

Bridges Over the Nile.

Transportation Corridors Transformed into Public Spaces

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Abstract

Cairo is a congested city with high rate of urbanization and very limited public space. Cairo has one of the lowest rates of parkland per capita of any major city. Moreover, the banks of the Nile, formerly alive with activities such as washing, fishing, and felucca landings, were by the end of the twentieth century largely cutoff from free public access by a wall of busy roads, private clubs, luxury hotels, restaurants, nurseries, and police/military stations, roads. The need for open space for people from lower income who could not afford the expensive options along the Nile banks, has resulted in use of the sidewalks of the main bridges as public spaces. Families, couples, and friends tolerate the noise and fumes of traffic to enjoy the expansive views and breezes over the Nile. As a result of this extraordinary re-purposing of the bridges, new small businesses have formed to cater to the uses, and a new interaction with the river has emerged. We studied the patterns of use, characteristics of the user population, and stated preferences of users. We identify a set of characteristics contributing to the popularity of the bridges as public space, including affordability, accessibility, openness to the river and visual connection with the other bank. We propose that these characteristics be taken into account when developing future projects along the river water front to address the need for public space and access to the Nile.

Keywords: public space, social connectivity, sustainable cities, river interactions, Nile, Cairo

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1. Introduction

With Cairo's rapid growth since the mid-20th century had been accommodated by extensive areas of informal housing poorly served by utilities and public transport, resulting in highly congested traffic routes and nearly constant traffic jams (AlSaiyad, 2011). Poor enforcement of zoning and building codes have resulted in a vast urban area with few open spaces for ordinary residents (Economist Intelligence Unit, 2011; Sims 2003). The recently constructed Al-Azhar Park on a former garbage dump near the Citadel now provides much-needed open space, but is exceptional in the city (Economist Intelligence Unit, 2011; Robert Mantho et al., 2015). Cairo has one of the lowest rates of parkland per capita of any major city, at 0.33m²/inhabitant (Bartels and Prinz, 2016; Aga Khan Trust for Culture, 2005).

Cairo has very few public open spaces accessible to the general public. Many parks charge entrance fees that seem modest by western standards but pose a real barrier to locals. Typical fees are 20 LE (e.g., for Aquarium Grotto Garden on Gablaha Street, El Andalus Park on Zamalek Island, Orman Botanical Garden in Giza, and Giza Zoo), so admission is over 100 LE (\$5 USD) for the typical family of five or more, especially lower-income workers who may earn only 3000 LE/month. In addition, there are aquatic parks and golf courses on the urban periphery within gated communities, not accessible to the general public and extremely expensive. The Nile water front was formerly accessible along its length, especially within the zone that was seasonally inundated. However, since the Aswan High Dam eliminated the river's seasonal fluctuations, this zone has been developed for uses that prevent public access, such as private clubs, restaurants, and military and police installations. By contrast, shopping malls are accessible by the public, and are usually a destination for families to spend time in a climate-controlled environment. Aside from a few points of public access along the river banks, the remaining free public space with views to the Nile is bridges across the Nile.

Rivers provide important open space in many major cities, and river banks have become loci of urban redevelopment efforts in recent years in cities across Europe, North America, and Asia. The *social connectivity* of urban rivers can be key to understanding the role of large rivers in the identity of cities and how the urban population experiences the river visually (and can move along, across, and down to the water) (G. M. Kondolf and Pinto, 2017). Historically, the banks of the Nile in Cairo were heavily used by local residents for fishing, felucca moorings, washing clothes, and fetching water, with free access to a seasonally-inundated zone of river bank. However, since closure of the Aswan High Dam, seasonal fluctuations have been muted and floods essentially eliminated. By the end of the 20th century, the formerly seasonally inundated zone of bank was occupied by uses such as nurseries, private clubs, restaurants, military and police stations, all of which block access to the banks for ordinary Cairenes (Gabr, 2004; G. M. Kondolf et al., 2011).

Parks along the river banks are rare in Cairo, and in the absence of riverbank access, and of sites with explicitly designated, programmed uses along the river, ordinary people have begun using bridges over the Nile as informal public spaces. Similar *spontaneous uses* have been observed along waterways elsewhere: in effect, these are spontaneous appropriation of spaces for recreation and leisure (M. Kondolf and Yang, 2008). In this study, we sought to document how Cairenes used the bridges, and to understand how users travel to the bridges, their distance traveled, their preferred

activities, and what alternatives they had for such outings. We examined use patterns on two bridges in different settings, documenting the patterns and demographics of how the bridges are used as public space: Qasr El-Nil Bridge in the city center and El-Moneeb Bridge on the southern ring road (Figure 1).



