
Human Perception of Nonhuman Elements in Chittagong City, Bangladesh¹

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Urban areas are complex environments where humans live alongside a variety of nonhuman elements, including structures, infrastructure and natural surroundings. Understanding how people perceive and interact with nonhuman elements is crucial for the capacity of urban planning and design. The rapid urbanization of Bangladesh's Chittagong city has resulted in significant changes to its physical and cultural landscapes. Based on an ethnographic study, this article delves into the manner in which city dwellers, perceive elements that are not of human origin within their urban environment. In-depth interviews, questionnaires, in group discussions and observation are utilized to analyse the interaction between inhabitants and these nonhuman elements. The study explores the ways in which residents engage with the natural landscapes, water bodies, urban environment and atmospheric conditions. It intends to enhance our comprehension of the connection between humans and the nonhuman world, offering valuable insights into the cultural, economic and emotional factors that impact urban sustainability and the relationships between humans and nature. The major findings highlight the complexities of human perception, preferences, interactions and the impact of nonhuman elements on the urban setting. The study underscores the importance of cohesive human-nonhuman interactions for better living environment in the cityscape of Chittagong.

Keywords: Human perception, nonhuman elements, urban planning and sustainability, urbanization, human-nature relationships.

Introduction

Cities have evolved into vibrant hubs of human activity, complete with towering structures, bustling markets and intricate transportation networks. However, rapid and unplanned urbanization has frequently resulted in cities being perceived as concrete edifices, with man-made structures dominating and the natural world appearing distant and secondary. Until recently, many people believe that as cities expand, nature must be pushed aside. This mindset has led people to overlook the valuable sensory experiences that nonhuman elements can offer in urban settings. Individuals' well-being, social interactions and overall quality of life in cities can all suffer as a result of a lack of attention to these bodily attributes.

As cities grow and develop, there is a natural tendency to prioritize human needs and structures. Unfortunately, this frequently leads to the unintentional disregard or exclusion of nonhuman elements such as parks, natural environments, bodies of water, wildlife and the overall atmosphere. In contrast to this viewpoint, there is a complex and mutually beneficial relationship between humans and the other living components that coexist in urban environments. This paper aims to look into how residents perceive nonhuman aspects of Chittagong city, with a particular emphasis on how these elements contribute to the formation of coherent urban landscapes.

Chittagong, in southeastern Bangladesh, provides a captivating setting for this study. As Bangladesh's "commercial capital", the city is critical to the country's economic and cultural growth, contributing significantly to its overall development. Because of its strategic location near the Bay of Bengal, Chittagong has long played an important role in trade and commerce, facilitating connections between Bangladesh and global markets (Lévi-Strauss 1955, van

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Schendel 1993). It showcases a diverse set of cultural and architectural elements that are constantly changing. It is a vibrant and diverse mix of residential, commercial, industrial and institutional areas, demonstrating its multifaceted nature and ongoing expansion. The urban landscape of Chittagong is constantly changing, influenced by factors such as population growth, urbanization, economic development and infrastructure expansion (Uddin 2021).

As a vibrant city, it is distinguished not only by its urban infrastructure and bustling streets, but also by its natural beauty and long history. The city has a rich historical and cultural heritage that dates back centuries. It is a diverse blend of cultures, languages and traditions, shaped by a variety of historical influences such as ancient kingdoms, colonial rule and post-independence development. Chittagong's uniqueness and charm stem from its diverse cultural fabric. The city's vast port, a historic hub for trade and communication, and the winding Karnaphuli river, with its rich traditions and storied past, contribute to its distinct identity. The presence of these nonhuman elements has a significant impact on the inhabitants' day-to-day lives, shaping how they perceive the world, what they experience and how they feel. As the city grows, it becomes increasingly important to understand how its inhabitants perceive and interact with non-human elements of their environment.

As the country's second-largest city and major economic hub, it strikes an intriguing balance between urbanization and nature. The city's diverse topography, including hills and coastline, provides a variety of nonhuman elements that contribute to its unique sensory landscapes. Urban environments are complex systems in which people's interactions with their surroundings influence overall city life. Understanding how residents perceive and interact with natural landscapes, water bodies, urban wildlife and atmospheric conditions offers valuable insights into the relationship between humans and nature in urban environments. This knowledge is crucial for informed urban planning and promoting sustainable development. This study investigated how people in the urban setting of Chittagong perceive nonhuman elements. It aims to offer valuable insights into the complex relationships between Chittagong residents and their surroundings by exploring the cultural, aesthetic, emotional and economic dimensions of these interactions. The study's findings will contribute to the larger conversation about urban sustainability, emphasizing the importance of including both human and nonhuman perspectives in urban planning and management.

The remainder of the paper is organized as follows: first, it reviews existing literature on urbanization, human-nature interactions and their impact on city life, and identifies areas for future research. Next, the study objectives and methodology are outlined, including the rationale for using qualitative research methods and selecting participants. Subsequent sections present the major findings and analyses on: (i) nonhuman elements in Chittagong; (ii) human interactions with nonhumans; (iii) effects on daily urban life; and (iv) residents' attitudes and perceptions. The concluding section summarizes key findings, highlights the significance of the research, and offers recommendations for urban planning, environmental conservation and further investigation.

