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Escalating Dengue in Bangladesh: An Analytical Assessment of Environmental and Socioeconomic Drivers

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Abstract

Dengue has emerged as a persistent and escalating public health crisis in Bangladesh, reflecting both local vulnerabilities and a broader global threat. Between 2018 and 2025, the outbreaks have caused substantial morbidity and mortality across all age groups, driven by rapid urbanization, dense populations, poor sanitation, and climatic changes. Environmental degradation, including loss of green cover, pollution, and plastic accumulation, has further intensified mosquito proliferation, while demographic shifts reveal increasing vulnerability among children, juveniles, and young adults. Immediate, coordinated action-including strengthened public health infrastructure, vector control, and community awareness-is imperative to curb the ongoing outbreaks and mitigate the potential for regional and global spread.

Keywords: Dengue epidemiology; *Aedes* mosquito breeding; Pandemic outbreaks; Climate-driven transmission; Urbanization impact; Insecticide resistance; Public health burden; Micro plastic environmental risk

Introduction

Each year, mosquitoes wage a silent yet devastating war-infecting nearly 700 million people and claiming more than a million lives across the globe [1]. Mosquito-borne viruses like dengue, chikungunya, and Zika have devastated 166 countries over the last five decades, costing nearly $100 billion and surging fourteen-fold between 2013 and 2022 [2]. While malaria continues to devastate Africa—accounting for over 90% of cases reported in the WHO African Region [3] —Asia is grappling with dengue, which is responsible for nearly 70% of global infections [4], with Southeast Asia bearing the heaviest burden [5]. Although the COVID-19 pandemic momentarily disrupted this trajectory, the post-pandemic resurgence of dengue infections reveals its persistent grip on the region [6]. In Bangladesh, dengue remained relatively rare before 2018 but surged thereafter, following global trends, briefly paused during the COVID-19 pandemic, and emerged as the deadliest infectious disease in the post-COVID era, peaking in 2023 (Figure 1). This alarming rise, driven by a combination of meteorological changes and overlooked socioeconomic factors, forms the central focus of this paper.

Methodology

This review synthesizes evidence from leading global health datasets, peer-reviewed literature, major international reports, and national sources including the DGHS, IEDCR, and the Bangladesh Meteorological Department to assess recent trends in dengue transmission in Bangladesh. When contemporary scholarly data were unavailable or incomplete, rigorously verified reports from reputable news media were incorporated to provide timely contextual updates. Environmental and socioeconomic determinants of dengue transmission were systematically integrated with key climatic variables—temperature, humidity, and rainfall-to construct a multidimensional understanding of transmission dynamics. Given the rapidly evolving nature of dengue epidemiology in Bangladesh, the analysis also employed cautiously framed predictive inferences informed by both local and global research. This approach enabled the identification of several under-recognized drivers of dengue virus transmission that may influence future outbreak patterns.

Review and Discussion

Escalating Dengue Burden in Bangladesh

Bangladesh is at the epicenter of the crisis, grappling with unprecedented challenges. By 21 September 2025, deaths had surged 150% and cases had doubled from the previous year [7], and just two months later, by 23 November, infections had topped 90,000 with fatalities reaching 364 [8] —70% higher than six weeks earlier [9]. Hospital admissions, according to dynamic data from the Directorate General of Health Services (DGHS) [10], nearly quadrupled from 5,951 in June to 22,520 in October 2025, pushing an already fragile healthcare system to the brink (Figure 2). November 2025 brought the crisis to a new peak: on 18 November alone, over 900 viral fever patients flooded hospitals, joining nearly 3,000 dengue cases already under treatment [11]. Since 2023, more than half a million Bangladeshis have been infected and over 2,670 have died-marking the deadliest dengue toll in the nation's history. By the end of November, total cases had surpassed 94,300, hospitalizations had exceeded 92,000, and deaths had risen to 382. November alone recorded more than 24,500 cases and 104 fatalities, meaning that over one-quarter of the year's infections and deaths occurred in a single, devastating month [10]. Historical data magnify the crisis. Between 2000 and 2022, Bangladesh recorded 853 dengue-related deaths [12, 13], yet 2023 alone more than doubled that total, with 1,705 fatalities and over 321,000 infections [14] —The largest annual outbreak on record (Figure 1). The demographic landscape is shifting. In 2023, women represented roughly 40% of dengue cases but accounted for 57% of deaths [14]. By December 8, 2025, men experienced nearly twice as many cases and over half of all deaths (Figure 3). Notably, in 2023, older adults faced disproportionately severe dengue and higher mortality due to immune vulnerability and comorbidities, with each additional decade raising fatality by 30%, whereas by 2025, young adults aged 21-30 accounted for over a quarter of both cases and deaths [10,14]. However, older adolescents and young adults also represented more than half of all cases during the 2016, 2018, and 2019 outbreaks [14].

