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Contested urban commons: mapping the transition of a lake to a sports stadium in Bangalore

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Abstract: Urban expansion is a global phenomenon during which many common spaces, often with complex histories of governance and stewardships become redefined within prevailing notions of urbanity. However, such commons often pose challenges that result in conflict with respect to their use, management, and ownership. In this paper, we use the example of a lake in the South Indian megapolis of Bengaluru (formerly Bangalore) to look at different changing notions of urban commons pictured against a backdrop of rapid urbanization, migration, and landscape change. We look at conflicts at each period of change and argue that many of these have shaped the landscape of today and perhaps may be responsible for current notions of ownership associated with the landscape. We combine landscape change analysis through geospatial means along with official archival records, oral narratives, and secondary information sources to describe gradual loss of an urban commons. We then pose that knowledge of historical contexts of access to ecosystem services, exclusion, conflict, and the mechanisms of conflict resolution around urban commons can help understand trends in contemporary management of commons. This knowledge would help shape more equitable and ecologically robust policy frameworks that govern these vulnerable resources.

Keywords: Conflict resolution, historical transformations, lakes, landscape mapping, urban commons

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I. Introduction

We live in the age of the Anthropocene, an era in which landscapes are predominantly urban or urbanizing (Biermann et al. 2012). A sizeable fraction of that urban population is likely to be concentrated around cities in the developing world (UN World Urbanization Prospects, 2014 revision). Given that the urban landscape is likely to be even more pervasive in the near future, it is very important to study the impact of urbanization on the commons.

Urbanizing landscapes in many growing cities, including in India, are home to a wide variety of ecological commons such as lakes, sacred groves, and temple tanks (Agarwal and Narain 1997; Mundoli et al. 2015). Often home to rich biodiversity, these commons hold significant cultural and traditional significance, and have been managed as commons for long periods of time (Brown 2006; D’Souza and Nagendra 2011). Urban commons are especially vulnerable to threats including pollution and conversion into other land uses (Sudhira et al. 2007; Gidwani and Baviskar 2011). Many ecological commons have lost their identity by transforming into other forms of land use following urbanization (Nagendra and Ostrom 2014).

Despite their importance, the transformation of commons following urbanization is poorly studied (Nagendra and Ostrom 2014). This lack notwithstanding, there is an even lesser engagement with the influence of historical events on contemporary use and management of commons (Johnson 2004). Research has shown that between 1985 and 2005, scholarly literature on commons that provides a historical perspective has been very limited (van Laerhoven and Ostrom 2007; De Moor 2012). This “poverty of history in commons” can have

important consequences in contemporary policies that influence the governance of common pool resources (Johnson 2004). For example, an ahistorical approach could result in the misreading of the actors associated with a commons and ignore or alienate its users, making the resource vulnerable to many threats (Fairhead and Leach 1995).

Recognizing these gaps in research surrounding urban commons, this paper adopts a historically contingent approach to study the case of a transformed commons (a freshwater lake) within the south Indian megacity of Bengaluru (formerly Bangalore). By ‘transformed commons’, we imply that the resource no longer possesses any character that distinguishes it as an ecological commons. We trace the history of transformation of this landscape between 1885 and 2015. In so doing, we add to the limited literature on historical studies examining changing perceptions around a common pool resource (Valk and Ewald 2013). In addition, by providing a historically contextualized understanding of transformations in common pool resources and common property relationships around a lake, we seek to address the “poverty of history” in the commons literature (Johnson 2004). We examine the importance of historical transformations in contextualizing and understanding contemporary political issues influencing the governance of surviving urban commons (lakes) in Bengaluru today.

2. Study area

The south Indian city of Bengaluru forms a useful location within which to examine the social and cultural contestations and transformations of commons. Established as a city in 1537 AD, Bengaluru is well known as the software capital of India (Sudhira et al. 2007). Lacking access to large rivers, the city was built around a networked system of storage reservoirs – tanks or lakes – which provided water, to large parts of Bengaluru until the early 20th century (Annaswamy 2003; Sudhira et al. 2007; BBMP 2010). The importance of lakes for the city can be gauged by the fact that Bengaluru was also called ‘*kalyananagara*’ (city of lakes) (Nair 2005). The provision of alternate sources of water beginning in the late 19th century, coupled with pressures of a growing city and the demand for land led to conversion of many lakes into residential sites, malls, bus stands, and sport stadiums (Nair 2005). Many remaining lakes were reshaped from erstwhile commons (used for provisioning ecosystem services by traditional ecosystem users) into public spaces (accessed for non-consumptive ecosystem services such as recreation) reflecting the priorities of wealthy urban residents (D’Souza and Nagendra 2011; Unnikrishnan and Nagendra 2014a).

In the sixteenth century, Bengaluru witnessed the large-scale migration of a community of horticulturalists – the *Vannhikula Kshatriyas* – from the adjacent state of Tamil Nadu (Srinivas 1999). Later known for their efforts in landscaping prominent parks in Bengaluru, this community was responsible for the initiation of the annual nine-day festival of worship – the *Karaga* in the city. Celebrated

even today, this festival is centred on rituals conducted at a series of water bodies within the city: three of which have been replaced by buildings (Srinivas 1999). This study revolves around one of these lost lakes – the Sampangi lake, which carries with it a heritage of heterogeneity, conflicts and politically oriented resolutions between different groups of people. Each of these groups viewed the lake through lenses shaped by their social, cultural, and ecological dependencies on this former urban commons.

Located in the heart of the city, the Sampangi lakebed now consists of a roughly triangular patch of built up land containing the Sri Kanteerava stadium. This building, Bengaluru's main sports stadium, was erected in 1946 (The Cottonian 1946) and further modified in the late 1990s (Heitzman 1999). The lake is believed to date back to the creation of the city of Bengaluru by a local chieftain Kempe Gowda around the late sixteenth century (Nair 2005; Samana and Gopinath 2012).

In the colonial period, Sampangi lake represented a transitional area located between two distinct zones of Bengaluru – the colonial Cantonment and the Indian city or *Pete* (Srinivas 2001). These two regions in the heart of Bengaluru were managed under the dual jurisdiction of the British Crown and the native Wodeyar Dynasty of Mysore (Rice 1897; Gist 1957; Vyasulu and Reddy 1985). Sampangi lake, by virtue of its central geographic position, defied all conventional separating boundaries between the Cantonment and the *Pete* (native city). Populations from both sides of the divide had clear stakes in the appropriation, management, and governance of this resource (Figure 1).

Adjacent to the lost lake, in a low-lying depression to the south-west, is an area called Sampangiramnagar comprising of a middle class residential layout adjacent to two slums. Three major groups of long-term resident communities can be found here, intermixed with recent migrants. The first and earliest group of settlers are the *Vannhikula Kshatriyas* (or the *Tigalars*) (Srinivas 2001), whose services as horticulturists and vegetable growers were highly regarded by the Mysore government (Government Press 1949). The second group of long-term residents in this area are the '*Devangas*', a class of migrant weavers who have been in the city for centuries. They moved to the area near the lake in the early twentieth century. Around the early 1950s, the area called Sampangiramnagar was developed into a middle class housing project, containing a diversity of people from different parts of the country. At the same time a government led resettlement of slums from a nearby location was also undertaken. This community of Scheduled Castes and Scheduled Tribes form the third group of long-term residents (Bangalore Development Committee 1954). In addition, other communities including *Vokkaligas* (agriculturalists) and *Vaishyas* (merchant communities) also settled around this lake. The lake, due to this temporal and social heterogeneity, formed an interesting case to study the diverse perceptions of various communities, each of whom have had different perceptions, interactions and property rights associated with the lake commons.

