Review: Redevelopment of Dharavi into Smart City

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Abstract: In Mumbai, India, there are over 700,000 people living in Dharavi, the biggest slum in the world. The provincial administration has decided on a private business and is coordinating the promotion of Dharavi's rehabilitation with them. Additionally, the Indian government launched three city development plans in 2015 and is actively supporting homes for slum residents, redevelopment activities in current cities, and India's overall urban growth. In order to serve as a prototype for future smart cities that could be built in India, where the pharmaceutical industry has a comparative advantage over other industries, an urban pharmaceutical research and production facility and residential complex is proposed in this paper. This facility is designed to be able to supply all residents in the designated site.

Key Words: Mumbai, Slums, Sustainable Urban Poor, Slum Redevelopment, Residential Satisfaction.

1.INTRODUCTION

  Since 1981, plans have been in place for the development of Dharavi. The hamlet, which was later formally designated a slum in 1971, has obviously suffered from years of acting as a destination for the homeless and displaced. a fact acknowledged by the government as well. There was progress. In 1985, a Rs 30 crore grant was allocated for the region, and after the Shiv Sena launched a programme in 1995 that promised free homes to all slum dwellers, 85 buildings for rehabilitation were constructed. There are now amenities on the Sion-Mahim-Link roads. Redevelopment, however, didn't start until 2004 in its current form. The Maharashtra government launched the Dharavi Redevelopment Project (DRP), which is being overseen by wealthy architect Mukesh Mehta. When tenders were called for in 2007, there was a significant amount of business interest, but what happened in the years that followed would shape future attempts at rehabilitation. Due to the 2008 financial crisis and adamant resistance from communities, NGOs, and politicians, the 2009 first effort was abandoned. The efforts continued. Tenders were solicited, extended, and re-asked for parts of Dharavi, but none were answered. In a section on its background, the most recent tender cites the challenges that it faces, noting prior attempts. prior challenges include height constraints for structures because of their closeness to the airport, slums' high population density, and other factors. In 2018, the government released a new request for proposals for reconstruction. Seclink Technology Corporation (STC) of Dubai was the successful bidder, with a bid of Rs 7,200 crore. This tender was withdrawn in 2020 due to issues with adding the railway land adjacent to Dhar.

2. LITERATURE REVIEW

Al Amin Kably[1] Naturally, they aim to avoid perpetuating a vicious circle of unclear accountability and obligation to others. Our vast history demonstrates that Indian urban civilizations have absorbed many lessons from the past that are relevant to our specific climatic and cultural setting. People whose lives are continuously changing or in transition are what keep communities, neighbourhoods, and, ultimately, entire cities running. To continue ignoring the demands of the majority of its current and future citizens, new and existing cities must keep their diverse sense of identity that distinguishes them and accommodate flexible at all intervention scales. Nisarg Patel et al [2] Two of India's most significant challenges are its growing population and urbanisation. Increased population is directly tied to rapid urbanisation. As a result, India has slums, which is one of the most significant issues that any planner or government body must solve. Slums are areas where houses are illegally occupied, posing a hazard to environmental contamination and deteriorating urban living conditions. Major developments have occurred in India's urban development programmes and plans over the previous 20 years. Slum eradication, removal, and resettlement, for example, have been resurrected as redevelopment and up-grading initiatives. This policy move is consistent with policy shifts in several other Asian countries, most notably India. in addition to it, Ghada Ragheb et al [3] Slums are areas where houses are unlawfully occupied, generating pollution and degrading urban living conditions. Slums in urban areas indicate that the physical, social, and economic situations are deplorable. Over the last two decades, there has been a rise in migration from rural and small towns to metropolis. This has a negative impact on sustainable development and urban environmental quality, particularly in metropolitan areas. The problems that city dwellers encounter have risen to the top of the government's priority list. Slums are seen as a serious issue in many metropolitan regions, particularly in terms of population, transportation, health, and safety. In order to reduce or halt the spread of informal settlements. A variety of laws and policies have been enacted by the Egyptian government. However, improvements or removals of informal areas have only occurred in a few localities and have had no effect on the overall rise of informal areas. This study includes the two slum areas under consideration. The first is in India (Dharavi, Mumbai), and the second is in Egypt (Ezbet Aljama, Alexandria). Because not all slums have the same amount of infrastructure development, it is critical to understand the fundamental services and facilities accessible in and between the two slums, such as drinking water, power, sanitation, education, and health services. The key finding of the study is that informal communities can "improve the quality of life and public health" by learning from one another.   Arusha Patil [4] What is the environmental impact of the Dharavi project? The infamous Mumbai floods of July 26, 2005, were caused by flooding in Dharavi, where the Mithi river flows. Environmental calamity is already taking place in Dharavi. As you can see, the Mithi River has been receiving sewage and other trash for nearly a century. Dharavi has no sanitation. In addition, there is an unorganised leather and textile industry that dumps its trash in the same location. There is no environmental management strategy in place in Dharavi. All of this will come at a cost. There was no environmental management strategy in place. And if the economy is formalised, individuals in lower socioeconomic tiers will benefit. Elsevier BV[5] Future initiatives to improve low-income housing design must consider ambient air penetration as a substantial source of household pollution. Cross-ventilation channels, opening location, partition wall and space divider placement, furniture arrangement, and cookstove positioning are all important interior design concerns. Practical housing options must be

