

(In)Formal **Cairo**

The Everlasting Dichotomy

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(In)Formal Cairo
The Everlasting Dichotomy

Master's theoretical statement 2021-2022,
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under the supervision of
Prof. Yves Pedrazzini



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1 Residents and ex-residents of informal settlements who preferred not to be named.

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The Everlasting Dichotomy

A jungle of concrete and brick buildings is what constitutes Greater Cairo's main landscape today. Home to a fifth of Egypt's population, 60% of the Egyptian capital's population lives in *informal housing* (2015). As Egyptians who have lived both in Cairo and in various cities in Europe, notably Lausanne where we are conducting our architectural studies, the significant difference in the European standard of living vis à vis our country's shakes us profoundly. Perhaps our interest in architecture and urban design is what drove our desire to uncover the reality behind those redbrick towers. Little did we know it would open up a deeply rooted dichotomy affecting all aspects of life in Cairo: the dichotomy of formality and informality.

Although we are Egyptian, we are in no way a representation of the overwhelming majority of the Egyptian population. In fact, having been fortunate enough to afford a private education, as well as higher-educational studies abroad in Switzerland, we are considered to be living in a *bubble* in our home country. This was very evident to us when, while visiting some of Cairo's poorest areas, we felt like absolute

strangers. There is a non-negligible advantage, of course, to being Cairene, and being able to converse with people in the streets, as well as to having an initial foundation of how the different socioeconomic groups interact together in Egypt. Yet, leading research for this paper uncovered aspects of our country that may easily go overseen if one does not make the effort to dig in. Even though the terrible living conditions and immense inequality in Egypt is very evident, studying in Switzerland amplifies the contrast. Informality seems to be a pillar in Egyptian society. By studying it, we are hoping to gain tools and knowledge that will allow us to look beyond its seemingly everlasting nature, in an attempt to dampen the immense gap between the rich and poor.

Greater Cairo is one of Africa and the Middle East's biggest cities with a population of 21.3 million people (Cairo Population 2021, 2021). It is constituted of the governorates of Cairo, Giza and Kalyoubia (Map 0), which together cover a surface area of 4'367 square kilometers (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010). Based on quotidian stories and broadcasted news, it was common knowledge to the average Egyptian that Al-Sisi's government is taking measures to dismantle the overwhelming informal settlements,



