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Religion and Urban Waterscape in South Asia. Kankaria or the Ghāt Re-semanticised

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The ghāt, the stepped landing, is an iconic element of the urban waterscape in South Asia. In its multiple forms (river banks, stepwells, temple tanks etc.), steps to the water have been erected since the Harappan period. Against the seeming ahistoricity of this architectural form, the article discusses the changing meaning and practices around the ghāt. It reconstructs the evolution of the environment and spatiality of a ghāt-ed structure, thus showing how this religious environment influenced the urban landscape. The article is based on the historical and archaeological study of Kankaria lake, constructed 1451 by the Muzaffarid Sultan Qutb-ud-Din Shah, near Ahmedabad, one of the largest South Asian reservoirs of its time. It looks at its environment and spatial meanings in the long tradition of ghāt-ed reservoirs in Western India. In the Islamic context, leisure and paradise garden replaced ritual purity, just as modern municipalities today are re-inventing the meaning of the stepped lake. This article demonstrates the architectural continuity of the stone ghāt, against the cultural and religious change of meaning or re-semanticisation.

"These Indian Lakes are goodly things, and may be reckon'd amongst the most remarkable structures of the world." (Pietro Della Valle, 1663[1])

1. Introduction[2]

The *ghāt*, or stepped landing, represents an iconic element of the South Asian landscape. The *ghāt*-s of Vanarasi (Benares)[3], with their long step ways, the platforms overhanging the Gaṅgā river and the multi-storeyed facades of the historical riverfront, are arguably the most famous example of South Asian *ghāt*-s, a space where people celebrate life and death. Steps to the water are a recurrent urban architectural theme on the Indian subcontinent, with a long history and a great variety of applications and forms: river *ghāt*-s, temple *kuṇḍa*-s (tanks) and stepwells. Steps to the water are multifunctional and interwoven with social life. This includes female sociability in a context where

1 Edward Grey, The Travels of Pietro Della Valle in India, London 1892, p. 102.

2 I would like to thank Dr. Klara-Maeve O´Reilly for the corrections and comments.

3 John McKim Malville/Rana P. B. Singh, Visual Astronomy in the Mythology and Ritual of India. The Sun Temples of Varanasi, in: Vistas in Astronomy 39:4, 1995, pp. 431-449.

fetching water has traditionally been a female task[4], religious rituals[5], entertainment[6] and other social and economic activities.[7] Steps to the water are intrinsic to the Indian cityscape and their representation, having inspired poets, travellers, architects and art historians throughout their existence.[8]

The commonplaceness of the *ghāt-s* in the South Asian landscape, past and present, acts in favour of them being perceived as an ahistorical, immemorial and inviolable architectural form. However, it should be kept in mind that the historical *ghāt* as we experience it today has often been decontextualised in the course of time. Archaeological evidence shows that the steps to the water were originally entangled with architectural and performative environments that either disappeared or continuously changed over time. Reconstructing these environments of the *ghāt* is thus essential to fully understand it in its urban context and to realise that its spatiality has a historical dimension. Focusing on this historicity allows us to reconstruct the impact of religious meaning on the formation of urban landscapes.

This article starts with the study of the stepped structures in Western India and shows how a long-lived architectural form was experienced and perceived over time. It demonstrates how religion was decisive in giving and reinventing the meaning (semanticisation and re-semanticisation) of a stable architectural form, thus creating the characteristic waterfront, rather than skyline, of many Indian cities. The *ghāt*, present in the *longue durée*, was re-visited in order to fit evolving social, cultural and religious contexts. In arid Gujarat and Rajasthan, open tanks and reservoirs were built in and around cities for the water supply of their inhabitants. The article focuses on the archaeological case study of

4 Purnima Mehta Bhatt, Her Space, Her Story. Exploring the Stepwells of Gujarat, New Delhi 2014; Yogesh Sharma, The Circuit of Life. Water and Water Reservoirs in Pre-modern India, in: Studies in History 25:1, 2009, p. 89; Rose Mary George, The Gender in Water Right Issue. Reflections from a Water Right Struggle in Kerala, in: R. K. Mishra/Samanta Sahu (eds.), Water Governance, New Delhi 2012, Chap. 13.

5 On purification rituals, funerals, deity bathing etc. cf. Jutta Jain-Neubauer, The Stepwells of Gujarat in Art-historical Perspective New Delhi 1981; Jutta Jain-Neubauer, Water Design. Environment and Histories, Mumbai 2016; R. P. Masani, Folklore of Wells Being a Study of Water-Worship in East and West, Bombay 1918; Geoffrey Samuel, The Origin of Yoga and Tantra. Indic Religions to the Thirteenth Century, Cambridge/Bombay 2008; Ananda K. Coomaraswamy, Yakṣas, New Delhi 1971; Savitri V. Kumar, The Pauranic Lore of Holy Water-places with Special Reference to Skanda Purāṇa, New Delhi 1983.

6 On water bodies associated with private gardens and public parks cf. Ebba Koch, Mughal Palace Gardens from Babur to Shah Jahan (1526-1648), in: Muqarnas 14, 1997, pp. 143-165.

