

Urban Ecocriticism and Kolkata's Metamorphosis: A Narrative Exploration of Environmental Crisis in Jhumpa Lahiri's *The Lowland*

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ABSTRACT

The lowland unfolds against the backdrop of a rapidly transforming Kolkata, where unchecked industrialisation and urbanisation have significantly impacted the city's ecosystem. The study delves into the theory of "Urban Ecocriticism", which examines the intersection of literature, cities, and the environment. The focus is on Kolkata, known as the "City of Joy," and how it is changing due to increased population and demands for resources. The novel serves as evidence of Kolkata's environmental crisis as a symptom of broader societal issues, highlighting themes of environmental justice, sustainability, and the need for alternative development models. This paper posits that Lahiri's depiction of Kolkata's transformation is intricately linked to the environmental challenges experienced by the metropolis. This study employs the framework of urban ecocriticism to assess how pollution, the loss of green areas, and the depletion of natural resources are represented in the novel as effects of urbanisation on Kolkata's ecosystems. The discussion connects the novel's local concerns to global conversations about urban ecology and the fight for a more just and sustainable future. The paper investigates the impact of urbanisation on the city's ecological balance and analyses the author's portrayal of the consequences of rapid development on the natural environment. In addition to describing the city and its surroundings, the study also discusses how infrastructure development threatens nature. The study suggests how a work of fiction can also aid in understanding the actual environmental changes taking place in a metropolis like Kolkata.

Keywords: Urban ecocriticism; urbanisation; environmental degradation; Kolkata; Indian literature

INTRODUCTION

The city of Kolkata, affectionately known as the "City of Joy", holds a special place in the hearts of its residents and visitors. Situated in the eastern part of India, Kolkata boasts a vibrant cultural heritage and a rich history that dates back centuries. However, like many other cities around the world, Kolkata has witnessed a rapid wave of urbanisation in recent years (Mithun et al., 2021). This process of urban development has brought about profound changes in the city's physical landscape and ecological balance. The growth of Kolkata as a metropolis has been accompanied by various infrastructural developments, including the construction of high-rise buildings, roads, and bridges. While these developments have contributed to the city's modernisation and economic progress, they have also taken a toll on its natural environment (Gupta & Bhagat, 2023). The consequences of urbanisation on the delicate ecological systems within the city have become a matter of great concern both locally and globally.

Environmental issues are a pressing concern for the world, especially for India, which faces various challenges such as waste management, water scarcity, natural resource conservation, and biodiversity loss (Kumar et al., 2022). These challenges are worsened by the rapid urbanisation that has not brought proportional economic growth and social welfare. Moreover, India is among the countries that are most vulnerable to the effects of climate change, which is accelerating at an alarming rate. Several factors that contribute to the climate crisis are deforestation, droughts, air pollution, and plastic waste. The latest IPCC report warns that “the window of opportunity to limit global warming to 1.5C is rapidly closing” (Illuminem, 2024). The root cause of many environmental problems is the unsustainable human impact on nature. To achieve sustainability, human behaviour needs to be more responsible and respectful of nature. India has a rich biogeographic diversity that has been affected by human exploitation for various purposes (Jena & Kar, 2023). For instance, natural landscapes have been converted into commercial landscapes for development, agriculture, grazing, fuelwood production, and lumber plantations. These cultural landscapes have further evolved into modern rural-urban areas, industrial sites, mining sites, ports, and other contemporary landscape components. However, this transformation has led to several environmental issues, including climate change and a loss of traditional ecological knowledge. Lynas (2020, p. 3) states that “Climate change is not a distant threat anymore. It is happening here and now”. Moreover, as per the study conducted by Jamal et al. (2022), the bustling megacity of Kolkata, one of the world's largest urban areas, is undergoing rapid land use changes due to urban expansion. As the city grows, green spaces like parks, gardens, and forests diminish due to urbanisation, which has resulted in increased pollution, reduced biodiversity, and a loss of natural habitats.

Kolkata has undergone significant transformation over the years, from the degradation of the Hooghly River to air pollution and urban sprawl; the landscape of this city mirrors the complexities of modern urban life and its impact on the environment (Dey, 2021). Kolkata possesses unique ecological characteristics that make it particularly vulnerable to the impacts of urbanisation. Maity et al. (2022) reveal in the study that the Remote Sensing Ecological Index (RSEI) with Landsat Imagery data was used to assess environmental conditions and changes over time. The findings showed that greenness and wetness had a positive impact on the province's ecological quality (EEQ), while dryness and heat had a negative influence. Interestingly, greenness emerged as the most significant factor affecting the eco-environment compared to the other three indicators. This information is crucial for understanding and addressing the city's ecological challenges posed by urbanisation.

