

## Abstract

India's rapid 21st-century urbanization is clashing with its historic urban centres. A surge in migration and a lack of heritage bylaws are fuelling chaotic development by private builders. This unchecked growth is leading to the demolition of historic structures and a dangerous erosion of city identity.

Odisha's ancient towns and archaeological sites reveal a rich history, showcasing its pivotal role in India's maritime trade and cultural exchange. Its temples, evolving from humble beginnings to grand masterpieces, chronicle a millennium of artistic and spiritual growth. However, cities like Bhubaneswar, Cuttack, Puri, and Ganjam suffered severe decline by the mid-19th century due to neglect and colonial apathy. Bhubaneswar's historic core, in particular, is now caught between rapid urbanization and neglect. The three significant historic cities - Bhubaneswar, Cuttack, and Puri, developed with distinct purposes and have since evolved into major urban centers. Puri and Cuttack have largely retained their original urban character. Puri remains a vital hub for religious tourism, centered around the Jagannath Temple, with development still largely focused on the temple area. Cuttack, originally a military town, served as an administrative capital for centuries, including during British rule and early independent India, until Bhubaneswar became the new capital. Bhubaneswar, however, exhibits a more diverse development trajectory. Historically an administrative and religious capital from the Ashokan era to the 17th century, it's known for its unique Kalinga temple architecture. After a period of decline, it was chosen as the second planned city of independent India, transforming from a "Temple City" to the "Capital City." Its continuous evolution and development prominence make Bhubaneswar an ideal case study for examining the impact of urbanization on a city's historic fabric.

Chapter 1 provides an introduction to the historic towns prevalent in Odisha. The historic urban settlements can be divided into three categories - trading and manufacturing towns, administrative towns which served as the capital of a kingdom and religious towns which were also centre for learning. Odisha too was no different. Katak and Jajpur were significantly the administrative towns, Puri is a religious town

while Bhubaneswar served as combination of religious and administrative town. Odisha was recognised as a settlement as mentioned in the epic Mahabharata being known as Kalinga and Odra. As per the accounts of famous Chinese pilgrim Hiuen Tsang, the current state boundary of Odisha contained the kingdoms of Kalinga, Utkala, Odra, Toshali, Kongoda and Kosala. Temple towns and urban settlements are simultaneous developments in many historic towns of India. Often the temple architecture reflect the pattern of urban settlement with the temple at its core. Odisha's temple had four phases – formative, transitional, mature and decadence. The same can also be attributed to the settlements of Odisha – particularly the selected area of study, the Ekamra Kshetra in Bhubaneswar. The major historic settlements in Odisha are Puri, Sambalpur, Bhubaneswar, Jajpur, Ganjam and Katak. All of them have evolved through the ages and have developed into significant urban centres now. There is a pressing need for a detailed study of the effects of urbanization in these historic towns of Odisha and help in determining key indicators which shall be helpful in restricting the adverse effects of urbanization in temple towns of Odisha.

The methodology of this research involves identification of urban centres in Odisha, selection of the appropriate urban centre, literature studies and analysis of earlier works to identify the key parameters for a detailed survey of the selected centre, detailed visual survey a part of the urban centre as practically possible on site, response from users to a relevant set of questionnaire prepared as per the key parameters determined, compilation of data and detailed analysis based on various models such as linear regression, variable regression etc. to determine the outcome of the survey quantifying the determinants or parameters. This research will help in the opening of avenues for future works such as determination of guidelines for holistic urban development in similar urban areas.

Chapter 2 elaborates the study of the earlier research undertaken in similar topics. The research was classified into three categories – historic background of temple town of Odisha, urbanization trend in Odisha and impact of urbanization in temple towns. The studies – especially the account of Fergusson and Sterling has been particularly helpful to understand the urban centres of Odisha and undertake a basic study of the

towns of Puri, Katak and Bhubaneswar. The studies underline the metamorphosis of development linking architectural prowess to broader social, economic, artistic and religious advancements.

Chapter 3 provides an elaborate study of the development of Bhubaneswar, Puri and Cuttack – each with its own timeline which range from the 6th century CE up to the 19th century CE. This is based on the studies conducted for detailed analysis, as per the review of earlier works, a comparative development of the religious institutions existing in the city. Based on this, the Ekamra Kshetra of Bhubaneswar was selected for the detailed field study and analysis as per the selected parameters. This is due to its rich historic background, its transformation from a temple town to the administrative capital of modern Odisha and the current rapid development of the city.