7 Supriya Chaudhuri, Between River and Street. The Ghāt or Landing-stage as Overlapping Space, in: Religion and Urbanity Online (forthcoming).

8 From the rich scientific literature on water and water spaces, cf. Coomaraswamy; Kumar; Jain-Neubauer, Stepwells; Jain-Neubauer, Water Design.

Ahmedabad's Kankaria lake, completed in 1451. With a diameter of 620 m it was one of the largest artificial lake projects of its time in South Asia (see Fig. 1).

Fig. 1: *The Kankaria Reservoir, Ahmedabad.*

2. Indian Ghāt-s

Early modern European travellers, being unaccustomed to monumental tanks and sophisticated wells, nevertheless understood the uniqueness of South Asia's water spaces. As exemplified by the opening quote of Pietro Della Valle, accounts by Europeans travelling the Indian subcontinent narrate their enchantment in discovering a multitude of wells, stepwells, tanks and lakes. Stepped landings were the common feature of these South Asian hydrospaces.[9]

As a highly stable architectural form, stepped landings were used for securing earthwork on slopes. They belong to the oldest and most basic building solutions for constructing structures of large dimensions and for securing dug-up and unstable land areas. Heavy building materials, like stone, compensated for the horizontal tension forces, making the structure resistant to soil thrust. Steps were particularly suitable for riverbanks, natural ponds and swamps.

[9] The stepped landing is also the oldest historical form of land-water transition in the subcontinent, with early dated *ghāt*-s and stepped tanks going back at least to the 1st century BC (see, for instance, the Manikarnikā ghāt in Varanasi and the Ritigala monastery in Sri Lanka). The question of landing facilities during the Bronze Age Harappan civilisation is yet a matter of debate.

Further building projects relied on stable water works, and stone steps appeared as an adequate groundwork option.

As an architectural form, stepped landings had also existed in the Mediterranean in ancient times, but had fallen out of use.[10] There, the transitional zone between land and water was eventually reorganised by the emergence of hoisting technologies linked to retaining walls and dams. Steps were no longer necessary, as wheels and pulleys could transport objects to a higher level while being more space efficient. They were particularly useful in harbours where goods could be transferred from ships to jetties and docks.[11] In the context of domestic water supply, lifting systems such as the noria or the *sāqiyah,* the Persian wheel, emerged as solutions for drawing water from wells. The Persian wheel, used in Egypt and Middle East since the first millennium BC, is a mechanical water lifting device operated by draught animals such as bullocks or buffaloes. This system, in India known as *arghaṭṭa* or *arahaṭṭa*, has few early references in the history of the subcontinent, yet seems to have been successful only from the 13th century onwards.[12] Moreover, and even after the *arghaṭṭa* had gained prevalence in India, stepwells and *ghāt*-s continued to be constructed. In the case of stepwells, for instance, a Persian wheel was placed within the well shaft, while a long stepped way continued to give access for pedestrians. Arguably, it is thanks to their ability to be combined with later technological additions like the Persian wheel that steps to the water resisted the mechanisation of the water management system, remaining an essential architectural element. The cultural and religious significance of the steps might well be crucial to the resilience of the *ghāt* in the South Asian context.

Steps to the water were indeed tightly interwoven with the social, economic and religious life of travellers and neighbouring communities. They hosted domestic activities, such as fetching drinking water, bathing, making laundry and other cleaning activities, the performance of religious practices, including

[10] See, for instance, the steps to cisterns and reservoirs in the ancient eastern Mediterranean rim, e.g. the bronze and iron age stepped cisterns and wells, such as the biblical pools accessed by steps in Siloam and Bethesda, as well as helicoidal, stepped water structures like in Hazor, Gibeon etc. Cf. Vincent Lemire, Chapitre 3. Les citernes et l'eau du ciel, in: La soif de Jérusalem: Essai d'hydrohistoire (1840-1948), Paris 2011, pp. 167-200; James B. Pritchard, The Water System at Gibeon, in: The Biblical Archaeologist 19:4, 1956, pp. 65-75; Israel Finkelstein, The Finds from the Rock-Cut Pool in Jerusalem and the Date of the Siloam Tunnel. An Alternative Interpretation, in: Semitica et Classica 6, 2013, pp. 279-284.

[11] For land-water transitional space in Indian maritime context, cf. Sara Keller/Michael Pearson (eds.), Port Towns of Gujarat, New Delhi 2015.

[12] Irfan Habib, The Agrarian System of Mughal India, 1556-1707, London 1963, p. 10.

ritual bathing, *arghya* or water oblation and funerals etc.,[13] as well as economic and industrial activities from business negotiation to cloth washing and dyeing. My earlier study of the Munsar lake illustrates that, in an urban context, the South Asian hydrospaces were particularly important as a place of female sociability, and a resting place for pilgrims, caravans, military troops and other travellers.[14] The shrines and the sophisticated spiritual iconography of early Jain and Brahmanical water structures demonstrate their religious dimension: Their materiality is as much shaped by practical necessities as by spiritual and religious programmes.[15]

The abundance of artistic expression, from miniature painting to poetry and literature, emphasises the cultural and religious significance of the *ghāt*. A famous example is the *Rāmcaritmānas* poem written by Tulsidas (died 1623). In this devotional work, the poet describes the lake as a philosophical metaphor of the *mānas* (poorly translatable as "mind"). One instance reads: "The four lovely and excellent dialogues, / shaped by lucid contemplation, / are the four charming ghats / of this holy and auspicious lake."[16] Against the natural lake symbolising the wild, the *ghāt* represents the "imposed order of human transmission and interpretation".[17] It is the world put in order by anthropogenisation.