Kolkata's tree-lined avenues, parks, gardens, the Botanical Garden, and historical architecture contribute to its unique urban ecology. The city is situated in the Gangetic Delta region, where the Hooghly River flows, forming a complex network of water bodies and wetlands. These wetlands play a crucial role in maintaining the ecological balance by acting as natural filters, absorbing pollutants and providing habitat for various flora and fauna (Das, 2022). However, rapid urbanisation has led to the encroachment and degradation of these wetlands, resulting in a loss of biodiversity and disruption of the delicate ecological equilibrium (Huque, 2022). Air pollution in Kolkata is a serious concern, with the city being ranked as one of the most polluted in India and the world (Tarafdar et al., 2023). In addition to air pollution, Kolkata also struggles with inadequate waste management, particularly in the disposal of biomedical waste (Sahai, 2023). The loss of green areas is another issue, with rapid urbanisation leading to the conversion of natural spaces into built-up areas (Mukhopadhyay, 2022). In light of these environmental challenges, it is crucial to understand the implications of urbanisation on Kolkata's ecology. One valuable way to examine

these issues is through literature that captures the essence of the city's transformation. Jhumpa Lahiri's novel, *The Lowland*, offers a compelling narrative that explores the interplay between human lives and the changing urban landscape in Kolkata.

The primary objective of this study is to investigate the intricate relationship between Kolkata's urbanisation and its ecological balance. It dissects how urban development has reshaped the city's natural environment, focusing on land-use alterations, waterbody transformations, and biodiversity loss. By meticulously analysing these ecological disturbances, the study aims to quantify the extent of damage and illuminate the associated challenges. The novel *The Lowland* has been utilised in this study as it provides a distinctive viewpoint concerning the environment, drawing from its vivid depictions of Kolkata's landscape and the experiences of its characters. These elements serve as a window to examine the ecological transformations happening in the city. Additionally, delving into the portrayal of these themes in literature can reveal a profound understanding of the human aspects of urbanisation and its environmental consequences, including the social and psychological ramifications for individuals and communities. By drawing connections to environmental themes portrayed in the novel and the real-world scenarios, this research aims to shed light on the phenomenon of urban ecological breakdown in the 'City of Joy'.

REVIEW OF LITERATURE

Jhumpa Lahiri's novel *The Lowland* presents a vivid and detailed depiction of the urbanisation and ecological transformations that have unfolded in Kolkata, India, throughout the 20th century. Set against the backdrop of the Naxalite movement and political unrest, the novel follows the lives of two brothers, Subhash and Udayan, whose divergent paths reflect broader socio-political and environmental tensions in Kolkata. By delving into the lives of these characters, Lahiri delves into profound themes of ecological degradation, displacement, and loss, offering readers a poignant exploration of the effects of rapid urbanisation on both the environment and individuals. Through an urban ecocritical lens, the study unveils the intricate tensions between the pursuit of urban development and the imperative of ecological sustainability, examining how these tensions shape the lives and connections of the characters.

Jenia Mukherjee (2015), in her research, examines urban ecology beyond the conventional understanding of urban areas. The author uses Kolkata as a case study to explore and redefine the concept of urban ecology. The author argues that urban ecology should not be limited to analysing the ecological dynamics within urban boundaries but should also consider the broader social, economic, and political processes that shape urban environments. The themes of identity, belonging, displacement, and cultural assimilation are prominent in Jhumpa Lahiri's novels. Lahiri's protagonists, often members of the Indian diaspora, struggle with cultural identity sensibility and belongingness inadequacy, feeling homesick and lonely due to the tensions between Indian and American cultures (Kumar, 2023). Lahiri's characters often grapple with questions of their cultural heritage and struggle to find a sense of belonging in the contexts of migration and diaspora (Sumalatha, 2013). Sumalatha's analysis delves into the complexities of these themes, exploring how Lahiri's characters navigate their dual identities and negotiate their place in different cultural landscapes. Asl and Abdullah (2017) analyse Jhumpa Lahiri's stories to examine racial and gendered identities as well as expand upon recent scholarship in diaspora studies.

