

# Transitioning Waterscapes of the Two Great Tanks of Delhi: *Hauz-i-Shamsi & Hauz-i-Khas*

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**Abstract** - The evolution of human settlements into environmental antithesis over the past century and a half has ushered in a new era for contemporary urban environments. Substantial alterations have been made to the urban ecosystem and its local ecology. The urban environment embodies these changes through physiological responses. Nature and society have never been separate entities. Civilization has always been influenced by the aquatic landscape that has sustained it. Numerous studies on the interdependence between water and society are available, emphasizing the significance of socio-ecological interconnectedness with water, resulting in the formation of socionatures. This relationship is cyborgial, transcending settlement boundaries, and represents the continuation of nature within society and vice versa. Urbanization, driven by economic factors, has recently led to the sporadic growth of settlements, disrupting the balance of socionatures. Can an ecological approach to urbanization be devised for Delhi, a city that has been growing unchecked since independence?

To consider the relationship between society and nature, as well as the ways in which these elements have evolved, is essential. This paper will concentrate on the waterscape that supported the historic district machinery, including water tanks, and the changes that have occurred in these waterscapes since their inception. In recent times, social geographers, anthropologists, ecologists, environmental historians, and others have contributed to a rich body of literature on this topic, and their findings must be incorporated when examining the historical connections between society and water infrastructure. The deterioration of historic waterscapes in Delhi necessitates immediate attention due to their significant impact on the societies they served. It is crucial to halt the decline of these historic water bodies and to initiate efforts towards the ecological regeneration of such water infrastructure, which may

alleviate the current strain on contemporary supply systems.

*Index Terms* – Ecology, Waterscape, Regeneration, Infrastructure, Conservation

## INTRODUCTION

The establishment of an effective water system in the five cities of Sultanate Delhi, namely Mehrauli (1192), Siri (1303), Tughlaqabad (1321), Jahanpanah (1326), and Firozabad (1354), was faced with numerous challenges due to the semi-arid nature of Delhi. As a result, the rulers resorted to various engineering techniques to harvest and channelize rainwater, which served as a primary source of water. This harvested water was stored and utilized throughout the year. Although Delhi is situated on the banks of the perennial river Yamuna, only one of the five cities, Firozabad (1354), was located on its banks, and a channel from the Yamuna was diverted towards Tughlaqabad (1321). The other cities of Delhi primarily chose elevated grounds within the city for defensive purposes. These cities were built on higher altitudes or the ridge of the Aravallis. The geography of Delhi can be generally described as comprising the lower Aravallis, alluvial plains, and the river. All of these factors played a crucial role in shaping the development of the cities of Delhi.

The principal use of the river water was for navigational and agricultural purposes, and canals were constructed to divert the water to the farmlands. The residents of these five cities largely relied on shallow and groundwater sources, such as wells and *baolis*, for their daily needs. However, the rulers of these cities also developed mechanisms to capture surface runoff and designed infrastructure to harvest and store rainwater for use during dry periods. Two notable examples of this include the water storage reservoirs located in Mehrauli and Siri, known as *Hauz-i-Shamsi* (built by Illtutmish) and *Hauz-i-Sultani* or *Hauz-i-Alai* or *Hauz-e-Khas* (built by Alauddin Khilji

and later developed by Firoz Shah Tughlaq). These reservoirs not only served as water storage facilities for monsoon rains but also helped to recharge groundwater. Additionally, many social, cultural, and religious activities were held near these reservoirs.

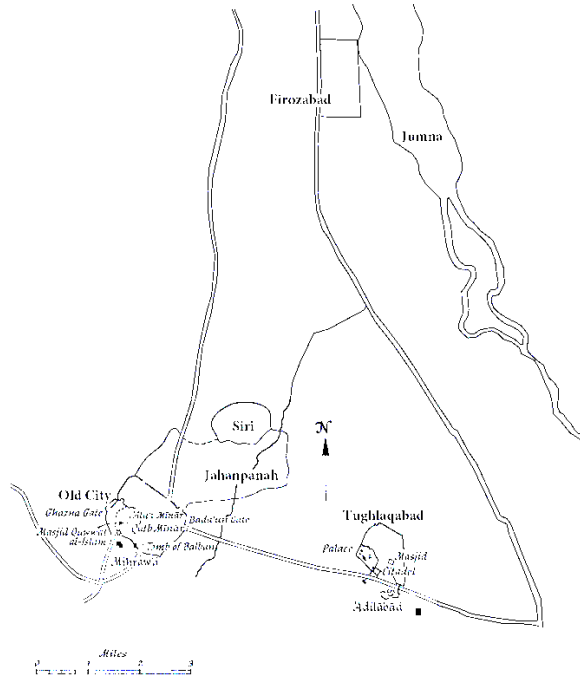


Figure 1: Five Cities of Delhi (Sultanate Period)