The steps form a liminal space between the wild and untameable water world (*araṇya*) and the man-made ordered space (*vāstu*).[18] They create a safe

[13] In stepwells, the shrines arranged on the walls of the stairs leading to the water indicate that the journey down the well had significant religious meaning.

[14] On the pluri-functionality of *ghāt*-s cf. Sara Keller, Tangible and Imagined Spatialities around Water. The Munsar Lake as a Study Case of the South Asian Hydro-space (Viramgam, India, 11-12th Centuries), in: Religion and Urbanity Online, 2022 (forthcoming); While *ghāt*-ed structure played an essential role for irrigation and agriculture in rural areas. Cf. Irfan Habib, Pursuing the History of Indian Technology. Pre-Modern Modes of Transmission of Power, in: Social Scientist 20:3/4, 1992, pp. 1-22; Habib, Agrarian System; Tappan Raychaudhuri/Irfan Habib (eds.), The Cambridge Economic History of India, New York 1982; B. N. Puri, Irrigation and Agricultural Economy in Ancient India, in: Annals of the Bhandarkar Oriental Research Institute 48/49, 1968, pp. 383-390; Iqtidar Husain Siddiqui, Water Works and Irrigation System in India during Pre-Mughal Times, in: Journal of the Economic and Social History of the Orient 29:1, 1986, pp. 52-77.

[15] Cf. Keller, Tangible and Imagined Spatialities; Jain-Neubauer, Stepwells; Coomaraswamy.

[16] Tulsidas 1.36, quoted in Philip Lutgendorf, The View from the Ghats. Traditional Exegesis of a Hindu Epic, in: The Journal of Asian Studies 48:2, 1989, pp. 272-288, here p. 276.

[17] Lutgendorf, p. 276.

[18] Ranabir Chakravarti, Economic Life. Agrarian and Non Agrarian Pursuits, in: Ābadula M. Caudhurī/Ranabir Chakravarti (eds.), History of Bangladesh. Early Bengal in Regional Perspectives up to c. 1200 CE, Dhaka 2018, p. 127; Charles Malamoud, Cuire le monde. Rite et pensée dans l'Inde ancienne, Paris 1989.

and ordered zone of approach that facilitates the experience of encountering water. Ancient traditions confer a magical and spiritual dimension to water spaces[19], and meeting the deep water-world required ritualistic preparation. Walking down the steps and stopping at the shrines was part of the performative experience of accessing water. Thus, steps are not just practical: They restore the human performative capacity of comprehending and rehearsing basic concepts of life as a bodily experience. Steps to the water in the form of stepwells, tanks (*kuṇḍa*) or river *ghāt-s* have the capacity to restore a link between the human and its environment. This (atemporal) performative dimension of the steps might well be the strength of the Indian *ghāt* and the secret of its longevity.

In the urban context, the *ghāt* is the counterpart of the market, both being essential places of sociability. While the market is a dense area of negotiation, identified by its agitation and its ability to exacerbate the senses, the *ghāt's* proximity to water, in contrast, is celebrated for its quietness –although it also occasionally hosts vibrant rituals and practices. It is an ideal place for rest or contemplation as the senses are calmed by freshness, calmness and pleasant smells.[20]

3. Steps to the Water in Western Indian Cities

Let us now look at the context of Western India, and the city of Ahmedabad, where the Kankaria lake was built by Sultan Qutb-ud-Din Shah of the Muzaffarid dynasty in 1451. This reservoir was exceptional for its size, but certainly not in terms of architectural form. On the contrary, it tapped into a rich architectural and cultural heritage in which stepped artificial lakes were an essential element of the cityscape.[21] Stylistically, the Kankaria lake is related to the local early medieval *ghāt*-ed lakes. Māru-Gurjari reservoirs (10th-13th centuries) also featured sandstone steps, sluices and trabeated inlet channels. The *māru-gurjari* steps to lakes and *kuṇḍa*-s are characterised by an architectonic rhythm induced by regularly placed transversal stones. Certain elements are heavily carved, and many *māru-gurjari* lakes and *kuṇḍa*-s follow strict geometrical shapes, generally square or circular.

[19] Coomaraswamy; Kumar; Bettina Weiz, Water Reservoirs in South India. An Anthropological Approach, Diss. Munich 2006.

[20] Sara Keller, Cloistering Water. Technological Rupture, Religious Continuity (Western India, 16th century), in: South Asian Studies Journal 37:1, 2021, S. 26-50.

[21] As I argued elsewhere, the lake is an intrinsic element of the city and a marker of urbanity. Cf. Sara Keller, The Lake and the City. A Model of Water Topography in the Western Indian City (10th-16th century), in: History and Sociology of South Asia (forthcoming).

