

The Historical Roots of Water Inequality in Old Dhaka

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Research Article

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Abstract

Old Dhaka, where the city's first formal water supply system was established during British colonial rule, has undergone profound social, demographic, and infrastructural transformations. It is now one of the most densely populated and water-stressed areas of the capital. This paper examines the historical evolution of water supply and governance in Old Dhaka across successive political regimes, from the Mughal period and British colonial administration to post-independence Bangladesh. Drawing on archival sources and ethnographic fieldwork, it explores how colonial interventions, the commodification of water, rapid urbanization, population growth, and environmental pressures transformed the city from a water-abundant settlement into a water-stressed megacity. Using a combined framework of postcolonial governmentality and political ecology, the paper argues that contemporary water inequalities are rooted in historical processes that reconfigured water from a communal resource into a commodified service. Colonial infrastructures and governance practices established unequal systems of provision that continue to shape patterns of access today. The study demonstrates that water insecurity in Old Dhaka is not merely a technical or managerial challenge but is embedded in enduring relations of power, exclusion, and socio-economic inequality. By tracing the historical roots of contemporary water injustice, the paper contributes to debates on urban political ecology, postcolonial urbanism, and water governance in the Global South.

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Introduction

This paper traces the historical evolution of water supply in a postcolonial Southern city such as Old (Puran) Dhaka, from the establishment of its first centralised system through successive political periods—from the Mughal era and colonial administration to post-independence governance and contemporary reforms. Drawing on archival and interview data, it examines how colonial interventions, commodification, population growth, and environmental stress have collectively shaped the city's transition from a water-abundant settlement to a water-stressed megacity. Using a combined framework of postcolonial governmentality and political ecology, the study situates present-day inequalities within the broader history of infrastructural development. It argues how colonial powers created divisive and unequal societies by commodifying natural resources in the service of extractive imperial agendas. This perspective enables me to explore how such colonial logics continue to influence contemporary water governance in cities like Dhaka, where nature is often viewed as inert infrastructure rather than a dynamic socio-ecological system. To deepen this analysis, I draw on the political ecology of water, a framework that critically interrogates the social struggles, conflicts, and uneven power relations involved in accessing and controlling water and other natural resources in postcolonial contexts (Peluso & Watts, 2001). Viewed through the lenses of political ecology and postcolonial governmentality, the paper highlights how power relations continue to structure access to water in the city.

Archival records reveal that such challenges are not recent. Reports from The Bangladesh Observer and The Kaler Kantha (The Bangladesh Observer, July 1977; Islam, January 10, 2015) document persistent water shortages across Dhaka, highlighting that Dhaka Water Supply and Sewerage Authority (DWASA), as the sole public authority responsible for piped water provision, has long struggled to meet daily demand. These accounts point to a pattern of infrastructural fragility and uneven distribution extending back to the early post-independence period. The persistence of leakage, low pressure, and differential service quality suggests that Dhaka's contemporary water crisis cannot be explained solely by rapid urbanisation or recent governance failures. Rather, it reflects historically embedded decisions regarding network expansion, maintenance priorities, and the spatial allocation of investment.

The paper is based on a case study of Puran Dhaka—where the city’s earliest formal water supply systems were established during the British colonial rule. Since then, the area has undergone profound social, demographic, and infrastructural transformations and is now one of the most densely populated and infrastructure-stressed parts of the capital. Rapid and unplanned urbanisation has placed immense pressure on existing water infrastructure, while socio-economic stratification complicates equitable right to water. Puran Dhaka was also selected because it has received comparatively limited attention from both government agencies and national and international NGOs despite facing severe infrastructural and environmental challenges. This relative neglect makes the area particularly significant for understanding how marginalized urban communities cope with chronic water insecurity in the absence of adequate institutional support. The study area, Puran Dhaka, falls within the jurisdiction of the Dhaka South City Corporation and encompasses eight administrative areas: Lalbagh, Hazaribagh, Chowkbazar, Bangsal, Gendaria, Kotwali, Wari, and Sutrapur (Banglapedia, 2012).



Fig 1: Map of Dhaka city, source: Islam, S. (2012)

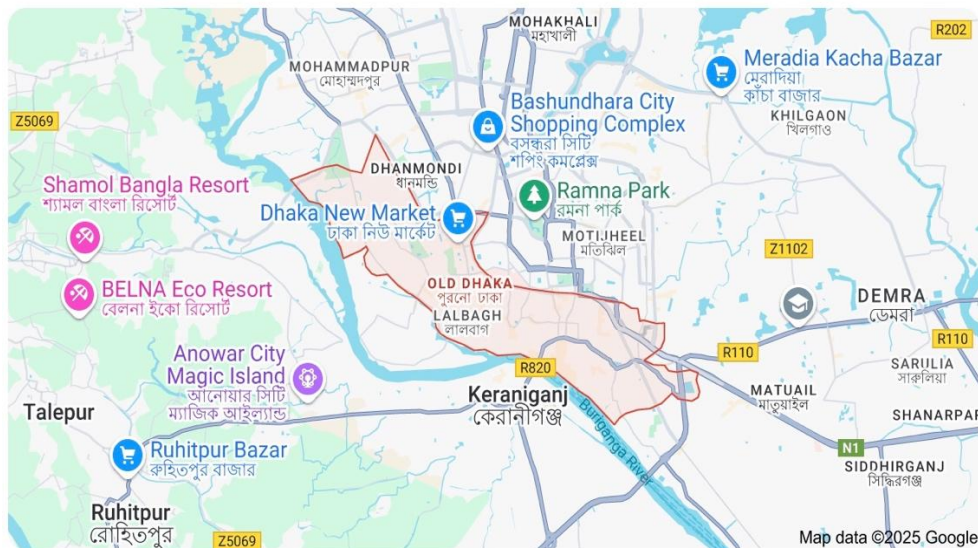


Fig 2: Puran Dhaka (red marked), Source: Map of Old Dhaka (2019)

In the pre-Mughal period, around the year 1600, Dhaka covered an area of only 1.5 km² along the Buriganga River. However, it expanded to 22 km² during the British colonial period and to 50 km² during the Pakistani period. The city expanded westward and northward during the Mughal and British periods but primarily expanded northward during the Pakistani era. In the early years of independent Bangladesh (1972–1980), urban growth continued towards the west and north, largely bypassing the older parts of the city. Between 1980 and 1990, development concentrated on Mirpur and the surrounding areas, resulting in the significant landfilling of low-lying areas along the north-south corridor. Until 1990, Dhaka's expansion remained constrained between the Balu River in the east and the Turag River in the west. However, from 2000 onwards, the city began expanding in all directions, rapidly occupying vacant lands—including wetlands, water bodies, swamps, and marshes—in a highly unplanned and environmentally unsustainable manner (Islam et al., 2021).

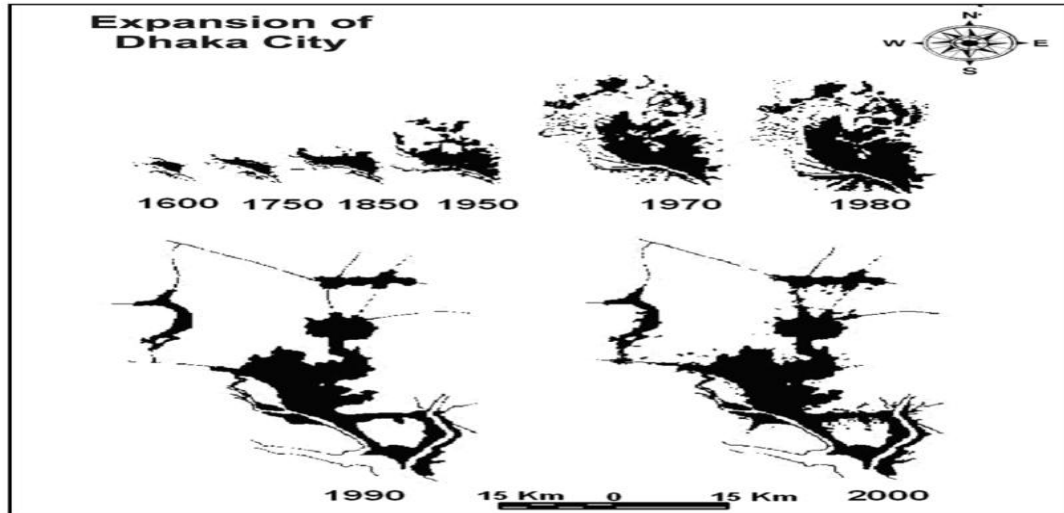


Fig 3: From trading outpost to megacity, Source: Mowla, 2012

This paper draws on qualitative ethnographic research conducted in Puran Dhaka between January and December 2023 as part of a PhD project at the University of Sydney. In addition to intensive fieldwork during this period, I maintained regular contact with key participants following the completion of fieldwork and conducted follow-up interviews via telephone. The follow-up interviews provided opportunities to clarify emerging themes, verify interpretations, and document subsequent developments related to water access and governance.