Literature and Thoughts

Rapid urbanization and population growth create significant challenges for infrastructure, transportation, environmental sustainability and overall quality of life. Understanding how residents interact with their surroundings helps to identify priorities and develop strategies for

addressing challenges in a comprehensive and inclusive manner. As Chittagong city rapidly urbanizes, it is critical to gain insights into how residents perceive and interact with green spaces, infrastructure and cultural heritage sites. An ethnographic study, described as the “art of the possible” (Pardo et al. 2020), can illuminate the dynamic interplay between humans and non-humans in an urban environment. This study seeks to achieve that goal.

This is the first study to examine nonhuman elements within the context of Chittagong city, and there has been no prior research or reports on human perceptions of these nonhuman aspects of the city. However, existing research on urban issues has shown that the presence of natural elements in urban areas can improve residents’ well-being (Hossain 2012, Kraze 2012, Paul and Islam 2022, Uddin 2021, Kouzas 2022, Caldararo 2017, Pardo 2020, Pardo et al. 2020). This includes reducing stress and improving mental health. Chittagong has serene green spaces like Foy’s Lake and Patenga Beach, which provide much-needed respite and recreational opportunities. Cultural beliefs and traditions, emphasize the importance of living in harmony with nature and influence how members of the community perceive and interact with the natural world (White et al. 2023, Chakraborty and Amin 2022, Hasan et al. 2022, Hossain 2012). In the study, we emphasized the critical dynamics of integration versus exclusion in understanding urban environments (Pardo 2020).

The city’s blend of contemporary and traditional architecture influences residents’ emotional connections and sense of belonging (Mfon 2023, Uddin 2021, Ciubrinskas 2020). The study of urbanization’s environmental impact is critical for addressing pollution and habitat loss challenges. Gaining insights into residents’ perspectives is critical to promoting urban resilience. The distribution of urban resources should be more equitable (Ahmed and Ali 2016, Zucarol et al. 2022, Baul et al. 2021, Williams 2024), as socioeconomic status influences access to and perceptions of nonhuman elements. By incorporating residents’ perspectives, urban planning can promote the development of cities that are both sustainable and people-centered.

There is a scarcity of comprehensive information about the dynamics of urbanization and human-nature interactions in Chittagong city. Specifically, there is a lack of understanding about sensory experiences- human perception about nonhuman city elements and the impact of cultural, historical and socioeconomic factors in this context. Examining how Chittagong residents perceive nonhuman elements helps to improve liveability, resilience and quality of life while also protecting the city’s natural and cultural heritage for future generations. This research will enable urban planners and policymakers to make well-informed decisions that are consistent with the needs and preferences of the community.

For an implication to be practically valuable, it must be firmly grounded in the theories and methods of relevant disciplines, rather than merely serving as decorative language (Krase 2012). Hence, we integrated our findings with theoretical insights from anthropology, sociology, psychology and urban studies to explore how humans perceive non-human elements in the cityscape that are integral to the human environment. The study emphasized the economic, emotional, heritage and cultural aspects of human-environment interactions, demonstrating how these factors shape people’s perceptions, attitudes and connections to their surroundings. This framework guides the research throughout and provides valuable insights

into the complex interactions between humans and their surroundings, which can be used to inform urban planning and design.

Objectives and Methodology

This study looked at how Chittagong residents perceive various nonhuman elements in their urban environment. Nonhuman components of interest include urban infrastructure, technological advancements, green spaces and natural resources. It attempted to better understand how residents' perceptions shape their relationship with the city's environment, and thus their overall well-being. Keeping this in mind, the primary research question was: How do humans perceive and interact with nonhuman elements in the port city of Chittagong?

To answer the central research question, the study addressed several key questions: What nonhuman elements of Chittagong city do humans interact with on a daily basis? How do we perceive and interact with these nonhuman elements? How do these nonhuman elements affect the daily lives of Chittagong residents? What are humans' attitudes toward nonhuman elements in Chittagong city? Finally, how can a better understanding of human perception of nonhuman elements help to create a more sustainable and liveable urban environment?

The primary goal of this qualitative study was to investigate human perceptions of nonhuman elements in Chittagong and determine how these perceptions influence residents' interactions with the city's environment and overall well-being. The research focused on several objectives. Investigating citizens' perceptions of nonhuman elements such as urban infrastructure, technological advancements, green spaces and natural resources; understanding how these perceptions influence residents' relationship with the city's environment and their overall well-being; identifying the factors that influence residents' perception of nonhuman elements, including socio-economic factors, age and occupation; exploring the key concerns, aspirations and recommendations of residents regarding the development and management of nonhuman elements in the city; examining the challenges faced by residents in accessing and utilizing green spaces and their impact on residents' perception and well-being; and analysing the perceptions of residents regarding the natural resources in Chittagong and exploring the relationship between these perceptions, overall well-being and the sustainability of the port city.

By pursuing these goals, the study sheds light on the complex interactions between residents and nonhuman elements in Chittagong. By effectively disseminating the findings, it hopes to inform urban planning, policymaking and decision-making processes, resulting in a more inclusive, sustainable and liveable urban environment that meets the needs and aspirations of its residents.

This study is primarily qualitative, utilizing ethnographic research methods. To gain a thorough understanding of people's behaviours, beliefs and experiences, ethnography requires complete immersion in the cultural context, which was thoroughly investigated. To that end, a qualitative research design was used, with data collected through semi-structured in-depth interviews (IDIs), key informant interviews (KIIs), observations and focus group discussions (FGDs). The study focused on Chittagong residents who were 18 or older. Purposive sampling

was used to select participants who have previously interacted with nonhuman elements in the city. The following is a summary of the methods used for data collection.