Figure 1. Map showing the location & context of the two bridges – Source: ESRI Digital Globe

2. Methods

Cresswell (2003) and Neuman (2010) confirm that this inquiry can use a combination of empirical research, observations, interviews and documentation of movement patterns across the bridges. These mixed methods would capture and document the use of sidewalk of bridges as alternative public space in the city. We selected two bridges where the phenomena of pedestrian use are present. The 1st is Kasr El Nil Bridge, which is a historic structure dating from 1931 and replaced the first bridge to span the Nile River in central Cairo, Egypt. It connects Tahrir Square in downtown Cairo to the modern Cairo Opera complex toward the southern end of Gezira Island, it has two

lanes each way with a 3 meters sidewalk. The 2nd is El-Moneeb Bridge, which connect Cairo with Giza over the Dahab Island. It constitutes an important segment of Cairo's ring road and connects East Cairo to the Giza area including the Pyramids area as well as the regional road going south to upper Egypt, it has 3 lanes each way with a sidewalk of 4.75 meters. The sidewalks have two concrete staircases that connect sidewalk users to the Dahab Island, but the northern one is currently blocked. Standing, sitting, and fishing are activities that occur on the edge of the rail without obstruction of the movement of people walking up and down the bridge's sidewalk. Figure 2 shows a diagram of the research steps from selection of bridges to the results.

We observed density and distributions of users on the Qasr-El-Nil Bridge and the El-Moneeb Bridge, both over the right (east) branches of the Nile from 18 May – 28 May 2018. We measured air temperatures at midafternoon (1500-1600 hours) and again in the evening (2100-2200 hours), and noted wind and traffic patterns. We recorded general patterns of use, conducting our observations discreetly, and limited them because of heightened security concerns. We counted numbers of users, recorded gender, approximate ages, and activity.

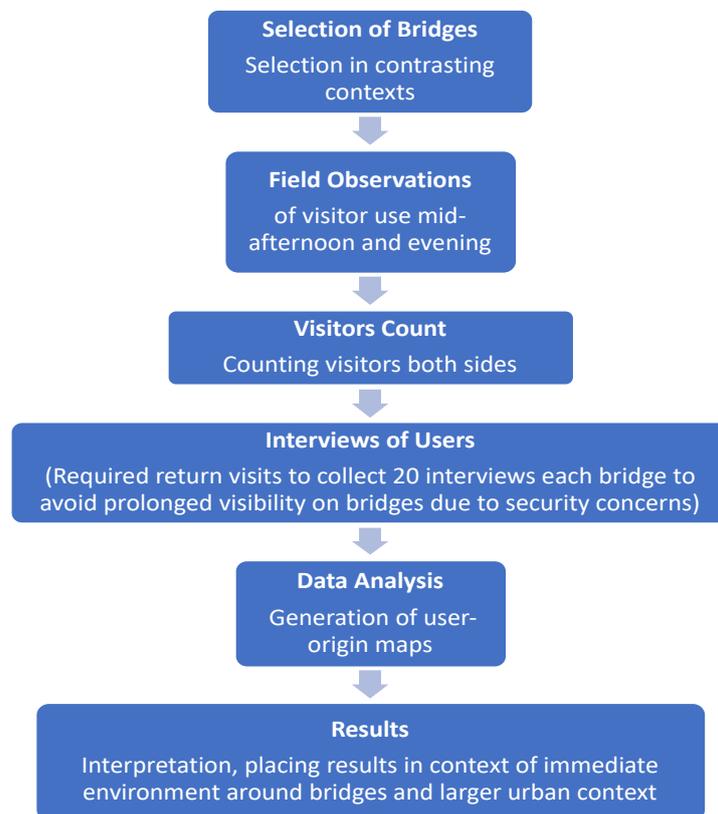


Figure 2. The research steps from selection of bridges to arriving at results

We randomly approached people spending time on the bridge (individuals, couples, and larger groups) and asked if they would answer a few questions about their use of the bridge. We did not approach those moving quickly across the bridge or otherwise using the bridge only as a thoroughfare, but rather targeted people clearly using the

bridge as a public space. We approached essentially everyone we encountered as we crossed the bridge, but once we were engaged in conversation with one person or group, we could not interact with others who passed by us during the conversation. Thus, there was no selection in terms of demographics or other such factors, only whether the people were using the bridge to move rapidly from one side to the other versus whether they appeared to be enjoying the bridge as a space. We conducted 40 interviews on each of bridges (80 interviews in total) over a period of 5 days. We recorded user characteristics such as age and gender, place of residence (from which we calculated distance travelled to reach the bridge), mode of travel, activities pursued on the bridge (contemplation, conversation, sitting, eating/drinking, fishing, etc). We conducted our interviews under conditions of heightened security, so we deliberately limited our time spent on the bridge talking with people and did not flourish clipboards or otherwise act in ways to draw attention to ourselves. In light of this limitation, we did not attempt a larger, more comprehensive study. Rather, we attempted to provide an initial examination of the pattern of public use of the bridges as open space, to provide initial insights that could potentially be developed further under better circumstances.