Data were collected through participant observation, semi-structured interviews, informal conversations, and document analysis. A total of 30 (thirty) respondents were selected using a combination of snowball and purposive sampling techniques, focusing on individuals aged 15 to 70 who are actively engaged in economic activities, including both formal and informal work as well as household management. In addition, interviews were conducted with politically influential community members, such as the local ward commissioner and councilor, as well as NGO workers and government officials, to gather a broader range of perspectives and to corroborate the narratives provided by local respondents. Participant observation involved accompanying residents during water collection activities and documenting everyday water-use practices, water sources, and the challenges associated with accessing and using water. Interviews were recorded where consent was provided and supplemented with detailed field notes. Secondary data were sourced from

published and unpublished materials, including documents retrieved from libraries, archives, and online sources. Data were analyzed thematically using an iterative coding process informed by political ecology and postcolonial theory, focusing on the relationships between infrastructure, power, inequality, and informal water practices. Ethical approval for the research was granted by the University of Sydney Human Research Ethics Committee, and all participant names used in this paper are pseudonyms.

Against this backdrop, the paper begins with the earliest recorded forms of water provision in the Mughal period, despite the establishment of formalised, centralised supply systems during the colonial era. This historical framing is intended to highlight how uneven interventions and social differentiation—structured along lines of class and, during colonial rule, race—have shaped access to water over time. These patterns of fragmentation have persisted into the postcolonial period, sustained through inherited infrastructure, institutional arrangements, and governing rationalities. In many postcolonial cities, water systems were not originally designed to ensure universal coverage; rather, colonial infrastructural planning prioritised administrative centres, commercial hubs, and elite residential areas, embedding spatial inequalities within the urban fabric. Post-independence reforms have not fully dismantled these legacies. Instead, institutional restructuring, rapid population growth, and climate-related pressures have compounded existing disparities, further entrenching uneven access to urban water services.

Before tracing the genealogy of water supply in Dhaka, this paper briefly outlines the theoretical frameworks of political ecology and postcolonial governmentality. Drawing on these lenses, it argues that water scarcity in Dhaka is not primarily the result of shortage of supply, but rather stems from deteriorating infrastructure, the persistence of colonial legacies, and exclusionary governance practices. Accordingly, the study conceptualises water not merely as a natural resource, but as a politicised and socially produced commodity. A central objective is to critically examine how state institutions—particularly those responsible for water governance—reproduce historically embedded hierarchies and disproportionately serve elite interests, thereby systematically marginalising low-income populations in the distribution of urban water.

Literature review

The fragmented access to water supply and sanitation is one of the key developmental challenges in the Global South (Kooy & Bakker, 2008). Since its inception in 2015, the sustainable development goal on water- SDG 6 (clean water and sanitation) aims to ensure universal and equitable access to safe and affordable drinking water, adequate sanitation, and improved water management by 2030. However, progress has been slow in the low- and middle-income countries (UN-2025). Globally around two billion people lack access to safely managed drinking water services. Access is even more constrained in low- and middle-income countries. The estimate suggests around one third of the population has access to safely managed water services (Kashiwase & Fujs, 2023).

Like many cities in the Global South, access to reliable water supply in Bangladesh remains highly uneven. On average, fewer than 50 per cent of the urban population has access to a dependable water supply, with some metropolitan areas reporting rates as low as 10 per cent (Rashid, 2000). Conditions are even more severe for the urban poor living in informal settlements, slums, and squatter communities, where approximately 70 percent of residents lack access to potable water (Rashid, 2000; McIntosh, 2003). In contrast, nearly 98–100 per cent of households in affluent neighbourhoods such as Gulshan, Banani, Baridhara, and Dhanmondi are connected to water and sewerage services. Access in lower-middle-income areas, including Rayer Bazar, Bashabo, Jurain, and Mirpur, ranges between 50 and 75 per cent (Siddiqui et al., 2000).

However, unequal access cannot be explained solely by the limited purchasing power of low-income populations. Empirical evidence indicates that the urban poor often pay disproportionately higher prices for water than wealthier residents (OECD, 2016). Water quality also remains a critical concern, nearly 95 per cent of residents in Pura Dhaka receive either polluted or iron-contaminated water (Alam et al., 2023). As a result, multiple, overlapping modes of water provisioning have emerged alongside the formal, state-run system, each serving different segments of the urban population (Kjellén & McGranahan, 2006). In the study area, these include water vendors, fee-based water supplied by local mosques, DWASA-operated water ATM booths, and bottled water.

Scholars explored the question of the fragmented and unequal water supply especially in the cities of the Global South from various perspectives. I will be using the postcolonial governmentality and political ecology of water to explore the fragmented and unequal water supply. Foucault coined the term governmentality to refer to a form of rationality that emerged in Europe during the 16th and 17th centuries (Foucault, 1991). The term implies a new form of power that helps an increasingly administrative and bureaucratic government to exercise an unprecedented degree of control and surveillance on its citizens through a set of rationalities (Barry et al., 1996; Dean, 1999). Building on Foucault's analysis of power/knowledge, postcolonial theory interrogates how certain forms of knowledge become institutionalised as truth while others are marginalised. Colonial administrations produced authoritative knowledge about land, water, and populations that justified intervention and control. These discursive formations did not disappear with independence; they were absorbed into postcolonial bureaucracies. Contemporary water governance in Dhaka continues to reflect technocratic rationalities that privilege engineering solutions while sidelining local knowledge and lived experience. Thus, postcolonialism is not merely about historical critique—it is a methodological commitment to destabilising inherited epistemic certainties and exposing how colonial logics persist within contemporary governance (Foucault, 1972).

These interventions were not merely technical projects but expressions of imperial power. By separating land from water conceptually and materially, colonial governance restructured Bengal's economy around extractive agriculture and revenue maximisation. Infrastructure became a tool of domination: rivers were transformed from relational ecological entities into hydraulic instruments serving imperial commerce. The expansion of railways, roads, and irrigation networks facilitated extraction, while cash-crop regimes dismantled artisan economies and deepened rural impoverishment. Dhaka's decline from a flourishing textile centre to a marginalised colonial city illustrates how water-dependent artisanal systems were displaced by industrial capitalism (Acciavatti & Mehrotra, 2015; Gilmartin, 1994, 2003; Mollinga & Veldwisch, 2016; Lahiri et al. 2013).

Water distribution in Dhaka is not governed solely by natural hydrological processes but is shaped by socioecological dynamics that reflect how political decisions are made, how problems and solutions are

framed, and how burdens and benefits are allocated (Roth et al., 2014: 948). These disparities reveal that water insecurity is not merely an issue of availability or infrastructure but one of social justice and political marginalisation.

Political ecology provides a framework for analysing these dynamics by positioning water not as a neutral resource but as part of a hydro-social cycle—a co-produced system in which water and society mutually shape each other (Swyngedouw, 2009; Linton & Budds, 2014). The changes within this cycle are never impartial; they benefit some groups while disadvantaging others. As Truelove (2019) argues, water serves as a lens for examining broader social exclusions, particularly in urban contexts where informal settlements and low-income communities are systematically excluded from state provisioning systems. Empirical studies from cities such as Mumbai, Accra, Guayaquil, and Flint demonstrate that chronic water insecurity cannot be attributed solely to overpopulation, groundwater depletion, or ecological shocks. Instead, it is often the result of deliberate political and social processes that privilege specific populations while rendering others invisible or disposable (Truelove, 2019).

In the following sections of the paper, I deploy the analytical frameworks of postcolonial governmentality and political ecology of water to demonstrate that water inequality in Dhaka is not a recent phenomenon but is rooted in a historical legacy from the colonial period. This process ingrained a bifurcated understanding of water as a commodity rather than a right. In a bifurcated system, water does not flow to those who most need it, but to those who can pay the most for it, leaving those who most need it to find their own improvised ways of accessing it.

To trace these dynamics, the paper examines the evolution of water governance across key historical periods—Mughal, British colonial, pre-independence, and post-independence. This chronological analysis shows how successive governance regimes have produced and reinforced social divisions, particularly along lines of class and status. The central focus of the paper, therefore, is to show the production of differences between urban populations through distribution of water supply.

The Mughal period (1608-1757)

Mughal subahdar Islam Khan declared Dhaka the capital of Bengal in 1608; however, the city's history extends far beyond this moment. Over time, Dhaka has functioned as a major centre of trade and manufacturing, as

well as an administrative capital or sub-capital under successive Hindu, Muslim, and later British rulers (Bhattacharya, 1948). Historically, the city was known as Jahangirnagar during the Mughal period and as Dacca under British rule. Prior to the Muslim conquest, Bengal was not united under one ruler but divided into multiple principalities governed by Buddhist and Brahmin dynasties (Taifoor, 1952).