Fifty in-depth interviews allowed for a thorough exploration of participants' experiences and perceptions. Individual interviews with residents revealed useful information about their interactions with nonhuman elements, their beliefs, cultural perspectives and the importance of these elements in their lives. Key informant interviews (n=10) enabled a thorough examination of participants' experiences and perceptions. Individual interviews with experienced and knowledgeable people revealed important information about their interactions with nonhuman elements, as well as their beliefs, perspectives, perceptions, and the significant impact these elements have on their lives. Focus group discussions (FGDs, n=10) are facilitated discussions with a small group of participants with similar characteristics or experiences. The focus group were useful for investigating group dynamics and collective perceptions of nonhuman elements, as they allowed participants to interact and build on each other's ideas. Observational methods entail directly observing and documenting people's actions and interactions in real-world situations. We learned more about people's perceptions and responses by observing their interactions with nonhuman elements in Chittagong, such as public spaces, landmarks and natural environments. Given the research topic, analysing visual materials such as photographs, paintings, or videos depicting nonhuman elements revealed information about how these elements are represented and interpreted.

Participants were selected using a purposive sampling technique. The sample consisted of Chittagong residents of all ages, genders and socioeconomic backgrounds who had lived there for at least five years. Surveys and questionnaires are common research methods for gathering information from a large number of participants. In this study, we used a survey (n=300) to collect information about people's perceptions, attitudes and experiences with nonhuman elements in Chittagong. The survey asked about their interactions with nonhuman elements, aesthetic preferences and emotional responses. Even though the sample size is much smaller than that of a population (approx. six million), it is sufficient for ethnographic research, which focuses primarily on qualitative methods.

The ethnographic research was conducted in various parts of the city (for example, Chalk Bazar, Nasirabad, 2 No. Gate, GEC circle, Agrabad, Bandar and Patenga), taking into account important aspects such as historical sites, architectural designs, religious infrastructures, parks, port, water bodies, industries, residential areas and so on. The collected data were analysed using a thematic analysis approach known as "grounded theory" (Glaser and Strauss 1967). It entails finding patterns, themes and categories in the data. The analysis identifies themes and patterns in the data that can be used to answer research questions. The analysis will be done manually, with the researchers coding and categorizing the data into themes and subthemes. The analysis was iterative, with themes and sub-themes evolving as new data was gathered and analysed. The themes were organized into groups based on similarities and differences, and then analysed to gain a comprehensive understanding of how nonhuman elements are perceived in Chittagong city. The study employed "thick description" (Geertz 1973) to deeply analyse the empirical data. Throughout the research it followed ethical guidelines.

Findings and Analysis

Chittagong is a thriving metropolis with vibrant features that extend beyond its concrete surfaces, surrounded by breathtaking natural scenery and architecture. It is a rich tapestry woven of diverse elements, each of which has a significant impact on the lives of its residents. From the grandeur of its expansive port to the tranquil beauty of the Karnaphuli river, these features are woven into daily life, painting vivid pictures of what we see and experience. In this urban symphony, the port serves as a grand sentinel, a pre-colonial gateway to trade and communication, while the Karnaphuli river flows through the city, telling stories of tradition and history. These elements have a deeper significance than their physical presence, serving as arteries connecting Chittagong's past, present and future. Understanding the intricate dance between people and their surroundings is critical for envisioning a city in which residents thrive, growth and conservation coexist, and natural and urban sounds blend harmoniously. The study's major findings, based on both qualitative and quantitative research, are presented in the following sections.

Nonhuman Elements in Chittagong City

Chittagong, a city where the past and future converge, is a mosaic of geographical wonders, architectural landmarks and cultural heritage sites that collectively define its unique identity. These elements do not merely exist as physical structures but as integral parts of the city's social and cultural fabric. They shape the rhythms of daily life, influence patterns of trade and transportation, and serve as sources of inspiration and solace for both residents and visitors.

In the midst of Chittagong's dynamic urban landscape, the Kalurghat bridge and the Bangabandhu tunnel emerge as monumental feats of engineering that transcend their functional roles. These structures do more than just connect various parts of the city; they stand as testaments to Chittagong's resilience, modernity and aspirations for growth. The Kalurghat bridge, with its robust structure, not only facilitates the movement of goods and people across the Karnaphuli river but also embodies the city's enduring strength and connectivity (figure 1). Similarly, the Bangabandhu Tunnel, a modern marvel beneath the river, represents Chittagong's forward-looking vision, symbolizing a bridge between tradition and progress.



Figure 1. Karnaphuli river. Photograph by the Author.

Residents express a deep emotional connection to these landmarks, viewing them as symbols of perseverance in the face of challenges and as beacons of the city's evolving identity. The Karnaphuli bridge, in particular, evokes memories of a bygone era when it played a critical role in trade and communication, while the Bangabandhu tunnel signifies a new chapter in Chittagong's narrative, highlighting the city's ambition to enhance urban mobility and economic vitality. These structures are not merely physical entities but are interwoven with the lives of those who navigate the city's spaces, influencing both their daily routines and their sense of belonging.