The Kankaria lake stylistically draws back, in particular, to the Rudrakup tank of the Sahasraliṅga complex (early 12th century), outside the fortification wall of the then capital city Anhilvad-Patan (present-day Patan). We can recognise the circular shape, three inlet sluices (representing the three rivers Ganga, Yamuna and Saraswati *triveṇī tīrtha* in Patan) and a straight covered (or semi-covered) stone channel as aqueduct. The ornamental program is derived from the *māru-gurjari* style, as in other Sultanate buildings.[22] However, we can observe that the carved motifs migrated to other architectural elements. In absence of shrines and other votive or religious structures, ornamental carvings were transferred to the inlet sluices and the landing platforms. The sluices of the Kankaria lake are treated in a similar way as the Muzaffarid period mosque façade with heavily carved buttresses reminiscent of mosque minarets. With this ornamental program, the inlet sluices represent the richest architectural element of the lake.

Artificial lakes within the city wall and/or just outside the city area were common in the early medieval period. They were indispensable as a water resource for the city inhabitants and essential for mobile groups of people such as caravans, military troops and pilgrims. As I showed elsewhere, individuals generally joined larger groups of travellers, while pilgrims would travel with caravans for their security, so that people rarely travelled in isolation.[23] Thus, the lakes and their surrounding grazing land were crucial gathering points when arriving at and departing from the city. The shrines of the lake and the temples located in its vicinity demonstrate that the lakes also had important religious functions.[24]

The Kankaria lake possibly had a strong connection with the pre-existing lake architecture, possibly drawing back to an 11th century structure located at the same site. The Muslim chronicler Muhammed Ali Khan, author of the *Mirāt-i Ahmadī*[25], explains the name of the lake with a story staging the saint

[22] Cf. Elizabeth Lambourn, Brick, Timber, and Stone. Building Materials and the Construction of Islamic Architectural History in Gujarat, in: Muqarnas 23, 2006, pp. 191-217; Alka Patel, Building Communities in Gujarat. Architecture and Society during the Twelfth through Fourteenth Centuries, Leiden 2004; Sara Keller, Genesis of an Indian City. Urbanism and Architectural Knowledge in Ahmedabad, Ahmedabad 2022; George Michell/Snehal Shah, Ahmadabad, Bombay 2006.

[23] Sara Keller, Releasing Temple Gold. Spatial Fix in Medieval Saurashtra through Water Epigraphy, in: Veronica Walker/Emilia Mataix/Elisabeth Holmqvist (eds.), Down by the Water (forthcoming); Vardhman Kumar Jain, Trade and Traders in Western India (Ad 1000-1300), Noida 1990.

[24] Cf. Keller, Tangible and Imagined Spatialities.

[25] M. F. Lokhāndwala, Mirāt-i Ahmadī. A Persian History of Gujarat, translated from the original of Âlī Muhammad Khān, Baroda 1965.

Shāh Ālam commenting on the "pebbly" site (કાંકરી, or *kānkarī*, in Gujarati).[26] More convincing is the hypothesis of the lake going back to an earlier tank called Karṇasāgara after the name of its donor, the Solanki king Karṇadeva (r. c. 1064-c. 1092). According to the *Prabandhacintāmaṇi*[27], the Karṇasāgara was built near Āçāpallī (or Ashaval, in the region where Ahmedabad was founded three centuries later) after Karṇadeva defeated the local Bhīl chieftain Āçā.[28] Therefore, a *ghāt*-ed lake must have existed from the 11th century onwards in or around Ahmedabad. Today, there are no traces of this structure, and it is probable that the Muzaffarids took over the existing lake and channel facilities and developed it into their grand hydraulic project for the new Sultanate capital. Ashlars decorated with Solanki carvings in the northern pavilion and the southeast *chhatrī* could be relicts of an antecedent water body, although these spolia could as well be taken from other pre-existing structures of the Āçāpallī-Karṇāvatī area. The affiliation of the Kankaria reservoir with Karṇasāgara remains at this stage a working hypothesis.

4. The Kankaria Tank

4.1. An Islamic Garden

The Kankaria tank is today a wide artificial lake located in the suburb of the historical capital of Gujarat, Ahmedabad (Fig. 1).[29] In 2007-2008, the Kankaria Lake Front project took over the restauration of the historical lake[30] and developed a number of family activities in and around the water body, such as the zoo, aquarium, children's park, food courts, boat ride, musical fountains, and so on. The project successfully turned the "chaotic spot"[31] into one of Ahmedabad's main outdoor recreational areas. This new function is partly an

[26] This story has several versions, all playing on the similarity of the words "Kankrī" and "Kankariya".

[27] C. H. Tawney, The Prabandhacintāmaṇi or Wishing-Stone of Narratives Composed by Merutunga Ācārya, Calcutta 1901. Also see Asoke Kumar Majumdar, Chaulukyas of Gujarat. A Survey of the History and Culture of Gujarat from the Middle of the Tenth to the End of the Thirteenth Century, Bombay 1956.