Earlier accounts underscore the region's prosperity. During 1406–1411, two Chinese ambassadors visiting Bengal described it as a vast and fertile land with abundant agricultural production. While the majority of the population was engaged in agriculture, they noted the presence of a wealthy mercantile class actively involved in maritime trade. Their descriptions portray well-fortified cities with wide streets lined with diverse shops, as well as establishments for food, drink, and bathing. They also recorded a wide array of goods—including silk textiles, gold-embroidered garments, painted wares, metal tools, paper, and silver coins—alongside the presence of a standing army and a distinct class of musicians, indicating a socially and economically complex urban society (Taifoor, 1952, pp. XXI–XXIII).

Accounts of foreign travellers also provide valuable insights into the spatial and economic character of early Dhaka. Observations by Niccolao Manucci (1663), Jean-Baptiste Tavernier (1665), Thomas Bowrey (1669–1679), and James Taylor (1840) suggest that Mughal Dhaka was geographically bounded by the Buriganga River to the south, Tongi to the north, Jafarabad–Mirpur to the west, and Postagola (Pist-i-Qila) to the east (Karim, 1964, pp. 37–38). The city is described as extending over more than forty square miles, encompassing extensive gardens and cultivated lands (Dani, 1962; Bowrey, 1905; Taylor, 1840).

The historical evolution of Dhaka city can be broadly divided into two distinct patterns: Old Dhaka and New Dhaka. This evolution is typically categorized into six key periods: the Pre-Mughal period (1205–1610), the Mughal period (1620–1757), the East India Company period (1758–1858), the British Colonial period (1858–1947), the Pakistan period (1947–1971), and the Bangladesh period (1971–present) (Islam et al., 2021).

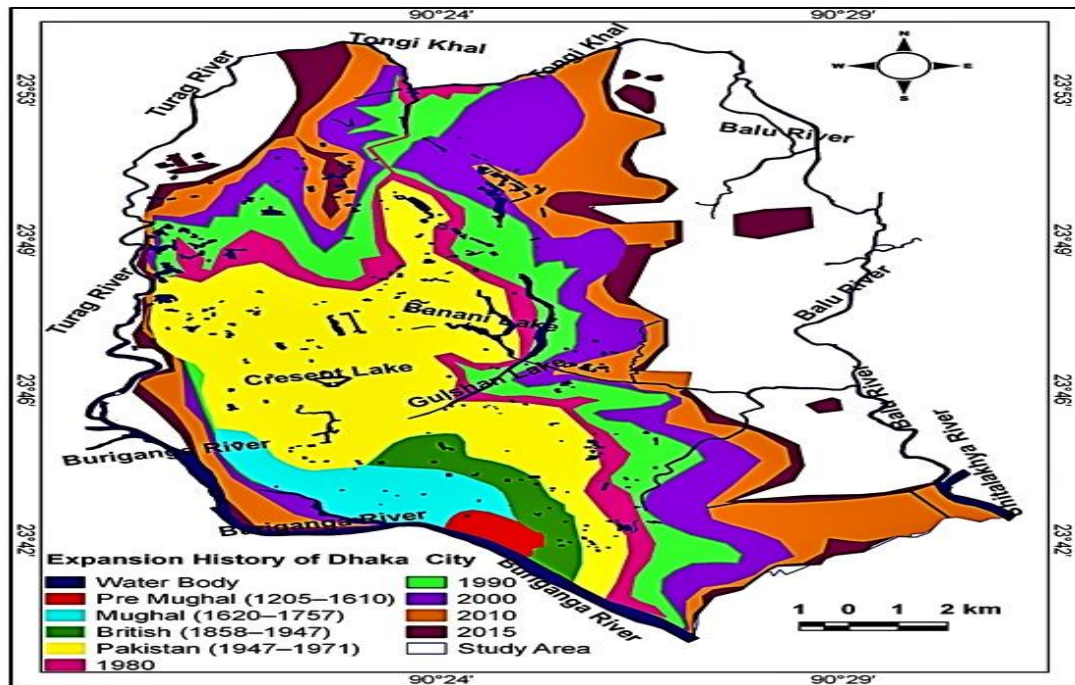


Fig 4: Expansion History of Dhaka, Source: Islam et al. 2021

Originally, Dhaka was situated on a stable, elevated tract of land, which protected it from flooding and other natural hazards, except for heavy monsoon rains (Dani, 1962, pg. 1-2). Despite the high humidity between April and October, prevailing easterly and south-easterly winds helped moderate the climate (Eastern Bengal District Gazetteer, 1912, pg. 13). Consequently, the city developed in a linear, ribbon-like form along the Buriganga River, reflecting both its reliance on river-based transport and the desire to capture cooling breeze. The south-eastern section of this ribbon—particularly areas such as Patuatuli, Kumartuli, Jaluanagar, Banianagar, and Goalnagar—constitutes the oldest part of the city and was predominantly a Hindu settlement. Many of its inhabitants were craftsmen and traders who played a central role in Dhaka’s early urban economy (Dani, 1962; Taifoor, 1952).

The Mughal declaration of Dhaka as the capital significantly enhanced the city’s political and economic importance. In addition to expanding trade with various parts of India, the city grew as an administrative and judicial centre (Dani, 1962). Islam Khan reconstructed a pre-Mughal Afghan fort in the city, using it as a strategic base of operations against Arakanese pirates. During this period, an artificial canal was excavated between the Buriganga River and the western branch of the Dolai Khal as a defensive measure to protect the Mughal headquarters. Consequently, Mughal elites constructed their residences along the river, both to ensure security and to maintain proximity to key administrative and transport routes (Rudduck, 1964).



Fig 5: Pre-Mughal Dhaka is in the half moon in the East, Source: Dani, 1962

The map shows that the pre-British Dhaka was developed as a linear settlement along the river Buriganga. Beside the built-up areas, we can see a large area comprising of gardens, orchards and cultivated lands. While it may appear revolutionary that the British introduced modern municipal institutions to the Indian subcontinent—primarily to facilitate administrative control and extract wealth—it would be inaccurate to argue that urban life before British rule was disorganized or lacking in infrastructure. In Dhaka, settlements during both the pre-Mughal and Mughal periods were profoundly shaped by traditional ecological knowledge and cultural practices, in which water played a central role in everyday life. Right to water was governed by customary norms, collective management, and adaptive strategies suited to the region's hydrological conditions. These practices highlight a historically embedded relationship between communities and their water sources—one that contrasts sharply with the extractive and bureaucratic logic introduced during colonial rule (Eaton, 1993; Ahmad, 2003).

The Mughals established a centralized system in which they attempted to institutionalize specific public needs with the assistance of affluent individuals. They appointed a powerful official with enormous influence, known as the *Kotwal*, to maintain law and order and ensure public services (Mishra, 1970; Tinker, 1968). The *Kotwal*

functioned as a municipal institution in the absence of government regulations. The city was divided into wards (still in existence), and each was overseen by a *mir mohalla* (chief of the ward, currently known as a councilor) directly appointed by the *Kutwal*. As there were no centralized rules and policies to govern the municipal system in a modern sense, *Kutwal* himself was the sole municipal institution in Mughal India (Mishra, 1970; Tinker, 1968).

Besides the *Kutwal*, few philanthropists would contribute to the community with a tank here or a burning *ghat* (landing on a riverbank) or *Sarai-khana* (resthouse) there. Still, these donations were primarily sporadic, depending on the patron's vagaries or religious piety. In return for these philanthropic activities, the wealthy maintained good standing with power and secured their share of privileges (Mishra, 1970; Tinker, 1968, pp. 17, 253-267). Such favoritism towards the affluent was also prevalent during the colonial era. As a result, ordinary people mainly depended on the *Kutwal* for their public facilities. Dhaka did not have any municipal institutions during the Mughal era (Gupta, 1989).

Unlike Fatehpur Sikri in Agra or Delhi which were constructed in unitary concept, Dhaka's development was need based in piecemeal lacking holistic urban planning. The city also did not receive the architectural attention like Delhi, Agra or Lahore (Morshed, 2019). Despite the modest heritage, the city had a dynamic range of the empire's contributions such as mosques, mausoleums, minaret sand *i'dgahs*, forts and *katras*, palaces and *hammams* (bathing chambers), *Qadamrasuls* and *Imambaras*, and bridges. The popular Pagla bridge and a fort was built by Subadar Mirza Moula in the 1660s on the river Pagla to connect Dhaka with Narayanganj mostly for defense purpose (Ahmed, 2006).

Fig 6: Pagla bridge ruins by Hoffman in 1880s; Sketches of Tantibazar bridge ruins by Charles D'Oyly in 1830's, source: Ahmed (2006).