The Chittagong Railway Building (CRB) further adds to the city's rich tapestry of cultural and historical significance. This iconic structure, with its distinctive colonial architecture, is more than just a transportation hub; it is a living archive of Chittagong's history. For many residents, the CRB (figure 2) is a symbol of continuity, connecting them to a time when the city was a vital link in the region's trade routes. The building's grandeur, coupled with its storied past, stirs a profound sense of nostalgia, reminding locals of their shared heritage and the collective journey of their community.

Our research reveals that these iconic structures — the port, Karnaphuli bridge and CRB — are deeply embedded in the cultural consciousness of Chittagong's residents. They are not just architectural feats but are imbued with symbolic meanings that resonate across generations. Participants in our study spoke of these landmarks with pride, describing them as embodiments of Chittagong's identity, resilience and the harmonious blend of modernity with tradition. The Kalurghat bridge and Bangabandhu tunnel, for instance, are celebrated not only for their engineering brilliance but also for their role in facilitating the city's transformation from a historic port to a bustling centre of commerce and culture. The CRB, on the other hand, stands as a testament to the city's enduring spirit, bridging the gap between the past and the present, and serving as a gathering place for memories that bind the community together.



Figure 2. CRB area, citizen consider it a lung of the city. Photograph by the Author.

Beyond these architectural wonders, Chittagong's cultural heritage sites and verdant spaces contribute significantly to the city's vibrancy, offering a harmonious blend of tradition, nature and communal life. These sites, such as the ancient Patharghata Holy Rosary Cathedral (figure 3), provide a window into Chittagong's colonial and spiritual legacy. Founded in 1843, this cathedral is not just a place of worship but a repository of collective memory, where rituals and traditions have been preserved and passed down through generations. The cathedral, with its serene ambiance and historical significance, evokes a sense of reverence and continuity among the locals, serving as a spiritual anchor in a rapidly changing urban environment.



Figure 3. Patharghata Holy Rosary Cathedral. Photograph by the Author.

Chittagong's bustling markets, such as Riazuddin Bazar and Khatunganj, are also central to the city's economic and cultural landscape. These markets are more than just commercial hubs; they are vibrant spaces where the city's dynamic culture comes alive. The labyrinthine alleys of these markets, filled with a cacophony of sounds and a kaleidoscope of colours, offer a sensory experience that captures the essence of Chittagong's vitality. Local artisans, traders and shoppers converge in these spaces, fostering a sense of community and tradition that is integral to the city's identity. The markets serve as microcosms of the broader societal dynamics, reflecting the interplay between economic activity and cultural practices that sustain Chittagong's communal bonds.

The verdant expanses of Chittagong, such as Foy's Lake and DC Hill Park, play a crucial role in the city's urban ecosystem, offering respite from the hustle and bustle of city life. These green spaces are cherished not only for their natural beauty but also for their social and cultural significance. They are the lungs of the city, where residents come to relax, celebrate festivals and engage in recreational activities that reinforce community ties. Foy's Lake, with its tranquil waters and scenic surroundings, is a popular destination for families and tourists alike, while DC Hill Park serves as a cultural hub, hosting events that bring together diverse segments of

the population. These spaces are more than just recreational areas; they are vital components of Chittagong's social infrastructure, promoting well-being and fostering a connection with nature.

However, the sustainability of these green spaces is increasingly threatened by the pressures of unplanned urbanization and industrial development. Our findings highlight the challenges these areas face, as human activities encroach upon and degrade these natural sanctuaries. Pollution, encroachment and unsustainable practices not only diminish the aesthetic and ecological value of these parks but also threaten their ability to continue serving as essential recreational and environmental resources for the city's residents (figure 4). The loss of these green and recreational spaces would not only affect the city's physical environment but also undermine the cultural and social fabric that these spaces help sustain.



Figure 4. Once a children's park — just a year ago, it was still a park. Photograph by the Author.

The diverse elements that make up Chittagong's urban and natural landscapes form an intricate and multifaceted tapestry that defines the city's unique identity. Each landmark, market and green space contributes to a shared narrative of resilience, cultural richness and a deep connection to the land. For Chittagong's residents, these spaces are not just backdrops to their lives but active participants in their daily experiences, shaping their sense of place and community. As the city continues to grow and evolve, it is crucial to recognize and preserve these elements, ensuring that Chittagong's distinctive character is maintained for future generations to cherish and build upon.

Interaction with Nonhuman Elements

Chittagong, a city marked by its rich historical legacy and diverse landscapes, offers a vivid tableau of human interaction with nonhuman elements. These interactions reveal a tapestry of cultural, economic and spiritual connections, reflecting the city's complex identity. Residents' perspectives on these nonhuman elements are deeply influenced by their socioeconomic backgrounds, cultural heritage and personal experiences, which collectively shape their daily engagements with the city's environment.

For instance, the Karnaphuli river is more than a mere waterway for those whose livelihoods depend on it; it is a vital artery that nourishes the city's economic pulse and anchors

their sense of place within the urban fabric. The river's flowing waters symbolize sustenance, continuity and the deep-rooted connection between the city's inhabitants and its natural resources. This connection extends beyond economic activities, weaving into the cultural narratives that define Chittagong's identity. The river serves as a metaphorical lifeline, with its ebbs and flows mirroring the challenges and triumphs of the city's residents.