Dengue Risk Factors: What We Already Know

A review of three major medical databases—PubMed, Embase, and Web of Science-up to December 5, 2024, shows that climate change is intensifying dengue transmission by reshaping patterns of temperature, rainfall, and humidity. These shifts are expanding the virus's geographic range and altering exposure risks across populations [15]. (Figure 4) shows that, following the global pattern, dengue cases rise in tandem with increases in temperature, rainfall, and humidity. In Bangladesh, temperatures have risen by 0.5°C over the past four decades, lengthening the dengue season and accelerating transmission, with cases doubling every decade since 1990. The World Bank reports that infections surge between 25°C and 35°C, peaking at 32°C, and that global mosquito transmission capacity has increased by as much as 9.5% since 1950 [16].

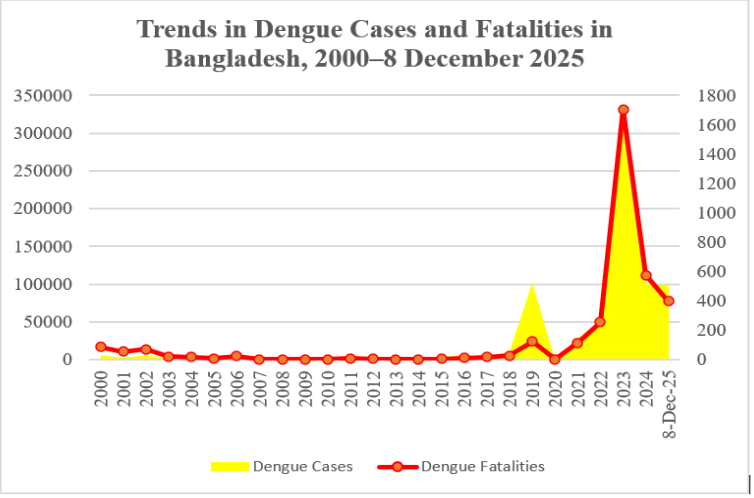

***Figure 1**: Trends in Dengue Cases and Deaths in Bangladesh, 2000–8 December 2025 (Source: The Institute of Epidemiology, Disease Control and Research, IEDCR) / Directorate General of Health Services, DGHS). The figure depicts a pronounced increase in dengue cases and deaths in Bangladesh during the post-COVID period, showing a closely aligned temporal pattern between case numbers and fatalities.*

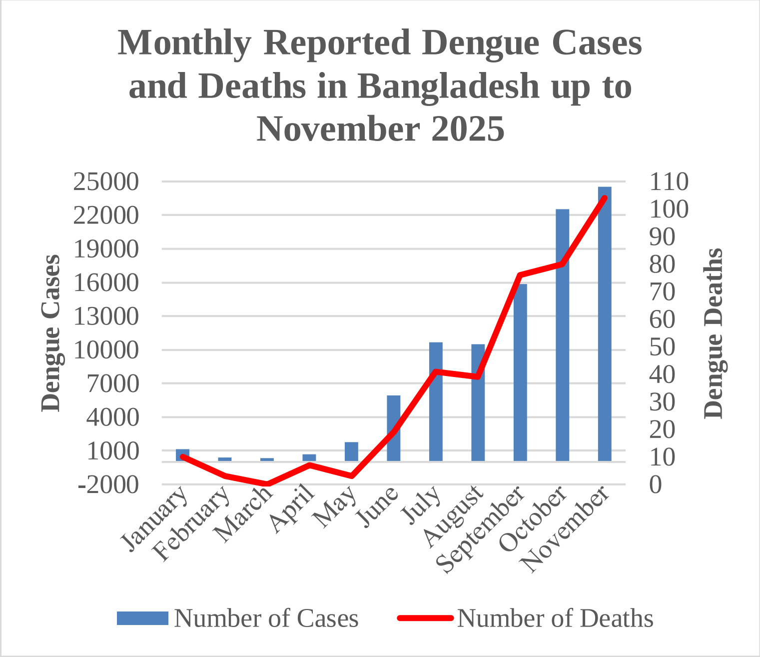

***Figure 2**: Monthly Incidence of Dengue Cases and Dengue-Related Deaths in Bangladesh up to November 2025 (Source: DGHS). The figure shows a sharp rise in dengue cases and deaths beginning in June, with reported infections nearly quadrupling by October. The situation peaked in November 2025, when more than 24,500 cases and 100 deaths were recorded—over a quarter of the year's total burden concentrated in a single month.*