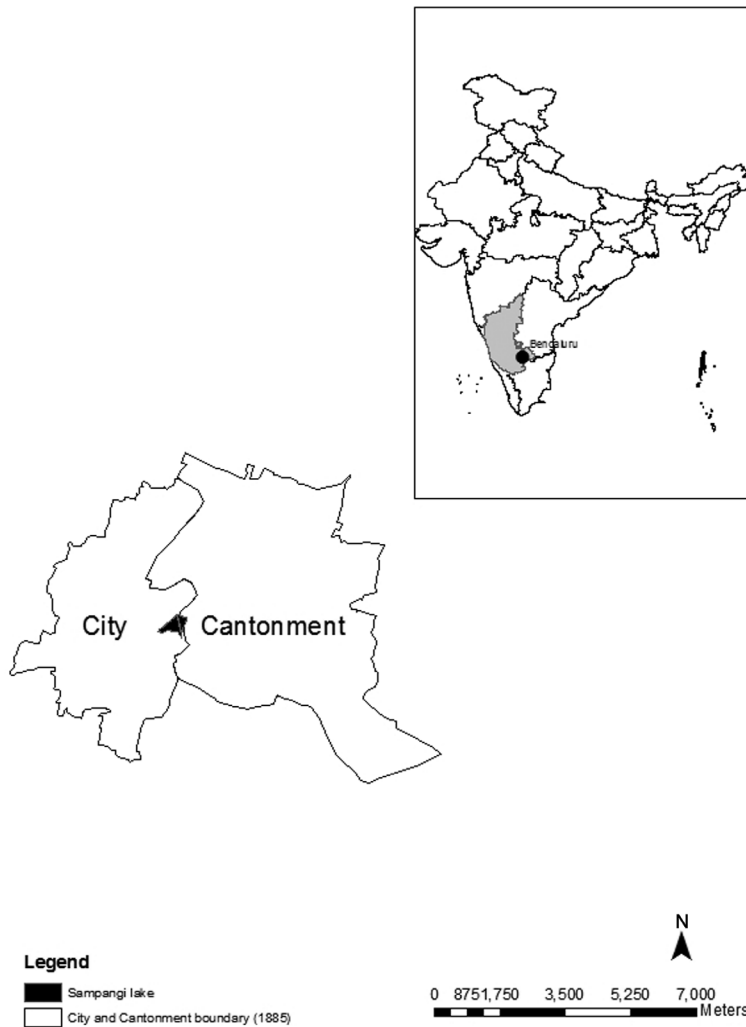


Figure 1: Study area: Sampangi lake as situated within the city boundaries of 1885.

3. Methods

We utilised a mixed methods approach, combining information from historical and current maps of the city with archival records and oral histories. This provided an integrated geographic and socio-politico-cultural understanding of contestations and transformations of the Sampangi lake over time (Figure 2). Historical information from various sources was integrated and examined both for convergent narratives (which would triangulate information) as well as divergent narratives (that would lend voice to undocumented stories). Both of these threads

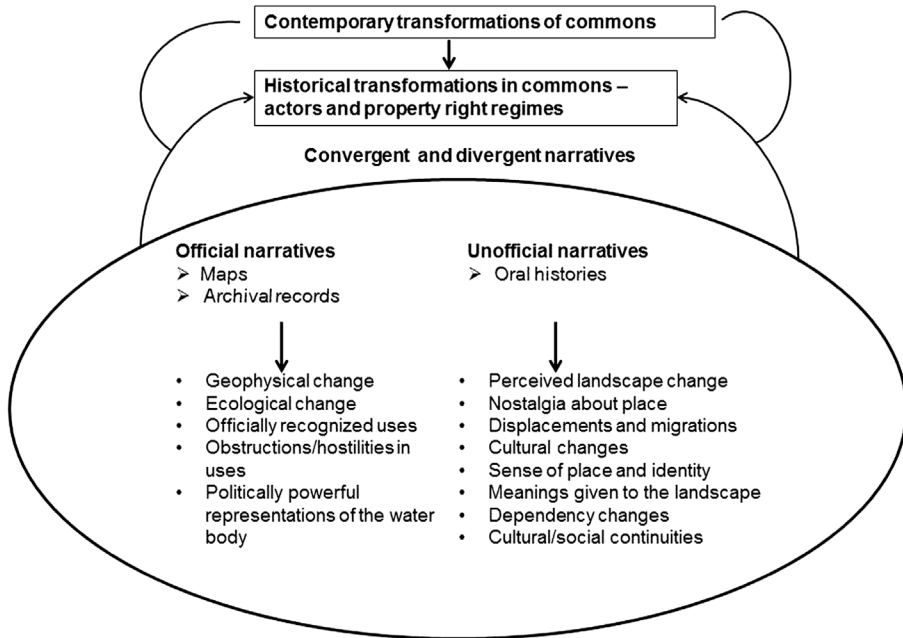


Figure 2: Methodological framework used.

were examined to drive a story of transforming commons which bears influence on the contemporary time.

Maps of the city, from 1885 to 2014, provided an important source to map changes in the landscape. Maps are indicators of terrain and geographical features, providing a spatial representation of conversions of land within and around the lake. Yet maps often portray an image reflective of both the purposes for which the map was originally drawn as well as its dominant political orientations (Bassett and Porter 1991).

A map of Bangalore Cantonment and its Environs published in 1885, consulted from the records of the Mythic Society of India at Bengaluru, provided our earliest point of reference. A Survey of India toposheet from 1935, obtained from the Indian Institute of World Culture in Bengaluru, was the next map used. Survey of India topographic sheets of scale 1:25000 were obtained from the Survey of India's Bengaluru office, providing information for the time period around 1973. For current information from 2014, publicly accessible imagery from Google Earth was used. Maps were spatially overlaid and registered, and land use was digitized using Arc GIS. Information on land use change was related with information from archival and oral historical material (described below).

Interpretations of maps were supplemented with the analysis of archival records (Okihiro 1981). These gave us information on the perspective of the

government on the utility of the water body and its surroundings, and in some cases described conflicts around the use of the commons. Archival records described the most politically compelling representations of the water body in each time period. However there are limitations arising from complete reliance on archival material. Written records, prepared in an environment where literacy was not the norm and coming largely from official sources, represent documentation influenced by positions that were clearly reflective of their time and environment (Okiihiro 1981; Thompson 2000; Portelli 2010). Archival information was collected from the holdings of the Karnataka State Archives in Bengaluru. This information was supplemented with secondary records from books, websites, and other written material. A third source of information came from oral histories of local residents. These narratives conveyed a picture of perceived landscape change, nostalgia, and a sense of place and identity among the people. They also portrayed histories of displacements and migrations from and to this landscape. The different meanings with which diverse social groups imbibed the commons was obtained. Changes in dependency on lake resources, cultural dependencies along with social and cultural continuities in traditional uses of the commons were thus charted. Oral histories can be biased by cultural perceptions, or influenced by predominant memories of specific people or communities. Yet they offer valuable insight into the meaning that specific landscapes hold for individuals, and the communities they represent (Gold and Gujar 2002; Stedman 2003; Goodall 2008).

Given the shortcomings of relying completely on any one source of data, we employed a method which combined insights from all these sources in order to gain a more holistic picture of landscape change. We conducted 45 open-ended oral history interviews with elderly members of long-term resident communities between November 2014 and January 2015. A snowball sampling approach was followed to conduct the interviews. We asked respondents a range of questions that covered their perceptions of landscape change and the impact of conversion on livelihood and cultural uses of the resource.

Based on a broader understanding of transformations around the lake (Table 1) we organized our data on historical change into the following time periods:

- a) Before 1900
- b) 1900 – 1935
- c) 1935 – 1973
- d) 1973 – present

Using information from oral histories and archives, we traced changes in the ecosystem services derived from the lake at each time. We identified connecting and divergent narratives from the oral histories collected, and used these to relate the past to contemporary trends in the governance of common pool resources.

Table 1: Timeline of events relating to Sampangi lake.