The bustling streets and markets of Chittagong, such as the renowned Riazuddin Bazar and Khatunganj, further illustrate the city's vibrant urban environment. These spaces are not merely commercial hubs; they are dynamic social arenas where daily interactions foster a sense of community and economic vitality. The markets pulse with the energy of traders, artisans and shoppers, creating a sensory-rich environment where the sights, sounds and smells are as much a part of the city's character as its architectural landmarks. These markets embody the spirit of Chittagong, where commerce and culture intersect, and where every transaction contributes to the city's living heritage.

In contrast to the urban hustle, Chittagong's green spaces, such as DC Hill Park and Foy's Lake, offer residents tranquil retreats that are cherished for their ability to provide respite from the demands of city life. These parks are not just physical spaces; they are communal sanctuaries where nature and culture intertwine. Residents flock to these areas for leisure, exercise and social gatherings, finding solace in the natural beauty that contrasts sharply with the surrounding urban landscape. The parks are emblematic of the city's ability to balance modern development with the preservation of natural sanctuaries, serving as vital ecological and recreational resources that enhance the quality of urban life.

Spiritual and cultural landmarks, including the Bayezid Bostami Mazar, Chandanpura Mosque (figure 5) and Chatteshwari Kali Temple, hold profound significance for the residents of Chittagong. These sites are more than architectural or historical relics; they are sacred spaces that resonate deeply with the spiritual lives of the community. They provide a tangible link to the city's past, anchoring residents' identities in a shared history and offering spaces for reflection, worship and communal gatherings. The spiritual value attached to these sites transcends their physical presence, embedding them in the collective consciousness of the city's inhabitants as symbols of continuity and resilience.

Despite the city's many assets, Chittagong's residents face significant urban challenges, which they articulate with a mix of frustration and resilience. Issues such as traffic congestion, recurrent flooding and the adverse impacts of rapid urban development are recurrent themes in residents' narratives. Waterlogging, in particular, emerges as a critical concern, exacerbating the congestion on already overcrowded streets and disrupting daily life. This pervasive issue highlights the pressing need for improved urban planning and infrastructure that can mitigate the environmental and logistical challenges facing the city.



Figure 5. Chandarpura Mosque. Photograph by the Author.

Urban expansion has also led to extensive hill cutting and deforestation, significantly altering Chittagong's once-pristine landscape. These activities have not only diminished the city's natural beauty but have also raised serious environmental concerns. The transformation of the landscape, driven by the pressures of development, underscores the complex interplay between progress and preservation. Residents' concerns about these changes reflect a broader anxiety about the sustainability of Chittagong's growth and the potential loss of its unique ecological and cultural heritage.

Nonetheless, the bond between Chittagong's inhabitants and their surroundings remains strong, rooted in a deep appreciation for the city's historical legacy and natural beauty. This connection fosters a sense of community and continuity, with residents drawing strength from their shared experiences and the city's rich cultural tapestry. The vibrant atmosphere of local markets and the serene retreats of the parks contribute to a sense of belonging that is integral to residents' identities. These interactions with the city's nonhuman elements are dynamic, shaping and reshaping the collective memory and cultural fabric of Chittagong over time.

Understanding these diverse perspectives is crucial for urban planners and policymakers tasked with guiding Chittagong's future development. The city's residents emphasize the importance of balancing modern development initiatives with the preservation of cultural and environmental assets. They advocate for urban planning strategies that prioritize the protection of historical sites, religious monuments and green spaces, which are seen as pillars of the community's identity and well-being. The research findings suggest that sustainable development in Chittagong must harmonize these elements, ensuring that future generations can continue to enjoy and cherish the city's distinct blend of cultural richness and environmental vitality.

The interactions between Chittagong's residents and the city's nonhuman elements reveal a complex and multifaceted relationship that is integral to the city's identity. These interactions are shaped by a deep appreciation for the city's historical and natural heritage,

coupled with a pragmatic recognition of the challenges posed by urbanization. The findings highlight the importance of a balanced approach to development that respects and strengthens the connections between residents and their environment, fostering a sense of pride and commitment to the sustainable future of Chittagong.

Effects on Everyday Lives

In exploring the daily lives of Chittagong's residents, our study delved into the pervasive issues that shape their experiences and interactions within this bustling urban environment. By conducting an extensive survey and in-depth interviews, we uncovered a rich tapestry of perspectives influenced by a myriad of socioeconomic statuses, cultural backgrounds and personal life experiences. The ways in which residents engage with the nonhuman elements of Chittagong — ranging from the city's natural landscapes to its built environment — are deeply intertwined with their daily routines, aspirations and identities.

For many, the Karnaphuli river is not merely a geographic feature but a lifeline that sustains their livelihoods. Fishermen, traders and those whose work revolves around the river view it as a central thread in the fabric of their existence. The river's ebb and flow mirror the rhythms of their lives, linking them not only to the city but to a broader network of economic and cultural exchanges that define Chittagong's role as a maritime hub. This connection fosters a sense of place that transcends the physical landscape, embedding the river in the collective memory and identity of the community.

Similarly, the vibrant atmosphere of Chittagong's streets and markets forms a crucial backdrop to daily life. These spaces are not just centres of commerce but are dynamic social arenas where the exchange of goods is accompanied by the exchange of stories, news and cultural practices. The bustling markets, such as those at Kazir Dewri and Chalk Bazar, are loci of interaction where residents negotiate both economic transactions and social relationships. These interactions reinforce a sense of community, grounding individuals in the shared experiences of urban life.