Chapter 4 provides an overview of the city of Bhubaneswar, focussing on Ekamra Kshetra – the historic part of Bhubaneswar. The boundaries of Ekamra Kshetra are defined with insight of the activities which still form the core of the sacred place. Important temples such as Lingaraj Temple, Ananta Basudeva, tanks such as Bindudagar etc all fall within the Ekamra Kshetra and form part of the core historic place. An overview of the place is also mentioned in the study highlighting the key issues that are faced. The Ekamra Kshetra is also termed as the old city of Bhubaneswar currently.

In Chapter 5, the parameters determined as per the review of earlier works and significant urban design studies are outlined. Based on this, a key performance indicator – form for detailed visual survey is developed. This research, using the old city of Bhubaneswar as a case study, seeks to create guidelines for harmonious development and proposes a 'Heritage Commission' to protect these vital historic urban centres. Visual survey of over 470 structures across 80 acres in Bhubaneswar's Lingaraj area – encompassing the significant Lingaraj, Chitrakarini, Mohini, and Suresvara temples – has uncovered a pressing issue – modern development is undermining the area's sacred identity. The detailed analysis based on the survey revealed a mixed land use, combining recent commercial and residential

constructions. These new buildings primarily utilize modern materials like cement and RCC framed or load-bearing structures, indicating construction from the late 20th century onwards. This stands in stark contrast to the area's traditional architecture. This adverse development is largely attributed to a lack of thoughtful planning, uncontrolled population growth, and individual profit motives. While the fortunate absence of high-rise structures might be due to height restrictions or lower affordability, the aesthetic impact is undeniable. Critically, these modern buildings are constructed without regard for nearby heritage structures, featuring contemporary facades that clash with the sacred environment. This lack of homogeneity actively degrades the inherent religious and pilgrimage-focused nature of the space.

Chapter 6 marks the comprehensive survey in Bhubaneswar's historic temple district, incorporating feedback from residents, users, and experts, which has vividly exposed the damaging effects of rapid urbanization. The core issues are clear: inadequate parking and resting facilities, and a chaotic mix of vehicular and pedestrian traffic. This disarray frequently clashes with the sacred rituals performed in these areas, severely compromising the pilgrimage experience. Haphazard development, arbitrary decisions, and piecemeal improvements have only exacerbated the disorder.

Chapter 7 critically assesses the findings of the survey. The key determinants are put together to define the dependent and independent variable for linear regression model and variable regression model analysis. One independent variable and eleven dependent variables are studied to determine the statistical findings of the survey. Percentage of changes to the building height, storey, floor to floor height, plot size, aspect ratio, approach road width, type of construction, nature of facades, usage of the structure, ground coverage etc are determined statistically as per the regression model. The survey reveals alarming changes driven by urbanization. Façades have drastically shifted to contemporary styles, often involving demolition and new builds to accommodate growing families. Traditional materials like brick and stone are replaced by modern concrete and steel, visually cluttering the streetscape and diminishing the area's sanctity. Building uses have morphed; historic residences and

pilgrim shelters now include commercial ground floors with residential or rental units above, frequently lacking setbacks due to owners' greed. Building heights often disregard road widths, suggesting violations of byelaws. This unchecked development, spurred by population surge and lack of guidelines, is erasing traditional features and making the micro-climate hotter. The city's unique historic fabric is rapidly eroding.

Like many historic temple towns across India, Bhubaneswar's homogenous character is being eroded by unchecked urbanization. The development patterns and public infrastructure profoundly shape an area's physical, social, and economic well-being, underscoring the need for informed decisions by urban planners. There's an urgent call for a dedicated heritage district in this area, overseen by an Urban Arts Commission or similar authority, to ensure comprehensive and holistic development. New constructions must feature homogeneous facades that respect, rather than overshadow, the grandeur of historic structures, while clearly delineating them. Future urban growth must embody a mutual respect for both history and modernity. This study aims to highlight these critical urbanization challenges, using Bhubaneswar as a case study to formulate an ideal solution with active stakeholder involvement. A comprehensive plan is vital, focusing on heritage conservation, sustainable infrastructure, community engagement, and tourism promotion to ensure its revitalization. Integrating Odisha's rich heritage with modern needs is crucial for creating vibrant communities. For Bhubaneswar, a Heritage Development Plan is urgently needed to protect its millennium-old cultural legacy.