The examination of multiculturalism in Lahiri's work is another aspect discussed in the literature. The representation and negotiation of cultural diversity in her writing are explored, highlighting the ways in which Lahiri's characters interact and navigate the multicultural environments in which they find themselves. The exploration of cultural clashes, assimilation, and the negotiation of multiple cultural identities within Lahiri's novels provide valuable insights into the complexities of multicultural societies. Majumder's (2016) research focuses on the connection between the environment and human life in Lahiri's novel. Majumder argues that Lahiri's work highlights the impact of environmental degradation on human relationships and emotions. The study delves into the ways in which the environment shapes the lives of Lahiri's characters, influencing their thoughts, feelings, and actions. In the paper, Damini Bhattacharya (2022) delves into the protagonist's navigation of various challenges, including patriarchy, sexuality, sexism, racism, and conflicting notions of motherhood and family, as she shapes her new identity.

The existing research on Jhumpa Lahiri's literary works has extensively explored themes like diaspora, cultural differences, identity, and belongingness, providing valuable insights into the intricacies of her narratives. However, there is a significant gap in the literature when it comes to examining the depiction of the city of Kolkata in Lahiri's writings. While scholars have diligently analysed interpersonal and cultural dynamics within her works, there has been a dearth of research focusing on the portrayal of the city, Kolkata itself. Thus, this research aims to bridge this gap and offer a fresh perspective to the field by delving into the depiction of Kolkata in Lahiri's narratives. The primary objective is to present the urban landscape that Lahiri portrays in her work, paying particular attention to the ecological aspects intertwined with the city's fabric. To achieve this objective, the research will employ a theoretical framework rooted in urban ecocriticism, which offers a lens to analyse the intricate relationship between urban spaces and their natural environment. The research endeavour seeks to add a new dimension to the existing body of literature on Lahiri's works, expanding the comprehension of the multifaceted relationship between the city of Kolkata, its ecological context, and the characters that inhabit it in her narratives.

THEORETICAL FRAMEWORK

Urban ecocriticism, building upon the foundation of ecocriticism, offers a specialised framework for examining the ecological dimensions of urban spaces and processes. This field of study emphasises the interconnectedness between humans and the urban environment, highlighting the need to understand and address the environmental impact of urbanisation. By exploring the ecological aspects of cities, urban ecocriticism aims to promote a better understanding of the complex dynamics between urban spaces and the natural world, ultimately leading to more sustainable and environmentally conscious urban practices. As noted by Oppermann (1999), integrating urban ecocriticism into the practice of ecocriticism imparts a more comprehensive definition to the field, acknowledging the broader implications of human-nature interactions in various urban settings. This expansion not only enriches our understanding of ecocriticism but also emphasises the significance of examining human impacts on the natural world within urban contexts. In the context of Jhumpa Lahiri's *The Lowland*, this study employs urban ecocriticism to analyse the impact of urbanisation, urban development, and the characters' interactions with the built environment on their lives in Kolkata.

In the early 20th century, the concept known as urban ecology emerged from the minds of urban sociologists, particularly those associated with the Chicago School of Sociology. They described the city as a living, intricate organism, using metaphorical language to capture its essence. However, it was not until the release of "Contemporary Urban Ecology" in 1977 that a remarkable shift occurred, which transformed the emphasis and embraced the methodological approach of ecological inquiry. The authors eloquently stated that "the basic premise of the ecological approach is that, as a population develops an effective organisation, it improves its chances of survival in its environment" (Berry & Kasarda, 1977). In the spirit of this transformative shift, it is realised that cities are not merely inanimate structures but dynamic ecosystems pulsating with life and complexity. Just as nature thrives in harmony when its ecological balance is upheld, so do cities flourish when their inhabitants and systems find effective organisation.

In the midst of the same era, exploration into the existence of flora and fauna within urban landscapes began to captivate the attention of biologists, shedding light on the presence of non-human life in environments that were previously perceived solely as bastions of human societies. Environmental historians like William Cronon and Martin Melosi, as well as urban geographers such as Matthew Gandy, Lisa Benton-Short, and John Rennie Short, collectively contributed to the comprehension of the city as an integral part of the "society-environment dialectic" (Benton-Short & Short, 2013), a dynamic relationship where the city and nature intricately intertwine within the social fabric of urban life (5). Gandy delves into the impact of modern city production on the intricate bond between nature and society, manifesting in both tangible and symbolic dimensions (Gandy, 2003). Notably, he emphasises the presence of "alternative modernities" that vie for representation within the urban landscape, as diverse conceptions of meaning and identity are etched into the very fabric of the city (5). Through his astute choice of words like "fabric," "representation," "etch," and "urban landscape," Gandy unveils a prominent view of the city, viewing it as a space shaped by both materiality and textuality.