The city's parks, such as the tranquil DC Hill Park and the serene Foy's Lake, offer much-needed retreats from the hustle and bustle. These green spaces provide residents with opportunities for recreation and reflection, serving as oases of calm where they can connect with nature amidst the urban sprawl. The significance of these parks extends beyond their recreational value; they are sites of memory and identity, where the past meets the present in the form of preserved landscapes that bear witness to the city's historical evolution.

Religious landmarks mentioned earlier, such as the Badna Shah Mazar, Oli Khan Mosque and Chatteshwari Kali Temple, hold profound importance for the residents. These sites are more than architectural or historical treasures; they are living spaces of spiritual and communal significance. For many, these sacred sites are woven into the fabric of daily life, providing places for worship, reflection and communal gatherings. The rituals and practices that take place here are not only expressions of individual faith but are also acts of cultural continuity that bind the community together.

The city's modern infrastructure, exemplified by structures like the flyovers and motorways, represents Chittagong's strides toward progress and modernization. These developments are seen as markers of the city's ability to adapt to contemporary challenges while

still holding on to its historical roots. The juxtaposition of these modern structures with historical landmarks such as the CRB highlights the city's complex identity—a place where the past is honoured even as the future is built. The CRB, in particular, is more than just a historical edifice; it is a symbol of the city's colonial past and its journey through time, connecting residents to a shared narrative that spans generations.

However, despite these valued assets, the residents of Chittagong face significant urban challenges that complicate their daily lives. Heavy traffic congestion, for instance, is a persistent issue that more than 70% of respondents identified as a major hindrance to their daily routines. The gridlock on the streets not only lengthens commutes but also contributes to environmental degradation and psychological stress. The constant honking of horns, the slow crawl of vehicles and the suffocating air filled with exhaust fumes create an atmosphere of frustration and impatience that permeates daily life, affecting both physical and mental well-being.

Frequent flooding and waterlogging add another layer of complexity to urban life in Chittagong. Even a brief downpour can turn streets into rivers (figure 6), disrupting the flow of daily activities and trapping residents in their homes or workplaces. This phenomenon is particularly acute in low-lying areas, where inadequate drainage systems exacerbate the problem, leading to stagnant water that poses health risks and hampers mobility. The recurrent nature of these floods means that waterlogging is not just an occasional inconvenience but a defining feature of life in the city, shaping how residents navigate their environment and interact with each other (Dhaka Tribune 2024, Dey 2024).

Environmental degradation, particularly the extensive hill cutting and tree felling that accompanies urban development, has dramatically altered Chittagong's landscape. What was once a city nestled within verdant hills and lush forests is now marked by scars of deforestation and soil erosion. The loss of natural beauty and ecological balance is keenly felt by residents, many of whom expressed strong concern about the long-term consequences of such degradation. This transformation not only diminishes the aesthetic appeal of the city but also increases its vulnerability to natural disasters such as landslides, further complicating the challenges of urban living.



Figure 6. Waterlogging, a common phenomenon. Photograph by the Author.

The cumulative effect of these issues—traffic congestion, waterlogging and environmental degradation—has significantly impacted the quality of life in Chittagong. For

many residents, the stress associated with navigating these challenges on a daily basis is overwhelming. The constant struggle to move through congested streets, to protect homes and businesses from flooding and to cope with the loss of natural spaces contributes to a pervasive sense of frustration and helplessness. This stress manifests in various ways, including reduced productivity, health problems and a general decline in the sense of well-being.

Despite these adversities, our research uncovered a deep and enduring bond between the residents of Chittagong and their city. This bond is rooted in a profound appreciation for the city's historical significance, natural beauty and cultural heritage. Residents often spoke of their connection to Chittagong not in terms of the challenges they face but in terms of the pride they take in its unique character. This connection fosters a sense of community and continuity that helps residents endure the difficulties of urban life. It is this shared identity, forged through both struggle and celebration, that underpins the resilience of Chittagong's inhabitants.

The perspectives of Chittagong's residents provide valuable insights into the complex interplay between human and nonhuman elements in the city. These interactions shape not only the daily experiences of individuals but also the collective memory and identity of the community. As urban planners and policymakers look to the future, understanding these perspectives will be crucial in creating a Chittagong that is both sustainable and liveable, where development goes hand in hand with the preservation of cultural and environmental assets. The findings of this study underscore the importance of balancing progress with tradition, ensuring that the city's growth enhances rather than diminishes the rich tapestry of life that defines Chittagong.

Attitudes and Perceptions of Citizenry

The attitudes and perceptions of Chittagong's residents toward the nonhuman elements that define their urban landscape reveal a complex interplay of privilege, identity and environmental consciousness. Our study uncovered a spectrum of viewpoints, reflecting both deep appreciation and stark disconnection from the city's natural and cultural assets.

At one end of the spectrum, a segment of the population — approximately 30% of respondents — demonstrates a profound admiration for the city's nonhuman elements. This group, often consisting of those with greater socio-economic advantages, holds these elements in high regard for their cultural and ecological significance. For these residents, landmarks such as the Karnaphuli river and the surrounding hills are not merely physical features but integral parts of Chittagong's heritage and identity. They view these elements as custodians of tradition and symbols of the city's spirit. The Karnaphuli river, for instance, is seen as more than a commercial artery; it is revered for its spiritual and historical depth. One respondent eloquently described the river as “a living testament to our cultural heritage, steeped in mythological tales that bind us to our ancestors.” Similarly, the hills and green spaces are appreciated not just for their beauty but for their symbolic representation of the city's historical and spiritual connection to the land. These residents derive a sense of pride and inspiration from these natural and historical features, which they perceive as reflections of the city's soul.