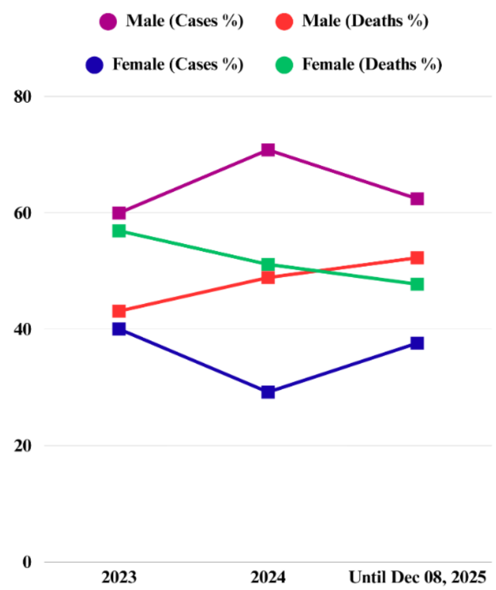

Figure 3: *Demographic shifts in male and female cases and deaths, 2023–December 8, 2025 (Data Source: DGHS). The figure illustrates a pronounced demographic transition: male cases surged sharply in 2024 before leveling off in 2025, whereas female cases initially declined and later partially rebounded. Concurrently, male deaths exhibited a steady rise, surpassing female deaths by 2025-a striking reversal from previous years (visualized using Canva Illustrator).*

Using advanced AI and explainable machine-learning models, researchers identified population density, precipitation, temperature, and land-use patterns as dominant predictors, supporting the development of early-warning systems for timely public health responses [17]. A comparative analysis with Singapore found that rainfall fueled dengue transmission in Bangladesh while humidity and sunshine suppressed it —whereas in Singapore, warmer temperatures drove infections and rainfall and humidity helped curb spread [18]. Hossain et al. (2023) identified rapid urbanization, climatic suitability, and the persistent presence of *Aedes* mosquitoes as key drivers of increased human–vector contact and the expanding geographic reach of dengue. Periodic serotype shifts, weak surveillance, limited healthcare capacity, and low public awareness further intensify these risks [14]. Building on this, khan et al. (2024) highlighted possible post-COVID immune effects, climate variability, dominant viral serotypes, and systemic failures in patient management as contributors to Bangladesh's recent high fatality rates, underscoring the need for stronger clinical care, more trained personnel, improved vector control, and investment in One Health-based prevention [12]. Examining seasonal dengue patterns from January 2008 to November 2024, Alame et al. (2025) showed that incidence is tightly linked to meteorological conditions, with peaks strongly correlated with higher temperatures, humidity, rainfall, and wind speed. Their study emphasized the need for future models to integrate real-time meteorological inputs along with urbanization and socioeconomic factors [19]. Islam (2023) similarly argued that combining climate projections with human mobility and socio-environmental variables is essential for forecasting outbreaks and guiding effective prevention strategies [20]. Supporting this, Islam and Hu (2024) identified rapid human movement as a major transmission driver in Bangladesh, with festival gatherings, increased mobility, and post-lockdown shifts all associated with higher case burdens [21]. Ogechi (2025) noted that poor sanitation, insecticide resistance, limited vaccine access, low public awareness, and mounting healthcare pressures, combined with climate change and rapid urbanization, collectively heighten dengue risks, especially for vulnerable populations [22].