Timeline of events relating to Sampangi lake		
Year	Description	References
Approximately 1537 AD	Founding of Bengaluru city by Kempe Gowda, creation of the Sampangi lake	Sudhira et al. 2007; Nair 2005; Samana and Gopinath 2012
Between 10th and 16th century	Migration into Bengaluru city of <i>Vannihikula Kshatriyas</i> – They would become famous as horticulturists who were responsible for landscaping some important landmarks of the city like the Lal Bagh.	Srinivas 2001
1807–1809	Establishment of British Cantonment in Bengaluru.	Gist 1957; Vyasulu and Reddy 1985
1864–1870	Sampangi lake a central point between the <i>Pete</i> and Cantonment, supplying water to the Cantonment, while being part of the <i>Pete</i> or the native city.	http://www.horticulture.kar.nic.in/cubbon.htm
1876–1878	Establishment of Cubbon Park	Dikshit et al. 1993
1881	Severe famine in Bengaluru, during which time rights to excavate the tank bed for wells were granted to the native population.	Rice 1897; Bangalore Development Committee 1954
1886	Bengaluru city administered as assigned tract by Mysore rulers. Colonial Cantonment and the Mysore ruler administered native city separated, though Sampangi lake still provided water to the Cantonment.	http://www.dnaindia.com/bangalore/report-bangalores-st-martha-hospital-completes-125-years-1538842
~1895	Water supply from Sampangi lake stopped	Subramanian 1985
1898	Inception of St. Joseph's Indian High School, both on part of the lake bed as well as the wetlands surrounding the lake.	http://www.stjosephsindianinstitutions.com/?page_id=9
1957	Cattle fairs on lake bed suggesting partial drying of the lake	Venkatarayappa 1957
1945	Establishment of the City Improvement Trust Board (CITB), which initiated land acquisition in the area surrounding the lake leading to conflicts between the residents and the board.	Bangalore Development Committee 1954
1946–1954	Formation of residential extensions among which Sampigehalli slum is featured	Bangalore Development Committee 1954
1949	Lake bed now Kanteerava Stadium. Huge decline in tree cover and open space and increase in built up area	Bangalore Development Committee 1954
1997	Renovation of Kanteerava Stadium for the National Games event.	Heitzman 1999
2014	Sampangi lake becomes a small tank due to rapid urbanization	Samana and Gopinath 2012

4. Results

4.1. Time period 1: before 1900

In 1885 the lake was much larger than the boundary occupied by the stadium today. It extended to cover parts of the current day boundaries of Cubbon Park (Figure 3). The lake was surrounded by open land. Two sides of the lake were



Figure 3: Sampangi Lake – 1885.

bordered by roads, and there were a few buildings in the vicinity. The area to the east of the lake was wooded: that to the west was cultivated. There were two outflows to the lake. Water from Sampangi lake reached the Cantonment by means of feeder channels that connected it with the neighbouring series of Millers tanks. These in turn provided water to the Cantonment. The lake supported numerous horticulturists and farmers, as well as *Pete* residents. Water was drawn directly from the lake, or from the many wells surrounding the lake (Srinivas 2001). The area upstream of the lake was used for the cultivation of a dry local millet (*ragi*, *Eleusine coracana*), while the area downstream was used to cultivate flooded paddy. Wetlands around the lake were acquired in 1898 for the playgrounds of a prominent Jesuit educational institution. (http://www.stjosephsindianinstitutions.com/?page_id=9).

While wetlands around the lake were being used for agricultural activities, state led challenges to traditional lake-based activities such as brick making or the sinking of wells were issued in the form of repeated orders and revocations (Table 2). Prioritization of aesthetic and recreational utilities offered by the lake had begun. Traditional activities such as collection of water were permitted only in conditions of drought and famine.

Elderly members of the *Vannhikula Kshatriya* community remember the area surrounding the lake, depicted as open in the 1885 map, to be fertile farmland primarily belonging to them. They grew flowers and green leafy vegetables on this land, crops that this community cultivates even today. Other accounts corroborate this indicating that in the 1870s, the area around the lake was known for its beautiful gardens cultivated by the *Vannhikula Kshatriyas* (Srinivas 2001). The priest of an old temple that predates the colonial period belonging to the community of *Kurubas* (originally shepherds) asserted that the village of Sampigehalli, associated with the lake, was in existence prior to the founding of the city in 1537 by Kempe Gowda.

Oral narratives suggest that the area was populated with temple tanks of which only one exists today. Others were eventually built over. Local residents described a wide well which provided groundwater to most of the village, which had twenty pulleys to draw out water.

4.2. Time period 2: between 1900 and 1935

By 1935, part of the lake seems to have become a playground. The lake disappeared, leaving only a small rectangular enclosed tank, all that remains of the lake today (Figure 4). The boundary of the Cubbon Park was demarcated. The land occupied by the Cantonment had increased road networks, while the area marked as fallow land reduced. A number of public utilities in the form of schools, churches and hospitals were constructed by this time along with a golf course and the Bangalore Brewery (Nair 2005).

The period between 1900 and 1935 was one of intensive change, both in the social and ecological fabric of this landscape. It was also a period of intense

Table 2: Archival records relating to Sampangi lake: time period 1: before 1900.

Date	Source of information	Details
1864	File Number 354 of 1909, Revenue	"The areawas a paddy flat irrigated by wells with no tank above". Provides a description of the area occupied by the tank.
1883	File number 354 of 1909, Revenue	Dispute between the Civil and Military Station concerning the supply of water to Millers Tanks from feeder channels of this lake (file makes no mention of its resolution). "Correspondence regarding Sampige Tank and its feeder channel began as early as 1883 when there was a dispute between the Civil and Military Station and the Durbar"
16th March 1884	Order No. 15401/LJ 205-93 (File number 302-93, (1-11), Municipal)	Prohibited firing of bricks in the bed of the tank citing sanitary grounds. "The tacit acquiescence of Government in the leasing of the tank bed for grazing purposes by the municipality does not imply permission to injure and disfigure the tank bed by digging unsightly holes and pits and otherwise injuring it."
2nd July 1892	Ruling (File number 354 of 1909, Revenue)	"The sinking of wells or any other extensive excavation for any purpose whatever are prohibited within an area which includes the Sanpigelhalli Tank bed".
18th July 1894	Order No. 926-26 ^{1/2} /LJ 233-92 (File number 302-93, (1-11), Municipal) – through the Senior Surgeon and Sanitary Commissioner	"The deepening of the bed i.e. the making of raw bricks be stopped. There is not much use in deepening the bed as the passages for supply of water to the tank had been blocked up". "The burning of bricks in the locality is unobjectionable provided all useless debris is cleaned up and the place is not fouled." – This order re allowed for brick making in the neighbourhood of Sampangi Tank.
1894	Speech made by Dewan Seshadri Iyer (Dikshit et al. 1993)	"Undue importance was given to the responsibility of Government for the upkeep of tanks, the ryots liability being altogether ignored and when Government found that its costly agency, could not with any prospect of return for its capital, undertake the management of the tanks, in the province, the ryot was called upon to take charge of the majority of tanks. But the ryot by this time lost all traditions of contribution for works of public utility, nor were the civil officers in a position to enforce the ryot's liability in an efficient manner."
6th April 1895	Government Proceedings of the State of Mysore No. 16404-5/LF 233.92 (File number 302-93, (1-11), Municipal)	"The central position of the bed of the Sampangi Tank with the city on one side and the Civil and Military Station on the other and especially its close proximity to the Maternity and St. Martha's Hospital on one side and to the road leading from the crossing of the South Eastern Corner of Cubbon Park to the Lalbagh which is largely frequented by visitors to the latter places and to inhabited houses....."
April 1895	Representation from Mr. Lee, the Sanitary Engineer (File number 302-93, (1-11), Municipal)	"It is not desirable or necessary to store any water in the tank. Its feeders have been cut off and The present beautifully levelled tank bed should not be allowed to be dug into unsightly pits to be hereafter used as latrines"

Table 2 (continued)

Date	Source of information	Details
6th April 1895	Government Proceedings No. 16405-5/LF 233-92; (File number 302-93, (1-11), Municipal) Response from the President of the Municipal Council	<p>“Mr. Lee’s fears as to the bed of the Sampangi Tank being converted into rubbish pits were unfounded, but that as the Hesaraghatta Scheme would bring in a plentiful supply of water, the deepening of the bed might be stopped.”</p> <p>“The Government observes that the Sampigelhalli tank bed is included in the areas prescribed by the Chief Commissioner’s Notification no. 188 dated 24 October 1872 within which all lands are reserved for public purposes and the erection of buildings and excavations without previous sanction of the Government are strictly prohibited”</p>
1895	Letter from the President of the City Municipal Council to the Chief Secretary to the Government of Mysore (File number 302-93, (1-11), Municipal)	<p>“the tacit acquiescence of the Government in the leasing out of the tank bed for grazing purposes by the municipality does not imply permission to injure and disfigure the tank bed by digging holes and pits”</p> <p>Arguments were also made regarding the feasibility of deepening the tank further due to fear of inundation of the bungalows of “Major Wahab, Dr. Gay and the Campbells” by this act.</p> <p>“During the scarcity of 1891-92, Government sanctioned the deepening of the bed of the Sampangi Tank as relief work but when sanction was granted, the season of scarcity had passed. Also, then the scheme of water supply had not matured and so it was felt necessary to deepen the bed as the springs of wells in the neighbourhood depended on the water in the tank”.</p>
5th April 1895	Order No. 16404-5/LF 233-92 (File number 302-93, (1-11), Municipal) by B.V. Narasimiyengar, General Secretary of the Government of Mysore	The municipality should not permit the “excavation of earth in the bed or its injury and disfigurement”, laying emphasis on the aesthetic nature of the lake.

