

Metamorphosis of Dhaka: A Journey Through Urban Development

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Abstract

Review Article

The urban development of Dhaka, the capital city of Bangladesh, presents a compelling case study of rapid growth coupled with multifaceted challenges. This manuscript offers an in-depth analysis of Dhaka's urban development journey, examining its historical evolution, political influences, economic drivers, and social dynamics. It also delves into the city's pressing issues, such as urban sprawl, climate vulnerability, and biodiversity loss, which are exacerbated by rapid demographic changes. Utilizing a multi-disciplinary approach, the study underscores the need for a paradigm shift in urban planning—from traditional, incremental models to more integrated and sustainable frameworks. The findings highlight the importance of comprehensive planning that transcends mere infrastructural considerations to include social and environmental sustainability. This manuscript aims to contribute to the discourse on urban development in rapidly growing cities, offering insights that could inform policy and governance strategies for Dhaka and similar urban contexts.

Keywords: Dhaka, Urban Development, History, Infrastructure, Demographics, Trends, Projections.

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INTRODUCTION

Dhaka, the capital city of Bangladesh, stands as a testament to the complexities and challenges of rapid urbanization. Once a small trading post along the banks of the Buriganga River, Dhaka has evolved into a sprawling metropolis, home to over 23 million people [1]. This transformation has not been without its share of challenges and opportunities, making Dhaka a compelling case study in urban development. The city's history is rich and multifaceted, marked by periods of colonial rule, independence, and rapid economic growth [2]. The evolution of Dhaka is not merely a tale of expanding borders and rising skyscrapers; it is intrinsically tied to social, economic, and political factors that have shaped its landscape over the years [3]. The concept of the 'right to the city,' which encompasses equitable access to urban resources, has been a focal point of urban social movements globally and is increasingly relevant in the context of Dhaka [3]. Infrastructure development has been both a driver and a reflection of Dhaka's urban growth. The city has seen significant investments in roads, public transport systems, and utilities, often acting as a trigger for spatial

dynamics and influencing patterns of urban sprawl or hyper-densification [4]. However, the expansion of infrastructure has not always kept pace with the city's growth, leading to issues such as congestion and inadequate waste management [4]. Demographic changes have been equally significant. Dhaka has experienced a massive influx of rural migrants, contributing to its burgeoning population and altering its socio-economic landscape [1]. This demographic shift has had implications for housing, employment, and urban services, adding layers of complexity to the city's development narrative [5]. The current trends in Dhaka's urban development are a mix of planned initiatives and spontaneous growth. While the government has undertaken several projects aimed at modernizing the city, much of Dhaka's expansion has been organic, influenced by various socio-economic and spatial variables [2]. This has led to a unique urban fabric, characterized by a blend of formal and informal elements. Looking ahead, Dhaka faces a multitude of challenges and opportunities. As the city continues to grow, issues related to sustainability, governance, and social equity will take center stage. The choices made

today will have long-lasting impacts, shaping Dhaka's future and, by extension, the well-being of its residents.

In this review, we aim to provide a comprehensive overview of Dhaka's journey through urban development, examining its history, significant events, infrastructure milestones, demographic changes, current trends, and future projections. Through this lens, we hope to offer valuable insights into the complexities of urban development in one of the world's most densely populated cities.

HISTORY OF URBAN DEVELOPMENT IN DHAKA

Pre-colonial Period

Dhaka's urban history can be traced back to the Mughal period, when it served as the capital of Bengal. During this time, the city was a hub of trade and commerce, with its strategic location along the Buriganga River facilitating the movement of goods and people [6]. The area of Dhaka during the Mughal period was quantified as 12.93 km², comparable to other leading cities of the world in the 17th century [6].

Colonial Era

The colonial era brought significant changes to Dhaka's urban landscape. British rule led to the introduction of new administrative systems and infrastructural developments. However, the period also witnessed growing educational gender inequality, a trend observed in other regions with similar histories of colonial rule [7].

Post-Independence

1990-2015: Emergence of Modern Infrastructure

During this period, Dhaka saw significant changes in its urban landscape, primarily driven by the government's focus on infrastructure development. The city witnessed the construction of key infrastructures like flyovers, highways, and the expansion of public transportation. This era also marked the beginning of Dhaka's transformation into a global outsourcing hub, attracting both local and foreign investments. However, the city also faced challenges such as traffic congestion, pollution, and inadequate waste management systems.