Subadar Islam Khan excavated 'Dolai Khal' in 1608-1610 to protect the city from Balu River, increase internal navigation within the city and to facilitate passage over the canal. The canal flowed through the center of the Dhaka finally connecting it with the river Buriganga (Ahmed, 2006). As rivers and canals were important traffic conduit of the city, the Mughal Dhaka city had many landing platforms at the riverbanks commonly known as *ghats* (Rahman & Ahmed, 2013). The Hammam (bathing chamber) of Lal Bagh Fort is an example of an advanced hydrological engineering system available at that time. Excavation within the premises unearthed remains of 25 structures related to water supply and sewerage, roof gardens, a water reservoir, and fountains (Morshed, 2019). The Mughal buildings and structures have become isolated elements as most of them are in deplorable conditions and gradually deteriorating due to lack of maintenance.

Though the Mughals established a strong administration, evidence shows that Bengal did not achieve a high standard of Public Health and Sanitation at that time. Bradley-Birt described Dacca as 'foul and pestilent beyond description' with 'undrained and unswept' lanes and alleys, despite having a picturesque fort, *katras*, *bazaars*, and *mosques* (Bradley-Birt, 1905, pp. 244). The situation worsened at the end of the Mughal era particularly after the capital was transferred to Murshidabad in 1717, the central authority degenerated and lost its grip. Therefore, public

services, especially the sanitation system, worsened (Tinker, H. 1968, p. 21). The end of the Mughal era was a challenging time, as the East India Company gained power with the fall of the Bengali Nawabs in the Battle of Plassey in 1757 (Tahir, 2021).

The British Colonial Period (1757-1947)

Bengal was one of the most affluent and self-sufficient provinces of the Mughal Empire. The East India Company took control of Bengal to dominate its trade and revenue. Their primary purpose was profit-making, with little attention to the well-being of the people (Tahir, 2021). Therefore, all public service systems worsened during the company rule. When the British imperial power took direct control of the Indian subcontinent in 1857, things began to settle down, although the native population was still far from reaping the benefits. The purpose of British colonialism was not meant to be for an extended period, but 'the objective was certainly a profit venture and eventually to withdraw' (Karim 2010, pp. 182). Thus, British policies focused on controlling the locals, ensuring sustainability, and extracting wealth from them. In doing so, they created an educated, privileged native class to assist in operating their institutional framework (Prakash 1992, 1994, 1999). The educated native class continued to maintain the institutional framework even in the postcolonial period, significantly exacerbating the structural inequality that had been exacerbated during the British regime.

By the time British administration was established in 1765, the city had already begun to contract in both population and economic activity (Dani, 1962, pp.100-101). With the rise of Calcutta as the principal administrative, commercial, and military center in the early nineteenth century, Dhaka's decline became more pronounced. Contemporary accounts, such as that of Bishop Heber, describe how nearly two-thirds of the city had fallen into ruin and was overgrown with jungle (Heber, 1827). Dhaka gradually began to regain some of its former prominence under British administration, particularly through the initiatives of successive collectors and district magistrates. The establishment of the municipality in 1864 marked a turning point, as urban development became more systematic, with efforts directed toward clearing jungles and repairing roads and bridges (Atiqullah and Karim Khan, 1965).

However, as the following section will demonstrate, these developments were largely geared toward serving imperial officials, their subordinates, and a small group of affluent local elites, offering limited benefits

to the broader population. The colonial powers during the late nineteenth and early twentieth centuries implemented development ideas in colonial cities, such as Mumbai, Delhi, Kolkata, Jakarta, Dhaka, Singapore, and Lucknow, to expand their colonial power, extract wealth and ensure the safety and well-being of the colonial employees working in this land (Scriver 1994; Scriver and Srivastava 2015; Scriver, PC & Prakash, V, 2007). This pattern of uneven development reflects the enduring legacy of colonial urbanism, where infrastructure functioned as an instrument of control and economic integration rather than as a means of equitable urban improvement.

During the earlier days of the colonial rule, Dhaka's development remained concentrated along the river following the existing trend of pre-Mughal and Moghul period; however, the city gradually expanded toward the eastern and northern areas due to the availability of open land. Significant infrastructural developments under British rule included the establishment of the Ramna Racecourse in 1825, the development of Nawabpur-Johnson Road, and the relocation of the administrative headquarters from the old fort to this area in 1870. The construction of the Eastern Bengal Railway further integrated Dhaka into regional networks, linking it with Narayanganj in 1885 and Mymensingh in 1886 (Atiqullah and Karim Khan, 1965). New localities such as Topkhana, Purana Paltan, and Naya Paltan were developed primarily for military purposes while planned residential areas emerged in Ramna, the model suburb of Wari, and the affluent neighbourhoods of Gandaria and Purana Paltan, equipped with relatively modern amenities mostly to accommodate the colonial officers, English educated natives and wealthy businessmen (Dani, 1962, p.10).

These developments were highly uneven in both distribution and impact. Rather than improving conditions for the broader population, they reinforced socio-spatial inequalities, contributing to a pronounced North-South divide within the city. Newly developed areas were characterised by openness and improved infrastructure, while older parts of Dhaka remained densely populated and underserved (Majumdar, 1978). These spatial disparities were further reflected in housing conditions. The urban poor typically resided in thatched huts, mud-plastered dwellings, or structures made of corrugated iron (Geddes, 1917), whereas areas such as Ramna and Wari featured spacious houses set within large compounds, enclosed by high boundary walls and designed with ample ventilation. These residences often combined Mughal and European

architectural elements (Karim Khan and Islam, 1964). This contrast is captured in the observations of Rabindranath Tagore, who noted the openness of Ramna in stark contrast to the narrow, congested lanes of old Dhaka, reportedly suggesting the name “khola” (open) for Ramna as opposed to Dhaka, meaning “closed” (Majumdar, 1978).

Under East India Company rule and during the first quarter-century of British Crown administration, essential services such as water and electricity were not recognized as public responsibilities (Mishra, 1970, p. 570–571), reflecting a broader pattern of colonial neglect toward the welfare of the general populace. In the absence of a centralized administrative framework or coherent legislative structure, the delivery and quality of public services varied widely. The discretion, priorities, and motivation of individual officers largely shaped them. The role of the district magistrate bore a striking resemblance to the Kutwal of the Mughal era—a position that was formally abolished in 1814 (Ahmed, 2023). As with their Mughal predecessors, colonial officers often maintained close relationships with the wealthier segments of society, ensuring the protection of elite privileges while marginalizing the needs of the majority. Moreover, under both the Mughal Kutwals and British administrators, local officials were frequently drawn from affluent backgrounds, further entrenching elite dominance in public affairs (Mishra, 1970; Tinker, 1968). This systemic exclusion of the poor from decision-making processes has had enduring consequences. It continues to manifest in contemporary institutions—for instance, in the composition of the Dhaka Water and Sewerage Authority (DWASA) Advisory Board, which remains devoid of representation from working-class or low-income communities.

Dhaka was granted municipal status under the Bengal Government Act of 1884 (Act III), which conferred legal authority to levy taxes for urban improvements (Haider, 1966; Mishra, 1970). The British also established the Public Works Department (PWD) in 1854 and the City Improvement Trust to manage the water infrastructures, which functioned as the physical and administrative backbone of the colonial state (Haider, 1966; Ahmed, 1986, 1989). Institutional responsibilities were gradually decentralized and specialized mostly managed by the engineers and bureaucrats. The construction of two-kilometre-long Buckland embankment during the mid-19th century is the first major engineering intervention (Haider, 1966; Mishra, 1970).

Before this formalization, municipal services in Dhaka were limited and included activities such as excavating the Dolai Khal, repairing bridges, filling ditches and marshes, sweeping and metaling roads, destroying stray dogs, clearing jungles and undergrowth, and maintaining the cleanliness of wells and tanks. With the new legal and fiscal powers, the Dhaka Municipality significantly expanded both its scale and range of services, including the provision of piped water and public lighting. However, the introduction of service fees was met with resistance, as most residents were unaccustomed to paying for water or lighting. The municipality also expanded its workforce and infrastructure, replacing its minimal staff and equipment with a larger contingent of sweepers, road coolies, bricklayers, carpenters, bhistis (traditional water carriers), gardeners, overseers for conservancy operations, tahsilders (tax collectors), clerks, and a secretary (Haider, 1966; Mishra, 1970).

Historically, the residents of Dhaka have primarily relied on the Buriganga River, as well as tanks, ponds, and dug wells, to meet their daily water needs. Captain Thomas Bowrey, who visited Dhaka in 1678, described the river water as being of good quality (Eastern Bengal District Gazetteer, 1912, p. 173). While comprehensive historical data is scarce, it is widely believed that water quality began to deteriorate in the eighteenth and nineteenth centuries, coinciding with the onset of British colonial rule (Haider, 1967). The provision of potable water was not formally recognized as a public service accessible to the general population until relatively recently (Chaudhury & Mukhopadhyay, 1975). Although the quality of water from these traditional sources was often questionable, viable alternatives were scarce. Over time, the Buriganga River became the primary receptacle for the city's sewage, waste, and industrial effluents. Its visible degradation—marked by thick, muddy, and polluted waters near the banks—reflected the absence of adequate sanitation and waste management systems, the rapid proliferation of informal settlements driven by population growth, urban development, industrialisation and a general lack of public awareness about the health risks associated with contaminated water (Chaudhury & Mukhopadhyay, 1975).