integrated with mechanisms to purify outdoor air before it is transported to indoor surroundings for Mumbai's low-income population, utilising passive or low-energy solutions to the greatest extent possible. Ramit Debnath et al[6] Overall, the purpose of this paper was to provide a first step in the design optimisation of slum redevelopment utilising a framework known as Urban Building Energy Modelling (UBEM). Using a data-driven and simulation-based methodology, we compared the thermal performance of two proposed vertical slum rehabilitation morphologies to the existing horizontal form. In terms of thermal comfort for inhabitants, our research found that the current horizontal design beats either of the proposed vertical variants. The ramifications of these findings demonstrated the need for greater research into the advantages of one urban design over another, as well as the development of more inclusive slum redevelopment plans to guarantee that redevelopment does not impose additional obligations on current residents in terms of comfort, energy use, and sustainability. Abhijit Roy et al [7] Diverse, tenacious illegal inhabitants and business owners call Dharavi, Mumbai, home; they have demonstrated tenacity to this point. Dharavi inhabitants have contributed to Mumbai's growth by providing cheap labour and goods. However, many vocations in Mumbai remain unacknowledged, including construction workers, domestic staff, rag pickers, fruit and food vendors, and many others. This "bottom of the pyramid" population, according to Prahalad and Hart (2002), can be mined for money. Martha Kolokotroni[8] The tension between what Dharavi is and what it can become illustrates the unstable status of the present at the crossroads of the past and the future. Three distinct spatial conceptions should be investigated concurrently with Dharavi revitalization: the fishing hamlet, the picture of a wonderful metropolis, and the image of a malignant mass in the city. A preliminary examination of these identities can help us create a more exact definition of what Dharavi is perceived to be today and what it was in the past, allowing us to appreciate and forecast Dharavi's future progress. Sheela patel et al [9] The project will also have to deal with the consequences of the global financial crisis, which has deteriorated since April 2008. The estimated cost of redevelopment in Dharavi has risen from Rs. 9,250 crore to Rs. 15,000 crore (approximately from US$ 1.8 billion to US$ 2.9 billion) as a result of the issue. Land values in Dharavi have fallen as a result of the recession, which first impacted the building and real estate development industries. Uncertain markets and a liquidity crisis make it difficult to predict how many prospective developers will take on the project. It's also likely that the reduced financial stress will create a more favourable environment for discussing solutions with the government. Sheela Patel et al[10] Another critical component was the adaptation of major institutions and individuals. Both the MMRDA and the World Bank were open to changing their policies and procedures. For example, they gave a sole-source contract to Mahila Milan, the National Slum Dwellers Federation, and the Alliance of SPARC to prepare baseline socioeconomic studies and draught and implement action plans for relocation. In a typical circumstance, all three would have been put out to bid, which implies that the various jobs could have been assigned to different contractors, resulting in little coordination between these three seemingly unrelated tasks. Furthermore, as previously stated, the Alliance was awarded a contract to construct transit and housing for 2,500 households. To allow the Alliance to build the transit facility, the Bank had to waive its norm of not giving an NGO more than US$30,000. Metal Jockin Arputha [11] Government plans in Dharavi and the airport slums, which collectively house over a million people, appear to be considerably more focused on encouraging commercial growth than on building the transit infrastructure. Addressing the demands of the locals. In both cases, the aggregate