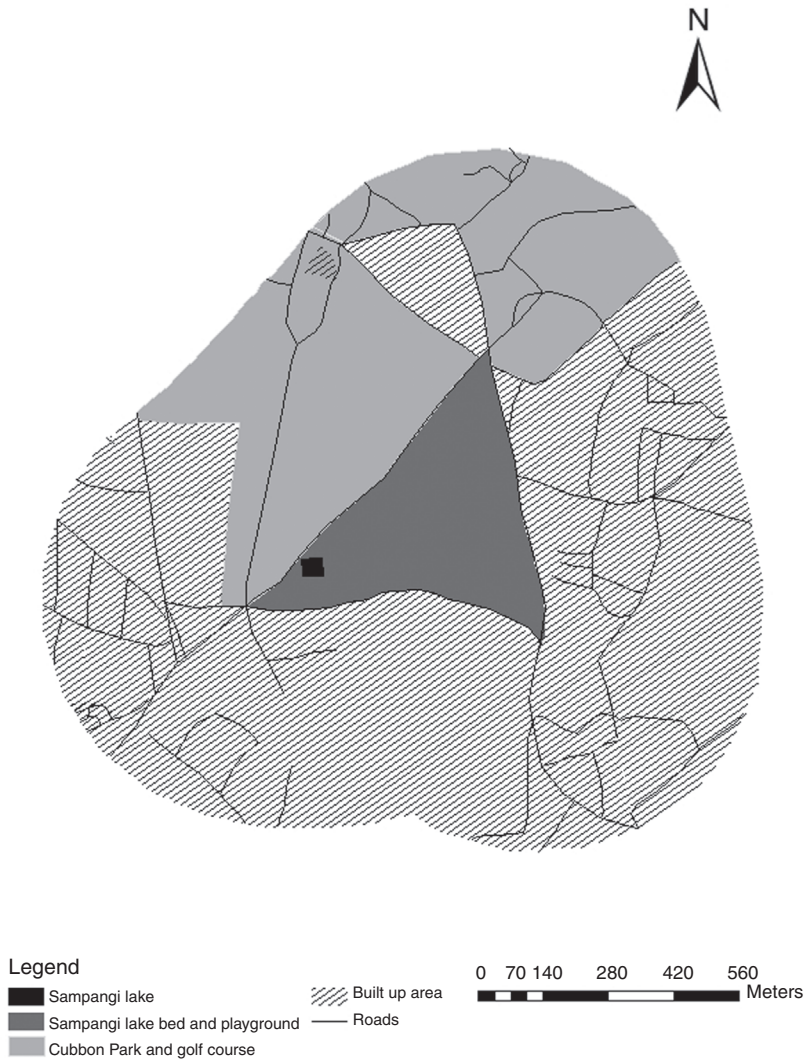


Figure 4: Sampangi Lake – 1935.

conflict between different actors (Table 3). There were tussles of power between institutions and residents of the British Cantonment headed by the Civil and Military Station and of the native city or *Pete*, governed by the Mysore kings.

The lake began to transform from a commons to a recreational and aesthetic space. Demands were made for dredging the lakebed, to increase its water storage capacity and prevent the bungalows and the brewery adjacent to the lake from flooding. British regiments also asked to drain a portion of the lakebed so that they could play polo. Native horticulturalists resisted such demands, instead asking

Table 3: Archival records relating to Sampangi lake: time period 2: between 1900 and 1935.

Date	Source of information	Details
1903	Routine Inspection of the city carried out by Dewan, Sir. P.N. Krishnamurthy – File No. 1084071 (1–2) (Municipal) of 1903:	<p>“I noticed the growth of Lamtana and a number of pools where water stagnates for months together. I was not surprised that the complainants I heard now and then about malaria prevailing in the locality were well founded. The President should at once take steps for filling up the pools and for the removal of rank vegetation in the city”.</p>
1903	Petition by horticulturists to Krishnamurthy, B.L., the Dewan of Mysore – File No. 354 of 1909 (Revenue)	<p>“The difficulties which your honor’s petitioners have been experiencing for the last 20 years for want of water for the maintenance of crops. Owing to the tank being deprived of its various supplies are such as cannot be described in word.”</p>
1903	Response to petition by H.H. Sparkes, President of Bangalore City Municipal Council – File No. 354 of 1909 (Revenue)	<p>The complaint further went on to state that the tank had filled that year after a long dry spell of over twenty years, but that the overseer was breaching the bund to empty it “to their ruination”</p>
1904	Proposal to reconstruct the kodi of the tank and to drain the overflow of the tank to the east of Sampige Road – From the President of the Civil and Military Station – File No. 354 of 1909 (Revenue)	<p>“Owing to an apprehension of breach of bund and the complaints of owners of bungalows, two feet of water was let out as a precautionary measure.” – Also called for construction of an additional outflow or kodi to the tank.</p>
1904	Internal memo – File No. 354 of 1909 (Revenue)	<p>“This would reduce the capacity of the tank from 43 to 16 units, which will be opposed by the owners of land below the tank as it would affect the supply of water in the large wells below.”</p>
October 1904	Response from the Government of Mysore – File No. 354 of 1909 (Revenue)	<p>“Proposals to construct the kodi have been advocated not for the safety of the tank but for saving a Brewery and other buildings that have sprung up in the bed of the tank from being flooded over.”</p>
March 1905	Response from the Resident, Civil and Military Station – File No. 354 of 1909 (Revenue)	<p>As both the city and Cantonment have an alternate source of water supply (the from the Hesaraghatta reservoir), it was “therefore reasonable to stop diverting water from Sampige tank to its neighbour and to deepen the channels as per wishes of the petitioners.”</p> <p>“a) Two outlets in the feeder were never closed in 1883 and that it was not definitely settled that they be closed.</p> <p>b) The Station Municipality had no desire to press claims to supply for Millers Tanks from those outlets.</p> <p>c) The Sampige Tank was shallow and gradually silting up.</p> <p>d) Whatever may have been the extent at one time, its limits in those years were not considered beyond Jail Road. Therefore the Brewery on the north of Jail Road needs to be protected.</p> <p>e) If outlets in the feeder channel had to be closed, steps should be taken to prevent the tank from overflowing in the Station Limits”.</p>

Table 3 (continued)

Date	Source of information	Details
March 1905– July 1905	Series of correspondence between the Maharajah of Mysore and the Residency – File No. 354 of 1909 (Revenue)	<p>The Maharajah felt that “such protection could only be to the prejudice of the recognized rights of the garden owners who held lands under the tank, and whose rights to water for irrigation purposes predated the construction of the brewery. The proprietors of the buildings erected them in the bed fully knowing the risks and they could not be protected at the expense of the garden owners who paid heavy assessments to the Government”.</p> <p>The First Resident’s reply mentions that the tank should get its full supply of water, and that diversions which are not required for supplying the Civil and Military Station were not intended to operate nor on occasions of heavy rainfall do they operate to interfere with such supply or to prevent the tank from filling up to full capacity. It was stated that “<i>herefore there are no objections to the diversions being closed. But the tank has gradually silted up, so when water fills up; it covers extra ground which has not been shown on any map as having been part of the tank. While it will affect gardeners and owners of low lying lands below the bund, there is also sufficient ground to consider the interests of the Brewery and other buildings which have no protection against floods and which have been constructed on land that is not shown to be part of the lake.</i>”</p>
1906–1907	Inspection and estimate implemented by Chief Engineer, Survey and Settlement – File No. 354 of 1909 (Revenue)	“Sanctioned” in August 1907
17th November 1909	Letter No. 2105 from Colonel Smyth, the Sanitary Commissioner – File No. 354 of 1909 (Revenue)	Talks of “ <i>malarious swamps on the Eastern side of the Road to the East of Sampige Tank</i> ”, while recommending an increase in the capacity of the tank and the prevention of pool formation.
1909–1912 1910	– File No. 354 of 1909 (Revenue) – File No. 354 of 1909 (Revenue)	<p>Exchange of estimates and solutions</p> <p>Flooding reported in local newspapers... “<i>Indeed, Oorgaum House is becoming flooded again as in 1906 and the Brewery grounds are also.</i>”</p>
1910	Proposal by Chief Engineer – Sir. M. Visveswaraya – File No. 354 of 1909 (Revenue)	“ <i>A rough and ready solution would be to induce the owners of the bungalows both in the C and M Station and in the City limit to contribute one third costs, balance being shared from funds in the two municipalities in proportions to be decided later.</i> ”