In response to these conditions, an informal system of water provision emerged through the Bhistiwalas—traditional water carriers who delivered water directly to households. *Bhistiwalas* were the traditional water suppliers in the Indian Subcontinent for centuries before the formal water supply system arrived. They played

an essential role in delivering water to the households, shoppers, and travellers in the bazaars, different public and private institutions, and even during wars in the Indian Subcontinent from the Mughal Empire to the mid-20th century as sufficient public supply water and mineral water bottles were unavailable (Patwary, 2024; Rahman, 2012). *Bhistis* are believed to have existed in the Indian Subcontinent with the arrival of the Mughals but were also found to be present in other parts of the world, such as North Africa, the Arab world, and Iran (Culture Bazaar, 2022). Even though rulers built numerous wells, rainwater tanks, and other water supply systems, *Bhistis* worked as saviours, moving from crowded cities to battlefields and serving people as informal water vendors. *Bhistis* played a crucial role in the subcontinent's military history during the Mughal and British periods.

Acknowledging the essential role they played, municipal authorities at one point even encouraged the expansion of their numbers. In this context, *Bhistiwalas* can be viewed as precursors to contemporary water vendors, operating in parallel with—or in the absence of—formal water supply systems (Ahmed, 2023).

The renowned Bangladeshi poet Shamsur Rahman (1929-2006) mentioned *Bhistis* in his autobiography *Smritir Shohor*, who grew up in Puran Dhaka during that period, wrote poems about the cultural practices. His poems reminded us of the various professions that are extinct now but served people at that time such as the *Batiwala* (lamplighter), who used to light the lamps during dusk time in the alleys; the *Kulphiwala* (ice-cream seller); the *Bakarkhaniwala* (Bakar Khani is a famous Puran Dhaka biscuit); the *Bhistiwala*; and the horse stable (Rahman, 2024). The other lost and fading professions of Bengal are *Dak Horkora* (postman), *Harbola* (professional mimics), *Pankha* (fan) pullers, *napitani* (lady barber), the *bahurupis* (joker), *Shil Katau wala* (the grinding stone etcher), *nakib* (coachman), and many more (Brishti, 2022).

Rahman was born and raised in Mahuttuli, Puran Dhaka, as a child. He remembered *Bhistiwalas* delivering water twice daily to all the neighboring houses, as there were no tubewells or water supply lines. From his recollection, we know that *Bhistiwalas* were very regular until water pipelines became available. Young Rahman developed a friendship with the *Bhistiwala*, who would deliver water to his home, as he was very friendly and often told stories to the boy. Young Rahman described the *Bhistiwala* as having foreign features that disappeared once the water line was

installed in his home. With the establishment of tubewells in many parts of Dhaka, the need for *Bhistiwalas* was decreasing. They were also known as Sakka in Dhaka; their locality was Sikkatuli (Patwary, 2024).



Fig 7: *Bhistiwala* with goat skin water bag, Source: Hulton archive (1870)

Amid growing concerns about public health, Dhaka's first waterworks was inaugurated in 1878. This development included a surface water treatment plant, several street hydrants, and a limited number of private water connections, primarily serving the city's elite. Unlike in many other Indian cities, where public utilities such as water and electricity were financed through government initiatives, civic amenities in Dacca were provided mainly through private philanthropy. Notably, Dhaka's water and electricity infrastructure was funded by the *Nawabs*, among the wealthiest and most respected members of society (Saqui et al., 1973).

Initially, Dhaka's waterworks infrastructure was inadequate to meet the demands of its growing population. In the 1880s, efforts were made to expand water lines along the main thoroughfares. However, these public taps primarily benefited nearby elites, including businesspeople, artisans, doctors, lawyers, teachers, and government offices and quarters. The Nawabs further financed an extension of the existing network, known as the *Connaught Extension*, which similarly catered to affluent residents and Europeans residing in areas such as Nawabpur, Thataribazar, and Dikhushabag. Despite these developments, the majority of Dhaka's residents remained dependent

on contaminated water sources due to their limited right to a piped supply and a lack of public awareness of the health risks posed by unsafe drinking water (Haider, 1966).

Dhaka experienced a period of infrastructural progress when it was declared the provincial capital of Eastern Bengal and Assam in 1905; its elevated status prompted the expansion of water supply systems and other public services. To satisfy the growing demand of the rising middle class, a limited number of private households were granted permission to install water taps. A project was also launched to improve water quality, as only two ageing engine pumps and boilers supplied approximately 200,000 gallons of filtered water daily. The installation of two powerful Worthington engine pumps and two Babcock and Wilcox boilers effectively doubled the capacity, adding 200,000 gallons per day. The outdated sand filtration system was also replaced with five modern jewel filters, resulting in a significant expansion of the street water pipelines and public hydrants. This upgradation also led to the introduction of water charges on July 16, 1910 (Eastern Bengal District Gazetteer, 1912). However, following Dhaka's demotion from provincial capital to divisional headquarters in 1910, municipal services, including the filtered water supply, suffered a significant setback (Eastern Bengal District Gazetteer, 1912).

Amidst political unrest, financial constraints, and the global disruptions of World War I, Dhaka's public health situation deteriorated further during the 1918–1919 influenza pandemic, alongside recurrent outbreaks of smallpox and cholera. These crises resulted in a significant loss of life and prompted renewed efforts to strengthen local government institutions, aiming to improve public services. However, the colonial administration's approach revealed a clear structural bias. While funds were tightly controlled, financial resources were made readily available for government-initiated projects, particularly those serving British colonial interests. In contrast, locally proposed initiatives based on the needs of Dhaka's general population received limited support. For instance, the extension of the water pipeline to the Peelkhana Cantonment and the Civil Station—intended for British military and administrative officers—was completed within a year in 1910. In stark contrast, a waterworks improvement scheme targeting residents, initiated in 1917, languished until 1920 before seeing substantial progress (AARDM, 1918–1919; 1920–1921).

Both the municipality and the colonial government were notably more responsive to the needs of the local elites than to those of the general population. A telling example is found in the case of Wari, an affluent area at the time. When residents of Wari complained about low water pressure in their pipelines, the municipality promptly addressed the issue. Within a year (1921–1922), a scheme was approved by the government to install a subsidiary water line approximately 2,498 feet long, extending from Nawabpur to Wari (AARDM, 1920–21). This swift action can be attributed to the socio-political profile of Wari's residents, which included many English-educated professionals such as doctors, lawyers, teachers, and government officials living in this model suburb. Moreover, the municipality demonstrated a greater willingness to install piped water connections in elite neighbourhoods than to provide public hydrants, despite the latter being more cost-effective. Consequently, the number of street hydrants increased significantly to meet growing public demand (Haider, 1966).

Cholera outbreaks became a regular occurrence in the city, often linked to poor sanitation and a lack of right to filtered water. Amongst the regular outbreaks of diarrhea and dysentery, the town experienced two significant epidemics in 1919 and from 1927 to 1928. Therefore, an urgent need to improve sanitation and the water supply system for better public health became a dire necessity. The municipality initiated the extension of the existing pipelines and increased street hydrants through a project proposal. Government grants, local government loans, and municipality funds financed the expenditure. This was an important initiative to improve Dhaka's per capita water supply before India's partition in 1947; however, it proved insufficient in the face of growing needs (AARDM, 1930–31). The government did not have time to focus on trivial matters such as public service delivery immediately due to the outbreak of World War II. Prices of daily necessities rose higher, the government lacked funds to finance any development projects, and India became involved in the war despite their disapproval (AARDM, 1940–41). The project proposed by the then-chairman of the municipality, Mr. Pyarilal Das, to install two more overhead tanks, as the existing engines could fill two more tanks (AARDM, 1930–31), took many years to be completed.

During the period of financial crisis and political turmoil from 1939 to 1940, Dhaka Municipality faced an acute economic crisis due to a shortage of government funds and private donations. However, projects were undertaken to fulfill the needs of a specific section of society. The municipality initiated a new waterworks improvement project in 1935 to serve particular areas, including Armanitola, Purana Paltan, Wari, Gandaria,

Kasim Nagar, Narinda, the Victoria Park area, Peel Khana, and Mill Barracks. This development aimed to meet the growing demands of the rising middle class, particularly the English-educated professionals such as teachers, government officials, and lawyers, who increasingly populated areas like Purana Paltan after the establishment of the University of Dhaka in 1921 (Water Pipe Extension, 1923; Improvement of Purana Paltan, 1938; BSBR, 1935; BPHR, 1936). Additionally, special attention was given to government quarters, including those of the Eastern Frontier Rifles in Peel Khana, the Police Lines in Mill Barracks, and other state-owned buildings in Kasim Nagar and Gandaria (Water Pipe Extension, 1923; Improvement of Purana Paltan, 1938; BSBR, 1935; BPHR, 1936). These records highlight how infrastructural improvements were primarily concentrated in affluent and politically influential areas, reflecting the socio-political hierarchies of the time.

