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CHALLENGES AND SOLUTIONS IN AFFORDABLE HOUSING CONSTRUCTION: A GLOBAL ANALYSIS

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ABSTRACT

Affordable housing construction has been one of the main global challenges in urban development, with countries such as Brazil, China, India, and advanced economies facing similar obstacles. In Brazil, the implementation of large housing projects, in partnership with Caixa Econômica Federal and municipal governments, has contributed significantly to reducing the housing deficit and ensuring decent housing for low-income families. These initiatives have been recognized for their quality and innovation, being essential for improving the living conditions of the population. However, challenges related to sustainability, ineffective management, and residential segregation remain issues to be resolved. Studies in other countries, such as China and India, show that although efforts to improve access to housing are being made, the lack of adequate infrastructure and regional disparities hinder the implementation of effective solutions. He, Yang, and Gong's study (2023) highlights how the unbalanced real estate market in China exacerbates the crisis, and Singh, Yadav, and Deb's research (2024) emphasizes the need for sustainable and inclusive solutions in India. In advanced economies like Sydney and Auckland, the market model has shown limitations in addressing the accessibility crisis. The analysis of these studies suggests that collaboration between the public and private sectors, the use of innovative technologies, and the development of effective public policies are essential to ensure that affordable housing becomes a sustainable and fair reality for all.

Keywords: Affordable Housing. Urban Sustainability. Housing Deficit. Public Housing Policies. Public-Private Partnerships.

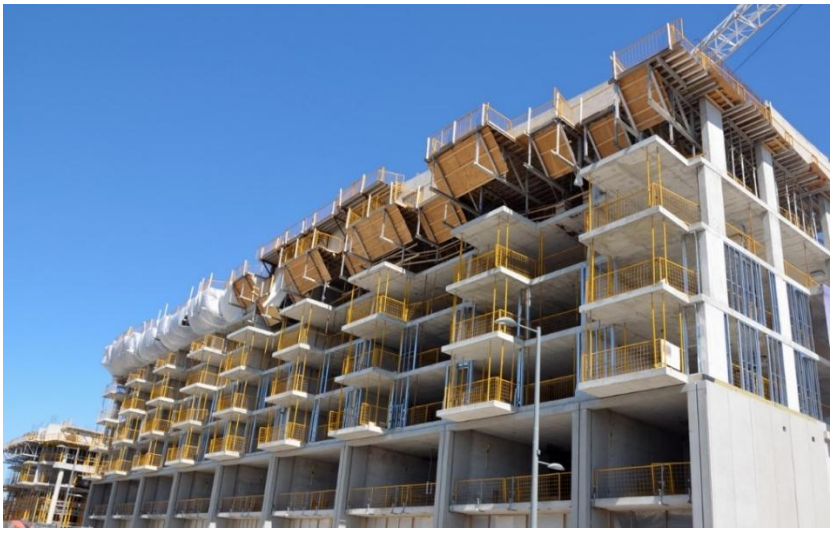
INTRODUCTION

The construction of affordable housing has been one of the main challenges in sustainable urban development in Brazil. To meet this need, large housing projects were implemented, resulting in the delivery of more than 20,000 houses and apartments in over 30 cities across the country. These initiatives have significantly contributed to reducing the housing deficit, providing decent housing for thousands of families. The success of these projects was made possible through strategic partnerships with Caixa Econômica Federal (CEF) and various municipal governments, which facilitated the financing and infrastructure necessary for building the housing units. The collaboration between the public and private sectors ensured that these homes were accessible to low-income populations, not only delivering housing units but also creating well-planned neighborhoods with access to essential services such as sanitation, transportation, and public facilities.

The commitment to quality and innovation in affordable housing construction has been widely recognized in Brazil. Several awards have been won, highlighting the social and urban impact of these projects, solidifying a strong reputation in this field. These recognitions reflect not only the technical excellence of the constructions but also the commitment to developing sustainable, safe, and well-integrated housing solutions within cities. Urban development is viewed as a process that must be planned in an inclusive and sustainable manner, leading to ongoing investments in new technologies, efficient construction processes, and innovative housing policies. With over 20,000 units delivered and new projects underway, the commitment to social transformation and improving the quality of life for families remains strong.

Figure 1

Building affordable housing



Source: DBS Group.

Turning to China, the study conducted by He, Yang, and Gong (2023) addresses the challenges that emerged during the urbanization process and the disparities between affordable and commercial housing construction. The study demonstrates how the imbalanced real estate market generated disparities in both the quantity and quality of housing, along with inefficient management and residential segregation. Using existing data, field visits, and Vensim PLE software to model the conversion system of different types of stock into affordable housing, the researchers analyzed the impacts of public policies on the supply and demand for such housing. The results indicate that specific policies can stimulate urban population growth and improve the supply of affordable housing, reducing the housing deficit and enhancing the quality of life for low- and middle-income families. These findings provide valuable guidelines for developing more effective public policies to address housing issues in China.