Timothy Morton presents an ecological perspective in his book "Ecology without Nature: Rethinking Environmental Aesthetics." Morton challenges the dichotomy between nature and the city, arguing for an understanding of the urban environment as an integral part of nature. He contends, "The city is not 'against' nature, nor is it 'nature.' It is nature in the process of becoming something else" (Morton, 2007). This perspective encourages a reevaluation of the urban environment, considering it as a dynamic space that is deeply intertwined with ecological systems. Joni Adamson explores the intersection of urban spaces, environmental justice, and cultural studies in her article and emphasises the importance of developing an ecologically attuned understanding of the urban environment. According to Adamson, "Recovering an ecologically attuned sense of the urban is critical to revitalising our commitment to environmental justice and urban sustainable practices" (Adamson, 2013).

Thus, the theory of urban ecocriticism can offer a useful lens through which to analyse Lahiri's novel, as it focuses on the ecological aspects of urban spaces and societies. The novel presents the impact of human activities, such as urbanisation and industrialisation, on the natural world and the consequences of neglecting the environment. Lahiri's environmental discourse in the novel is highlighted by the juxtaposition of the tranquil, idyllic landscapes of the lowland with the rapidly developing and polluted city of Calcutta, now Kolkata. The lowland, a marshy area near the brothers' childhood home, serves as a symbol of the natural world, a place of beauty and serenity that remains largely untouched by human interference. In contrast, Calcutta is depicted as a bustling, overcrowded city with polluted air and waterways, indicative of the negative impact of industrialisation on the environment. By applying the principles of urban ecocriticism, this study

aims to investigate the interplay between Kolkata's urban landscape and its ecological backdrop. Moreover, the theory of urbanisation provides insights into the physical, social, and cultural transformations accompanying Kolkata's rapid urban growth. The spatial study of urbanisation within a 10-km buffer in Kolkata reveals that the urban growth led to radical changes in land-use land cover, which were witnessed by sharp decreases in sparse vegetation and fallow land, while the built-up area is constantly increasing (Mandal et al., 2019). This interdisciplinary approach enriches the understanding of Lahiri's narratives by shedding light on the complex interrelationships between ecology, urbanisation, and the human experience. Furthermore, it provides new perspectives and insights to the existing body of research on Lahiri's works while simultaneously making valuable contributions to the fields of ecocriticism, urban ecocriticism, and urbanisation studies.

DISCUSSION AND RESULTS

THE DIVERSITY AND COMPLEXITY OF KOLKATA

Kolkata, the capital city of West Bengal, India, is more than just a bustling metropolis—it is a vibrant tapestry of cultural heritage and urban life. Its multifaceted nature sets the stage for an intriguing exploration of urban ecocriticism, a field that delves into the intricate relationship between literature, culture, and the environment within urban settings. The Hooghly River in Kolkata has played a significant role in the city's history and development. It has served as a vital lifeline for trade and transportation. However, rapid urbanisation and industrialisation have led to pollution and degradation of the river. The city has faced challenges in managing its drainage system due to its topography, occasional skewed rainfall, and tidal fluctuation of the rivers. The city has also experienced issues related to air pollution, with air quality levels exceeding the standards set by the World Health Organization. Monitoring of ambient air quality has been conducted, and the seasonal variation of pollutants has been observed (Pal & Sengupta, 2023). Kolkata has undergone urban expansion and transformation over time, with changes in population composition and the emergence of new functional nodes. The older urban core has faced environmental conflicts and the loss of natural resources (Gupta, 2023).

Urban ecocriticism recognises the diversity and complexity of urban environments, which consist of multiple layers of natural and cultural elements that interact and evolve over time. As Michael Bennett and David W. Teague argue, urban environments are not mere "built" or "artificial" settings but dynamic ecosystems that encompass both natural and cultural processes. In the case of Kolkata, urban ecocriticism prompts us to critically examine the city's intricate and sometimes contradictory urban environments, exploring their intersections with social, cultural, and ecological systems. By understanding and addressing these challenges, the city can envision a more sustainable and inclusive urban future. This necessitates promoting ecological consciousness, implementing effective environmental policies, and fostering a harmonious coexistence between Kolkata's urban landscape and the encompassing natural world.