2016-2021: Focus on Sustainable Development

The last five years have seen a shift towards sustainable urban development. With the increasing impacts of climate change, Dhaka has started to incorporate green initiatives such as eco-parks, waste recycling, and renewable energy projects [8, 9]. The government has also been working on long-term urban planning strategies, including the Dhaka Structure Plan and the Detailed Area Plan, aimed at guiding the city's development in a more organized and sustainable manner.

SIGNIFICANT EVENTS IMPACTING URBAN GROWTH

Political Events

Political stability and governance have played a crucial role in shaping Dhaka's urban landscape. The city has been influenced by various political events, such as changes in government policies and international relations. These events have had both positive and negative impacts on urban development, affecting investment, infrastructure projects, and land use planning [10].

Economic Factors

Economic drivers like industrialization and globalization have significantly influenced Dhaka's urban growth. Mega-events, for example, have been shown to have various effects on urban sustainability, including infrastructure development and social welfare [11].

Social and Cultural Influences

The social and cultural norms, values, rules, and relationships in Dhaka have been as influential in urban vulnerability dynamics as "hard" infrastructure and environmental management [12]. These socio-political infrastructures create patterns of behavior and action that shape the built environment and influence urban planning for enhanced resilience and sustainability.

Environmental Factors

Environmental disasters like floods and extreme temperatures have had a significant impact on Dhaka's urban areas. These events have led to economic losses and have emphasized the need for "safe-to-fail" infrastructural design and the role of green and blue infrastructure in mediating hydrological and climatic risks in cities [12].

KEY MILESTONES IN INFRASTRUCTURE DEVELOPMENT

Transition from Incremental to Integrated Development

Dhaka has been undergoing a significant transformation in its approach to urban development. The shift from "incremental development" to "integrated development" in Dhaka signifies a move from isolated, step-by-step planning to a more holistic approach. The integrated framework aims to address the city's complex challenges like rapid urbanization and environmental issues in a cohesive and long-term manner. This is seen as a more effective way to mitigate Dhaka's pressing urban challenges. This transition is crucial for the successful execution of integrated infrastructure and service planning, development, and management practices [13].

Blue-Green Infrastructure (BGI) Network

A noteworthy milestone in Dhaka's infrastructure development is the conceptualization of a

Blue-Green Infrastructure (BGI) network. This network aims to combine blue, green, and grey elements to provide a multifunctional urban form. The BGI network offers different types of flood control and stormwater management options and can guide Dhaka's future urban consolidation and expansion [14].

Urban Expansion and Land-Use Changes

The urbanized area in districts surrounding Dhaka, like Gazipur, has expanded significantly over the years. This expansion has been influenced by various factors, including demographic, economic, location, and accessibility. The urban area has grown by more than 500% during the period from 1990 to 2020, emphasizing the need for concrete urban and development policies [15].

DEMOGRAPHIC CHANGES OVER TIME

Population Growth and Density

Dhaka has experienced exponential population growth over the years, becoming one of the most densely populated cities in the world. This growth has been attributed to rural-urban migration, fueled by the search for better economic opportunities and social amenities. The city's population density has increased significantly, leading to challenges in housing, transportation, and public services [16].

Urban-Rural Dynamics

The demographic changes in Dhaka are not isolated but are part of a larger urban-rural dynamic. The city's growth has led to the expansion of its metropolitan area, incorporating nearby rural regions. This has resulted in a complex interplay between urban and rural areas, affecting real estate values and land use [17].

Social Composition

The city's demographic makeup has also evolved, becoming more diverse in terms of ethnicity, religion, and social class. This diversity has enriched the city's cultural landscape but has also led to challenges in social integration and governance.

Environmental Impact

The rapid population growth and urban expansion have had significant environmental consequences. The built-up area in Dhaka has increased by 188.35% from 1990 to 2020, leading to a decrease in ecosystem service value (ESV) by 59.55% during the same period [16].