In the realm of affordable housing construction, Reid's (2023) study highlights the ongoing challenges in the sector, which has yet to reach the necessary production capacity and quality standards to meet the growing demand. Despite the United Nations' commitment to ensuring equal access to basic services, innovative measures are urgently needed to address existing inefficiencies. To better understand the obstacles hindering the design and construction phases of affordable housing, an exploratory data mining analysis using hierarchical agglomerative clustering was conducted on 3,566 research outputs from the Web of Science and Scopus databases. The analysis identified 83 supply-side barriers, 18 of which were specifically related to the design and construction phases. These barriers were grouped into seven main concerns: (1) design (not) for everyone, (2) homogeneity of supply, (3) unhealthy living environments, (4) inadequate construction project management, (5) environmental unsustainability, (6) place-based construction, and (7) lack of technical knowledge and skills. The study's findings emphasize the need for evidence-based decision-making across the entire affordable housing sector, suggesting that to correct inefficiencies, UN member states must accelerate the transition to a sustainable and inclusive design and construction process. The study concludes that prioritizing user participation, promoting eco-friendly homes, and investing in the training and enhancement of construction professionals are essential.

The research by Hu and Qian (2017) examines the factors influencing urban governments' commitment to providing land for affordable housing in China, amidst the rapidly expanding real estate market and sky-high prices in urban areas. Despite the renewed focus of the Chinese government on affordable housing programs, the pace of development has been slow and has not met the planned targets. Using a dataset on land supply in Chinese

cities between 2009 and 2013, the study identifies a spatial mismatch between cities that allocate more land for affordable housing and those facing severe accessibility challenges. The results suggest that cities with higher dependence on land-based finances and greater fiscal autonomy are less likely to prioritize land supply for affordable housing construction. The study concludes that for the successful implementation of affordable housing supply in China, local governments must reduce their reliance on land-based revenue.

Singh, Yadav, and Deb (2024) explore the priorities of affordable housing, economic growth, and environmental protection in India's urban development. The housing sector in India is one of the largest in the country, and there is a significant need for affordable and sustainable housing, both for economic and environmental reasons. The study highlights the shortage of affordable housing, especially for the Economically Weaker Sections (EWS) and Low-Income Groups (LIG), with a 2011 government technical study indicating a deficit of 18.76 million units in urban areas. The government launched several initiatives, such as the "Housing for All" program in 2015, to promote affordable housing and integrate sustainability, accessibility, and inclusion in construction. The research emphasizes the importance of energy-efficient technologies, waste management, and green spaces in reducing the environmental impact of housing projects, which also contributes to resilience to climate change. Furthermore, the study highlights the need for social inclusion, particularly for low-income groups, women, and vulnerable populations, to promote equity in housing. The research concludes that affordable and sustainable housing is crucial for India's economy, environment, and quality of life, stressing the need to incorporate economic, environmental, and social factors into housing laws and practices to address the country's housing crisis.

Finally, Wetzstein's (2021) study critically addresses the global urban affordable housing crisis, focusing on the predominant approach in advanced economies: the acceleration of market-based housing supply. This approach advocates for efficient land and housing markets, promotes deregulation, and seeks to reduce the power of local governments and planning systems. Wetzstein challenges these claims with heterodox literature and uses a comparative multi-city ethnographic methodology to explore the perspectives of urban stakeholders in Sydney and Auckland, two critical points in the housing crisis in the Australasian region. The findings reveal a convergence between critical literature and stakeholder perspectives, challenging the effectiveness of the market-based supply model in generating accessibility. The study highlights the fallacies of this approach, showing its tendency to reproduce the status quo rather than address the root causes of the housing crisis. The conclusions suggest an intellectual and political reassessment of the concept of

an affordable city and the development of policy strategies aimed at creating a future that is accessible for all.

The research by Gan et al. (2017) deals with the challenge of accommodating the poor in rapidly urbanizing countries, particularly China, where affordable housing initiatives have been recently implemented and continue to be developed. The study focuses on two critical considerations in affordable housing programs: cost and time, with the main goal being to meet the housing needs of low-income families. Although sustainability features are not commonly integrated into affordable housing strategies, the study identifies the lack of a sustainability framework as a key problem. Through an extensive literature review and a survey of stakeholders such as government representatives, developers, and academics in the Chinese construction industry, the authors identified 42 key performance indicators for sustainability (KSPIs). After applying fuzzy set theory and analysis of variance, 24 KSPIs were highlighted, providing valuable insights for policymakers and industry professionals. These findings offer guidelines for developing affordable housing programs that prioritize sustainability, contributing to sustainable development at the regional level.

Affordable housing construction remains a critical challenge both in Brazil and in other countries such as China, India, and advanced economies. Large-scale projects have been implemented to reduce the housing deficit and provide decent housing for low-income families. Collaboration between the public and private sectors has been essential to ensure that these houses are affordable and integrated into well-planned neighborhoods with necessary infrastructure and services. However, difficulties related to sustainability, ineffective management, and inequality in access to housing persist, requiring further investments in innovative construction technologies and processes, as well as public policies that prioritize social inclusion.

The analysis of studies on affordable housing reveals that, despite ongoing efforts and government initiatives, progress has been uneven across countries. The Brazilian experience with partnerships between Caixa Econômica Federal and municipal governments shows significant advances, but the quality and efficiency of construction projects need improvement. In the context of China and India, regional disparities and a lack of resources for implementing effective policies worsen the housing crisis. In all these regions, the need for sustainable, inclusive, and well-planned solutions is clear, and it is essential that governments adopt a more holistic and integrative model to address the growing demand for affordable housing and improve the quality of life for the most vulnerable populations.

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