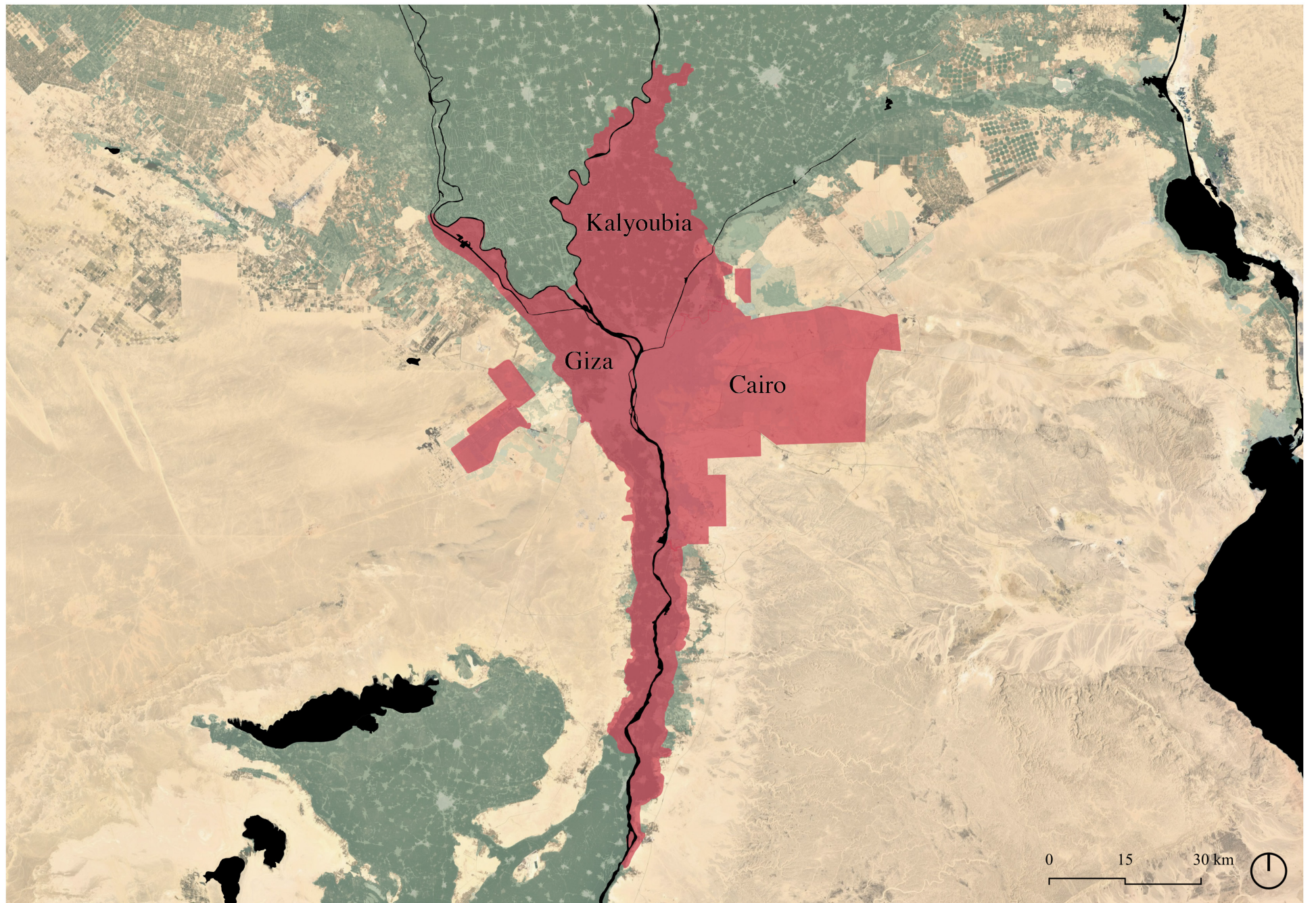
Fig 1. Informal settlements on agrarian lands.
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and move their residents to new settlements. Curious about the progress and outcome of this project, we visited the informal settlement of Ezbet Abu Qarn, and the new settlement of Al-Asmarat, with the help of experts from Ezbet¹. Disillusioned by the overwhelmingly negative feedback we heard about the new government project that provides fully furnished homes to ex-informal areas dwellers, we decided to dig deeper into Cairene informality. The aim of this paper is to uncover how and what functions in the informal system, in order to employ those lessons in a future development of a project aimed at enhancing or replacing such areas.

We will first provide background on the discussion around informality in an attempt to define it as best we can. We will then contextualize the reader by delving them into the historic and political context that led to Cairo being as vast and informal as it is today. Afterwards, we will tackle Cairene informality from a large scale, to comprehend its role and intertwinement in the city, to the neighborhood and dwelling scale. Snapshots of different areas of Cairo and the interviews we conducted will also provide an insight into the different realities of the megacity.

¹ an academic collaboration between the University of Ain Shams and the University of Stuttgart whose initiative is to provide basic urban and social facilities in Cairene informal areas

Finally, to the best of our knowledge and with the support of various reads on the matter, we will synthesize what functions in Cairene informality, as well as what needs to be improved. Traditional Egyptian building methods that are being forgotten, coupled with recent projects in different areas of the world that provide impoverished communities with sustainable, ecological and economical neighborhoods will be studied to provide further inspiration and awareness on plausible solutions.



Map 0. Greater Cairo Base Map, 2021

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Data Sources: OpenStreetMap, Marine Regions, The Humanitarian Data Exchange, Africapolis

(In)formality in Cairo: A definition in perpetual evolution

Before heading to the heart of the matter let us put into context the definition of informality in Cairo. According to the Oxford dictionary, dichotomy is the division or the contrast of two things entirely different (Oxford Lexico, (n.d.)). The accuracy of this definition gets perturbed while observing the state of formality and informality in Cairo. When talking about informal Cairo we usually refer to the *ashwa'iyyat*, the informal settlements that started emerging in the 1950's. *Ashwa'iyyat* in arabic literately means "random", "haphazard", "disorganized" or "chaotic". The usual synonyms that one might think of while talking about slums. These adjectives are often accompanied by "unsafe" and "dangerous". But to whom? To their residents, or to outsiders? This translation contrasts with the definition in literature of informal as having a relaxed, friendly, or unofficial style, manner, or nature. It is true that in some cases these areas can be dangerous but they have a charming, friendly aspect that one cannot know until they have experienced a day in it.