In Jhumpa Lahiri's novel *The Lowland*, the story opens with a vivid depiction of the eponymous lowland, nestled in the heart of Tollygunge, a neighbourhood in South Kolkata. Lahiri paints a picture of this area as a serene blend of nature and modest middle-class homes, with a small mosque nearby. She describes, "Once, within this enclave, there were two ponds, oblong, side by side. Behind them was a lowland spanning a few acres" (Lahiri, 2013, p. 3). This lowland, with its natural beauty, serves as a symbol of harmonious coexistence, representing the joy and

unity shared by the two brothers in the story. During the monsoon season, the ponds would swell, and the embankment between them would be concealed from view. The lowland would transform into a flooded plain, as Lahiri observes, "The flooded plain was thick with water hyacinth. The floating weed grew aggressively. Its leaves caused the surface to appear solid. Green in contrast to the blue of the sky" (3). Lahiri further explores the dichotomy between nature and culture by describing the modest huts that line the edge of the lowland, where "the underprivileged entered to scavenge for edible items." In contrast, the arrival of egrets during autumn reveals the impact of the city's industrialisation on the environment because "their white feathers darkened by the city's soot..."(3), symbolising the detrimental effect of human activities on nature. This description of the lowland offers a glimpse into the cyclical nature of life, highlighting the constant change and renewal found in nature. It also symbolises the interconnectedness of life and death, as the lowland becomes a place of both birth and demise in the novel.

The study explores the impact of ecological disruption on the natural world presented in *The Lowland*. The vanishing of untouched wilderness serves as a metaphor for the extinction of love in the newly transformed environment following Udayan's passing. Bijoli, the mother of the Mitra brothers, solidifies this notion when she makes an observation later in the story. She remarks, "The field is no longer empty. A cluster of new houses now occupies the space, adorned with television antennas atop their roofs. Nearby, a fresh market springs up in the mornings, where Deepa claims the vegetable prices are more favourable" (218). The rapid progression of urbanisation depicted in the novel results in the loss of natural habitats and the substitution of untamed landscapes with man-made structures. This serves to further emphasise the novel's underlying theme of the inseparable relationship between nature and human existence.

The opening description of the lowland in the novel presents it as a serene and picturesque place. However, as the story unfolds, Lahiri reveals the detrimental effects of pollution and environmental decay on the once beautiful lowland and its surrounding greenery in Calcutta. When Subhash returns to Calcutta from Rhode Island following Udayan's tragic death, he is taken aback by the profound transformations that have taken place in the city during his absence. Fellow passengers inform him of the significant impact of the communist revolution and the secret operations of the Naxalites in the city. Despite the familiarity of the streets and sidewalks, Subhash is overwhelmed by the escalated traffic and congestion. The chaotic scene of cycle rickshaws and throngs of men surrounding tea sellers assaults his senses with disorder and clamour. He was assaulted by the sour, septic smell of the neighbourhood of his childhood. Approaching his childhood home, he is struck by the sight of a new and imposing structure standing in place of the old.

"The small home he had left behind had been replaced by something impressive but awkward. Some scaffolding still lingered, but the construction appeared finished. Palm trees rose behind the house, but the mango tree, whose dark branches and leaves had once covered the original roof, was nowhere to be found".
(p. 106)

The description of the changes to Subhash's childhood home upon his return to Calcutta symbolises the broader transformations occurring in the city. The substitution of the familiar and modest home with an impressive yet ungainly one represents the shift from traditional and old ways to modern and new ones. The completion of the construction, with only remnants of scaffolding remaining, suggests that the changes in Calcutta and in Subhash's life are irreversible and permanent. In recent years, Kolkata has witnessed remarkable transformations, as highlighted by Gupta (2023), that the city's urbanisation and expansion revolve around the history of its growth

along the Hooghly River. Additionally, Kolkata has experienced rapid and dynamic changes on both formal and functional fronts. The city has seen significant demographic growth due to both national and international migration, leading to urban industrial development and increased economic opportunities. However, these changes have also resulted in environmental degradation.

DEPICTION OF CITY'S POLLUTION IN THE NOVEL

The city's physical landscape plays a crucial role in the novel, offering a captivating portrayal. It emerges as a labyrinth of narrow alleys and bustling streets, where people dwell in close proximity, forming a vibrant tapestry of life. While some areas exude affluence and luxury, reflecting the opulence of wealthy families, other parts are marked by dilapidated and crumbling buildings, underscoring the economic and social disparities entrenched within the city's heart. Pollution in the cities is a multifaceted problem caused by traffic, factories, and energy use. Vardoulakis et al. (2016) argue urban areas face challenges like poor air and water quality, limited water supply, waste disposal issues, and high energy consumption, all worsened by a growing population and urban demands. As a consequence, cities are major contributors to greenhouse gas emissions and are susceptible to the impacts of climate change.