Table 3 (continued)

Date	Source of information	Details
15th Jan 1910	Letter addressed to Mr. Puttamma Chetty, the then President of the municipality, from the Public Works Secretariat – File No. 354 of 1909 (Revenue)	Submits a request to obtain from the deputy Commissioner, a clear statement “after best enquiry” as to a) The exact course taken by the surplus water of the tank in the past b) How the old water way became constricted and the outlet rose c) Whether reopening the original channel was possible without injuring vested rights.
05th Jan 1911	DO Letter No. Fr. 1948: Petition of Captain A. A. Ross of the XX Deccan Horse to the Private Secretary of His Highness the Maharajah of Mysore towards getting a portion of the Sampegay Tank drained – File No. 354 of 1909 (Revenue)	The letter from Captain Ross written on behalf of his regiment inquires whether His Highness, the Maharajah of Mysore “could do anything towards getting a portion of the Sampegay Tank which is the regimental polo ground drained. The tank is very full and therefore there is no opportunity to play before the Regiment leaves. The city municipal authorities have informed us that as the Polo Ground is the highest part of the tank, the draining would still leave sufficient water at the ends of the tank to supply the gardens below the bund throughout the year.”
1911	D.O. No. 1948, Letter to T. Ananda Rao, Esq., C.I.E. – the Dewan of Mysore from the Palace – File No. 354 of 1909 (Revenue)	Forwarded Mr. Campbell Ross’s earlier letter with the missive “kindly make enquiries and let me know whether anything can be done to drain the polo ground without injury to the wetlands under Sampegay Tank” Which is when the discovery was made that the lake was being used as a polo grounds
Jan 9th 1911	Letter No. 1763 from the Vice President of the City Municipal Council to the Deputy Commissioner of the Bangalore District – File No. 354 of 1909 (Revenue)	“Out of a total area of 35 acres, 13 guntas of tank, 16.5 acres are fit for polo playing. Out of this, 4 acres, 16 guntas are in the permanent enjoyment of Mr. Brown having been given by the government as compensation. The remaining 12 acres belong to the municipality. This was let out for grazing yearly for an annual rent ranging from Rs. 120 – Rs. 362. In May 1894, at the request of the Military Secretary to the Government the tank bed was unconditionally placed at the disposal of that officer to be used a polo ground. In September 1898, the tank bed was leased out to another polo team at a yearly rent of Rs. 200 and further passed into the hands of the Deccan Horse.”

Table 3 (continued)

Date	Source of information	Details
1911	A proposal to deepen the tank bed and to raise the level of the tank neighbourhood by taking material from the tank bed – File No. 122 of 97-98	<p>To this, the Civil and Military Station proposed that “the supply channel from the North entering the tank through the C and M Station may be deviated so as to run entirely on Durbar Land”. A committee was appointed to carry out an inspection of the specified area and to submit the results. The letter also states that “it is not known how the settlement of this question would affect the polo ground. The question of deepening the tank emanated from Col. Snythe who first proposed that the portion wanted for a polo ground might be retained as such and the rest of the bed deepened. He subsequently stated that his proposal involves the treatment of the entire bed including the leased polo ground, which would doubtless have to be dealt with later.” The government also refused a sanction to open a waste weir to the tank as the vested interests of land owners below the tank would be affected. To improve supply to the tank, the government then sanctioned estimates for improving feeder channels by cutting off its supply to the Millers Tank. Another “discovery” made during this period of debate was that a part of the tank bed with an area of about 4 acres and 16 guntas was leased to a Mrs. Brown “having been given by the government some years back to a Mr. Brown in exchange for what the government took from him in Nandidroog”.</p> <p>Calls for an inquiry into papers relating to “ownership of Mrs. Brown” of a portion of the Sampige Tank.</p>
11th Feb 1911	Letter from the Secretary to the Maharajah of Mysore – File No. 354 of 1909 (Revenue)	
24th Nov 1911	D.O. Letter No. 246 from the Deputy Commissioner, Bangalore District to the Chief Engineer in Mysore – File No. 354 of 1909 (Revenue)	<p>Two conferences were held concerning measures that needed to be adopted for safety of the buildings near the tank.</p> <p>The Deputy Commissioner in his letter refers to his inspection of the city where he “noticed that the channels situated within the city municipal limits were being excavated by the Sanitary Engineering Department to drain off the surplus water.” He expressed concerns that the “deepening of the said channels to a greater depth than their former level is likely to inundate the compounds of private bungalows and damage property, and thus give rise to complaints from them” He then instructs the Sanitary Engineer to ensure that the “channels are not interfered with beyond the clearance of silt”.</p> <p>The decision arrived at in these conferences was to</p> <ol style="list-style-type: none"> To drain the portion of the Sampangi Tank to the north to RL 42. To retain water in the Southern Portion at its present level of RL 44. <p>Estimates were prepared and work sanctioned accordingly.</p> <p>We did not procure evidence of any further correspondence concerning the tank till about 1935.</p>

Table 3 (continued)

Date	Source of information	Details
26th Jan 1912	Letter No. 563/Enc 4 from the Hon ^{ble} Resident in Mysore to the Dewan of Mysore – File No. 354 of 1909 (Revenue)	<p><i>“No doubt that the tank itself has silted up to a considerable extent and therefore water from the eastern side of the road is unable to escape into the tank and the swamp thus formed is largely due to the capacity of the tank having been reduced. Therefore the whole of the area on both sides of the road is admittedly a source of malarial infection. Thus, Mr. Visveswaraya’s argument that the entire advantage from the drainage of the tank will accrue to the Cantonment will seem to fall to the ground”. The letter also mentions that “in April 1911, there was an outbreak of malarial fever in bungalows which the city authorities have permitted to be erected within the limits on the low ground south and west of Sampangi Tank. The existence of malaria is a threat to the health of the station and the city. Therefore there is an urgent necessity of removing a source of infection which threatens both the city and the C and M Station alike. If examined from this aspect, the Durbar will realize that the proposal is of mutual benefit and will cooperate with the municipal commission of the C and M Station in finding a remedy”.</i></p>
1935	File Numbers 154 of 1935 (22 and 26) – Municipal	<p>Records dealing with “ownership of the tank bed as well as that of the tank” itself. However, these files were not available within the holdings of the archives.</p>

for increased water supply to irrigate their crops. A petition signed in Kannada (the language spoken within the state of Karnataka) by 50 horticulturists in 1903 asked the Dewan of Mysore for increased water supply from the lake to support agriculture. The eventual outcome of these conflicts was the draining of the lake, indicating that these voices were not given prominence in the decision making process. The archives also record debates between the colonial administration and the Mysore kingdom about the uses of the lake. An instance where this dynamic is evident is the response to Indian petitioners' demands for extra water that has been described earlier. Here, the Mysore rulers favoured the subaltern voices as opposed to the view taken by British administration. This was however done in order to sustain the revenue which horticulture brought into the kingdom.

Oral narratives from the *Vannhikula Kshatriya* community describe an abundance of water and fish in the lake in this time period, so much so that excess fish were used to provide manure for crops. Local residents described restrictions imposed on the entry of cattle for grazing, while people were permitted to use the lake for recreational activities such as swimming. Oral accounts also indicate that many farms were acquired during this period to build houses, corporation buildings, and roads.

Other communities began to migrate into the area. The earliest communities to settle here were *Devangas* (weavers), followed by *Vokkaligas* (agriculturalists) and *Vaishyas* (merchants). Restrictions were imposed on sinking of new wells in and around the lake. Yet there continued to be ten large wells and four temple tanks in the area. These supplied enough water to meet the needs of the people.

The *Devangas* describe the area surrounding the lake as a fertile agricultural landscape comprised of coconut groves and fruit orchards. The Kuruba priest at the temple described earlier recalled that the upstream area of the lake was drained in the colonial period and used as a playground (agreeing with the landscape as depicted in the map of 1935). Oral accounts also described a decrease in the level of water in the lake due to the construction of schools and hospitals in the vicinity. With the change in the agricultural landscape surrounding the lake the *Vannhikula Kshatriyas* began to pursue alternative professions and migrated away from the neighbourhood.

