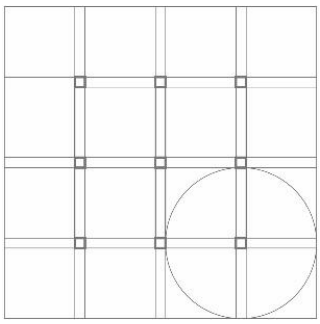

STEPWELLS OF AHMEDABAD

Online Exhibition | Irwin S. Chanin School of Architecture | 2020

Stepwells of Ahmedabad

The settlement pattern of north central Gujarat evolved in response to its undulating terrain and was deeply influenced by the collection, preservation, and use of water (see Gallery 1). The travel routes that linked these settlements also followed paths charted by the seasonal movement of water across the region's wrinkled, semi-arid landscape. The settlements formed a network tying major cities and port towns to small agricultural and artisanal villages that collectively constituted the region's productive hinterland. The city of Ahmedabad, which emerged on the Sabarmati River, was an historic center of this network.

The Sabarmati river originates in the Aravalli hills in the northeast, meanders through the gently undulating alluvial plains of north central Gujarat, and finally merges with the Arabian Sea at the Gulf of Khambhat in the south. About 50 miles north of the port city of Khambhat, Sultan Ahmad Shah, the ruler of the Gujarat Sultanate, built a citadel along the Sabarmati in 1411, formally establishing the city of Ahmedabad. The citadel was strategically situated on the river's elevated eastern bank, anticipating the settlement's future eastward expansion.[1] Strategic elevations in the undulating terrain were identified as areas for dwelling.[2] As a seasonal river, the Sabarmati swells during the monsoon and contracts in the summer, leaving dry large swathes. During its dry period, the riverbed became an expansive public space, bustling with temporary markets, circuses, and seasonal farming, as well as a variety of human activities such as washing, dyeing, and drying textiles.[3]

Soon after its establishment, Ahmedabad emerged as the region's administrative capital and as an important node in the Indian Ocean trade network. A major trade route connecting Delhi, in the heartland of India, passed through Ahmedabad before arriving in the port of Khambhat, just a two day journey on foot from Ahmedabad. Maritime trade brought great prosperity to the city and contributed to the growth

[8]V. S. Pramar, "The Effects of Trade and Urbanization on the Architecture of Gujarat." S*tudies in Trade and Urbanization in Western India*. Ed. V. K. Chavda. Baroda: Maharaja Sayajirao University, 1985. 85-93.
[2] *World Heritage Nomination Dossier - Historic City of Ahmedabad*. Centre for Conservation Studies, CEPT University, 2016.
[3] "Sabarmati: The Historic River and Its Connection to the City," Sabarmati Riverfront: Reconnecting Ahmedabad to Its River. http://www.sabarmatiriverfront.com/sabarmati.

of a strong mercantile class and a mixed population of Muslims, Jains, Hindus, and Zoroastrians.[4] Due to the seasonal nature of rainfall and the river, a network of water harvesting structures like stepwells, wells, cisterns, reservoirs, and tanks developed over time to sustain the city's growing population.

In the centuries that followed, Ahmedabad grew into a large walled city with dense residential clusters, markets, and mosques, as well as Hindu and Jain temples. The street network evolved along natural lines of stormwater drainage. Within the walled city, neighborhoods (*pol*) were organized by community identity. The water needs of households were met by shared dug wells (*kuo*) or by underground cisterns *(taanka)* built between the foundations of individual houses to store rainwater from rooftops and courtyards.[5] Many neighborhood mosques and temples possessed underground cisterns or their own dug wells. Stepwells were also built within the walled city, two of which are documented in this exhibition. The first is adjacent to a traditional house in *Doshiwada pol*. The second, known as *Amritavarshi vaav*, has a distinct L-shaped stepped corridor and was built in 1723 by a courtier named Raghunathdas. Both of these stepwells are compact, perhaps due to the lack of space in their densely packed urban quarters. A community known as *Bhishti*, who were water carriers by occupation, extracted fresh drinking water in goat-skin bags (*mashaq*) from the wells and stepwells and delivered it on foot to homes, shops, and public spaces in the walled city.[6]

Outside the walled city, the ruling Sultans allotted plots of land to esteemed courtiers, merchants, and religious figures, encouraging them to develop the land into a network of productive suburbs (*puras*) for provisioning the urban core.[7] These suburbs came to be populated by mansions, mosques, mausoleums, and markets. Elaborate gardens (*bagh*) and orchards (*vadi*) were cultivated to produce vast varieties of fruits, flowers, and medicinal plants.[8] Over time these suburbs grew into distinct settlements in their own right. To meet the water needs of their growing population and to irrigate their extensive vegetation, these suburbs were strategically situated next to natural ponds *(talav)*. Tanks and several stepwells were also built.[9] Many of the stepwells covered in this exhibition such as *Jethabhai vaav*, *Gandharva vaav*, *Pauranik vaav*, and *Vadaj vaav* can be traced to some of these historic settlements. *Jethabhai vaav* was built in an orchard in the 19th century at the edge of a suburb of Isanpur, [10] which was known for its mangoes, *khirnis*, and palms.[11] The stepwell irrigated the orchard and provided drinking water for livestock, as evidenced by remnants of its stone channels and a large stone trough.