[Developed from Ibn Battuta's Four Cities of Delhi (Gibb, 2016) and Murray's Handbook Map of 1909 on Delhi & Its Environs]

### HAUZ-I-SHAMSI

*Hauz-i-Shamsi*, situated one mile from the Qutub Minar, has a fascinating anecdotal history related to the selection of its site. Named after Shams-ud-Din Iltutmish, the second ruler of the Slave dynasty, the reservoir was the brainchild of Sultan Iltutmish. He was uncertain about the location for the tank he wished to build for the people of Mehrauli. One night, the Prophet Muhammad appeared to him in a dream, seated on Buraq, the winged horse, at the site where the reservoir currently stands. Accompanied by the famous and revered Sufi saint of Delhi, Khwaja Qutubuddin Bakhtiyar Kaki, Iltutmish found the impression of Buraq's single hoof on the site, with water emanating from the impression (Ali, 1926). This led to the construction of the tank in 1229-1230 A.D. (Hasan, 1920). Another reference to the site's significance comes from Hazrat Ali, the Prophet's nephew, who appeared in the dream of both the Sultan and the Sufi saint (Stephen, 1876), directing Iqtedar Alam

them to the location of the reservoir. The water in the reservoir is believed to possess healing powers due to its historical associations with the site identification. Moreover, a *Haji*, who had performed the *Haj* pilgrimage to Mecca during the holy month of Id-ul-Adha, offered the *Ab-e-Zamzam*, the holy water from Mecca, to the Sultan, who then poured it into the reservoir, further enhancing its religious value.

The rectangular tank, which spanned 100 acres, was constructed with red-sandstone (Khan, 1854) and featured steps and terraces for visitors to access the water. It was also surrounded by numerous graves, due to its sacred and holy nature (Rodgers, 1891). The Auliya Masjid, a three-bay mosque located on the eastern side of the tank, was believed to have been constructed using the mud from the Shamsi tank by a revered Sufi Saint (Safvi, 2018). The tank was significant culturally, socially, recreationally, and religiously, and served the pavilions of the Jharna, the Jahaz Mahal, and the Auliya Mosque (Wadhawan, 1988). The surplus water from the tank, situated on elevated ground in relation to the surrounding area and created by the Mehrauli catchment, also provided for the villages in the north, such as Chirag Dilli, Khirki Gaon, Begumpur, Hauz Khas, and Kotla Mubrapur (Wadhawan, 1988).

The second and most powerful ruler of the Khalji dynasty, Alauddin Khalji (r. 1296-1316), discovered the tank to be silted and dry in 1311. He commissioned the tank to be de-silted and dredged, as well as repaired and cleaned, in order to restore it to its original splendor (Habib, 1931; Elliot, 1871). The court poet of the king, Amir Khusrau, wrote in *Khazaimul Futuh* that the bed of the tank had been broken into pieces due to evaporation, and it took two seasons to restore the tank to its original water level. Alauddin also added a domed-pavilion, or *chattri*, at the center of the tank, where Iltutmish had previously found the impressions of Buraq's hoof. The two-storeyed domed pavilion, which stood on a two-and-a-half feet elevated square platform with sides measuring 52 feet, was erected by Iltutmish in honor of the hoof's impression on the site (Rodgers, 1891; Gibb, 2016; Elliot, 1871; Ahmad, 1919). The dome was supported by 16 stone pillars, eight feet apart, and enclosed an open chamber (Ahmad, 1919).

Ibn Battuta, a renowned scholar and traveler, documented during his stay in Delhi, during the reign of Muhammad bin Tughlaq (r. 1325-1351), that the tank served as a collection point for surface rainwater

gathered from its catchment area. The western side of the reservoir featured steps and terraces leading to the water. On each terrace, there was a stone pavilion equipped with seating for visitors; however, during the rainy season, the tank became inaccessible, and the Khalji pavilion could only be reached by boat (Gibb, 2016). Additionally, Muhammad bin Tughlaq commissioned the construction of a monumental, regulated water reservoir, known as *Satpula*, in the fourth city of Delhi, Jahanpanah. He built a dam across the ravines at the city's edge, equipped with sluice gates that facilitated the regulation of water flow (Sharp, 1921).