Urban ecocriticism investigates how literature represents the dynamic interaction between cities, the environment, and pollution. By examining how pollution affects human health and the correlation between urban growth and climate change in literary works, one can glean important understandings about our relationship with the natural world. This ecocritical perspective allows literature to serve as a potent instrument for comprehending and addressing environmental challenges (Bennett & Teague, 1999). Amidst the varied shades of city life, a crucial environmental issue takes centre stage—the dire consequences of pollution on Kolkata's water bodies, particularly the Hooghly River, caused by the discharge of industrial waste, sewage, and domestic garbage. The novel portrays how this once vibrant symbol of life and vitality has been tragically transformed into a cesspool of industrial waste and sewage. Beyond the ecological damage, the novel also sheds light on the grave health hazards faced by the communities living along the riverbanks. The pollution's toxic effects pose severe risks to their well-being, painting a sobering picture of the consequences of neglecting our natural resources. A recent study conducted by the West Bengal Pollution Control Board (WBPCB) examined the water quality of the Hooghly River in Kolkata and found it to be unsuitable for bathing. The study involved collecting water samples from different locations along the river and revealed poor water quality with high levels of coliform bacteria, indicating faecal contamination (Goswami et al., 2023). Additionally, the study identified lower-than-standard levels of dissolved oxygen in the river, which could lead to the death of aquatic life.

In her writing, Lahiri vividly portrays the landscape of Tollygunge and the nearby pond, which was once a beautiful environment but has now suffered irreparable damage due to human activities. The stark contrast between the past, when the area was idyllic, and the present, characterised by pollution and desolation, is powerfully depicted through the imagery of the contaminated water and dried-up land. Lahiri recounts:

"Long ago, when they had first come to Tollygunge, the water had been clean. Subhash and Udayan had cooled off in the ponds on hot days. Poor people had bathed. After the rains, the floodwater turned the lowland into a pretty place filled with wading birds, clear enough to reflect moonlight. The water that remains has been reduced to a green well in the centre, a dull green that reminds her of military vehicles. Winter days, when the sun's heat is strong when most of the lowland has turned back to mud, she sees water from certain puddles evaporating before her eyes, rising up like steam from the ground".

(p. 216)

The nostalgic recollection of a time when the water in Tollygunge was clean and provided recreational opportunities for all, including the impoverished, underscores the extensive damage inflicted upon this ecosystem. The stagnant, green water, reminiscent of military vehicles, is devoid of life and beauty—a stark departure from the previous descriptions of a vibrant habitat teeming with wading birds and illuminated by moonlight. Lahiri also depicts the impact of climate change on the environment. The evaporation of water from certain puddles during winter, accelerated by the sun's intense heat, highlights the increasing aridity of the region, likely exacerbated by human activities such as deforestation and the burning of fossil fuels.

Lahiri's novel depicts the devastating impact of pollution and changes in land use, leading to a disturbing ecological imbalance and the loss of precious biodiversity. The author portrays the gradual deterioration of the environment caused by human waste and negligence. This degradation is aptly conveyed in the line, "Each day it diminishes"(215), where the metaphor of a hazy view through a terrace grille symbolises the pollution and waste that obscure the once-clear panorama. Through the character of Bijoli, Lahiri effectively emphasises the pervasive water pollution and waste that has accumulated in the natural surroundings. Bijoli's observation reveals the sorry state of "the two ponds in front of the house, and the tract of lowland behind them" (215), which have become choked with waste. The accumulation forms a thick bank encircling the water's edge, appearing whitish from a distance but revealing a multitude of colours up close. Bijoli's eye captures the gradual decay of the twin ponds and the adjoining lowland, filled with discarded clothes, empty packages, and shattered cups obstructing the natural flow. This disheartening scene serves as a vivid testament to the transformation of the ponds into breeding grounds for filth.

The unsightly waste not only mars the visual beauty of the landscape but also serves as a stark indictment of humanity's apathy toward the environment. These lines underscore the urgent and dire state of urban pollution, as symbolised by the two clogged ponds, highlighting the ecological imbalance that plagues the natural world. The assortment of discarded items, including newspapers and empty food containers, further exposes the detrimental effects of rampant consumerism and commercialisation, as evidenced by brand names like Horlicks, Mother Dairy, Bournvita, and Cadbury chocolate. Such details illustrate the profound impact of human activities on the delicate balance of nature.

Lahiri's portrayal of wetland devastation in *The Lowland* exposes the profound impact of human activities on the environment. The once-thriving ponds near Tollygunge now serve as reminders of the destructive consequences of overpopulation, industrialisation, and waste disposal. Through the character Bijoli, Lahiri provides a firsthand account of ecological ruin, and the study urges readers to reflect on their environmental footprint and adopt sustainable practices. Neglecting our surroundings goes beyond losing natural beauty—it poses health risks and disrupts ecological balance.

