud, laterite stone, bamboo, Palmyra leaves, coconut leaves, timber, sun-dried mud bricks, grass, mud, coconut stem, lime, and rubble

**1960:** Mud, laterite stone, bamboo, Palmyra leaves, coconut leaves, timber, sun-dried mud bricks, coconut stem, lime, cement, river sand, sun-dried clay bricks, and tiles

**1970:** Mud, laterite stone, bamboo, Palmyra leaves, coconut leaves, timber, coconut stem, lime, cement, river sand, sun-dried clay bricks, tiles, burnt bricks, iron, and steel

**1980:** Mud, laterite stone, timber, lime, cement, river sand, tiles, burnt bricks, iron, PVC, glazed tiles, mosaic chips and steel

**1990:** Mud, laterite stone, timber, lime, cement, river sand, tiles, burnt bricks, iron, PVC, glazed tiles, mosaic chips, marble, granite, asbestos, tar sheets, cement hollow bricks, aluminium and steel

### **CONCLUSION: -**

Sustainable housing is guided by the concept of sustainable development, carries out reasonable planning and design, effectively utilizes resources in the process of construction and use, minimizes the impact on the environment, and provides residents with health and comfort.

Sustainable and affordable housing aim at meeting the housing needs of a larger community by providing better social conditions and minimizing the lifecycle environmental impacts. This study investigates the various challenges and opportunities in designing such a system in an Indian scenario.

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