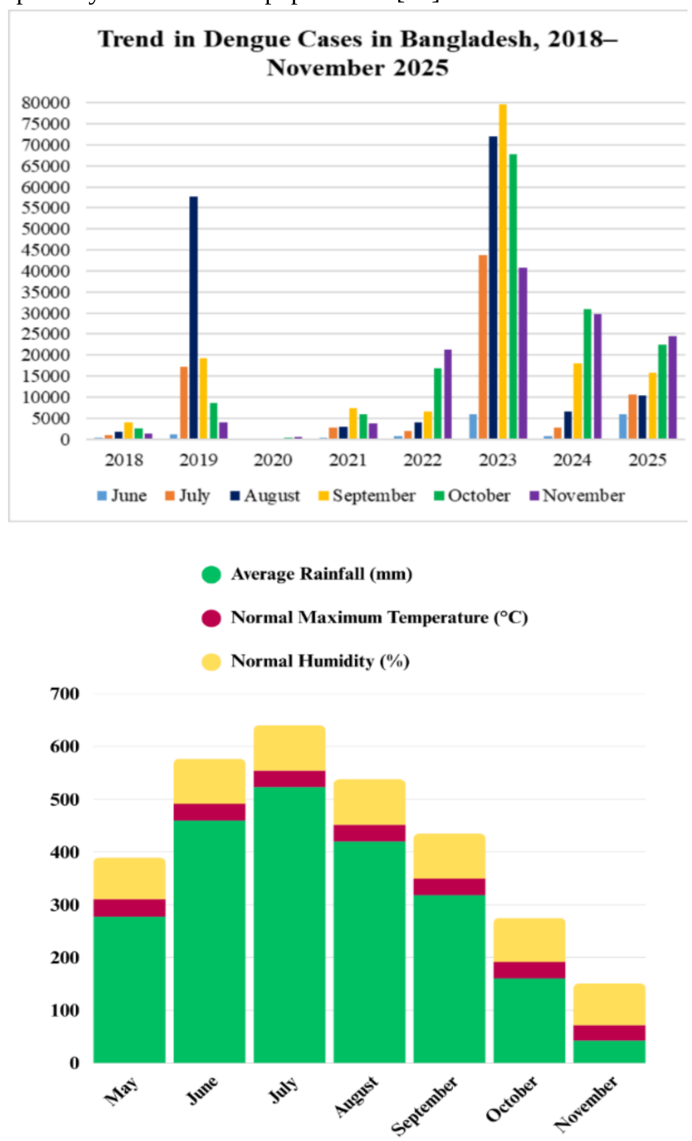

Figure 4*: Trend in Dengue Cases in Bangladesh, 2018 November 2025 (Source: DGHS/Bangladesh Meteorological Department). The figure*

shows a clear upward trend in dengue transmission, with cases rising sharply during periods of heavy rainfall, high temperatures, and elevated humidity, and consistently peaking between September and November in recent years (visualized using Canva Illustrator).

Common Public Perception Vs Reality

In Bangladesh, dengue perception shows a mix of high awareness of its severity (it's deadly) but low personal risk (susceptibility), leading to inconsistent prevention, with educated urban dwellers often better informed than rural populations. (Table 1) offers an overview of dengue-related knowledge, perception, and attitudes across different Bangladeshi populations. The recent dengue outbreaks, driven by shifting climate patterns, rapid urbanization, dense populations, insecticide resistance, and low public awareness, have severely strained Bangladesh's healthcare system and economy. While climate change strongly shapes dengue (Flavivirus) transmission, insecticide misuse and rising resistance also play critical roles. WHO has warned that fogging is ineffective against *Aedes* mosquitoes, underscoring city corporations' misplaced reliance on mass spraying instead of source reduction, targeted larviciding, and proper vector control. Compounding the problem, widespread metabolic resistance and common kdr mutations have greatly reduced the effectiveness of pyrethroid insecticides, producing very low mosquito mortality even at elevated doses [23-35]. Rainfall influences mosquito growth in complex ways. While light rain creates standing water ideal for breeding, heavy rainfall can destroy breeding sites or wash away larvae, limiting mosquito development. Additionally, wind speed was found to be weakly positively correlated with dengue incidence in Bangladesh. Although many attributed the 2025 outbreak to heavy rainfall, the persistence of dengue had already been evident, with over 320,000 infections and 1,700 deaths recorded in 2023-figures considerably higher than those observed in 2025 (Figure 5). Interestingly, a study conducted in Dhaka revealed that dengue cases actually declined with increasing levels of both rainfall and sunshine, contradicting common public perception [36]. Experts warn that prolonged monsoons and poor waste management have created stagnant water and ecological imbalance, enabling mosquitoes to breed more extensively and intensifying the outbreaks [37].

The Overlooked Drivers of Bangladesh's Escalating Dengue Crisis

The recent dengue outbreaks, fueled by changing climate patterns, rapid urbanization, high population density, insecticide resistance, and low public awareness, have placed a severe strain on Bangladesh's healthcare system and economy. While climate change and urban growth are widely acknowledged as major drivers of the rising dengue burden, several less-discussed factors-often tied to uncontrolled urbanization-have intensified the crisis; these interconnected issues, highlighted in recent international research and media, remain largely overlooked by the public due to limited awareness.

Vegetation Loss, and Rising Temperature

Warmer temperatures accelerate mosquito aging, shortening their lifespan and altering infection patterns [38]. Yet, over successive generations, heat-exposed mosquitoes can develop greater tolerance to viruses without losing vitality, a recent study shows [39]. Global warming has thus become a "perfect storm" for mosquito-borne diseases, affecting every stage of transmission [40]. Urbanization-driven loss of natural vegetation further elevates dengue risk, as areas with reduced green cover provide ideal conditions for mosquito breeding and disease spread, as demonstrated in studies from Mexico [41] and Brazil [42]. In Amazonian Brazil, for example, deforestation of just one square kilometer was linked to 27 additional malaria cases [43]. Between 1989 and 2020, Dhaka lost more than half of its green cover due to rapid urban growth, triggering a significant rise in temperatures [44]. Over three decades, the number of extreme heat days (≥35°C) nearly doubled, making Dhaka one of the fastest-warming cities in the world, according to the International Institute for Environment and Development [45]. Furthermore, the World Bank reports that the city's heat index has increased more than 65% faster than the national average [46]. These hotter, denser conditions let *Aedes* mosquitoes adapt to heat, building stronger virus tolerance and becoming even more efficient carriers [47]. A climate projection from a decade ago indicates that, without adaptation, a 3.3 °C increase by 2100 could result in more than 16,000 additional dengue cases [48].