THE EFFECT OF URBANISATION IN THE NOVEL

Urbanisation is a phenomenon wherein vast numbers of individuals choose to settle and establish permanent communities in relatively compact regions, giving rise to vibrant cities, as per Britannica. It has been a defining feature of human civilisation since ancient times. Urbanisation has accelerated in recent centuries due to industrialisation and globalisation, resulting in more than half of the world's population now residing in cities (Punyamurthy & Bheenaveni, 2023). This process brings about economic growth, technological advancement, and cultural exchange. However, it also leads to environmental destruction, including habitat loss and pollution (Humbal et al., 2023). The anthropogenic transformation of the environment and the increase in natural landscapes transformed by humans are significant factors contributing to this destruction (Lomskov et al., 2023). Uncontrolled urbanisation has caused irreversible effects on the global biosphere, such as environmental degradation, slum growth, and increased air pollution. These ecological problems pose a great threat to human health, with increased rates of diabetes and cardiovascular and respiratory diseases associated with urban living conditions (Tyagi et al., 2023). The urbanisation of Kolkata began during the colonial period and continues to this day. Rural-to-urban migration is a key factor driving this growth, as people are attracted to better job prospects, higher living standards, and improved access to education and healthcare. However, the rapid influx of migrants poses challenges such as housing shortages, inadequate sanitation, and infrastructure limitations (Nauman et al., 2016). The urban population of Kolkata has been steadily increasing, with projections indicating a potential population of 15.7 million by 2030.

Over the past fifty years, Kolkata has experienced significant urbanisation, with its central city contributing only 19% to the overall population growth since 1951. While the central city added around 1.8 million residents, the suburbs witnessed a substantial increase of approximately 7.65 million people. Kolkata's unique urban landscape stretches almost 50 miles along the Hooghly River, resulting in an unusually shaped urban area. The expanding suburbs have indeed reached a high population density, with estimates of 25,000 people per square mile and an expected increase to 30,000 people per square mile, according to the upcoming Dermographia World Urban Areas report (Bhattacharjee & Bharti, 2023). The impact of this rapid urbanisation and unplanned development has led to the loss of green space, croplands, and wetlands, creating a fragmented morphology (Santra et al., 2023). The city has experienced significant urban growth, with the population density increasing within the inner city and expansion occurring towards the southern and south-eastern portions (Gupta, 2023). Additionally, the city's urban form and morphology have a substantial effect on local-scale climatic variations, with variations in temperature, wind speed, and rainfall observed across different land use and land cover classes (Chakraborty, 2022).

In *The Lowland*, Jhumpa Lahiri explores the impact of urbanisation and provides a powerful critique of its negative consequences on both the environment and the people who live in cities. The displacement of people has forced them to seek alternative land for habitation, leading to the conversion of previously open land into dump yards and landfills. The construction of new homes and buildings on land previously used for recreational activities has resulted in the loss of green spaces and the consequent decline in air quality. The growing population is a significant contributor to the exponential increase in human garbage, which poses a severe threat to the ecosystem, as waste disposal is often not managed sustainably. This has led to the accumulation of waste in landfills and water bodies, causing pollution and disrupting the ecological balance. Additionally, the foul standing water resulting from improper waste disposal has created breeding grounds for disease-carrying mosquitoes, leading to the spread of diseases like dengue and malaria. The uncontrolled growth of human garbage resulting from the increasing

population and poor waste management practices is having a detrimental effect on the environment.

In her work, Lahiri presents an unlawful method that realtors employ to convert water bodies into land in and around Calcutta. Unfortunately, these bodies of water have been consistently polluted with human waste, making them a prime target for such activities. What is alarming is that locals have been provoked to throw waste products intentionally, and this has become a common practice:

"People have always tossed refuse into these bodies of water. But now, the accumulation is deliberate. An illegal practice is taking place in ponds and paddy fields all over Calcutta. They are being plugged up by promoters so that the city's swampy land turns solid so that new sectors can be established and new homes built. New generations bred".

(p. 179)

The conversion of wetlands for infrastructural development in Kolkata has been a cause of concern for environmentalists and local communities. Wetlands are crucial ecosystems that provide a variety of ecological services such as water filtration, flood control, and habitat for a diverse range of flora and fauna. Kolkata is home to several wetlands, including the East Kolkata Wetlands, which has been recognised as a Ramsar site. However, over the years, many wetlands in Kolkata have been converted into residential and commercial areas, leading to environmental degradation and loss of biodiversity. The conversion of wetlands has also been linked to increased flooding and water scarcity in the city.