The artisanal villages of Adalaj and Asarwa were crucial waypoints along the trade route to the port of Khambhat, and were involved in manufacturing textiles.[12] The most architecturally elaborate stepwells

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[4] Samira Sheikh, *Forging a Region: Sultans, Traders, and Pilgrims in Gujarat, 1200-1500*, SOAS Studies on South Asia (New Delhi: Oxford University Press, 2010).
[5] Kenneth Gillion, *Ahmedabad: A Study in Indian Urban History.* (London: Cambridge University Press, 1968).
[6] R. B. Lal and K. S. Singh, eds., *People of India. Vol. 22 [...] Pt. 1: State Series Gujarat [...]* (Mumbai: Popular Prakashan, 2003).
[7] MS Commissariat, *A History of Gujarat: Including a Survey of Its Chief Architectural Monuments and Inscriptions*, vol. 1 (Longmans, Green & Co., 1938).
[8] Subhash Brahmbhatt, "Ahmedabad: Garden City of the Sultanate and Mughal Period." *Environmental Design: Journal of the Islamic Environmental Design Research Centre* 2 (1986): 38-41.
[9] ibid.
[10] Jutta Jain-Neubauer, *The Stepwells of Gujarat: In Art-Historical Perspective*, 1st ed. (Abhinav Publications, 1981).
[11] MS Commissariat, *A History of Gujarat: Including a Survey of Its Chief Architectural Monuments and Inscriptions*, vol. 1 (Longmans, Green & Co., 1938).
[12] Samira Sheikh, *Forging a Region: Sultans, Traders, and Pilgrims in Gujarat, 1200-1500*, SOAS Studies on South Asia (New Delhi: Oxford University Press, 2010).

documented in this exhibition—*Rudabai vaav* and *Bai Harir vaav*—were built contemporaneously in the late 15th century, next to these two villages. They provided water and shelter to the people of the villages and to weary travelers as suggested in stone inscriptions found in the wells. These stepwells share many formal characteristics. They are profusely ornamented and have grand pavilions marking their entrances. In each, a wide stepped corridor leads to an octagonal courtyard with a shallow pool of water, just before the well shaft. This pool may have served as a washing and bathing space for travelers.[13] Multistory pillared galleries surround the courtyard and their low parapets form stone benches with sloping backrests, affording a view of the pool underneath. The social function of providing shade and rest during long-distance travel in a harsh climate is deeply embedded in these architectural gestures.

Stepwells, in sync with ponds and tanks, sustained the nexus between Ahmedabad's urban core, its surrounding settlements, and centuries of evolving cultivation, craft, and trade. However, they fell into a gradual state of decline from the 19th century onwards. Over time, the walled city became overcrowded and the neighborhood wells and stepwells became heavily contaminated by seepage from thousands of brick cesspits (*khalkua*) and open drains. When the British colonial regime took over Ahmedabad in 1817, the use of wells and stepwells was actively discouraged and a municipal commission was established to undertake civic projects, including the provision of water. 1849 marked the beginning of state-administered piped water and sewage in Ahmedabad,[14] replacing traditional households and communities as the primary stewards of water provision and sustenance. To keep up with the rapid urban sprawl, industrialization, and agricultural intensification that followed, colonial technologies such as tube wells were introduced. These wells pump out enormous quantities of water from deep aquifers at a much faster rate than groundwater reserves can be seasonally replenished. Many stepwells and dug wells dried up as a result of this new overexploitation of groundwater. During the Indian Independence Movement, the riverbed of the Sabarmati was symbolically reclaimed as a public space when Mahatma Gandhi delivered his iconic 1931 speech to a large congregation on its dry bed.

Today, Ahmedabad is the largest and densest metropolitan city of the region, sustaining a population of 5.6 million (2011). Its urban core has expanded to cover an area of 180 square miles beyond the walled city, engulfing surrounding settlements and their water structures. Ahmedabad's growing population is currently sustained by an 'expansive and monumental' dam and canal infrastructure that diverts water from a distant perennial river, copious quantities of groundwater extracted from massive municipal wells on the riverbed, and thousands of 'inconspicuous' industrial bore wells.[15] In recent decades, the river's natural and social ecology has been fundamentally altered. Two large barrages have been built seven miles apart across the river to hold a perennial water supply, and its natural banks have been reclaimed and transformed into hard-edged concrete promenades across the city. This paradigm of water supply is underscored by the wishful idea of 'limitless fresh water' as a civic right guaranteed by the state.[16]

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[13] Jutta Jain-Neubauer, *The Stepwells of Gujarat: In Art- Historical Perspective*, 1st ed. (Abhinav Publications, 1981).
[14] ibid.
[15] Anthony Acciavatti, *Chapter Title: Reimagining the Indian Underground: A Biography of the Tubewell* (Hong Kong University Press, 2017).
[16] T. H. F. Wong and R. R. Brown, "The Water Sensitive City: Principles for Practice," *Water Science and Technology* 60, no. 3 (July 1, 2009): 673–82, https://doi.org/10.2166/wst.2009.436.

Amidst the urban sprawl, traces of Ahmedabad's historic landscape can be perceived in places where former settlements and their adjoining reservoirs are still discernible. However, many of the lakes have been infilled, and their watershed has been built upon. As far as the stepwells are concerned, their current conditions vary greatly (see Gallery 5). Some are restored and celebrated as national monuments, while others have disintegrated over time from neglect. However, almost all of these stepwells have been severed from the ecological cycles that they were once intrinsic to.