By the mid-2010's, the government added the *mabani al-mukhalifa*¹ as a second form of informal settlements along with the *ashwa'iyyat*, they refer to "the informal building additions to formal buildings, as well as the completely informal buildings built in formal neighbourhoods." (Shawkat, 2019).

The *ashwa'iyyat* are places in perpetual evolution, movement and expansion in terms of social, economic and urban sprawl. Their informality is in their "unfinished" aspect either in the construction methods or appearance. They reflect the need to escape the rules set by the government, rules that have not been in their favor for a long time. These spontaneous housing estates were built by the people for the people and put ahead the individual needs in a transparent way. Their chaos is a form of deliberation, a form of primitive need of living that surpasses the rigidity of the built formality. The formal and the informal teach us, ultimately, that the social life - and life in general - escape continuously from the imperatives that a reductive thought out system impose on them. They thus refer to the perpetually restarted - and renewed - game of an existence never completed and always in movement. (Renaud, 1995).

1 buildings in breach of the law

Cairo's informal settlements witness a wide range of social levels from the poorest, *taht khat al fakr*², to middle class people that cannot afford housing in planned areas. Does this make the informal areas unplanned? Ever since the 20th century, urban informality in Cairo has been the topic of many discussions between urban planners, architects and politicians. Urban informality is often associated with the extra-legal development of neighborhoods, outside of planned and regulated zones (Roy, 2005). In Cairo's case, the General Authority for Urban Planning (GOPP) names the latter *al-manatiq al-gheir mokhattata*³ (Sims & Abu-Lughod, 2010). They are the result of urban injustice and socio-political issues where the government puts their economy's best interest as a priority (Angelil & Malterre-Barthes, 2016). Voluntarily blindfolded, the government adopted the method of the *laissez-faire* for years. Today's satellite images, and newly built infrastructure such as the Ring Road, shed light on this urban sprawl. Indeed, by overlapping these areas with formal bridges and highways, we are now more confronted to what we knew existed, but rarely saw.

Informal areas are recognized by their physical characteristics and

2 below the poverty line

3 unplanned areas

informal activities that separates them from the formal Cairo. While formal and informal are two distinguished notions, one cannot exist without the other, like black and white, order and disorder (Renaud, 1995). The thin line that separates both formal and informal Cairo has been vanishing over the years. They are codependent and the degree of formality in informal areas is a complex matter related to a series of *Construction Violations Reconciliation Law* and access to formal basic needs such as water and electricity (Shawkat, 1976). The first so-called "temporary" law was issued in 1956, as an emergency response to the housing crisis, therefore legalizing informal subdivisions. This law was enacted several times. Today, while the government destructs the *ashwa'iyyat*, the heart of its informality stays within the people, waiting to be revived at any cost.



Fig 2. View on The Mamluk Necropolis or City of the Dead submerged with the informal settlements
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Historic and political context

How did Cairo get so vast?

Ever since its beginnings, thousands of years ago, Cairo has undergone many architectural identities that underline simultaneously its urban and demographic boost. Throughout those urban and demographic expansions, a dichotomy is rendered more and more apparent, eventually becoming one of the city's fundamental characteristics. Stereotypically, an alien to Cairo may directly think of the pyramids and the desert when imagining it. It may come as a surprise when one realizes that this is no longer the prominent Cairene landscape. In fact, when it comes to architectural identity, Islamic influences are present in some areas, Haussmannian influences in others, yet, overwhelmingly, the new Cairene identity of redbrick and concrete buildings dethrones all. How did this become a reality?

Egypt underwent invasions and colonizations by different rulers that marked the start of its urban sprawl. In 1169, Saladin¹ conquered Fatimid

¹ He became the first sultan of Egypt and Syria, founding the Ayyubid dynasty.