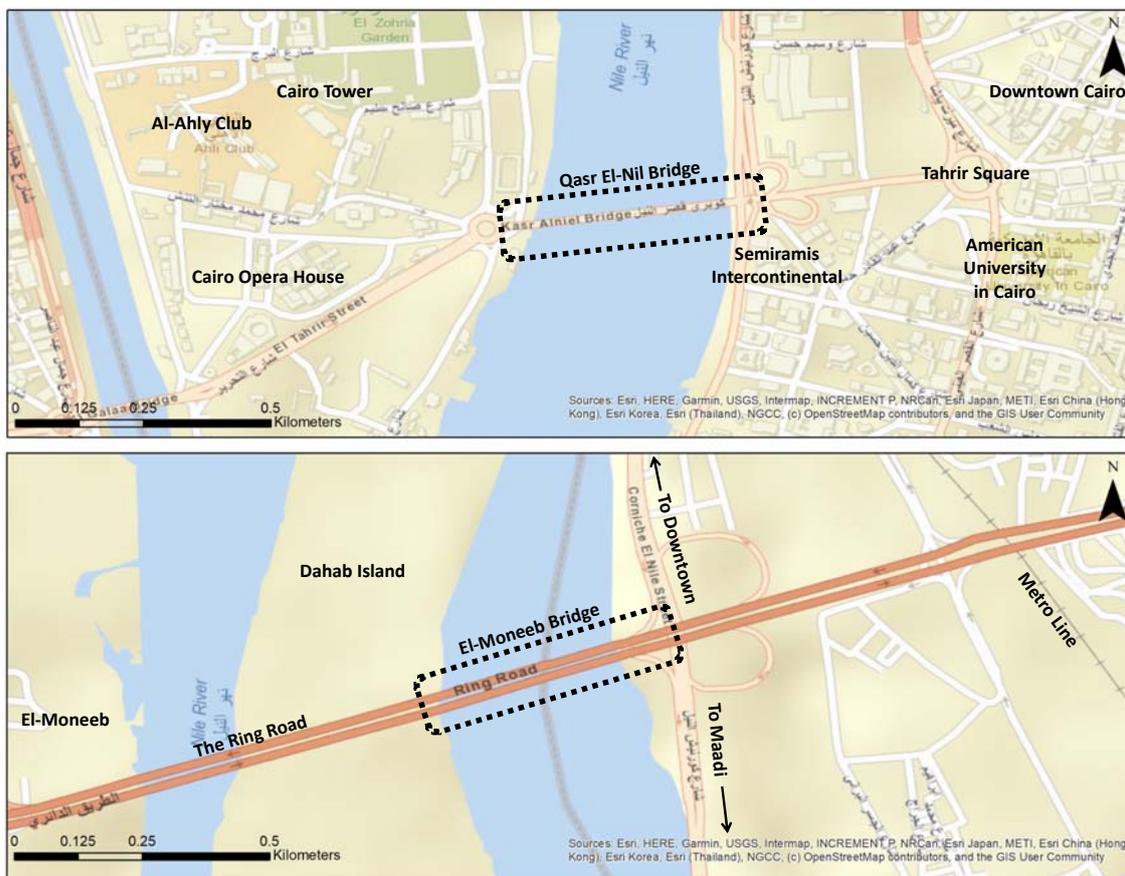


Figure 3. Bridges location and context. Source: ESRI Open Street Map (2019)

3. Results

3.1. Characteristics of Qasr-EL-Nil and El-Moneeb Bridges

The Qasr-El-Nil Bridge is located in the city center, is 400m long and traverses the right (east) branch of the Nile, linking Tahrir Square (east bank) with the residences, office buildings, and monuments of Zamalek Island, including the Cairo Opera House and Al-Ahly Club (Figure 3). The central Sadat Metro Station is located 270m east of the east end of the bridge, and the Opera Metro Station is located on Zamalek Island 260m west of the west end of the bridge, which make the bridge relatively accessible to pedestrians. Because of its proximity to Tahrir Square, other monuments, major hotels, and more generally its central location, the Qasr-El-Nil Bridge has a symbolic importance to the city.

By contrast, El-Moneeb Bridge is located 6.3km south (upstream), thus distant from the city center, and is part of the Cairo Ring Road, which supports longer-distance transport and (traffic permitting) higher speeds. El-Moneeb connects south Cairo with Giza (Faisal), traversing Dahab Island, a low-lying, mostly agricultural island that formerly flooded annually, but which has attracted more permanent settlement since river flows were stabilized by the High Dam. The El-Moneeb Bridge is a single, continuously elevated structure over Dahab Island and both branches of the Nile. The bridge section across the right (east) branch that we studied is about 400m in length.