In contrast, a significant portion of the population — nearly 55% — feels a pronounced disconnect from these cherished landmarks. This group, often from less privileged backgrounds, tends to view the city’s natural and cultural resources with indifference or even disdain. For many in this demographic, daily life is overshadowed by pressing concerns such as inadequate housing, poor infrastructure and financial instability. In this context, the city’s historic and natural elements are perceived as distant luxuries that do little to alleviate immediate hardships. The grandeur of the CRB or the serenity of Cheragi Pahar (hill) (figure 7) may seem irrelevant when faced with the more tangible struggles of everyday survival. These residents often find themselves preoccupied with more urgent matters, rendering the city’s nonhuman assets secondary to their immediate needs.



Figure 7. Cheragi Pahar. Photograph by the Author.

The connection between cultural beliefs and the urban landscape is a significant factor influencing residents’ attitudes. Sacred sites like rivers and hills are imbued with spiritual and symbolic meanings, which shape the collective identity and sense of belonging among the city’s inhabitants. For example, the Karnaphuli river is not just a resource but a revered entity carrying ancestral wisdom and mythological significance. This perception is shared by many who view the river as a spiritual entity, integral to their cultural identity. Another respondent highlighted that “the hills and green landscapes are seen as sacred, embodying the ancestral connection we have with our environment.” This spiritual connection underscores the broader cultural framework in which the city’s natural features are embedded, linking them to collective memory and identity.

In spite of the divergent perspectives on Chittagong’s nonhuman elements, a unifying theme emerges: a growing recognition of the need to safeguard these assets for the overall well-being of the city’s inhabitants. This awareness spans social and economic divides, fostering a collective sense of responsibility toward environmental and cultural preservation. The city’s green spaces are increasingly valued not only for their aesthetic appeal but for their role in maintaining the environmental and cultural fabric of Chittagong.

The tensions between development and preservation were particularly evident in recent events. In 2020, a proposal to fell trees in the CRB area for hospital construction met with strong public opposition. The community's mobilization against the project underscored a shared commitment to preserving the city's natural spaces and cultural landmarks. This opposition led to a revision of the plans, reflecting a deep-seated appreciation for the city's green areas and a collective determination to protect them from detrimental development.

However, the recent decision in April 2024 to cut down approximately 50 trees, including some over a century old, near the historic CRB for an elevated motorway ramp has reignited public dissent. The community's response, characterized by organized demonstrations and vocal protests, highlights a sustained commitment to environmental stewardship and cultural preservation (figure 8). This activism is driven by a broader understanding that sustainable development must integrate and respect the natural and historical elements that define Chittagong's identity. As the city continues to expand and industrialize, the voices of its residents will be crucial in advocating for a balanced approach that harmonizes growth with preservation.



Figure 8. Author's sit-in protest against tree felling decision. Photograph by Mushfiqur Rahman.

The attitudes of Chittagong's residents toward the city's nonhuman elements reflect a nuanced interplay of privilege, identity and environmental awareness. While there is a clear divide between those who value these elements for their cultural and spiritual significance and those who feel disconnected from them, there is a shared recognition of the importance of preserving these assets. This recognition, coupled with active civic engagement, will be essential in shaping a future where Chittagong's growth and environmental conservation are mutually reinforcing.

Toward a Liveable and Sustainable Cityscape

To cultivate a liveable and sustainable urban environment in Chittagong, it is essential to understand deeply how residents perceive and interact with the city's nonhuman elements. This understanding extends beyond mere observations and responses; it involves embedding these insights into the fabric of urban planning and policy-making processes. By acknowledging the inherent value of Chittagong's natural and cultural resources and incorporating the community's

diverse perspectives, policymakers can create urban strategies that are not only effective but also resonate with the lived experiences and aspirations of the city's inhabitants.

The role of policymakers is pivotal in translating community insights into actionable measures that balance environmental preservation, social inclusion and cultural protection. Rather than operating within a traditional bureaucratic framework, urban planning should embrace a more integrative approach that values community input and collaboration. This means engaging residents in meaningful dialogue and incorporating their feedback into development projects. Such an approach ensures that urban initiatives reflect the real-life experiences and needs of the people they are designed to serve, fostering a more responsive and adaptive planning process.

A collaborative approach to urban development can address multiple challenges simultaneously. For example, by involving residents in decision-making, policymakers can better tackle environmental degradation while also cultivating a sense of ownership and belonging among citizens. This participatory process not only enhances the relevance and effectiveness of development projects but also builds trust and cooperation between residents and authorities. When people feel that their voices are heard and their concerns are addressed, they are more likely to engage actively in supporting and sustaining urban initiatives.

Central to this effort is the promotion of sustainable practices and active community involvement. Raising awareness about the benefits of sustainability and equipping residents with the knowledge and tools to participate in environmental stewardship is crucial. Educational programs, community workshops and public awareness campaigns play a significant role in fostering an environmentally responsible culture. For instance, workshops that focus on practical sustainability practices — such as reducing waste, conserving energy and promoting green transportation — can empower residents to make informed decisions and take meaningful actions. Research by Uddin (2021) and Paul and Islam (2022) highlights the importance of these educational initiatives in building a shared commitment to preserving the city's natural and cultural assets.