Fig 1. The Saladin Citadel of Cairo paralleled with informal settlements
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Cairo and extended its walls so that it encompassed the Saladin Citadel (Fig 1). In 1250, the city was overtaken by the Mamluks² and started significantly expanding, also developing a characteristic architectural identity that can still be seen around historic Cairo. This era went on for 300 years, and Cairo's population augmented by 500'000 rural in-migrants (Waterson, 2018). In 1800, during the Ottoman period, and after the French expedition, Cairo reached even greater scales. It expanded to Bulaq in the North, the Babylon Fortress to the South, as well as east towards the Nile River. Seventy years later, Khedive Ismail, Egypt's sovereign at the time, mandated the construction of Downtown Cairo, mainly inhabited by foreigners. He continued connecting Cairo to the Nile, and investing in areas such as Zamalek. For the first time, the West Bank of the Nile was urbanized, creating Dokki (Abu-Lughod, 1971). In 1901, Egypt inherited a monarchist rule, and King Farouk I built Misr al-Gadida, which quickly became connected with the rest of Cairo. Dokki became connected to Giza, and Helwan started growing. The old heart of Cairo, including Darb al-Ahmar, Moski, Al Hussein, etc. were very lively and crowded places. On the other hand, Downtown

² The word Mamluk means 'owned' in Arabic. The Mamluks are originally slave soldiers who freed themselves from their masters defeating the Mongols and the Crusaders. They established their dynasty and ruled Egypt 267 years from 1250 to 1517. (Waterson, 2018)



(Fig 2), Garden City, Maadi, and Heliopolis were quite empty, as they were not accessible to most of the population; they were mainly for the rich and noble, housing villas and mansions.

Cairo's architectural identity begins to shift as its political regime is toppled. Condemning the classist society under a monarchist rule, a coup d'état is orchestrated to overthrow King Farouk I, and oust the British. Led by Gamal Abdel Nasser, a nationalistic socialist, he lands presidency in 1954 (Watkins, 2021). In a will to showcase Cairo's modernity, he juxtaposes modern buildings by the Khedive ones. Furthermore, foreigners start moving away from Egypt, and leaving their apartments empty. Hence, Downtown and the other higher end areas start to be occupied by a greater mix of social classes. This happens to all districts that had an imperial or royal identity, such as Garden City, Maadi, Heliopolis, Downtown and Zamalek. He also decides to create the district of al-Mohandesseen, which was agricultural land that housed small villages such as Mit Okbaa, and Bulaq al-Dakrou, for over 150 years (Abu-Lughod, 1971). Hence, al-Mohandesseen engulfed those villages, and is now a mix of modern buildings, and informal ones. How surprising these changes are nowadays!

Fig 2. Downtown Cairo "Paris of the East". Architecture of the time of Khedive Ismail
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set-up of *gamayas*⁵, whom were allocated a legal subdivision license. They were permitted to fund government regulations-following self-construction processes in exchange for legal infrastructure provided by the state (Malterre-Barthes, 2016). This helped instill a balance between public streets and private plots. It was also unnecessary to have building permits outside city limits (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010). Manshiyet Nasser (Fig 3), one of Cairo's first and biggest informal settlements, inherited a typical *formalization* of an unregulated neighborhood. Considering its inexorable density and integration in the city's urban fabric, it would be nearly impossible to dismantle. Hence, the government decided to include it in Cairo's infrastructural grid by integrating water, electricity and a sewage system. According to Galila el Kadi, architect and head of research at the *Institut de recherche pour le développement* in Paris, president Anwar el Sadat's economic reform is what truly set informal settlements into overdrive, dubbed "spontaneous urbanization".

Anwar el Sadat came to power in 1970, and the country transitioned from a welfare state to a neoliberal one. After the Egyptian economy took another hit with the 1973 war, Sadat implemented *al-infitah*, a