Results and Findings

Table 1: *Knowledge, Perception, and Attitudes Towards Dengue in Various Bangladeshi Populations.*

Study Place/ Population	Knowledge	Perception & Attitude
1,358 youths of capital Dhaka	Higher climate change knowledge; links with dengue awareness	Positive attitude toward dengue–climate connection; socio-demographic/lifestyle factors influence awareness [23]
Students via social media survey	Strong climate-change awareness; weak dengue-prevention knowledge	Solid attitudes; past dengue experience predicts preventive behaviors [24]

1,010 respondents across 9 regions	Widespread awareness; educated/urban/better-off had higher knowledge	Misconceptions persist (e.g., *Aedes* breed in dirty water); weak preventive practices [25]
Dhaka university students	Good knowledge/practices; gaps in transmission, breeding sites, pregnancy-related risks	Strong attitudes; mixed-unit residents showed weakest preparedness [26]
745 slum dwellers of Dhaka	Recognized dengue severity and transmission	Low perceived personal risk; 60% inadequate preventive measures [27]
1,905 Northern-region residents	Limited awareness; poor understanding of climate-disease link	Perception and attitude not well-developed [28]
401 rural residents, Savar	Moderate knowledge; influenced by education, age, gender, occupation, health beliefs	High perceived severity; preventive practices unsatisfactory [29]
364 rural adults from Puthia & Paba upazila	48.4% had sufficient knowledge; higher education → better awareness	Gaps in understanding transmission/prevention; attitude not emphasized [30]
Scoping review of 27 studies	Moderate knowledge overall; rural/slum populations lower	Varying perception; rural/slum communities had weak preventive practices [31]
484 adults of Cox's Bazar	Average knowledge (84.3%)	Positive attitude (63%); knowledge/attitude linked to preventive practices [32]

Population Density, Poor Sanitation, and Waste Disposal

Rapid urbanization and extreme population density in Bangladesh are creating ideal conditions for intensified dengue transmission. In overcrowded cities with inadequate sanitation, stagnant water accumulates easily, offering abundant breeding sites for *Aedes* mosquitoes. Dhaka-home to more than 75,000 people per square mile [49] is now the world's second most densely populated city [50], and its tightly packed, human-built landscape accelerates *Aedes* aegypti growth, reproduction, and survival far more than suburban or rural settings [51]. Monsoon-season spikes in heat, humidity, and rainfall further amplify this risk, with 2019 data showing that nearly 90% of dengue cases erupted between June and October, overwhelmingly concentrated in the city's hottest, most densely built neighborhoods [52]. Dengue hotspots consistently emerge where population density is highest, particularly in Thanas such as Badda, Jatrabari, Kadam Tali, Mirpur, Mohammadpur, Sobujbagh, Shyampur, Tejgaon, Dhanmondi, and Uttara, where close human–mosquito contact further amplifies transmission [53]. In Bangladesh, roughly 40% of the population lives in urban areas, with over half residing in densely packed slums [54]. Communities without adequate sanitation especially in these overcrowded settlements are highly vulnerable to mosquito-borne diseases such as dengue and chikungunya [55]. Dhaka's congested neighborhoods, compounded by poor sanitation, provide abundant stagnant water, creating ideal breeding grounds for mosquitoes. More than one-third of the population still lacks access to safely managed sanitation, and UNICEF estimates that about 230 tons of fecal waste enter Dhaka's 4,500-kilometer drainage network every day. The system is already 70% clogged with trash and debris because of poor infrastructure and longstanding neglect, according to the Institute of Water Modelling [56,57]. As a result, even moderate rainfall creates stagnant, mosquito-infested pools-a problem further intensified by flooding and extreme weather across both urban and rural areas [58]. Additionally, in many dense urban neighborhoods, inconsistent water supply forces residents to store water in containers, a practice well documented in neighboring India, further increasing the risk of mosquito-borne diseases [59]. Poor waste management is a critical driver of dengue risk among both children and adults and in urban Bangladesh this threat looms large. Shockingly, 55% of solid waste in urban areas remains uncollected, creating ideal breeding grounds for the mosquitoes that spread the disease [60]. Evidence from urban Thiruvananthapuram, South India, indicates that inadequate waste management infrastructure can be associated with a 40% higher incidence of dengue and chikungunya cases [61]. Likewise, studies in informal urban settlements in Indonesia and Fiji reported that by age 4–5, over half of children had already been infected, highlighting how insufficient waste disposal accelerates early exposure to dengue [62].