Oral accounts also associated the lake with important religious ceremonies. The most prominent of these was the *Karaga* (described earlier). In October, a festival called *Ganga Pooja* was conducted at the lake, where numerous lamps were lit and set afloat in the water. Oral accounts also describe a fishing community (*Bastharu*) who used to live on the banks of the lake, and have since migrated away.

4.3. Time period 3: between 1935 and 1973

Many important events occurred between the year 1935 and 1973, the most notable of which was the attainment of Indian independence in 1947. The Sampangi lake also transformed into the Kanteerava Stadium around this period in time. This change impacted the social fabric of the landscape (Table 4). Almost all the area

Table 4: Archival records relating to Sampangi lake: time period 3: between 1935 and 1973.

Date	Source of information	Details
1937	Speech made by the Dewan Sir Mirza Ismail in inaugurating the hospital fete (Government Press 1949)	<p>“...You acknowledge the help given by the departments of Government and private individuals in converting the Sampangi Tank into a delightful carnival ground, in organizing the carnival and in sanctioning an effort to secure that the Mysore money which would otherwise go outside Mysore should be retained within the State. ... the creation of a fund to be named “The Maharaja’s Hospital Fund” to promote the establishment of new hospitals and the maintenance of existing ones, and the establishment of a permanent stadium in these grounds for the holding of large-scale athletic contests. ...The question of a stadium is another proposal which appeals very strongly to us all. This is regarded as one of the essential measures of preventive medicine... For all these a proper stadium is an essential necessity, and a proposal was made long since for the establishment of one, also in a tank bed at Mysore. A similar stadium is necessary in Bangalore. It is true you have some excellent grounds on South Parade, the mere fact that you have to make special arrangements for enclosing them whenever there is an important competition in progress shows how necessary it is to have a regular stadium with gates and stands to serve this purpose.”</p>
Late 1930s	Speech addressed to the Tigalars (also known as Vannhikula Kshatriyas) made by Dewan Sir Mirza M Ismail at the Dharmaraya Swamy Temple (Government Press 1949)	<p>“Referring to the services of the Vannhikula Kshatriyas, the Dewan said that they had for a long time past been engaged in the vegetable trade in Bangalore and had grown and supplied the city with vegetables. When it was realized what an important place vegetables occupied in the dietary of the individual, one could not but concede that the members of the Vannhikula Kshatriya class were rendering no small service to the community in general. Bangalore had made a name for itself in vegetables and large quantities of them were daily exported from the city. ... As regards the general conditions and standard of living of the Vannhikula Kshatriya community, the Dewan expressed his regret that they had not shown greater self-reliance and readiness to help themselves. Those engaged in a similar occupation in Western countries were well educated and had developed the trade to a high degree of efficiency and profit on principles of cooperation... The Dewan however cautioned them against letting their love for their profession as vegetable-growers diminish on account of any education they might be able to receive. To discourage them in the pursuit of their traditional occupation was the last thing which the Dewan would like education to do for them.”</p>
6–8th Feb 1946	The Cottonian (Magazine of Bishop Cotton Boys High School) of 1946	<p>“All India Olympic Games at the new stadium in Sampangi Tank”</p>

surrounding the lake (apart from Cubbon Park) was built up by 1973 (Figure 5). A small rectangular remnant tank within the stadium was the only remnant of its original identity as a water body and an ecological commons.

In 1937, a carnival ground was organized on the bed of the lake. A proposal was made to convert the lakebed into a stadium (Government Press 1949). This proposal followed similar transformations of many lakes in Mysore state into civic amenities (Government Press 1949). By 1946 the stadium was completed.



Figure 5: Sampangi Lake – 1973.

The All India Olympics as well as the Karnataka Olympics both held in 1946, were conducted at this venue (The Cottonian 1946). In 1957, cattle fairs were held in the lakebed suggesting that at least a part of the lake survived as an open field (Venkatarayappa 1957). The social milieu around the lake experienced a trend towards increased diversity with many people from all over the country migrating into these parts and setting up their trade. The area formerly occupied by the farms now became a residential layout called Sampangiramnagar. A slum was established in the vicinity as part of a resettlement program initiated here by the City Improvement Trust Board (CITB) around the late 1950s (Bangalore Development Committee 1954).

The *Vannhikula Kshatriyas* recall the land as being cultivated till the late 1940s with paddy, arecanut (*Areca catechu*), coconut (*Cocos nucifera*) and millets using water from the now diminished lake for irrigation. Others remember grazing their cattle along the banks of the lake, while protest marches for Indian independence took place on the roads bordering the lake. Lake water was polluted, and most people refrained from swimming, drinking or using the water for domestic needs. Instead, water was obtained from the numerous wells that still dotted the landscape. Slum residents however remember using the lake for washing clothes and vessels until the late 1950s. The *Vannhikula Kshatriyas* described escalating conflicts with the CITB about land ownership and use.

The *Devangas* (weavers) had by this time distanced themselves from the lake. They remember the lake as being used only for two purposes – for open defecation and for irrigating a few crops. They recalled one instance in the late 1940s when during a period of intense rainfall the lake bund breached and some houses in the vicinity were flooded. The *Devangas* and the slum residents recall that by the late 1940s the lake had become a social hazard, a place where few people ventured. They recalled a few instances of drowning that occurred in the lake. Some accounts described parcels of land around the lake owned by rich landlords. When conditions changed they simply sold their workers (indicative of bonded labour) and migrated to other areas. The people who were most affected were those directly dependent upon the lake for their livelihoods. While some families of the *Vannhikula Kshatriyas* received higher education and took on professions such as that of lawyers and doctors, many others migrated away from the area to other lakes and continued as horticulturists.

4.4. Time period 4: between 1973 and 2014

Figure 6 shows the present day landscape around the lake.

We now observe a further increase in urban cover and a greater density of road networks. The small rectangular portion conserved as a water body continues to be a location of importance for the annual Karaga festivities, now bordered by a small temple and lawn within the premises of the stadium. The stadium itself has been renovated and a state of the art indoor stadium added (Heitzman 1999). Outside of the Karaga festivities the Sampangi tank was further relegated into the unknown as far as the rest of the city was concerned.

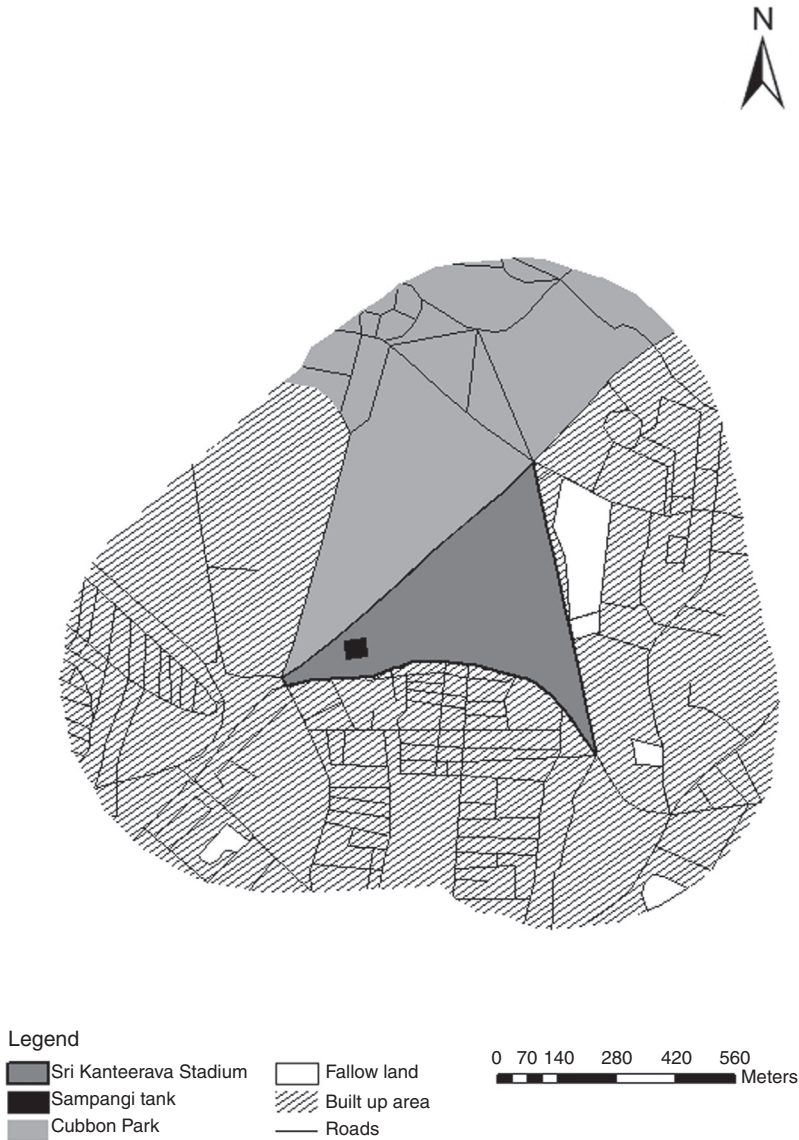


Figure 6: Sampangi Lake – 2014.