[28] *Prabandhacintāmaṇi*, p. 80.

[29] On references to the Kankaria, see chronicles like the *Mirāt-i Ahmadī* and the *Mirāt-i Sikandarī*: Fazlullah Lutfullah Faridi (transl.), *Mirat-i Sikandari. A Study in the Medieval History of Gujarat*, Gurgaon 1990; cf. Alexander Kinloch Forbes, Ras Mala. Hindoo Annals of the Province of Goozerat in Western India, London 1924; James Burgess, The Muhammadan Architecture of Ahmadabad. Archaeological Survey of Western India, New Delhi [1905] 1997.

[30] Cf. Amdavad Municipal Corporation, Kankaria Lake Front Development, https://ahmedabadcity.gov.in/portal/jsp/Static_pages/pi_kankariafront.jsp [30.04.2022].

[31] Ibid.

echo of the agenda of Sultan Qutb-ud-Din Shah (r. 1451-1458), who completed the lake in 1451 as the centrepiece of a large garden complex.[32] Indeed, royal members and courtiers of the Muzaffarid Sultans invested important efforts in developing *extra muros* gardens.[33] As a result, the city of Ahmedabad was surrounded by a green belt of princely gardens soon after its foundation in 1411: "In the former times the Sultans of Gujarat, their nobles and Nazims, and the rich, had beautiful gardens full of fruits and flowers, pleasant avenues, fountains, and canals".[34]

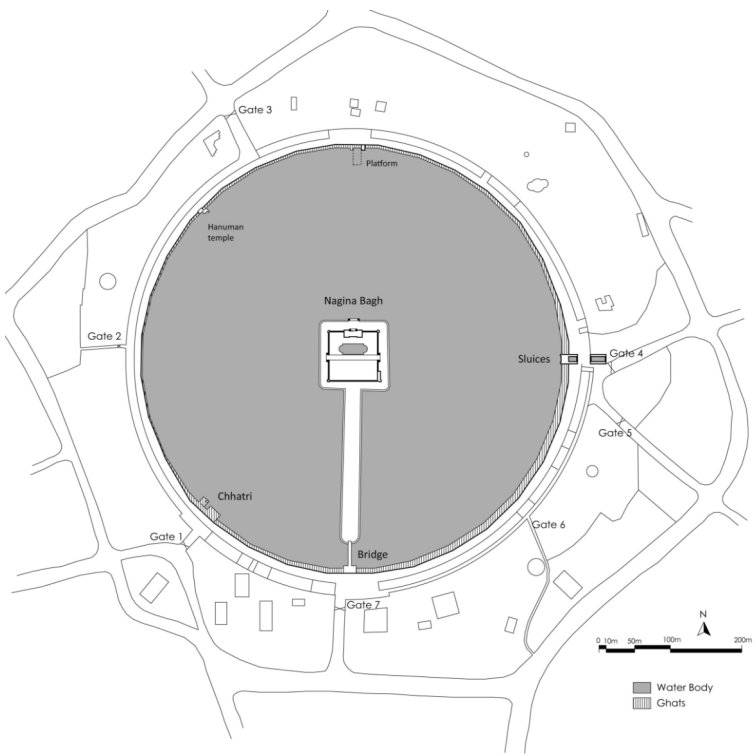

Fig. 2: *Plan of the Kankaria Reservoir.*

[32] His father Muhammad Shah II (r. 1442-1451) initiated the project.

[33] Subhash Brahmbhatt, Ahmedabad. Garden City of the Sultanate and Mughal Period, in: Environmental Design. Journal of the Islamic Environmental Design Research Centre 2, 1986, pp. 38-41.

[34] Syed Nawab Ali/Charles Norman Seddon (transl.), Mirat-i-Ahmadi Supplement. Translated from the Persian of Ali Muhammad Khan, Baroda 1928, p. 17.

Ahmedabad's green horizon is clearly visible in early maps, such as the 18th and 19th centuries cloth maps of the Sanskar Kendra and the Baroda Museum and Picture Gallery[35], while we also have written accounts describing the pleasant atmosphere and the botanical richness of these gardens.[36] Princely gardens had fruit and flowering trees, water bodies and elegant pavilions.

According to *Mirāt-i Ahmadī*, not all the constructions planned by Sultan Qutb-ud-Din Shah around the lake did materialise, but the gigantic size of the Kankaria lake suffices to appreciate the scale of the kings' ambitious project.[37] It has a regular polygonal shape with thirty-two sides, making it look like a perfect circle (Fig. 2).[38] The lake edges are bordered with sandstone steps leading to the water and are surrounded by a wall.[39] The island in the centre of the lake also goes back to Sultan Qutb-ud-Din Shah. It was then arranged as a garden with a small palace, water bodies and greenery. This garden was called the "Bagh-i-Nagina", from the Persian "negin" for gemstone. The *Mirāt-i Ahmadī* chronicle gives the following explanation for its name: "It appears like a precious stone on a ring formed by the Kankariya [*sic*] Tank, which was built by Sultan Qutb-ud-din, the grandson of Sultan Ahmad the founder of Ahmedabad".[40] The *Mirāt-i Sikandarī* further adds with regard to the lake and "Bagh-i-Nagina" (or Nagina Bagh) that "each one of those equals the mansions of Paradise and the gardens of Eden".[41] We also learn there and in other sources that the Sultan enjoyed "splendid entertainments and luxurious banquets"[42], and that the Kankaria-Nagina Bagh area served as resort and entertainment place for "festival of dance and song".[43] These accounts show that the Kankaria area was planned as an Islamic garden and perceived as a metaphor of the paradise.