The municipality was unable to extend new water connections to much of the population due to limited planning capacity, inadequate infrastructure, and chronic financial constraints, particularly during the final years of colonial rule. Water distribution was further hampered by low pressure caused by the narrow diameter of the pipelines, many of which measured only 2–3 inches and primarily served densely populated, low-income neighbourhoods such as Gandaria. As the number of household connections increased without corresponding infrastructure upgrades, water pressure declined significantly, and the reservoirs were often depleted by 8:30 a.m., leaving many residents without access for the remainder of the day (AARDM, 1940-41, p. 6).

Meanwhile, 5" diameter pipelines were already laid (AARDM, 1920-21) in areas such as Wari, Gandaria, and Narinda, and they had good water pressure (BPHR, 1936). The biased attitude of the municipality was regularly reported in a popular bi-weekly newspaper known as *The Dhaka Prakash*, Dhaka's first Bangla newspaper. In a 1923 report, the newspaper highlighted the sufferings of the Thatari Bazar, where street hydrants and private connections were running dry before the usual time (*Dhaka Prakash*, 1923).

In contrast, the then-modern suburbs of Wari and Purana Paltan received substantially better municipal services. An inspection report by Dr. S. N. Suri recorded that Ward III, encompassing the affluent Wari neighbourhood, had 114 public hydrants, whereas Ward IV, despite having a comparable population, had only 68 (BSBR, 1935). The *District Gazetteer* similarly documented the stark disparities in public amenities between Wari and the rest of the city. During the 1940s, the municipality prioritized improvements to the water supply in Wari, Purana Paltan, and the commercial district of Nawabpur, reflecting the growing concentration of the city's political and economic elites in

these areas (BSBR, 1935). In this regard it is true to say that water is political, and access to it is mediated by intersecting structures of power—including class, gender, and ethnicity—which produce varied experiences of water insecurity even among people living nearby, such as within the same neighbourhoods, lanes, or households (Swyngedouw et al., 2002; Budds & Sultana, 2013; Sultana, 2011).

Based on the recorded improvement projects, the paper states that the affluent and the influential were the primary beneficiaries of the water supply during this period. Scanty measures were taken here and there to satisfy the masses, such as the installation of a tubewell with the capacity of providing 11,000 gallons of water per hour in Narinda in 1940, a hundred feet of water lines installed in the underdeveloped area near the Government Distillery in Gandaria in 1941 and the construction of a water reservoir in Ward number 11 (AARDM, 1939-40). The measures were insufficient, resulting in a colossal water crisis at the end of British rule. Most of the houses in the town had wells, and residents relied on them for their daily needs despite the high contamination rate. During summer, the situation became dire when the water pressure in the street hydrants was low. People had to wait in line for hours and carry the buckets under the scorching sun to their homes as the hydrants were far away from the slums. A report stated that people preferred using nearby contaminated wells and canal water for bathing and domestic purposes over filtered water due to the long waiting time and distance required to obtain it (AARDM 1939-40, *Dhaka Prakash*, 1923).

The use of narrow pipelines reflected both cost-saving priorities and a lack of long-term planning. Although replacing these pipelines with larger ones has long been recognized as necessary, the substantial financial and logistical demands have meant that much of the required upgrading remains incomplete. As Marx ([1885] 1967) observed, infrastructure requires continual maintenance and reinvestment to remain functional. In Dhaka, the failure to maintain and modernise colonial-era water infrastructure—including overhead water tanks and ageing distribution networks—has contributed to its gradual deterioration. The infrastructural decay can also be explained not as a technical problem but as the outcome of political and economic decisions that unevenly allocate investment and maintenance.

One of the monumental surviving water infrastructures of the colonial period is the overhead water towers. They are one of the earliest water infrastructures designed to serve as water storage for major towns (Chowdhury et al., 2025). The DWASA authority confirmed the presence of 38 overhead tanks in their jurisdiction, none of which are operational anymore. Historical records indicate that the first overhead tank was established in 1878 in Bahadur Shah Park. Even after many years, the distinctive architectural style of red-brick wall construction continues to capture

people's attention. All the tanks built during the British Raj had a similar red-brick design, whereas the tanks built during the post-Independence period were white and taller than their older counterparts (Shupty and Prato, 2023).

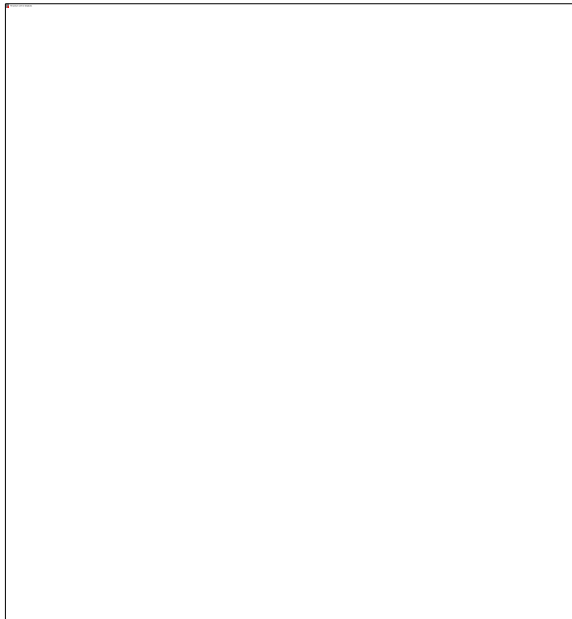
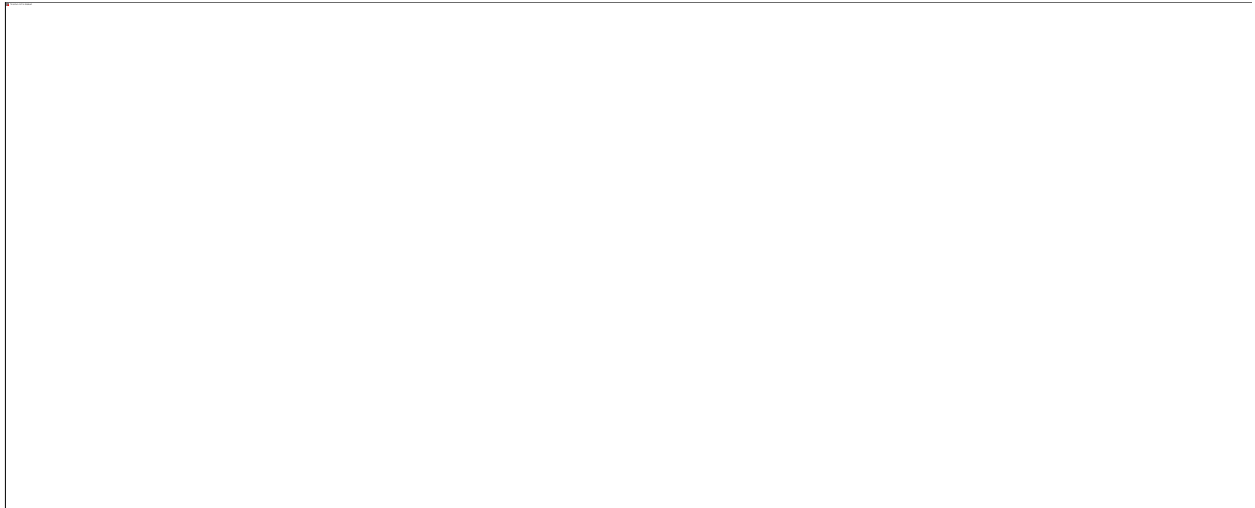


Fig 8: Clockwise- The first overhead water tank was established in Dhaka in 1878, and the second two were established during the Pakistan period. Source: Shishir (2024), Shupty and Prato (2023)

The tanks were built to store purified water from the treatment plant, ensuring a continuous supply of pure water to residents during pump repairs or shortages. A considerable amount of time, such as ten hours, and a substantial amount of water were needed to fill the overhead tanks. Therefore, with the growing population, the desire for a swift

water supply increased, and overhead tanks were replaced with individual household tanks. Moreover, lifting water to those overhead tanks required a lot of pressure, which caused continuous pump failures. Consequently, the decision was made to close the tanks due to high maintenance costs. Due to a lack of official sources, unofficial sources from retired DWASA officers confirm that the closure began in the 1980s, and the latest shutdown happened in 2007 at Agargaon (Shupty and Prato, 2023).

The colonial administration prioritized infrastructural development in areas inhabited by British officers, affluent merchants, and the emerging middle class, while neglecting the majority of the city. As noted in the Eastern Bengal District Gazetteer (1912), "Nothing in fact could be greater than the contrast between the amenities of Wari and the squalid discomfort of the remainder of the town" (p. 457). Similarly, improved water services were concentrated in elite neighbourhoods such as Purana Paltan and Nawabpur, especially around commercial areas (Water Works Improvement, 1936–37).