Pollution as a Trigger for viral resistance and mosquito dynamics

The WHO estimates that nearly a quarter of human diseases and deaths stem from long-term exposure to pollution [63]. While research on environmental impacts on dengue in Bangladesh remains limited, international studies underscore their significance. Recent findings from cities in Taiwan [64], Singapore [65], Guangzhou [66], Upper Northern Thailand [67], Melaka, Malaysia [68], and Greater São Paulo [69] demonstrate that air pollutants-such as particulate matter PM2.5, SO_2, O_3, CO, and Nox-interact with climate factors to influence mosquito populations, viral activity, and human immunity to the virus. These impacts, however, vary depending on pollutant type, concentration, and region, often producing complex, non-linear effects on mosquito dynamics. Interestingly, a study covering 76 provinces in Thailand from 2003 to 2021 found that higher surface concentrations of SO_2 and PM2.5 were generally associated with lower incidences of dengue, malaria, chikungunya, and Japanese encephalitis, likely due to adverse effects on mosquito survival and behavior [70]. These findings highlight the need for further research. A *Lancet* study reported that improperly discarded plastics accumulate stagnant water, creating ideal breeding sites for *Aedes* mosquitoes that transmit dengue, Zika, chikungunya, and yellow fever, thereby directly increasing vector populations. Indirectly, plastic debris also clogs drainage systems, producing large stagnant pools that promote mosquito proliferation and elevate the risk of diseases such as malaria [71]. Bangladesh is now experiencing an alarming rise in micro plastic pollution. Just three rivers--Meghna, Karnaphuli, and Rupsha discharge nearly one million metric tons of mismanaged plastic each year [72]. In total, 36 rivers in Bangladesh are among the 1,656 waterways worldwide responsible for 80% of global riverine plastic emissions [73]. Per-capita plastic consumption has tripled—from 9 kg in 2005 to 2020-while COVID-19 contributed an additional 78,000 tons in a single year, according to a 2021 report by the Environment and Social Development Organization (ESDO) [74]. In Dhaka, per-capita use reaches 24 kg, and nearly one-eighth of all plastic waste ends up in canals and rivers. An estimated 23,000 to 36,000 tons of plastic waste accumulate annually across 1,212 dumping hotspots surrounding the Buriganga, Turag, Balu, and Shitalakhsya rivers, a trend highlighted by a former World Bank country director during a program in Dhaka [75]. Beyond environmental degradation, this rising plastic burden may intensify mosquito-borne disease risks: researchers from the Beijing Institute of Microbiology and Epidemiology show that mosquitoes exposed to micro plastics can transfer them to mammals, develop altered gut microbiomes, experience delayed development, and exhibit reduced insecticide susceptibility-factors that could heighten disease transmission. Also, micro plastics can adsorb pyrethroid insecticides such as deltamethrin, reducing the concentration available to act on mosquitoes. However, because the findings rely on a single study and other research shows conflicting results, more evidence is needed to clarify how micro plastic exposure influences mosquito dynamics and dengue transmission.

Construction Sites and High-Rises: Major Breeding Grounds Driving Dengue in Dhaka

Dhaka's rapid and largely unplanned urban expansion has transformed the city into a highly conducive environment for *Aedes* mosquito proliferation. Numerous under-construction buildings, left exposed to the elements, now serve as prime breeding grounds for the vectors of dengue. Surveys indicate that, in the decade preceding 2016, an average of 95,000 new structures were erected annually within the jurisdiction of the Rajdhani Unnayan Kartripakkha (RAJUK). Over the subsequent fifteen years, at least 64,000 additional buildings were constructed across the capital [77,78]. In July 2020, inspections conducted by the Dhaka North City Corporation (DNCC) revealed that nearly 70% (8,764 out of 12,619) of homes and construction sites surveyed across 55 wards harbored potential *Aedes* breeding sources [79]. These inspections were carried out in collaboration with the National Malaria Elimination and *Aedes* Transmitted Disease Control Programme under the Directorate General of Health Services (DGHS). The following year, the situation deteriorated further. A 2021 DGHS study covering 70 areas of Dhaka reported alarming *Aedes* densities, with the Breteau Index (BI)-the number of water-holding containers infested with larvae per 100 houses-rising to 23.3 in Lalmatia and Iqbal Road (Ward 32, DNCC) and 20.0 in Sayedabad and Uttar Jatrabari (Ward 48, DSCC). High-rise buildings accounted for over 45% of breeding sites, followed by under-construction structures at nearly 35% [80]. In 2024, the former Mayor of DSCC warned that construction would be halted wherever *Aedes* larvae were detected and that dengue control drives would be launched in advance of the rainy season, alongside the government's seven-year National Dengue Prevention and Control Strategy [81]. The most recent pre-monsoon survey, conducted jointly by the DGHS Communicable Disease Control Programmed and the Institute of Epidemiology, Disease Control and Research (IEDCR), presents a similarly concerning picture: multistory buildings accounted for almost 60% of *Aedes* larvae, with a further 20% found in under-construction sites [82].