number of dwellings and buildings might form a sizable city. People in Dharavi and the airport slums are far more organised than those from less vulnerable groups. These residents constitute large vote banks, but their political officials do not promote or support them in asserting their participation. Meanwhile, rather of promoting proper development with the involvement and participation of locals, the community leadership and others' concerns have been ignored. In the metropolis, they are viewed as roadblocks to progress. Aaron Windle [12] In the world of real estate, comparing the poverty of slum dwellers, many of whom live on less than $1 per day, to land with an estimated worth of $10 billion is unprecedented. A total of $3.4 billion has been planned for Dharavi slum development projects, which are hoped to be promptly taken on by regional builders and government housing organisations. Even while the lives of the slum's inhabitants are not to be envied, as they are sustained by a $500 million economy within the imaginary city lines of Dharavi, relocating outside the slum may not help their financial situation. The majority of twentieth-century land use ideas are unsuitable for constructing large-scale settlements that can house the world's population. Alex Nutkiewicz et al [13] They studied how early design decisions for redevelopment will affect the thermal comfort of the 1 million residents of the Dharavi informal settlement in this article, using a contextualised energy modelling methodology. The findings emphasised the importance of conducting a thorough investigation of design options for the rebuilding of informal settlements and demonstrated that reproducing present designs in vertical form may worsen thermal comfort for residents. The computational energy modelling approach for informal settlements proposed in this paper is not limited to the Indian context; it may be used to investigate the energy and social implications of redeveloping informal settlements worldwide. The magnitude of the global redevelopment of informal settlements will undoubtedly have an impact on developing-world global cities and their energy consumption for decades to come. Nihal Perera [14] At the moment, reaching a consensus on how to redevelop Dharavi is difficult, and it cannot be entirely transformed unless the national state chooses to conduct a severe project comparable to Chandigarh. This demonstrates the state's weakness, the type of Indian democracy at work, and the Indian populace's social power. This is quite different from China's continuous urban transformation since the 1980s and the 1960s urban renewal in the United States. Both moves were performed with immense power—capital power in the United States and state power in China as a result of the 1980s. Both operations were taken with immense power—the power of capital in the United States and the power of the military. China is a country. Both were more willing to push the weaker ones to the fringes. India has a very weak state but a highly effective democracy. People are still negotiating Chandigarh, the most recent foreign imprint, even after it has been completed. The residents of Dharavi deserve better living conditions, but as the discourse implies, neither the state nor the capital can supply them given their current way of thinking. Michelle Hindman et al [15] The major point of the article is that economic and urban progress require a multidisciplinary approach that includes social inclusion, judicious investment, good governance, and environmental responsibility. For these initiatives to be implemented, governments, investors, and private developers must collaborate effectively. The team proposes four sustainable methods to fulfil the demands of low-income households and improve living circumstances in Indian slums: administrative, infrastructural, financial, and architectural. Deepika Andavarapu et al [16] Over the last 70 years, public agencies, non-governmental organisations, and international organisations have worked on slum redevelopment programmes. Despite major accomplishments and lessons gained,

scaling out ambitious slum-upgrading programmes remains a challenge for governmental agencies in the developing countries. Recent national programmes, such as Baan Makong and Rajiv Awas Yojana, have taken a comprehensive approach to resolving slum issues. These programmes require modifying the law, opening up markets for public-private investment, and investing both financial and intellectual capital into metropolitan areas in order to provide citizens with land tenure. It is questionable whether these new regulations will have an impact on the creation of an inclusive society in which the disadvantaged may thrive in cities. Only time will tell how to solve this conundrum.

3. CONCLUSION

 Diverse, tenacious illegal inhabitants and business owners call Dharavi, Mumbai, home; they have demonstrated tenacity to this point. Dharavi inhabitants have contributed to Mumbai's growth by providing cheap labour and goods. However, many occupations in Mumbai remain unrecognized, including construction workers, domestic servants, rag pickers, fruit and food vendors, and many others. The reconstruction proposal, which is being funded mostly by private investors and financial institutions, has the potential to generate substantial profits for all parties involved. According to a recent UN-HABITAT report, rural-to-urban migration will continue to climb in the next decades, increasing the number of people living in urban slums throughout the developing world. The Dharavi project stands a good chance.

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