Colonial urban planning entrenched structural inequality by making access to basic services, such as clean water dependent on class and proximity to colonial power. This legacy of exclusion has extended into the postcolonial era. Moreover, the British administration frequently pursued large-scale engineering interventions without adequate environmental planning or consideration for indigenous water practices. These top-down projects disrupted Dhaka's natural drainage systems, contributing to the long-term degradation of local water sources. Contemporary urban governance continues to replicate these technocratic and exclusionary approaches, perpetuating ecological damage and socio-spatial inequality in the city's water infrastructure.

Pre-Independence Period (1947-1971)

In 1947, the partition of British India led to the creation of two independent nations: India and Pakistan along religious lines. Following the partition, Dhaka was declared the capital of East Pakistan and rapidly emerged as the region's administrative, political, and commercial centre. This new status accelerated the city's transformation into a modern metropolis. However, much of the subsequent urban expansion was concentrated towards the northern parts of the city, reflecting state-led development priorities that disproportionately favoured the growing middle- and upper-income populations (Ahmed, 2017).

Scholars have argued that one of the enduring consequences of colonial rule has been the racial segregation replaced by the social segregation and unsustainable proliferation of urban centres and the parallel expansion of informal settlements on their peripheries—developments that have significantly shaped postcolonial modernity (Alliance, 2014; Home, 1997). In the aftermath of empire, the British left behind a class of Western-educated native professionals who, upon assuming leadership in the postcolonial period, adopted Eurocentric models of governance and development. This developmentalist worldview came to dominate urban planning across the Global South but has since been widely critiqued for its epistemological limitations and internal contradictions (Pieris, 2010; Sriver, 2010). Drawing inspiration from Western engineering paradigms, city governments in the Global South have invested in large-scale interventions, including embankments, dams, guide walls, and aqueducts. These projects not only disrupted traditional water management systems but also contributed to the growing commodification of natural resources, reinforcing patterns of inequality and environmental degradation (Chen, Wang, & Kundu, 2009; Rumbach, 2014).

In response to the need for coordinated urban development, the Dhaka Improvement Trust (DIT) was established in 1956. Tasked with planning and managing the city's growth, DIT played a central role in developing the northern parts of Dhaka, including residential areas such as Gulshan, Banani, Baridhara, and Uttara. These planned neighbourhoods were strategically situated on higher ground to remain flood-free. In contrast, poor migrants—lacking access to formal housing—began settling in unplanned and informal structures in the low-lying, flood-prone areas to the East and West of the city. This spatial bifurcation laid the groundwork for a long-standing division between Dhaka's well-serviced, planned neighbourhoods and its older, under-resourced and informally developed areas (Ahmed & Mohaya, 2013).

Additionally, the Dhaka Improvement Trust (DIT) commissioned a master plan to guide urban development through the integrated management of wetlands, watercourses, and urban expansion. However, the plan was met with skepticism by many scholars and government officials, who questioned its suitability for Dhaka's unique ecological setting. The Pakistani administration implemented the plan only selectively, largely ignoring recommendations to protect wetlands and preserve open spaces while prioritizing those that supported rapid urbanization, including the construction of roads, bridges, and housing (Fahim, 2017).

Dhaka also experienced a massive influx of population during the mid-20th century, driven both by the promise of better economic opportunities and the need to accommodate large numbers of Muslim migrants from India following communal violence and partition-related displacement. This rapid population growth placed immense pressure on the city's already fragile urban infrastructure. It significantly increased the demand for essential public services, particularly the need for safe and clean drinking water. In response to these challenges, the Dhaka Water Supply and Sewerage Authority (DWASA) was established under the East Pakistan Ordinance of 1963. DWASA was tasked with providing safe drinking water and managing sanitation and stormwater drainage systems at an affordable cost (Ahmed, 2017).

Two other key organizations were established at the same time: the Bangladesh Water Development Board (BWDB) in 1959 to oversee water resource management, and the Department of Public Health Engineering (DPHE), under the Ministry of Local Government, Rural Development and Cooperatives (MLGRD&C), which took responsibility for water supply, sanitation, and hygiene across both rural and urban areas (Ahmed, 2017).

Although the Pakistani period was relatively short, it was characterised by political instability and the continuation of colonial development ideologies. Instead of addressing the needs of the local population, the regime largely reproduced colonial planning practices that prioritised urban expansion, engineered infrastructure, and economic growth over ecological sustainability and social equity.

The post-Independence period (1971 till date)

The growing economic and political disparity between the East and West Pakistan has ultimately fuelled widespread dissatisfaction and led to the Bangladesh Liberation War of 1971. Following months of brutal conflict and immense human suffering, Bangladesh achieved independence from Pakistan (Liberation War Museum).

The newly formed Bangladeshi government in the 1970s and 1980s lacked the financial capacity to independently undertake the large-scale infrastructural development necessary to support a rapidly growing population. Consequently, the state became heavily reliant on international donor agencies to fund urban development initiatives. Between 1973 and 1996, numerous projects were implemented to enhance municipal

services in Dhaka, with a particular emphasis on improving water supply infrastructure. These initiatives were supported by a range of development partners, including the World Bank, the Asian Development Bank (ADB), DANIDA, UNICEF, the Islamic Development Bank (IDB), and the Government of Japan (Yesmin-Mannan, 2009). While these projects—such as those undertaken by DWASA—contributed to the expansion of infrastructure and the advancement of a capitalist development model, the resulting benefits were not equitably distributed across society. Right to improved services remained concentrated among wealthier and more formally recognized urban areas, while low-income and informal settlements continued to face chronic service deficits. This pattern reflects a broader trend in which externally funded development projects, despite their transformative potential, often reproduce existing social and spatial inequalities (Yesmin-Mannan, 2009).

To further elaborate on the uneven and exclusionary nature of development in Bangladesh, I draw on Feith's (1982) concept of the repressive developmental regime. Feith identifies three defining characteristics of such regimes: a developmentalist-technocratic orientation, a strong sense of nationalism, and militaristic control (Feith, 1982, p. 493). This framework has been used in postcolonial states—including Suharto's Indonesia, the Shah's Iran, Park Chung-hee's South Korea, as well as military-led regimes in Argentina and Brazil, which prioritized rapid economic development while suppressing dissent and centralizing power (Feith, 1982).

Bangladesh also fits within this paradigm, particularly during its military rule from 1975 to 1991. During this period, the state exhibited all three of Feith's characteristics: technocratic planning guided by donor-driven development agendas, nationalist rhetoric used to consolidate legitimacy, and a militarized political structure that curtailed political opposition. Dictatorial regimes have often attracted transnational corporations by offering the dual advantages of cheap labour and a large, disciplined workforce. In return, these regimes benefited from steady economic growth, frequently reflected in rising GDP figures (Feith, 1982, p. 497).

However, this development model systematically excludes the lower classes from meaningful political participation, equitable income distribution, and secure employment opportunities (Feith, 1982). As a result, despite the proliferation of development projects and steady economic growth, low-income communities have largely been excluded from the benefits and continue to lack right to essential services, most notably, clean and reliable water. Moreover, this repressive developmental regime, often bolstered by multinational

corporations, has actively fostered the expansion of the informal economy. A key feature of this system is the cultivation of intermediaries or *maastans*—politically affiliated enforcers who control right to resources, mediate service delivery, and maintain order among unemployed or underemployed populations. This mechanism mirrors colonial strategies, wherein similar intermediaries were used to manage the public and suppress dissent (Anand, 2011).

The donor agencies also advocated for restructuring DWASA into a more commercially oriented entity, promoting the introduction of market-based principles and managerial reforms. In response to these pressures, DWASA adopted the WASA Act of 1996, following a recommendation by the World Bank to provide the organization greater autonomy from the central government (World Bank, 1995; Bakker, 2003). Interactions during the fieldwork with the local people of Puran Dhaka revealed that previously in Puran Dhaka many standpipes were installed in various locations, allowing people to collect water for free easily; however, this is no longer the case. DWASA free-standing water dispensers are being replaced with DWASA paid water ATM booths, whereas DWASA is supposed to ensure pure drinking water for all. DWASA has set up 297 ATM booths in the capital in collaboration with the US-based Drink Well organization. Together, they plan to set up 500 ATM booths to provide clean water to the people. People must pay 80 paise per liter and can collect water from 8:00 a.m. to 4:00 p.m. Consumers need an RFID card at the cost of 50 BDT, like a bank's ATM card, which they can insert into the machine to automatically dispense clean water, and if the card runs out, they can reload it from the booth (Islam, 2023).