From Neglect to Epidemic: How Policy Failures Worsened Dengue in Bangladesh

Bangladesh's authorities have repeatedly failed to curb *Aedes* populations, persisting with outdated chemical approaches while neglecting structural determinants and community-level interventions. Government action has remained fragmented and reactive; in 2023, officials proved unable to control *Aedes* mosquitoes, opting instead to fault households and impose ethically questionable fines. Such mismanagement and flawed strategies have allowed dengue transmission to escalate unchecked, rendering official prevention efforts largely performative. Transparency International Bangladesh has identified several drivers of high mortality, including inadequate hospital staffing, delayed diagnoses, false-negative NS1 results, weak vector-control measures, and limited healthcare capacity beyond Dhaka [83]. Experts further warn that the absence of strategic planning, non-adherence to WHO guidelines, and the failure to involve qualified public-health professionals have deepened the crisis. By 2024, South Asia was experiencing its most severe dengue epidemic on record, with Bangladesh and

India reporting thousands of deaths as hospitals were overwhelmed. Concerns have mounted over inadequate anti-mosquito measures and the near absence of public awareness campaigns, shortcomings partly attributed to the lack of elected union parishad leadership under the interim government. Yet Dhaka's two city corporations have spent more than BDT 1,000 crore (over USD 81 million) on mosquito-control programs in the past decade, even as the capital continues to account for the majority of infections and fatalities [84].