While there are traffic circles at either end of the Qasr-El-Nil bridge, there are no such turnaround opportunities at either end of El-Moneeb, and it lacks the pedestrian destinations that are found at the two ends of Qasr-El-Nil. As a result, El-Moneeb is dominated more by through traffic. The faster and heavier traffic on El-Moneeb Bridge, along with a traffic separator between the two directions of travel, make it dangerous and difficult to cross the road on foot, isolating the two sides of the bridge from each other. While there are stairs to give pedestrians access to Dahab Island from the south side of the bridge, the parallel set of stairs on the north side have been blocked off by chain-link fencing. This barrier can be surmounted with some effort, as is done routinely by local residents, but nonetheless, the north and south sides of the bridges are more isolated and accessed primarily by cars traveling in one direction or the other. The center of Cairo is visible in the distance from the north side of El-Moneeb, making this a more interesting view than that to the south.

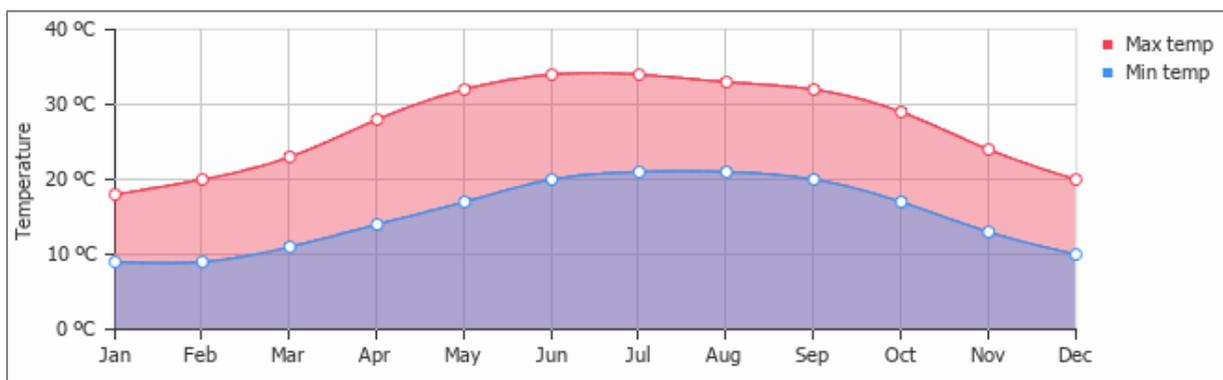


Figure 4. Average temperature in Cairo. (Source: weather-and-climate.com)

We measured 38°C on both bridges midafternoon, but by evening, temperatures had cooled down to 26°C, as both bridges experienced a fresh Nile breeze blowing from north to south, making the north sides of the bridges the prime spot for enjoying fresh air. These observed temperatures were warmer than the long-term average values for the warmer months of the year in Cairo, as reflected in long-term average monthly maximum and minimum air temperatures (Figure 4).

Because Qasr-El-Nil Bridge is adjacent to the city center (Tahrir Square, government buildings, etc), for reasons of security, vehicles are not permitted to park on the bridge. We observed a repeated ‘dance’ between cars parking along the sidewalk and a police tow truck with flashing blue lights: one car would stop along the side of the bridge, its occupants enjoying the view or talking with people on the sidewalk, immediately followed by another 4-5 cars parking directly behind it for some minutes until the tow truck arrived at the end of the line with its lights flashing and horn blowing, and the cars would all immediately clear out. We observed the tow truck continually cruising the bridge (turning around at each end to cross the bridge again and again), clearing out congregations of cars as they collected.

By contrast, on El-Moneeb Bridge, cars can park unmolested for long periods. Fishermen extract their gear from adjacent cars, and hummus merchants unload plastic chairs for their customers on the sidewalk. However, because there are no simple turnarounds at the ends of the bridge, many of those parked are stopping *en route* from one part of the city to another.

3.2. User Patterns

As both bridges are unpleasantly hot and unshaded in the afternoon, we encountered few users, aside from those in transit from one end to the other (Figure 5).



Figure 5. Bridges devoid of pedestrians during heat and sun of mid-afternoon. a) Qasr el-Nil bridge southern edge, looking west. b) El-Moneeb Bridge southern edge looking west (photos by Kondolf, May 2018).

However, in the evening as temperatures drop and the Nile breeze develops, the conditions are far more comfortable, and people appear on the sidewalks (Figure 6).