There is growing concern that these ATM initiatives, rather than strengthening the overall water supply system, could entrench corruption and irregularities. By opening new avenues for revenue generation, DWASA may prioritize revenue over broader structural improvements to the water infrastructure, instead shifting its focus to maximizing returns from privatized mechanisms. Moreover, residents fear that individuals may hoard water from ATM booths and resell it at inflated prices, further exacerbating inequality.

Puran Dhaka's ageing infrastructure has also received comparatively little attention in terms of maintenance and repair. Instead, there has been a greater emphasis on undertaking large-scale infrastructure development projects rather than rehabilitating existing infrastructure. Notably, DWASA lacks a comprehensive map of the pipeline network in Old Dhaka. Over time, Dhaka's ageing water pipeline network has deteriorated significantly, resulting in widespread leakage and corrosion. Even Dhaka WASA officials during fieldwork have acknowledged that the majority of the

supply network is in urgent need of replacement. According to DWASA's official records, there are 40,000 domestic and commercial connections spread across its 3,800-kilometer pipeline system. However, no significant repair or development work has been carried out in key areas—including Nawabpur Road, Basabo-Gendaria, East Jatrabari, Sayedabad, Maniknagar, Hazaribagh, Nawabganj, Nilkhet-Azimpur to Buriganga, the Dhaka-Narayanganj-Dhaka (DND) project zone, Uttarkhan, Dakshinkhan, Nikunja, Khilket, and Uttara Model Town—since the original pipeline installation (The Dhaka Tribune, 2019). This persistent neglect not only erodes public trust in service provision but also highlights the urgent need for investment in the maintenance and rehabilitation of Dhaka's water infrastructure.

Fig 9: DWASA's water woes, Source: *The Dhaka Tribune*, 2019

More recently, the District Metered Area (DMA) Project, a collaborative initiative between the Asian Development Bank (ADB) and the Government of Bangladesh (GoB), has been implemented to modernize the water distribution network by reducing leakage, improving pressure management, and enhancing service delivery. Once fully installed, it is expected to significantly reduce Dhaka WASA's volume of Non-Revenue Water (NRW) and eventually help the organization achieve self-sufficiency. It is expected that the DMA model is relatively new and innovative, even within the South Asian context, and that DWASA is actively working to establish DMA zones across the entire city to improve the supply of safe drinking water (Annual Report 2019–2020). DMA initiative was designed to ensure a clean, reliable, affordable, and continuous water supply for all residents of Dhaka, including those living in poverty. A key objective was to guarantee 24/7 access to safe drinking water while reducing Non-Revenue Water (NRW) to 15% or less (Annual Report 2019-2020).

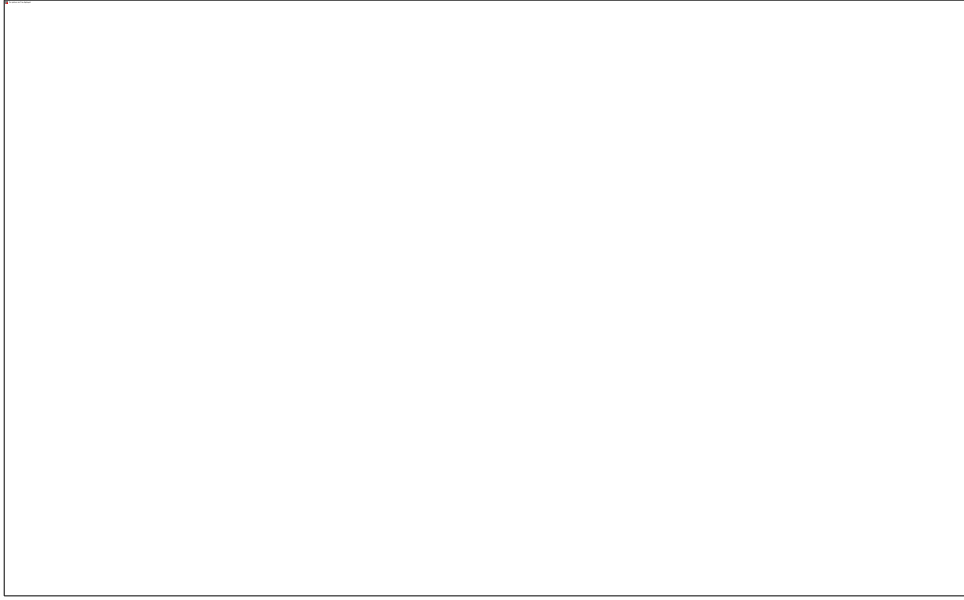


Fig 10: DMA implemented zones, Source: Author

Even though, there are plans in place to implement DMA projects in the Puran Dhaka area; however, it lacks a definitive timeline for completion. Interviews with DWASA officials attributed the delays primarily to the physical constraints of the area, specifically its narrow and congested roads and alleys, as well as the City Corporation's reluctance to grant permission for road cutting. Further, primary data collected during field study indicates very little substantive maintenance work has been carried out in this part of the city. To substantiate these claims, I searched for official records on DWASA's repair activities in Puran Dhaka but was unable to locate any accessible data. DWASA officials rationalised the lack of repair work to the limited space and the fragile condition of surrounding buildings, large-scale excavation or pipeline replacement efforts could potentially destabilize and even collapse adjoining structures.

It was evident that implementing DMA infrastructure in Puran Dhaka would be a slow and complicated process, further exacerbated by institutional, spatial, and technical limitations. The situation illustrates the broader tensions between modern infrastructural ambitions and the lived realities of older urban cores, where physical density, outdated planning legacies, and bureaucratic fragmentation continue to hinder meaningful infrastructural transformation.



Fig 11: The new pipe approved by ADB and a photo of the new pipe installed in a private slum, Source: Author

Conclusion

A historical analysis reveals that the contemporary water crisis in Puran Dhaka has deep colonial roots, which are now exacerbated by rapid urbanisation and the intensifying impacts of climate change. A postcolonial perspective uncovers the structural and ideological foundations of these persistent inequalities, while political ecology demonstrates how access to water is shaped by historically embedded power relations rather than by physical scarcity alone. Under British rule, governance in the Indian subcontinent was guided by a utilitarian and extractive logic that treated nature as a resource to be controlled, commodified, and exploited for imperial interests. The dynamic and fluid hydrological landscape of Bengal posed a challenge to colonial projects of territorialisation, taxation, and administrative order (Anand, 2011; Spivak, 1994). As Hossain (2020) argues, the colonial response was to sever the ecological relationship between land and water by imposing rigid administrative and hydraulic boundaries that served imperial priorities. Political ecology highlights that these interventions not only transformed ecosystems but also reconfigured social relations by creating unequal access to water and reinforcing class-based disparities. Although formal colonial rule ended in 1947, its infrastructures and governing rationalities persisted in the postcolonial state. As Fanon (1965) argues, colonial rule cultivated aspirations to emulate the coloniser, leading postcolonial governments to equate large-scale hydraulic engineering with progress and modernity. Consequently, dams, embankments, and river-control projects continued to be promoted despite their ecological incompatibility with the Bengal delta. In Dhaka, attempts to discipline the Buriganga River mirrored efforts to recreate the Thames, privileging

technocratic control over the region's hydrological realities and reinforcing a model of urban water governance that continues to produce uneven access and socio-environmental inequality.

As Indian subcontinent was reconstructed to reflect the colonial mindset in its systems and ideologies, the existing water supply system in most large cities of the Indian Subcontinent, especially Purnea, has not performed well. Addressing these challenges requires more than technical solutions; it demands a historically informed understanding of the purpose and rationale behind existing water systems. Even though, it is not under the purview of this paper but based on field study and analysis of secondary literature, I propose that water challenges require fewer technical solutions but historically informed understanding of the purpose and rationale behind the existing water systems. The state could focus in integrating and revising precolonial ecological wisdoms—such as floodplain management, seasonal water storage, and adaptive riverine settlement patterns—into contemporary planning (Ludden, 1999; Mosse, 2003).

Additionally, due to the pluralistic nature of the area, a unitary model of water supply can be introduced following the pre-colonial traditional system. Keeping in mind the space limitation and failure of the existing water supply system, the government can introduce bore wells and water tanks to cater to the needs of the large population. Moreover, field study findings showed that informal water governance such as local mosque supplying water, water vendors and private business were working side by side in Purnea. So, the government can come up with the idea of a pluralistic governance in this area, and such integration can help solve the water crisis.

Equally, empowering local governments and community organizations to participate in water governance would counteract the top-down model inherited from colonial rule (Chakrabarty, 2000; Baviskar, 2007). Societal institutions, including universities, NGOs, and civil society networks, could play a crucial role by producing and disseminating knowledge about locally embedded ecological practices and advocating for more participatory and sustainable planning. In this sense, moving beyond colonial inertia requires not only technical reforms but also a broader epistemic reorientation that values indigenous ecological knowledge alongside modern infrastructure (Mehta, 2011; Mawdsley, 2018). Due to space limitations, these institutional

and infrastructural arrangements cannot be planned out in this paper, but more research can be carried out to explore these ideas.

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