35 Sanskar Kendra plan on canvas of Ahmedabad: Reproduction, preserved in the "Sanskar Kendra" Museum in Ahmedabad; Canvas map of Gujarat, kept at the Baroda Museum and Picture Gallery in Vadodara (G.R. 5631).

36 Cf. *Mirāt-i Ahmadī* and *Mirāt-i Sikandarī*, and for the Kankaria lake and its gardens, see descriptions by European travellers like Della Valle, but also Thévenot and Mandelslo.

37 Approximate measurements from wall to wall (today's wall was partly rebuilt at a different distance to the steps). Burgess proposes a diameter of 638 yards, Burgess, vol. I, p. 52.

38 Hope and Burgess mention 34 sides, but they might have double counted the sides interrupted by the sluice on the east and by the bridge on the south.

39 For further descriptions and more details, see Theodore C. Hope/Thomas Biggs/James Fergusson, Architecture at Ahmedabad, the Capital of Goozerat, London 1866, pp. 50-51; Burgess, pp. 52-53; M. S. Commissariat, A History of Gujarat. Including a Survey of its Chief Architectural Monuments and Inscriptions, London 1938, pp. 147-50.

40 *Mirāt-i Ahmadī* Supplement, pp. 17-18.

41 *Mirāt-i Sikandarī*, p. 33.

42 Ibid.

43 *Mirāt-i Ahmadī*, p. 66

In keeping with Islamic tradition, the sophisticated architecture and landscape of the Kankaria area was a privileged expression of the royal identity. Besides its recreational function, Kankaria also had a military one. In almost all the mentions of Kankaria in the *Mirāt-i Sikandarī* and the *Mirāt-i Ahmadī* (15 instances), the lake is referred to as an encampment place for the Sultan or other military leaders. Armed forces transiting from the capital city to other towns and battlefields needed a water access point for men and mounts, as well as large open grounds for grazing and establishing the camp. The Kankaria reservoir evidently served as the main military campsite outside the city walls of Ahmedabad. Located 1.2 km outside the Astodia gate on the way to the great ports of Gujarat (Bharuch, Khambhat and Surat)[44], it also must have served as an important station for caravans. As in the Solanki and Vaghela period, the lake built outside the city wall can be better understood as a starting and landing point on the mobility network of pre-modern Gujarat.

4.2. An Essential Node in the Hydro-System of Ahmedabad

The Kankaria lake also played a significant role in the hydro-network of Ahmedabad, though this function is hardly visible in the historical sources. Archaeological surveys can tell us more about the water supply system of Ahmedabad. The capital city was an ambitious and over-sized urbanistic project that drastically challenged the then usual dimension of Western Indian cities. It certainly needed equally monumental water solutions.[45] On the east side of the Kankaria lake, the three large openings of the inlet sluice indicate that it was supplied by a canal of great capacity. [46] The first few meters of this canal are still visible and it includes access stairs for maintenance and a stone *jālī* (latticed screen) to filter branches and other large waste. Apart from this, the upstream canal has unfortunately disappeared, so that it is not possible to follow the original course with archaeological means. [47] Yet other clues can help us reconstruct the Kankaria inlet system. The topographical map of Ahmedabad's region tells us that the Kankaria lake cannot be supplied by the nearest place where the Sabarmati River can be reached: The Sabarmati flows southwards and the riverbank on the south of Jamalpur is lower than the

[44] Keller/Pearson.

[45] Keller, Genesis.

[46] According to the Burgess survey, these are approximately 180 cm in diameter. Burgess, vol. 1: plate LXV.

[47] Like other tanks of Western India, the reservoir also certainly had purification facilities like a silting tank, but no such evidences are visible today (see, for instance, the Mansar Lake in Viramgam and the Kundvav in Kapadvanj).

Kankaria lake area. The canal must have been connected to a place located upstream from the city, not lower than present-day Hansol, in order to have enough gradient. This hypothesis is supported by the eastern location of the inlet sluice. Interestingly, we find contemporary Muzaffarid lakes on this pathway between Kankaria and Hansol. The Shaban lake constructed by Malik Sha'ban, vizier of Sultan Qutb-ud-Din Shah, is particularly significant.