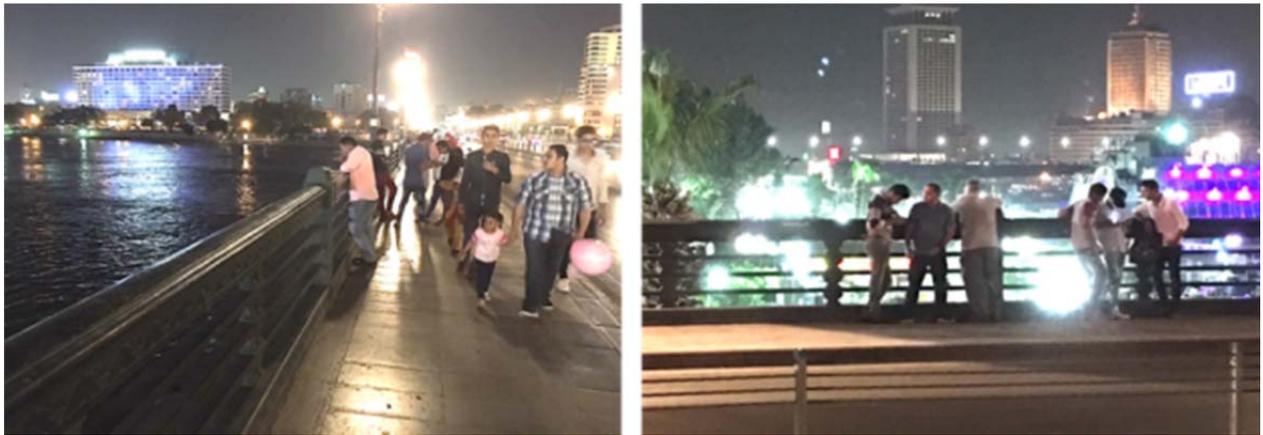


Figure 6. The popular north side of Qasr El-Nil Bridge at night. Users walking along bridge sidewalk (left), and users staying in one place with views of Nile river boats arriving and departing (right).
(Photos by Gohar, May 2018)

Qasr-El-Nil Bridge had more users on its north side than the south side, many drawn to watch the Nile cruise boats (with brightly-colored lights) leaving and returning from their docks on Zamalek Island at the west end of the bridge. Male users outnumbered female users by about 3:1 on the north side and about 4:1 on the south side. Most women and girls were observed either with families or in couples. El-Moneeb Bridge also had more users on its north side than south side with similar but wider gender gap (Table 1). During the hot midday hours, Qasr El Nil had only 10 users, all male and walking across; El-Moneeb had none when we were onsite for our count.

Table 1. Number of bridge users stationed or walking, by time of the day and by gender

			Walking	Stationed	TOTAL	Male	Female
Qasr El- Nil Bridge	Midday	North	6	0	6	6	0
		South	4	0	4	4	0
	Evening	North	87	96	183	131	31
		South	32	44	76	58	18
El- Moneeb Bridge	Midday	North	0	0	0	0	0
		South	0	0	0	0	0
	Evening	North	13	55	68	54	14
		South	3	3	6	5	1

From our semi-structured interviews, we found that Qasr El-Nil bridge serves as an attraction for people coming from as far west as the 6th of October City and from Al-Obour City to the north east, traveling distances of up to 33 km to enjoy the breeze, view, and accessible open space. Figure 7 shows the spatial distribution of the origins of visitors of the bridge, with concentric circles spaced at an interval of 5 km. The various activities on the bridges are distributed such that users avoid conflicting with each other. Users on Qasr-El-Nil Bridge included many couples slowly walking along the sidewalk or stopping to enjoy the view from the bridge, and groups of people sitting on plastic chairs.