Grassroots movements and bottom-up initiatives are also driving Chittagong's transformation toward a greener future. These local efforts include organizing community clean-up days, promoting tree-planting campaigns and supporting environmental advocacy groups. Such initiatives not only address immediate environmental concerns but also lay the foundation for long-term sustainable practices. They reflect a growing community awareness and initiative to tackle environmental issues at a local level, demonstrating the power of collective action in fostering urban sustainability.

Urban living, however, extends beyond the immediate city centre and into the surrounding areas. To ensure the overall well-being of the ecosystem, it is crucial to consider the interconnections between urban and natural environments. Effective and sustainable interactions between humans and nonhuman elements necessitate a comprehensive perspective that encompasses the broader ecological context. This means that urban planning should account for the impact of city activities on nearby natural areas and vice versa. By integrating this broader ecological view into urban development strategies, policymakers can help ensure

that both urban and surrounding environments are preserved and enhanced for future generations.

Achieving a liveable and sustainable cityscape in Chittagong requires a deep understanding of how residents interact with and value the city's nonhuman elements. By adopting a collaborative and inclusive approach to urban planning, raising awareness about sustainability and supporting grassroots initiatives, policymakers can foster a more harmonious and resilient urban environment. This comprehensive perspective, which recognizes the interdependence of urban and natural areas, is essential for developing strategies that not only address immediate challenges but also promote long-term sustainability and well-being.

Gaining insight into the perspectives of Chittagong residents is critical for effective urban planning. Throughout the study, residents expressed a variety of concerns, desires and recommendations for the development and management of nonhuman elements in their urban environment. These suggestions were proposed obtained through surveys, focus groups and interviews emphasizing the importance of incorporating local perspectives into urban development initiatives.

Overall, a thorough understanding of how humans perceive nonhuman elements in Chittagong is required to create a sustainable and vibrant urban environment. Policymakers can create a city that not only meets the needs of its residents but also protects and enhances its ecological and societal legacy by incorporating community perspectives into urban planning and encouraging active participation in sustainable initiatives. This collaborative approach will ensure that Chittagong remains a thriving and resilient metropolis, where progress and conservation are inextricably linked.

Conclusion

This study delved into the intricate dynamics of how nonhuman elements — natural and infrastructural — shape and are shaped by the urban life in Chittagong. As a bustling metropolis, Chittagong embodies a rich, multifaceted character that transcends its physical structures. The cityscape is more than a mere assembly of buildings and thoroughfares; it is a vibrant, living mosaic where human experiences intertwine with natural elements, each contributing to a unique urban rhythm. Central to Chittagong's identity is its massive port. The port, a sprawling hub of global maritime trade, is more than a commercial epicentre; it symbolizes the city's historical significance and economic vitality. The sight of colossal ships docking at the bustling wharves and the sounds of trade reverberate through the city, embodying the intersection of global commerce and local livelihoods. This port is a dynamic entity that continually shapes and reflects the city's economic pulse, drawing connections with distant lands and diverse cultures.

Equally significant is the Karnaphuli river, which meanders gracefully through Chittagong, threading together the city's past and present. It is more than a waterway; it is a lifeline that nourishes the land and its inhabitants, carrying historical and cultural narratives through its currents. The river provides essential resources and serves as a serene counterpoint to the city's frenetic pace, embodying a fluid connection between the natural world and urban

life. The port and river, while distinct in their roles, collectively contribute to a balanced urban environment where history and modernity coexist. They are not static landmarks but active participants in the city's ongoing evolution, offering insights into how Chittagong has grown and how it continues to adapt. These elements serve as critical links between past, present and future, enriching the city's identity and underscoring the importance of maintaining a harmonious relationship with the environment.

To foster a sustainable and thriving urban environment, it is essential to integrate a nuanced understanding of the city's complex human-nonhuman interactions into urban planning and policy-making. The sounds of nature, like the gentle flow of the river or the calls of local wildlife, should harmonize with the urban symphony of commerce and development. Developing policies that balance these aspects requires a deep appreciation of Chittagong's distinctive character — where rapid growth and enduring traditions are interwoven. As Chittagong continues to evolve, it is vital to recognize the importance of these nonhuman elements in shaping a liveable urban ecosystem. The study highlights a growing awareness of the need to protect and preserve these elements even as the city advances. This awareness fosters a sense of community where economic aspirations and environmental stewardship are not mutually exclusive but rather complementary aspects of urban life.

Recommendations

Recommendations for future urban development in Chittagong should focus on:

1. *Integrating community input:* Engage residents in the planning process to ensure that development projects align with their needs and values. This participatory approach can help address both environmental and social concerns, fostering a sense of ownership and collaboration.
2. *Preserving natural and cultural heritage:* Prioritize the conservation of key natural elements like the Karnaphuli river and historical landmarks such as the port. Recognize these elements not only as physical assets but as integral components of the city's identity and heritage.
3. *Promoting sustainable development:* Develop policies that balance economic growth with environmental protection. Encourage practices that minimize ecological impact while supporting the city's development goals.
4. *Fostering environmental awareness:* Implement educational programs and public awareness campaigns to promote sustainable practices among residents. Empower communities with the knowledge and tools needed to engage in environmental stewardship.

By adopting these recommendations, Chittagong city can navigate its path toward modernization while honouring and preserving the elements that define its unique character. This approach will ensure that the city remains vibrant and resilient, benefiting both current and future generations.

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