We know from the *Mirāt-i Ahmadī*[48] that Malik Sha'ban constructed an important garden complex, the *Bagh-i-Shaban*, outside the city wall.[49] Besides the mausoleum, today known as Malik Shaban Roza, the remains of the tank are the sole vestiges of this complex.[50] Unfortunately, the steps are no longer visible and their reconstitution would require a detailed archaeological study. Yet it is clear from the satellite images that it was a 460 meters wide octagonal tank. [51] In 1938, Commissariat reported about dilapidated *chhatrī*-s and steps.[52] This gives a similar image, on a smaller scale, of the Kankaria lake. In Naroda, a third lake of similar polygonal shape, even smaller than the Shaban lake, might also be dated back to the Sultanate period, although confirmation would require archaeological excavations. This string of lakes suggests that the Sabarmati water was caught near Hansol and was channelled around Ahmedabad city via successive reservoirs, the last one being Chandola on the south of the city.[53] This means that a 15 to 20 km long canal existed, which was punctuated by artificial lakes increasing in size. This served as a hydraulic tool to control the water level and possibly avoid floods in Ahmedabad. In case of a threatening increase of the water level in the Sabarmati during the rainy season[54], the excessive water was channelled to the lakes. After circumambulating Ahmedabad, the water was passing by the Kankaria and then the Chandola Lake before flowing into the Sabarmati, downstream of the city (Fig. 3). Besides safeguarding the city, this water system insured the refilling of large water bodies used for water supply during the rest of the year. We are dealing here with a complex and coherent hydro-project that required skilled maintenance staff.[55] This indicates that there must have been planning at state level, since it

[48] And also from an inscription on the mausoleum, see Commissariat, History, p. 151.

[49] *Mirāt-i Ahmadī* Supplement, pp. 19-20

[50] Commissariat, pp. 54-57.

[51] Approximate measurement from one corner of the surrounding wall to the opposite one.

[52] Commissariat, p. 153.

[53] According to the *Gazetteer*, the Chandola Lake is an unfinished project. The area was dug and prepared but the stone cladding never completed, James M. Campbell, Gazetteer of Bombay Presidency. Vol. IV Ahmedabad, Bombay 1879, p. 17.

[54] As mentioned in travellers' accounts, Jean-Baptiste Tavernier, Les six voyages de Jean Baptiste Tavernier (...) en Turquie, en Perse, et aux Indes, Paris 1678, pp. 48-49.

[55] Concerning the Naginag Bagh, the *Mirāt-i Ahmadī* mentions that "The income of these

required the capacity of the Sultanate to mobilise knowledge and financial resources. In a similar development strategy for the walled city of Ahmedabad[56], the hydro-project included land donations and delegation of development charges to the courtiers. The Sultan initiated the project by constructing its most prestigious part, the large Kankaria lake, and let his courtiers such as Malik Sha'ban develop further parts of the project. In return, the courtier received the developed lands as royal donation, as is mentioned in the inscription of Malik Sha'ban's mausoleum.[57] The beautiful and green Kankaria was much more than a place of leisure, it was an essential landmark of the grand urban project of Ahmedabad. As many other built hydrospaces of its time, it combined nurmerous political, economic and social functions.

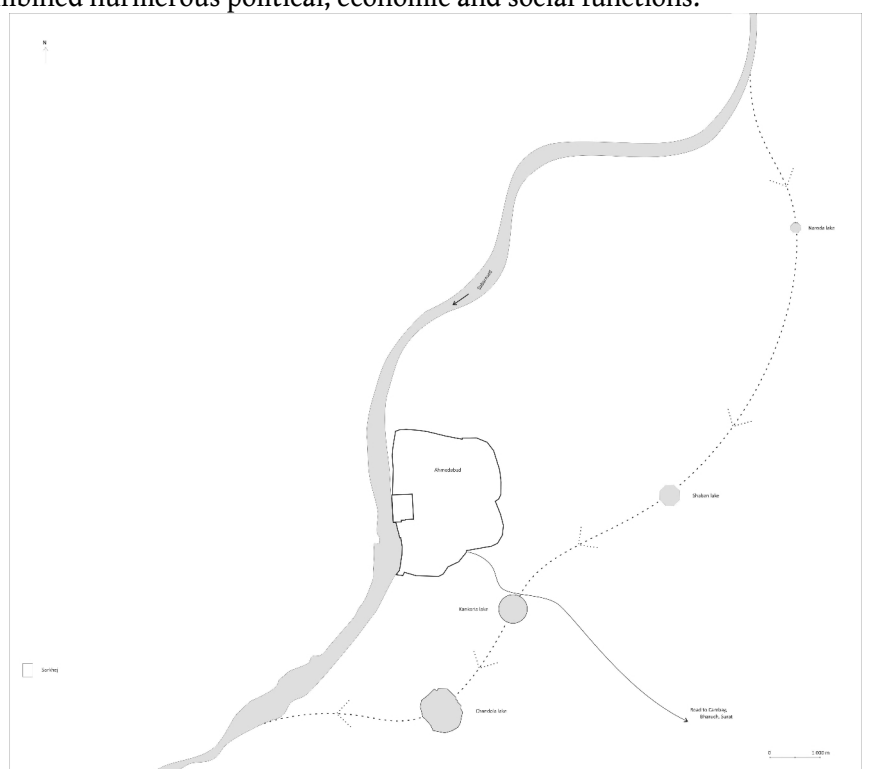

Fig. 3: *Reconstitution of the urban water supply system of Ahmedabad.*

gardens is budgeted for the Provincial account. Deficits are paid by the treasury. The staff is appointed under the seal of the *Mir-i-Saman* and approved by the Provincial Government." *Mirāt-i Ahmadī* Supplement, p. 159.