One of the most notable cases of wetland conversion in Kolkata is the conversion of the Salt Lake Wetlands, which were once a thriving ecosystem, into a residential area (Mohibul et al., 2023). This conversion has led to a decline in the water quality of the area, as well as the loss of habitat for several species of birds and other wildlife. The author emphasises the scale of this issue by quoting Bijoli, who read about it in the newspapers: "It had happened on a massive scale in the north, in Bidhannagar.... the Dutch engineers laying down pipes to bring in silt from the Hooghly, closing up the lakes, turning water into land. They'd established a planned city, Salt Lake, in its place"(215). The magnitude of this problem is not limited to Bidhannagar alone; it is a citywide issue. This illegal activity has not only caused the loss of valuable water bodies but also resulted in the destruction of natural habitats and wildlife.

The illegal practice of plugging up ponds and paddy fields is described as a means of transforming swampy land into solid ground that can be developed for new sectors and homes. This process of urbanisation and expansion is portrayed as a threat to the natural world, as the delicate ecosystem of the ponds and fields is disrupted and destroyed. The reference to the Dutch engineers laying down pipes to bring in silt from the Hooghly River highlights the way in which development projects often involve manipulating and controlling the natural environment to suit human needs. The establishment of the planned city of Salt Lake is presented as a triumph of human ingenuity and progress but also as a testament to the destructive impact of development on the natural world. Several studies have highlighted the negative impacts of wetland conversion on the environment and local communities. A study by Ghosh and Das (2020) on the value of wetlands in Kolkata found that the conversion of wetlands in Kolkata has led to increased flooding, as well as water scarcity in some areas. The study also found that the loss of wetlands has led to a decline in the availability of fish and other aquatic resources, which has affected the livelihoods of local communities.

Towards the end of the novel, Gauri's return to Kolkata after a forty-year unveils a striking disparity between her nostalgic recollections of the city and its current reality. The focal point of her attention is VIP Road, "the old way to and from the airport in Dum Dum, had once been remote enough for bandits, avoided after dark" (238). However, Gauri is met with a transformed landscape, witnessing the alteration of VIP Road into a vibrant way, and "now she passed high-rise apartment buildings, glass-fronted offices, a stadium. Lit-up malls and amusement parks. Foreign companies and five-star hotels" (238). The once desolate path now plays host to foreign companies and luxurious five-star hotels. The choice of words in the statement "had once been remote enough for bandits" implies that the area was once perceived as hazardous and uninviting. Yet, with the area's progressive development, the scenery has undergone a radical change, and VIP Road has evolved into a lively and bustling space.

Examining this transformation from an urban ecocritical standpoint, the study depicts the repercussions of human development on the natural terrain. The evolution of VIP Road from a secluded and natural expanse into a thriving urban zone signifies the shifting dynamics in the relationship between humans and their environment. The building of high-rise apartments, glass-fronted offices, and malls, among other structures, shows how the environment is being transformed to meet human needs. The area's transformation into a modern and developed space has come at the expense of natural habitats and the disappearance of flora and fauna that once existed in the area. The transformation of the road from a remote and natural area to a bustling and developed space represents the changing relationship between humans and the environment. "The city was called Kolkata now, the way Bengalis pronounced it" (238).

CONCLUSION

In conclusion, the exploration of Kolkata's diversity and complexity through the lens of urban ecocriticism, as depicted in Jhumpa Lahiri's novel "The Lowland," illuminates the intricate relationship between literature, culture, and the environment within urban settings. Kolkata, with its rich history and vibrant cultural heritage, faces numerous challenges stemming from rapid urbanisation, industrialisation, and environmental degradation. The degradation of the Hooghly River symbolises the consequences of neglecting natural resources and the adverse impacts of pollution on both the ecosystem and human health. Lahiri's vivid portrayal of the transformation of Tollygunge's lowland from a serene habitat into a polluted wasteland underscores the urgent need to address environmental issues and promote sustainable practices. The novel exposes the detrimental effects of uncontrolled urbanisation, including the loss of green spaces, biodiversity, and wetlands. The conversion of natural habitats into residential and commercial areas not only disrupts ecosystems but also exacerbates pollution and contributes to the degradation of the environment. In light of these challenges, it is imperative for Kolkata to embrace a holistic approach to urban planning and development—one that prioritises environmental sustainability, social equity, and cultural preservation. By fostering ecological consciousness, implementing effective environmental regulations, and promoting inclusive urban policies, Kolkata can chart a path towards a more resilient and harmonious urban future. Through literature and critical analysis, we gain valuable insights into the complexities of urban environments and the urgent need for collective action to address environmental degradation and promote sustainable development.

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