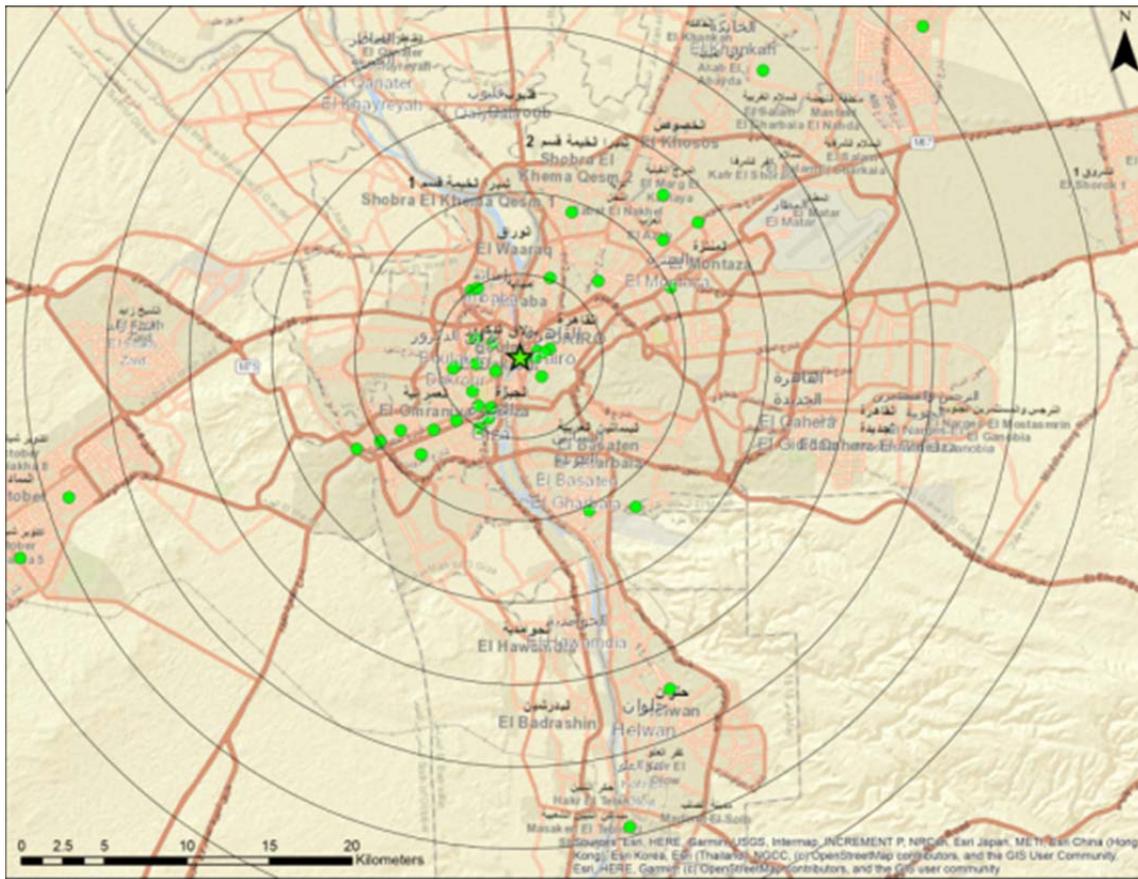


Figure 7. Origins of travel trajectories for Qasr El-Nil Bridge visitors. Concentric circles are at intervals of 5 km. The most distant person came from a point 33 km away. Source: ESRI Open Street Map (2019)

When asked about the features and activities that attract them to come to the bridge (in some cases from a relatively long distance), all 40 interviewees mentioned the view as a primary attraction, not surprising given bridge’s location within a very scenic part of Cairo; 37 identified fresh air as a second reason they visit the bridge; 11 visitors enjoyed walking; and 3 came to fish (Table 2).

Table 2. Activities mapped and extracted from the visitors’ interview

Bridge	Enjoying View	Enjoying Fresh Air	Fishing	Walking
Qasr El-Nil (40)	40	37	3	11
El-Moneeb (40)	31	30	10	8
Total (80)	71	67	13	19

The users on El-Moneeb Bridge (also mostly using the north side) cited the views (31 of 40), fresh air (30), fishing (10), and taking a walk (8) (Table 2). Fishing is better

established on El-Moneeb, probably because the bridge is less heavily used overall, and the convenience of parking next to the sidewalk is important for bringing large fishing poles (Figure 8).



Figure 8. Fishing along the Northside of El-Moneeb Bridge (photo by Gohar May 2018)

Hummus merchants were set up on both sides of El Moneeb, with plastic chairs arranged to encourage people to stop and enjoy something to eat or drink (Figure 9). Commercially available refreshments on the sidewalk (hummus, tea, coffee, ice cream) tend to be cheaper on El-Moneeb than on Qasr El-Nil).



Figure 9. A street trader selling Hummus on the southside of El-Moneeb Bridge (Photo by Ahmed Onsi 2019)

Our interviewees on El-Moneeb bridge mostly from within 5 km distance, with three visitors from 10-15 km radius, and the most distant being one who traveled 12.5 km from northeast Cairo (Figure 10). This space attracts people from a wide range of socio-economic classes, as it gives them the opportunity to enjoy an open public space, which they lack in the neighborhoods they come from.



Figure 10. Origins of travel trajectories for El-Moneeb Bridge visitors. Concentric circles are at intervals of 4 km. The most distant person came from a point 12.5 km away Source: ESRI Open Street Map (2019)

Comparing travel distances for interviewees on the two bridges, Qasr El-Nil interviewees had traveled an average of 8.9km, while those on EL-Moneeb averaged only 2.7km. The 40 visitors interviewed on Qasr El-Nil travelled a sum of 354 Km to reach to the bridge, on the other hand, while the 40 interviewees on El-Moneeb bridge had travelled a total of 109km.

Users of both bridges cited alternative options for outings, including cafes, clubs, and cinemas, but they preferred the bridge sidewalk to enjoy the open space with the fresh air. Table 3 shows the alternative outings cited by the interviewees. Among all alternative outings, shopping malls, cafes and gardens are the most visited alternative destinations. Private clubs and cinemas were less popular presumably because they involve entry fees.