56 Keller, Genesis.

57 Commissariat, pp. 151-152.

The Kankaria lake became one of the city's highlights, and it evolved through time.[58] The island, for instance, had facilities to be reached by boat, a mode of transport that seems to have later fallen out of use and lately has been replaced by the construction of a bridge. Platforms, *chhatrī* and other carved remains confirm the account of the 19th century British archaeologists, describing dilapidated pavilions and structures. The buildings and gardens around the lake slowly vanished. Only the reservoir remained as it was necessary for water supply. Like many other travellers, the Italian artist Pietro Della Valle admired the large Kankaria reservoir during the 17th century, confessing his impression about Indian water works (see introductory quote).

With the collapse of the Muzaffarid dynasty following Gujarat's annexation by the Mughal Empire in 1573, the gardens and structures around the lake eventually disappeared. The stepped water bodies remained and continued to be used by locals. Similarly, many pre-modern urban water bodies survived in variable conditions until today.[59] In the past decades, water beautification projects were commissioned in Ahmedabad, but also in Baroda, Coimbatore, Hyderabad and other Indian cities in order to preserve the lakes and give them a new life according to modern demands.

5. Conclusion

The archaeological survey of the Kankaria lake demonstrates its continuity with the *māru-gurjari* stepped lakes built by the predecessors of the Muzaffarids. The similarity of the Kankaria lake with the Sahasraliṅga lake in Patan and other Solanki reservoirs is striking despite the simplified ornamentation program of the Kankaria lake. This fully matches the program of legitimation in which the Muzaffarids engaged, presenting themselves as righteous "cakravartin" (universal rulers) in the continuity of the Solanki kings.[60] Epigraphical documents, bardic literature and archaeological evidence consistently emphasise the ideological parallel constructed by the Muzaffarids with their Solanki

[58] For the descriptions of further work and changes at the Kankaria lake, see Commissariat, pp. 148-149; Burgess, pp. 52-53; Campbell, pp. 17-18.

[59] See the picture of the damaged Kankaria *ghāt* in the 19th century, Hope/Biggs/Fergusson, p. 235. Also, in densely urbanised areas, water bodies sometimes succumb to strong estate pressure.

[60] Aparna Kapadia, Text, Power, and Kingship in Medieval Gujarat, C. 1398-1511, London 2009; Aparna Kapadia, The Last Cakravartin? The Gujarat Sultan as 'Universal King' in Fifteenth Century Sanskrit Poetry, in: The Medieval History Journal 16:1, 2013, pp. 63-88; Samira Sheikh, State and Society in Gujarat, c. 1200-1500. The Making of a Region, PhD Thesis Oxford 2004; Samira Sheikh, Forging a Region. Sultans, Traders, and Pilgrims in Gujarat, 1200-1500, Delhi 2010; Keller, Genesis.

predecessors. Ahmedabad was intentionally developed as a grander version of Anhilvad-Patan, the prior *māru-gurjari* capital.[61] The Kankaria lake can thus be understood as a translation of the Sahasraliṅga lake, whereas hydrological and space-structuring elements have been preserved. The Kankaria lake, as other traditional tanks of Western India, is a geometrically ordered water space with water accessed by flights of stairs. The steps are treated with transversal stones, following the *māru-gurjari* style of *ghāt.*

However, and despite these architectural parallels, the meaning of the place was re-invented by the Muzaffarids. In the context of the Islamic rule of the Muzaffarids, the hydro concept was merged with the Islamic idea of the leisure garden. With the meaning of the stepped lake being reinvented, its environment and performative value also transformed. The ritual and performative elements in its usage, linked to and characteristic for the Jain and Brahmanical tradition, disappeared and the lake was integrated in a garden concept with wooded alleys, flowerbeds and pavilions. The late medieval period, via Islam, favoured the condensation of religious meaning in one defined space – the places of prayer in the form of mosques and mausoleums – at the cost of a sacralised landscape sustained by multiple religious performances. Beyond architectural continuity, the Kankaria lake clearly speaks for the local architecture being revisited. The *ghāt* was re-semanticised to refer to the linguistic concept of re-semanticisation, which denotes a word acquiring new meaning. The *ghāt* stayed true to its form but was attributed a new meaning. This versatility and capacity for resilience contained in the local architecture might well explain its continuity in the *longue durée* despite radical religious and political shifts. This study shows that primary urban landscapes such as earthwork and securing land-water margins were shaped by religion and religious practices. Moreover, early religiously induced landscapes continued to shape the urban, regardless of the political and religious changes.

Illustrations

Fig. 1: The Kankaria reservoir, Ahmedabad. Photograph: Prakhar Vidyarthi, 2021.

Fig. 2: Plan of the Kankaria reservoir, Ahmedabad. Drawing: Prakhar Vidyarthi, 2021.

Fig. 3: Reconstitution of the urban water supply system of Ahmedabad. Drawing: Sara Keller, 2021.

[61] Keller, Genesis.