CURRENT TRENDS AND FUTURE PROJECTIONS

Urban Sprawl and Land Use

Dhaka is currently grappling with the issue of urban sprawl, characterized by the horizontal expansion of the city. This trend is particularly concerning as it leads to the conversion of agricultural lands and green spaces into built-up areas. The lack of effective urban

planning and zoning regulations exacerbates this issue. The city's expansion is not only consuming valuable agricultural land but also leading to inefficient land use, thereby increasing the city's carbon footprint [18].

Climate Change and Urban Vulnerability

The city is becoming increasingly susceptible to the adverse effects of climate change. Rising temperatures, erratic rainfall patterns, and extreme weather events like cyclones and floods are becoming more frequent. These climatic changes pose a significant risk to the city's infrastructure, public health, and overall livability. Adaptation and mitigation strategies, including green infrastructure and sustainable urban planning, are urgently needed [19].

Biodiversity Loss

The rapid and unplanned expansion of Dhaka is causing a significant loss of biodiversity. Natural habitats are being destroyed to make way for residential and commercial developments. This loss of biodiversity has far-reaching implications, affecting ecosystem services like water purification, air quality, and even climate regulation. Future projections indicate that this trend is likely to continue, making conservation efforts critical [20].

Water Governance and Security

Water governance is emerging as a critical issue for Dhaka. The city faces multiple challenges, including inadequate water supply, poor sanitation, and frequent flooding. These issues are exacerbated by rapid urbanization and population growth. Effective governance frameworks, incorporating community participation and multi-sectoral collaboration, are essential for ensuring water security and sustainable development [21].

DISCUSSION

The urban development of Dhaka is a complex and multi-layered process that cannot be understood without considering its historical, political, economic, social, and environmental contexts. The city's historical evolution has been marked by several key phases, starting from its Mughal origins, through its colonial past, and into its post-independence transformations. Each of these phases has left a lasting imprint on the city's urban landscape, influencing not just its physical attributes but also its governance structures [6, 10]. For instance, the colonial era introduced a form of urban planning that prioritized administrative efficiency over local needs, a legacy that continues to affect the city's governance today. Moreover, Dhaka's development is further complicated by an intricate interplay of various factors. Political events, such as changes in governance or policy shifts, have often acted as catalysts for urban change. Economic drivers, including industrialization and globalization, have accelerated the city's growth but also introduced new challenges such as income

inequality and resource depletion [11, 12]. Social and cultural influences, like migration patterns and community dynamics, have added another layer of complexity, shaping the city's demographic makeup and influencing its spatial organization. Currently, Dhaka is grappling with a host of pressing issues that defy simplistic solutions. Urban sprawl is consuming valuable agricultural land and leading to inefficient land use. Climate vulnerability is becoming increasingly evident through rising temperatures and extreme weather events, posing significant risks to the city's infrastructure and public health [18, 19]. Additionally, the rapid and unplanned expansion of the city is causing significant biodiversity loss, affecting ecosystem services and overall environmental sustainability. Looking ahead, the city's future appears to hinge on its ability to adapt and evolve in the face of these multifaceted challenges. This necessitates a paradigm shift from traditional, incremental approaches to urban planning towards more sustainable and resilient strategies that are rooted in integrated development frameworks. Such frameworks would consider not just infrastructural development but also social equity and environmental sustainability [13, 21]. The findings of this study underscore the urgent need for a comprehensive and integrated approach to urban planning and governance in Dhaka. This involves transcending mere infrastructural considerations to include social and environmental aspects, thereby ensuring that the city's development is both sustainable and equitable.

CONCLUSION

In summary, the urban development of Dhaka is a complex and multi-dimensional process, influenced by a myriad of factors ranging from historical legacies to contemporary challenges. The city's growth trajectory has been shaped by its rich history, economic dynamics, and social fabric, all of which have left an indelible impact on its urban landscape. However, Dhaka faces pressing challenges, including rapid urbanization, environmental degradation, and governance issues, that require immediate attention. The future of the city hinges on its ability to adapt and evolve in the face of these challenges. This necessitates a paradigm shift towards more sustainable and integrated urban planning approaches that consider not just infrastructural development but also social and environmental sustainability. The findings of this study underscore the importance of a multi-faceted approach to urban planning and governance, one that is rooted in a deep understanding of the city's unique challenges and opportunities.

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