Table 3. Alternative Outing

Bridge	Cafe	Club	Cinema	Down-town	Mall	Home/Family	Garden
Qasr El-Nil (40)	6	6	9	6	13	4	13
El-Moneeb (40)	11	4	7	1	2	6	9
Total (80)	17	10	16	7	15	10	22

4. Discussion

The use of bridges as public open space has a long history, but the modern context in Cairo is very different. Going back to medieval times in Europe, bridges commonly supported structures such as shops, markets, and chapels, and given their central urban locations, were in high demand. The chapel surviving on the ancient Pont d’Avignon in Avignon, or the many shops still active on the Rialto Bridge in Florence (dating from 1591) are modern reminders of the former extent of such established public use of bridges. The Charles Bridge over the Moldau in Prague (dating from the 15th century) was long the only bridge in the city, but in 1965 it was closed to vehicles as repairs were made, and it has since been pedestrian-only, and is now a heavily-used public space.

The 490-m-long Galata Bridge over the Golden Horn in Istanbul was completed in the 1990s, with two levels: the top level with vehicular lanes flanking tram tracks, with generously dimensioned pedestrian walkways on both sides of the bridge, and the lower level of restaurants, cafés, and shops (opened since 2003) flanked by a walkway, creating a modern version of the medieval bridge as commercial center. The top-level pedestrian walkways are extremely popular not only with families, couples, and tourists, but also with recreational fishermen. An average of over 200 fisherman fish from the bridge year-round, catching an estimated 64 tonnes of fish annually of 20 species, including *Trachurus* spp., *Spicara* spp. and *Mugil* spp. (Iwano and Öztürk 2012) The fishermen themselves have become a tourist attraction, and fishing rods, tackle, and bait are for sale at multiple points on the bridge. Considering its large visitorship, the different uses of the bridge have co-existed remarkably well, although fishing weights and hooks have landed in restaurants and cafes below, and there are conflicts on the bridge between fishermen casting their lines and nearby pedestrians (Iwano and Öztürk, 2012).

A further example of using bridges as public space is the Continental Avenue Bridge over the Trinity River in Dallas, Texas, whose role in carrying vehicular traffic was displaced by a new bridge in 2012, after which it became pedestrian and bicycle only. The former transportation artery was transformed into a linear park, with chess boards, bocce courts, etc., all part of an overall strategy to transform the river corridor from a neglected no-mans-land (separating the wealthier north from the poor south) into a vibrant public space for the city (Parrish et al., 2010). The Tilikum crossing over the Willamette River represents a further advance in this direction, as a newly constructed bridge designed to accommodate tram, bicycles, and pedestrians, but no cars, as a green

corridor that can transform the user experience in the city (Libby, 2014; Jafee, 2015; Burke, 2015). Similarly, just south of the Pont Pasteur (vehicular bridge) over the Rhone River in Lyon, the new Pont Raymond Barre was constructed for the tram, bicycles, and pedestrians, connecting the Gerland District with the newly developing Confluence areas (with a new museum, shopping area, and riverside cafés and restaurants on the Rhone and the Soane) (AFGC - L'Association Francaise de Genie Civil Délégation Rhône-Alps, 2013).

While the examples above all involve some intent on the part of public authorities for the bridges to serve as public space, the use of bridges in Cairo as public space was entirely unplanned and spontaneous. As reflected in the comments of our interviewees, the bridges of Cairo have become open-space alternatives to expensive shopping malls and restaurants for Cairenes from a wide range of economic backgrounds and parts of the city. Couples find it a romantic and affordable outing. Fishermen enjoy fishing from the bridge evidently more as a pastime than for the economic value of the fish they might catch. During especially popular times, such as weekends, festivals and feasts like the Ramadan holiday, large numbers of people may occupy city streets and especially the bridges at the same time.

It is notable that the bridges were designed primarily for vehicle movement, but the spaces have been repurposed by the urban population that has few viable alternatives for open space. The use of the bridges as open space is not anticipated or addressed in the official documents on planning and use of the bridges in Cairo. The Cairo master plan report by the General Organization of Physical Planning (1982) and the Traffic Report by the World Bank (2013) address only vehicular traffic patterns, connectivity, and relation to adjacent land use. Their use as public spaces has gone unreported in official documents.