The social scenario is very diverse today with pockets of *Vannhikula Kshatriyas* and *Devangas* existing alongside communities from all over the country. Many native residents sold their land and migrated elsewhere. A few others have remained and taken on alternative occupations such as running a cooperative society to help members of their community. Some have retained

pockets of their original farmland, on which they have constructed their homes. Slum residents describe that urbanization which characterizes the landscape has somehow passed them by. They believe that urbanization is a result of the fancy stadium that has come up but that it has not improved prospects for them. One slum resident who rears cattle recalls how their occupation has progressively seen decay, both in terms of resource availability as well as social status. Obtaining fodder to feed the cattle has become a more difficult task over the years. They describe a time about fifteen years ago (around 1999) when the area now occupied by the temple and lawn next to the stadium was filled with fodder grass. Through a tender based process, pastoralists obtained rights to cut fodder. This process was stopped and the growth of fodder grass replaced by an ornamental lawn.

While one well and one temple tank still exist, others have been built over. The reduction in the importance of pastoralism has led to a decrease in social status with interviewees indicating that it has become more difficult for young men to find brides. Slum residents are also dealing with the potential challenge of relocation from this area.

Within the *Vannhikula Kshatriya* community who live here almost no one practices agriculture. However, they retain a deep sense of connection to the landscape as it is sacred to their cultural beliefs. The community campaigned for exclusive use of the tank and the compound it occupied. Some members of this community raise fish in the tank and harvest the fish for personal use, sharing a small portion of their catch with a flock of Brahminy kites (*Haliastur indus*) that circle overhead.

5. Discussion

Drawing on transformations in the use of Sampangi lake as a commons, Table 5 utilises the property rights framework proposed by Ostrom and Schlager (1992) to describe changes in the property rights bundles associated with the lake over time. Categories of ecosystem services accessed by these different actors are also elucidated.

It is clear from this table that there have been many actors in this landscape and that their user rights have been temporally dynamic and heterogeneous. Some actors such as British residents or the Municipal Council are no longer active stakeholders in the landscape. Other users such as the *Vannhikula Kshatriya* community have seen the balance of power undergo shifts over time. It is equally clear that users deriving provisioning and certain forms of cultural ecosystem services like spiritual services have always been on the lower rung of the power spectrum. Over time, their relations and requirements of the lake decreased and they became dissociated from the resource. Following its conversion into the stadium, the lake stopped being a provider of important ecosystem services to its dependent communities. This as we demonstrate above, has alienated these communities from their commons. The lake thus transformed gradually from being perceived as a sacred resource, important for local livelihoods into one

Table 5. Actors, their property rights bundles over time and ecosystem services accessed around Sampangi Lake.

Actors	Property rights bundles at various periods in time				Ecosystem services accessed
	Before 1900	1900–1935	1935–1973	1973–2015	
State – British Government	A, P, M, L*	A, P, M, L	A, P, M, L (till 1947)	NA**	Provisioning of water for supply to the Cantonment
State – Rulers of Mysore	A, P, M	A, P, M, L	A, P, M, L (till 1947)	None***	Provisioning of water for supply to the <i>Pete</i>
Independent State of India	NA	NA	A, P, M, L (from 1947)	A, P, M, L	None
Municipal Council	A, M	A, M	NA	NA	Provisioning of water for supply to the <i>Pete</i>
City Improvement Trust Board	NA	NA	A, M	NA	None
Lake guards	NA	A, M	None	None	None
Residents of the Cantonment	A	A	None	None	Aesthetic appreciation and recreation (walking, jogging)
British recreationalists	A	A	NA	NA	Aesthetic appreciation and recreation (walking, jogging)
Native recreationalists	A	A	None	None	Aesthetic appreciation and recreation (fishing)
Horticulturalists	A, P	A, P	None	None	Provisioning of water for farms
Fishermen	NA	A, P	None	A, P	Provisioning of fish – both for subsistence and for commercial purposes
Workers in brick kilns	A, P	None	None	None	Provisioning of water and mud for use in the manufacture of bricks
Other communities near the lake	NA	NA	A	None	Provisioning of a) Water for domestic purposes b) Grass from the banks of the lake for use as fodder
Other recreationalists (stadium)	NA	NA	A (After 1946)	A	None
<i>Vannihikula Kshatriyas</i> and <i>Kurubas</i>	A	A	A	A	Provisioning of fish for subsistence and cultural appropriation of the resource for the <i>Karaga</i> and the <i>Ganga Pooja</i>
Bengaluru Development Authority (BDA) and Bruhat Bengaluru Mahanagara Palike (BBMP)	NA	NA	NA	A, P, M, L	None

*A=Right to access, P=Right to appropriate, M=Right to manage, L=Right to alienate (Ostrom and Schlager 1992).

**NA=Actor not present in the landscape at that point in time.

***None=Actor present but does not possess usufruct rights to the resource.

that was unpopular and hazardous. Physically too, it lost its identity as an urban ecological commons, transforming instead into a built space evoking the same powerful notions of aesthetics and recreation that dominated the colonial ethic. Except for a brief time every year when the small remnant water body forms part of the Karaga worship, the lake has shrunk in public memory. Today, this space only reminds Bengaluru of its former identity as a water body during torrential rainfall, when the entire stadium floods over.

This historical picture remains representative of contemporary trends in the management of lakes within the city and more broadly, of commons across cities in the global South. Many lakes within Bengaluru and elsewhere are polluted and fast losing their connection to the user groups that once accessed these commons (Agarwal and Narain 1997). Some of them have already been converted to temples, malls or bus terminals. Efforts are being made to preserve lakes through modes that foster further inequality. The aesthetic and commercial priorities of privatized lakes have served to keep out provisioning and cultural ecosystem service users (Unnikrishnan and Nagendra 2014b) in some parts of the city. In other places, the increased gating and restrictions of access to lakes actively keeps out communities engaged in livelihood uses. This again prioritizes aesthetic and recreational uses over extractive uses of the resource. Measures such as these have further alienated traditional users preventing them from engagement with the commons that they once actively maintained. Similar trajectories of alienation, exclusion and acquisition have been described in other parts of the country for example in the cities of Delhi (Mann and Sehrawat 2008) and Mumbai (Parthasarathy 2011).

Engaging with the history of a resource such as Sampangi lake – engaging with its “historical political ecology” – has multiple benefits (Offen 2004). First, as has been demonstrated in this paper, a historical account helps to document the tangible and intangible uses of, and meanings attached to the commons. Second, it helps to draw out the political nature of interactions between society and the governance of commons. Third, it provides a means of documenting changing perceptions of the utility of a commons because of its changing property rights. In so doing, alleviating the “poverty of history” in the commons (Johnson 2004) would aid in identifying those actors whose user rights are in danger of exclusion. This can provide a more informed and inclusive frame for policy directives governing (De Moor 2012) commons in the Anthropocene.

Literature cited

- Agarwal, A. and S. Narain. 1997. *Dying Wisdom: Rise Fall and Potential of India's Traditional Water Harvesting Systems*. New Delhi: Center for Science and Environment.
- Annaswamy, T. V. 2003. *Bengaluru to Bangalore: Urban History of Bangalore from the Pre-Historic Period to the End of the 18th Century*. Bangalore: Vengadam Press.