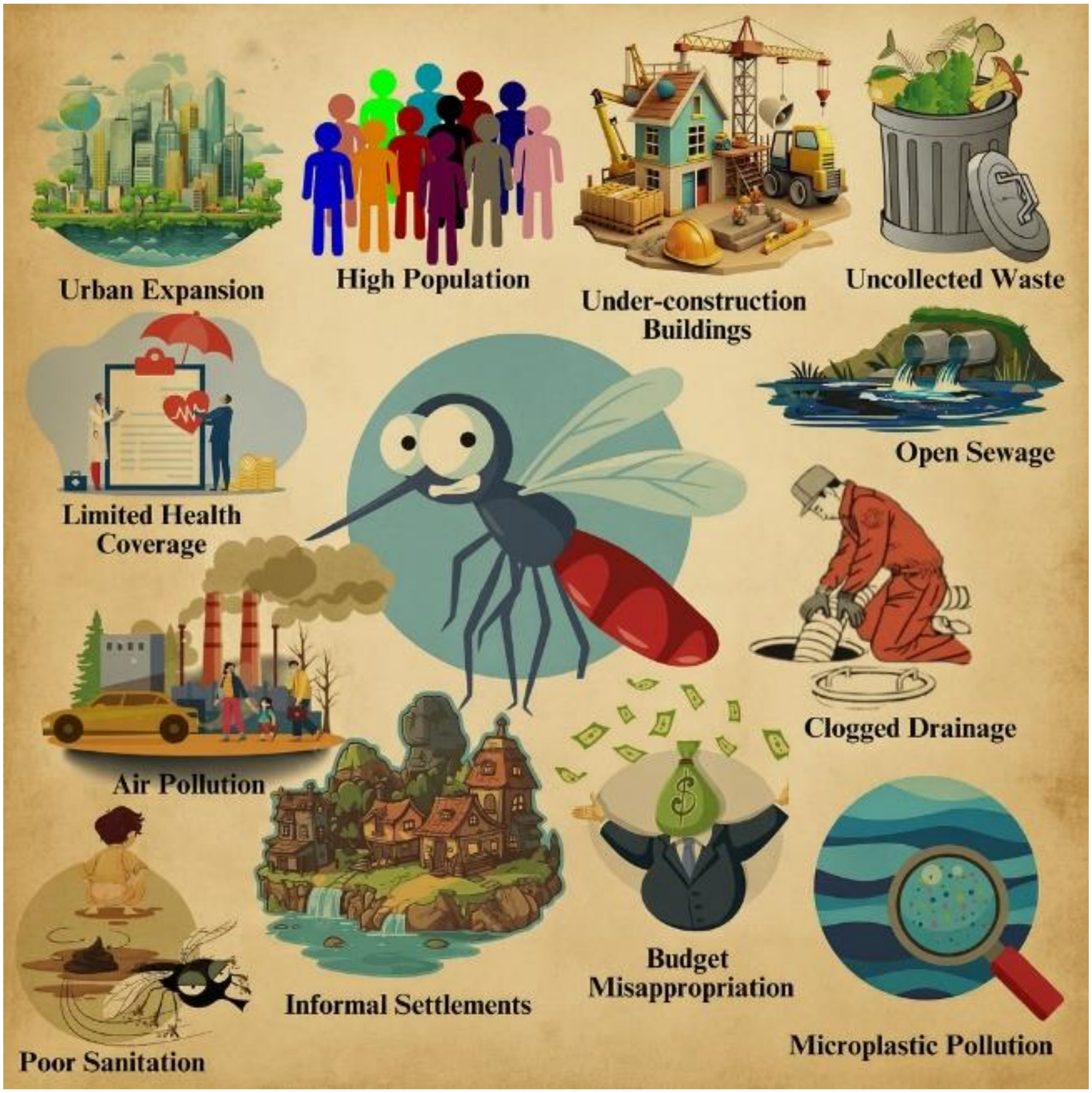

***Figure 5**: Key Drivers of Bangladesh's Rising Dengue Surge. Bangladesh's dengue surge reflects a dangerous convergence of climate stress, rapid urbanization, dense settlements, and chronic sanitation failures, which together have created ideal conditions for Aedes mosquitoes to flourish. Shifting infection patterns-rising male fatalities, high hospital admissions, and a disproportionate burden on young people-underscore a worsening public-health emergency driven by environmental degradation, waste mismanagement, and construction-related breeding sites. The infographic illustrates how these interconnected pressures-heat, overcrowding, poor waste disposal, irregular water supply, declining green cover, and ineffective vector control-are fueling an escalating nationwide epidemic.*

In 2023 alone, Dhaka recorded more than half of all cases and nearly 70 per cent of fatalities, underscoring that vector-borne outbreaks transcend partisan boundaries [85]. In FY 2024-25, Dhaka South City Corporation spent less than 40 per cent of its overall budget despite increasing its mosquito-control allocation by 19% [86]. Weak implementation, poor coordination, obsolete operational strategies, and persistent shortages of chemicals and manpower have severely undermined larviciding, mosquito-control, and drain-cleaning activities.

Conclusions

In Bangladesh, rising temperatures, unplanned urban expansion, and worsening pollution have created conditions that strongly favor mosquito proliferation, turning rapid development into a relentless battle against one of the country's deadliest tiny predators. The persistent and evolving threat of dengue underscores the need for timely hospitalization because the illness can deteriorate quickly —as well as systematic research to understand how environmental pollution, climate variability, and extensive pesticide use are shaping viral resistance and mosquito behavior. Media coverage has largely failed to capture the severity of the crisis, and domestic research remains limited, often attributing outbreaks only to erratic rainfall, monsoon shifts, and stagnant water. Yet evidence from regions with similar dengue patterns points to several overlooked drivers, including air pollution, pesticide and micro plastic resistance, and the complex interactions between rapid urbanization and mosquito ecology. With low levels of health literacy, even strong research rarely translates into public awareness or policy reform, and progress in evidence-based studies remains slow. Coordinated efforts that combine early clinical care with rigorous scientific investigation are therefore essential to mitigating the country's growing dengue burden. This national tragedy is part of a much larger global shift. A study in Nature warns that by 2080, nearly three in five people could be at risk of dengue [87]. Last year alone, more than fourteen million people were infected worldwide—twice the previous year and twelve times higher than a decade ago [88, 89]. The World Health Organization estimates that dengue causes up to 400 million infections annually [90], with incidence rising thirtyfold over the past fifty years [91] and now threatening more than 3.9 billion people [92] —nearly half the global population. As climate instability, unplanned urbanization, and expanding mosquito habitats intensify, dengue is no longer a regional challenge. it is an emerging pandemic that demands urgent international action. The time to act is now, before a greater catastrophe unfolds and more lives are lost.

Abbreviations

BI: Berteau Index
DGHS: Directorate General of Health Services
DNCC: Dhaka North City Corporation
DSCC: Dhaka South City Corporation
IEDCR: The Institute of Epidemiology, Disease Control and Research
NS1: Nonstructural Protein 1
RAJUK: Rajdhani Unnayan Kartripakkha
WHO: World Health Organization

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