Our research suggests these characteristics of the Nile bridges that make them suitable as public spaces, and which may provide insights to inform design of public spaces on rivers elsewhere. First, the bridges experience a distinctly cooler evening microclimate in hot months in Cairo. When exposed to full sun of the afternoon, the bridges are empty of all except those rapidly crossing, but with the evening breeze, the bridges provide a delightful respite from the heat of the city. This suggests the importance of assessing microclimates along riverfronts and bridges elsewhere to inform riverfront development plans, identifying sites that enjoy cool breezes, especially when working in hot climates. Second, usage patterns will be influenced by access options, and sites that are accessible from public transit will attract a wider range of visitors from a wider range of origins than bridges that are accessible primarily by car. Third, the existence of attractions at either ends of the bridge and directly under or adjacent to the bridges encourages public use. For example, the fact that the Kasr El Nil bridge connects important destinations at Tahrir Square and Zamalak Island makes it a natural part of many pedestrian outings, and once on the bridge, people are attracted to the docks for tourist boats, with their brightly-colored lights, directly downstream along the Zamalak island bank. Being located near mass transit and en route between popular destinations contributes to use of the bridges, but is not prerequisite, as El-Moneeb is neither easily accessible from public transit nor linking popular pedestrian destinations, yet it still hosts many users in the evenings. Fourth, the sidewalks on both Kasr El-Nil and El Moneeb bridges are generously dimensioned (4.5 and 3 m-wide respectively), providing

sufficient space for walking as well as stationary uses such as contemplation, fishing, and enjoying hummus or tea from merchant stands. This suggests that adequate sidewalk width is essential for people to feel comfortable using bridges as public space, and greater widths than 4.5 m would probably be better when designing new structures, as seen on Pont Raymond Barre in Lyon and the Tilikum Crossing in Portland. Fifth, in the context of Cairo with its large population of poor people, the fact that the bridges are freely accessible, at no cost, is an important factor in their popularity, with implications for planning and design of such public spaces in other cities of the Global South.

5. Conclusion

Cairo is a crowded city with inadequate public space for its population. As officially designated public spaces have proved insufficient, Cairenes have repurposed the bridges over the river as public spaces. The bridges are especially popular at night, when the Nile breezes create a delightfully cool environment, especially along the north (windward) sides of the bridges (the north side of El-Moneeb bridge also has better views of the city). Bridge users come from a wide range of income levels and areas of the city.

Unlike examples of bridges as public space documented in many other cities, the bridges of Cairo were not intended as public spaces. The intensive use of the bridges by the local population is a reminder of the serious lack of open space to serve the population of Cairo, and an indication of the potential to provide open space elsewhere along the river if some of the existing land uses along the banks can be changed to allow public access in the future. The Nile remains the geographical and cultural focal point of the city. Making the river banks more accessible to average Cairenes could greatly improve their daily lives by providing badly needed open space. In the meantime, the Nile bridges, repurposed as public space, offer a cool, refreshing setting and a unique perspective on the river and surrounding city.

Cities throughout the Global North and South are rediscovering their waterfronts, and bridges over rivers offer excellent opportunities to connect cities across and with their rivers. The Cairo experience has many commonalities, as well as differences, with examples in the Global North. How can the experience of Cairo inform other cities as they endeavor to reconnect their residents with urban waters? The popularity of Cairo's bridges can be attributed both to the attractions of the bridges (pleasant evening breezes, panoramic views of the city) and the severe lack of alternative open spaces suitable for outings (commercial centers being among the most often cited). Having sufficiently wide sidewalks to accommodate multiple uses (walking, leaning on the railing contemplating the view, fishing, and enjoying snacks from the hummus merchants) is essential, and being located near transit and *en route* between popular destinations contributes to public use. The fact that average Cairenes have repurposed these transportation infrastructures as public space provides a wonderful example of human resourcefulness, as well as the enduring attraction of water in the urban environment.

6. Recommendations

Through the empirical studies of the public use of Kasr El Nil bridge, and El-Moneeb bridge this research can highly inform practice on the following levels:

6.1. Policy

Observations and interviews show that the local Cairenes are lacking places where they can enjoy time and spend time with family and friends. This demand is recommended to be heard by both the local authorities as well as the central government. Cairo Governorate and the Ministry of Housing, Utilities and Urban Communities should incorporate a number of techniques that enable ordinary people to play an active and influential part in planning decisions which affect their lives. This means that people are not just listened to, but also heard; and that their voices shape the urban designs and plans. Techniques such as civic engagement, public hearing, participatory planning and many more are the only way to develop new urban schemes that fulfil basic needs and rights of having open public space.

6.2. Planning

The paper confirms that, to date, there is no sufficient public space in the city and that the future planning needs to take into account the importance of increasing park spaces across the entire city. Not only adding city parks but making sure they are accessible for the public. The use of bridges for multipole activities suggests the need for more park areas, extended access to the river's water front, areas for fishing, trails for juggling, sitting areas across the Nile banks, and multiple viewing points.

6.3. Design

The existing use of the bridges suggests not only architecture and urban program for public space but how people use these sidewalks in harmony. There are no conflicts between the sitting and moving pedestrians on the bridge's side walk. This suggests that local architects and landscape designers must take into account the existing patterns and continue to seek detailed users' patterns to understand how to accommodate these uses in newly introduced public spaces.

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