- Bangalore Development Committee. 1954. *Report of the Bangalore Development Committee*. Bangalore: Government Press.
- Bassett, T. J. and P. W. Porter. 1991. 'From the Best Authorities': The Mountains of Kong in the cartography of West Africa. *The Journal of African History* 32(3):367–413.
- BBMP (Bruhat Bangalore Mahanagara Palike). 2010. *Namma Bengaluru Nisarga: An Action Plan for Development of Bangalore's Lakes*. Bangalore, India: Bruhat Bangalore Mahanagara Palike.
- Biermann, F., K. Abbott, S. Andresen, K. Bäckstrand, S. Bernstein, M. M. Betsill, H. Bulkeley, B. Cashore, J. Clapp, C. Folke, A. Gupta, P. M. Haas, A. Jordan, N. Kanie, T. Kluvánková-Oravská, L. Lebel, D. Liverman, J. Meadowcroft, R. B. Mitchell, P. Newell, S. Oberthür, P. Pattberg, R. Sánchez-Rodríguez, H. Schroeder, A. Underdall, S. C. Vieira, O. R. Young, A. Brock, and R. Zondervan. 2012. Navigating the Anthropocene: Improving earth system governance. *Science* 335(6074):1306–1307.
- Brown, K. M. 2006. New Challenges for Old Commons: The Role of Historical Common Land in Contemporary Rural Spaces. *Scottish Geographical Journal* 122(2):109–129.
- Dikshit, G. S., G. R. Kuppaswamy, and S. K. Mohan. 1993. *Tank Irrigation in Karnataka*. Bangalore: Gandhi Sahitya Sangha.
- D'Souza, R. and H. Nagendra. 2011. Changes in Public Commons as a Consequence of Urbanization: The Agara Lake in Bangalore, India. *Environmental Management* 47(5):840–850.
- De Moor, T. 2012. What do we have in Common? A Comparative Framework for Old and New Literature on the Commons. *IRISH* 57:269–290.
- Fairhead, J. and M. Leach. 1995. False Forest History, Complicit Social Analysis: Rethinking Some West African Environmental Narratives. *World Development* 23(6):1023–1035.
- File No. 154 of 1935 (22–26). *Records Dealing with the Ownership of Sampangi Tank Bed as Well as the Tank Itself*. Bengaluru: Karnataka State Archives.
- File No. 302 of 1893 (1–11). Prohibition of Making and Burning Bricks in the Bed of the Sampigehalli Tank. Bengaluru: Karnataka State Archives.
- File No. 354 of 1909. *General and Revenue Secretariat. Important Papers Connected with Draining a Portion of the Sampige Tank*. Bengaluru: Karnataka State Archives.
- File No. 1084071 (1–2) of 1903. *Notes of Inspection made by the Dewan in Mysore and Bangalore Towns*. Bengaluru: Karnataka State Archives.
- Gidwani, V. and A. Baviskar. 2011. Urban Commons. *Economic and Political Weekly* XLVI(20):42–43.
- Gist, N. P. 1957. The Ecology of Bangalore, India: An East-West Comparison. *Social Forces* 35(4):356–365.
- Gold, A. G. and B. R. Gujar. 2002. *In the Time of Trees and Sorrows: Nature, Power, and Memory in Rajasthan*. Duke University Press.

- Goodall, H. 2008. Riding the Tide: Indigenous Knowledge, History and Water in a Changing Australia. *Environment and History* 14(3):355–384.
- Government Press. 1949. Speeches by Amin-ul-Mulk Sir Mirza. M. Ismail, K.C.I.E., O.B.E., Dewan of Mysore, Volume III (February 1936–December 1938). Bangalore.
- Heitzman, J. 1999. Sports and Conflict in Urban Planning: The Indian National Games in Bangalore. *Journal of Sport & Social Issues* 23(1):5–23.
- Johnson, C. 2004. Uncommon Ground: the ‘Poverty of History’ in Common Property Discourse. *Development and Change* 35(3):407–434.
- Mann, M. and S. Sehrawat. 2008. A City with a View: The Afforestation of the Delhi Ridge, 1883–1913. *Modern Asian Studies* 43(2):543–570.
- Mundoli, S., B. Manjunath, and H. Nagendra. 2015. Effects of Urbanisation on the use of Lakes as Commons in the Peri-Urban Interface of Bengaluru, India. *International Journal of Urban Sustainable Development* 7(1):89–108.
- Nagendra, H. and E. Ostrom. 2014. Applying the Social-Ecological System Framework to the Diagnosis of Urban Lake Commons in Bangalore, India. *Ecology and Society* 19(2):67.
- Nair, J. 2005. *The Promise of the Metropolis: Bangalore’s Twentieth Century*. New Delhi: Oxford University Press.
- Offen, K. H. 2004. Historical Political Ecology: An Introduction. *Historical Geography* 32:19–42.
- Okiihiro, G. Y. 1981. Oral History and the Writing of Ethnic History: A Reconnaissance into Method and Theory. *Oral History Review* 9(1):27–46.
- Ostrom, E. and E. Schlager. 1992. Property-Rights Regimes and Natural Resources; A Conceptual Analysis. *Land Economics* 68(3):249–262.
- Parthasarathy, D. 2011. Hunters, Gatherers and Foragers in a Metropolis: Communizing the Private and Public in Mumbai. *Economic and Political Weekly* XLVI(50):54–63.
- Portelli, A. 2010. *The Death of Luigi Trastulli and Other Stories: Form and Meaning in Oral History*. Albany, NY: Suny Press.
- Rice, B. L. 1897. *Mysore: A Gazetteer Compiled for Government, Revised Edition, Volume I – Mysore in General*. Westminster: Archibald Constable and Company.
- Samana, S. F. and R. Gopinath. 2012. Tracing the Impact of Bangalore’s Urbanization on its Wetlands with a Case Study of Sampangi Lake. *International Journal of Environment, Ecology, Family and Urban Studies (IJEEFUS)* 2(4):23–28.
- Srinivas, S. 1999. Hot Bodies and Cooling Substances: Rituals of Sport in a Science City. *Journal of Sport & Social Issues* 23(1):24–40.
- Srinivas, S. 2001. *Landscapes of Urban Memory: The Sacred and the Civic in India’s High-tech City*. Hyderabad, India: Orient Longman.
- Stedman, R. C. 2003. Is it Really Just a Social Construction? The Contribution of the Physical Environment to Sense of Place. *Society & Natural Resources* 16(8):671–685.

- Subramanian, D. K. 1985. Bangalore City's Water Supply – a Study and Analysis. In *Essays on Bangalore Volumes 1–4*, eds. V. Vyasulu and A. K. N. Reddy. Bangalore: Karnataka State Council for Science and Technology.
- Sudhira, H. S., T. V. Ramachandra, and M. H. B. Subrahmanya. 2007. Bangalore. *Cities* 24(5):379–390.
- The Cottonian. 1946. *Annual Magazine of Bishop Cotton Boys High School. Vol XXXVI (Nos. 1 and 2)*. Bangalore: C.L.S. Press.
- Thompson, P. 2000. *Voice of the Past: Oral History*. Oxford University Press on Demand.
- United Nations. 2014. Department of Economic and Social Affairs, Population Division: World Urbanization Prospects, the 2014 revision, <http://esa.un.org/unpd/wup/>, accessed on 11.03.2015.
- Unnikrishnan, H. and H. Nagendra. 2014a. Unruly Commons: Contestations Around Sampangi Lake in Bangalore. *NMML Occasional Paper: Perspectives in Indian Development*, New Series 39.
- Unnikrishnan, H. and H. Nagendra. 2014b. Privatizing the Commons: Impact on Ecosystem Services in Bangalore's Lakes. *Urban Ecosystems* 18(2):613–632.
- Valk, A. and H. Ewald. 2013. Bringing a Hidden Pond to Public Attention: Increasing Impact through Digital Tools. *Oral History Review* 40(1):8–24.
- van Laerhoven, F. and E. Ostrom. 2007. Traditions and Trends in the Study of the Commons. *International Journal of the Commons* 1(1):3–28.
- Venkatarayappa, K. N. 1957. *Bangalore (A Socio-Ecological Study)*. *Sociological Series (6)*. Bombay: University of Bombay Publications.
- Vyasulu, V. and A. K. N. Reddy, eds. 1985. *Essays on Bangalore Volumes 1–4*. Bangalore: Karnataka State Council for Science and Technology.
- <http://www.dnaindia.com/bangalore/report-bangalores-st-martha-hospital-completes-125-years-1538842>. Accessed on 26.12.2015.
- <http://www.horticulture.kar.nic.in/cubbon.htm>. Accessed on 26.12.2015.
- http://www.stjosephsindianinstitutions.com/?page_id=9. Accessed on 26.12.2015.