Figure 2: Pavilion, *Hauz-i-Shamsi*

According to *Futuh-at-e-Firoz Shahi*, the autobiography of Firoz Shah Tughlaq (r. 1351-1388), the third ruler of the Tughlaq dynasty, the king discovered that the water channels, which supplied the reservoir, had been obstructed by some of the local inhabitants. Consequently, the king punished them for their mischievous behavior. Firoz Shah Tughlaq subsequently carried out the process of clearing the water channels (Elliot, 1871), thereby ensuring a continuous flow of water into the storage reservoir and enhancing its efficiency. Additionally, he repaired the Khalji pavilions and the edges of the *Shamsi* tank. It is believed that the excess water from the tank fed the waterfalls around the tank and the moats of the third Sultanate city, Tughlaqabad, after Firoz Shah Tughlaq had diverted the excess water to the Naulakh Canal. Later, when the city was abandoned, the excess water flowed into the jungle for an extended period. However, Nawab Ghaziuddin Khan Firoz Jung (1649-1710) constructed smaller tanks, water channels, and chutes during the reign of Mughal emperor Aurangzeb (Safvi, 2018) to address this issue.

According to Saiyid Ahmad Khan, the area of the tank had decreased to 276 *pukhta bighas* by 1852. The sandstone pieces had vanished, and the tank was unable to hold water for more than four months of the year due to the clogging of water channels upstream, which supplied water to the tank. Additionally, the tank was heavily silted and gradually taking on the appearance of a pond. A 1902 description of the tank acknowledged its picturesque surroundings, but noted that the tank rarely contained water (Fanshawe, 1902). By 1919, the tank had further shrunk to 270 *bighas*, 8 *gaj*, and remained silted-up. However, the people of Mehruali primarily used the water collected during the monsoon season for drinking purposes. Some individuals also utilized the space around the tank's edges to cultivate watermelons. In 1920, the domed-pavilion that was once situated in the center of the tank was relocated to the western edge of the tank (Hasan, 1920 & Peck, 2005), emphasizing the disproportionate reduction in the tank's size. The tank continued to shrink by 1999, and witnessed a change in construction materials. Delhi stone had replaced the original sandstone lining of the tank, and the inhabitants of the area used the water from the tank for their daily activities, such as bathing and washing their cattle (Nanda, 1999).

#### HAUZ-I-KHAS

Located approximately 4 miles northeast of *Hauz-i-Shamsi* lies the next great tank of the Sultanate Delhi, known as *Hauz-i-Khas* or *Hauz-i-Alai* (28.5479° N, 77.2031° E). *Hauz-i-Khas* was built by the second ruler of the Khalji dynasty, Alauddin Khalji (Hearn, 1906 & Sharp, 1921), in the year 1295 A.D for the city of Siri, the second city of Delhi (Stephen, 1876 & Ahmad, 1919). Initially, it was called *Hauz-i-Alai*, and later, when Firoz Shah Tughlaq (Hasan, 1920) commissioned the restoration and development of the tank, it came to be known as *Hauz-i-Khas*. It was a place of rest and recreation (Safvi, 2018). The rectangular tank had an area of 70 acres (Sen, 1948) or 100 *bighas* (Nath, 1979) and was 2.20 meters in depth (Roy, 2016). It was enclosed within a stone and masonry wall (Stephen, 1876). Ibn Battuta (1333) described the *Hauz-i-Alai* as a private tank, much larger in area than the *Shamsi* tank (As per Rodgers, the area of the *Hauz-i-Shamsi* was 100 acres, but it may have shrunk during Alauddin's time owing to the clogging of the water channels upstream). Battuta mentions the presence of forty pavilions on its sides. In close proximity to the reservoir was the *Tarab-abad* (the city of musicians), which had the most extensive market, a huge cathedral mosque, and many other

mosques (Gibb, 2016), highlighting its recreational significance and religious association.

Over two decades after its construction, Firoz Shah Tughlaq discovered in 1354 A.D. that the *hauz* had been filled with earth and no longer contained water. Despite this, individuals had dug wells in the area and were selling the water to both residents and travelers. Firoz Shah commissioned the cleaning and restoration of the tank to ensure that it would fill with water each rainy season and be available for the citizens of Siri and Jahanpanah. He also built a two-story madarsa, a double-bay deep gallery with a square domed hall at its southern and eastern edges, and steps along all its edges leading to the tank, adding religious and cultural significance to the site. According to historical records, Timur, after his victory in Delhi in 1398, returned to *Hauz-i-Khas* and camped there, describing the reservoir as having been built by Firoz Shah Tughlaq. The reservoir, which was enclosed in stone and cement, had all sides longer than a bowshot length, and the banks surrounding it were adorned with buildings, including Firoz Shah Tughlaq's tomb. The water from the tank, which was a rainwater-fed reservoir, was used to sustain the city's inhabitants throughout the year. The square tomb of Firoz Shah Tughlaq, built by the ruler himself, was covered by a domical structure raised on an octagonal drum.



Figure 3: *Hauz-i-Khas Complex*

By 1854, the tank had been entirely covered with earth, and the land was being cultivated for the storm water drains that had once fed it had been diverted to other areas (Roy, 2016; Savfi, 2018). The cultivators had taken over the galleries and buildings that had been constructed by Firoz Shah Tughlaq (Stephen, 1876; Rodgers, 1891). In 1919, there was hardly any trace of the tank left, with the exception of some broken steps that had once been present at the edges of the *hauz* (Ahmad, 1919). Despite this, the land was

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still being used for cultivation (Ahmad, 1919). Zafar Hasan, in 1920, described the tank as a ruined structure filled with earth. The excavation in 1916 had uncovered the original flight of steps, which were clad with grey stone (Hasan, 1920). The shrinking catchment area, combined with development pressure, made the tank obsolete for its immediate neighborhood. By 1936, the tank had lost 80% of its catchment area (Varshney, 2019). The Delhi Development Authority revived the tank in the early 2000s by pumping water into it from nearby sewage treatment plants (Roy, 2016), and it is now known as *Hauz Khas lake*, attracting many visitors to the site. The 70-acre tank had since shrunk to 47 acres (Varshney, 2019).

### RECOMMENDATIONS

The past millennium has seen numerous efforts to harvest rainwater in the semi-arid region of Delhi. Throughout the centuries, the Sultanate rulers, Mughals, and Colonials all played a significant role in the development of the city's water infrastructure, constructing *baolis*, tanks, and *kunds*, as well as establishing piped-water supply systems. However, as urbanization increased, the catchment areas for these water infrastructure systems underwent a change in runoff percentage, leading to many of them becoming obsolete and defunct. This paper aims to highlight the importance and significance of two major water infrastructure units of Sultanate Delhi, *Hauz-i-Shamsi* and *Hauz-i-Khas*. Originally covering 100 acres and 70 acres respectively, these tanks have now shrunk to nearly half their original size due to development pressure. Furthermore, the storm-water channels that once fed these tanks have been built upon, and high-density settlements in Mehrauli and *Hauz Khas* have resulted in a negligible percentage of rainwater reaching the tanks. Consequently, both tanks now rely solely on piped water-supply systems. *Hauz-i-Shamsi* has experienced significant concretization along its edges, which has led to a reduction in groundwater-table recharge. Additionally, unregulated sewerage discharge and the disposal of household waste in the tank have contributed to its current deplorable state, despite its once sacred and holy significance.

The urgent need for a comprehensive analysis of the micro-watershed and catchment areas of all historic water structures in the city, with a particular focus on storm-water channels that once supplied water bodies, cannot be overstated. These storm-water channels must be revitalized and rehabilitated to ensure the effective functioning of the water bodies. As of 2018,

the Delhi Government identified a total of 969 water bodies, the majority of which are historic and necessitate immediate investigation into their water management systems. To address this issue, a comprehensive water management plan must be developed for each of these historic water structures, highlighting their value and significance, and incorporating measures for de-silting, cleaning, and restoring their feeder channels.

All forms of studies of water systems have consistently demonstrated the tangible and intangible benefits of water infrastructure to both society and the environment. Therefore, it is crucial that the approach of interwoven socio-ecological relationships, also known as socionatures, be adopted as the guiding principle for water-area plans, conservation, restoration, and development schemes centered on water bodies.

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