Fig 3. Manshiyet Nasser
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5 A savings-and-credit association

program of economic liberalization that promoted foreign and local investment. Land prices soared and speculation arose as the favored way to prosperity. Furthermore, the state's devotion to public housing and urban planning diminished, ceding its place to the private sector. The latter catered mainly to high social classes seeing as more profit could be drawn from them. Furthermore, due to the indefinite occupancy rights to tenants, a large portion of housing is vacant: 40% in 2005 (Sabry, 2016). In 1977, in an attempt to tackle the increasing housing issue, Sadat launched the *New Towns* policy: new towns in the desert meant to accommodate migrants to Cairo. Unfortunately, due to a lack of job opportunities in proximity to those residential areas and the absence of affordable transportation, the project failed and amounted to 63% vacancy in 2006 (Sabry, 2016). The limited supply of public housing was inaccessible to the majority; documents such as proof of salaries were required whereas most citizens partake in the informal economy. Fueled by the Middle Eastern oil boom, the years between 1974 and 1984 saw informal construction thrive in order to satisfy the demand-supply housing gap, backed by capital inflowing from Gulf States (Malterre-Barthes, 2016). The transformation of an agrarian land into a residential quarter typically follows three stages. As it becomes evident to farmers that more profit would come from



Fig 4. The invasion of agrarian lands.
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selling their land than farming, they further subdivide their parcels to maximize the buildable areas they could sell. The weak urban texture they had initially formed slowly intensifies as developers intervene. The latter, being wealthy individuals and not needing the *gamaya's* services, purchase the previously agrarian lands, and build vertically dense buildings without the input of engineers nor licenses (Fig 4 and 5). This process stimulates population growth until, eventually, all available land is consumed (Malterre-Barthes, 2016)

These practices led to today's characteristic informal settlements in Egypt's urban areas, the *ashwa'iyyat*. Three key points are evident in the four following satellite images (Fig 6 to 9) demonstrating the expansion of the informal settlement of Ard El Lewa, which are typical to the majority of informal areas that sprouted on agrarian land. First off, there is the eventual engulfing of pre-existing villages being transformed into one major unregulated area. Secondly, the introduction of the ring road brings to light such areas to the rest of Cairenes and unconventional ramps and/or stairs are added by the inhabitants of the informal area in order to gain access to the rest of the city. Finally, the deterioration and depletion of land available to agriculture is clearly evident. Initially built for low-income families, informal housing became a last resort for



Fig 5. Geziret el dahab, informal settlement on agrarian island.
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Evolution of Ard El Lewa on agrarian Land



Fig 6. Satellite image of Ard El Lewa, 1985 © 2021 Google Earth, edited by authors



Fig 7. Satellite image of Ard El Lewa, 2003 © 2021 Google Earth, edited by authors



Fig 8. Satellite image of Ard El Lewa, 2010 © 2021 Google Earth, edited by authors



Fig 9. Satellite image of Ard El Lewa, 2021 © 2021 Google Earth, edited by authors

the middle class, as owning an apartment is a social pre-requisite for marriage in the Egyptian culture. With the housing situation worsening, individuals started inhabiting, not only agrarian lands and desert areas connected to water sources but also cemeteries such as the City of the Dead, a Cairene burial site (Fig 10).

Hosni Mubarak (1928 – 2020), Sadat’s successor, attempted to tackle the housing issue by implementing different programs such as *The Mubarak Youth Housing Project* (1996), *The Future Housing Project* (1998) and *The National Housing Programme* (2006), with a mix of public and private funding (Nanns , 2016). Although the latter promised 500’000 units for low-income families, only about 75% of the project was completed and the two bottom income quintiles were not catered for; either the rent or sale price was too high, or certain documents were required that could not be obtained by the majority of low-income families working informal jobs. In more recent years, current president Abdel-Fattah Al-Sisi, along with the Housing Ministry, and through a combination of private and public funds, have been working on neighborhoods such as Bashayer al Khayr that provide thousands of fully-furnished and equipped apartments for low-income families, as well as job opportunities and institutions that can provide learners with

diplomas in an attempt to transition workers from the informal to the formal economy.



Fig 10. Muslim cemetery by Amr ibn Al-A'as Mosque
Entrance to Ezbet Abu Qarn, an informal settlement
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Evolution of New Cairo Desert City



Fig 11. Satellite image of New Cairo, 1990 © 2021 Google Earth, edited by authors



Fig 12. Satellite image of New Cairo, 2000 © 2021 Google Earth, edited by authors



Fig 13. Satellite image of New Cairo, 2010 © 2021 Google Earth, edited by authors



Fig 14. Satellite image of New Cairo, 2020 © 2021 Google Earth, edited by authors

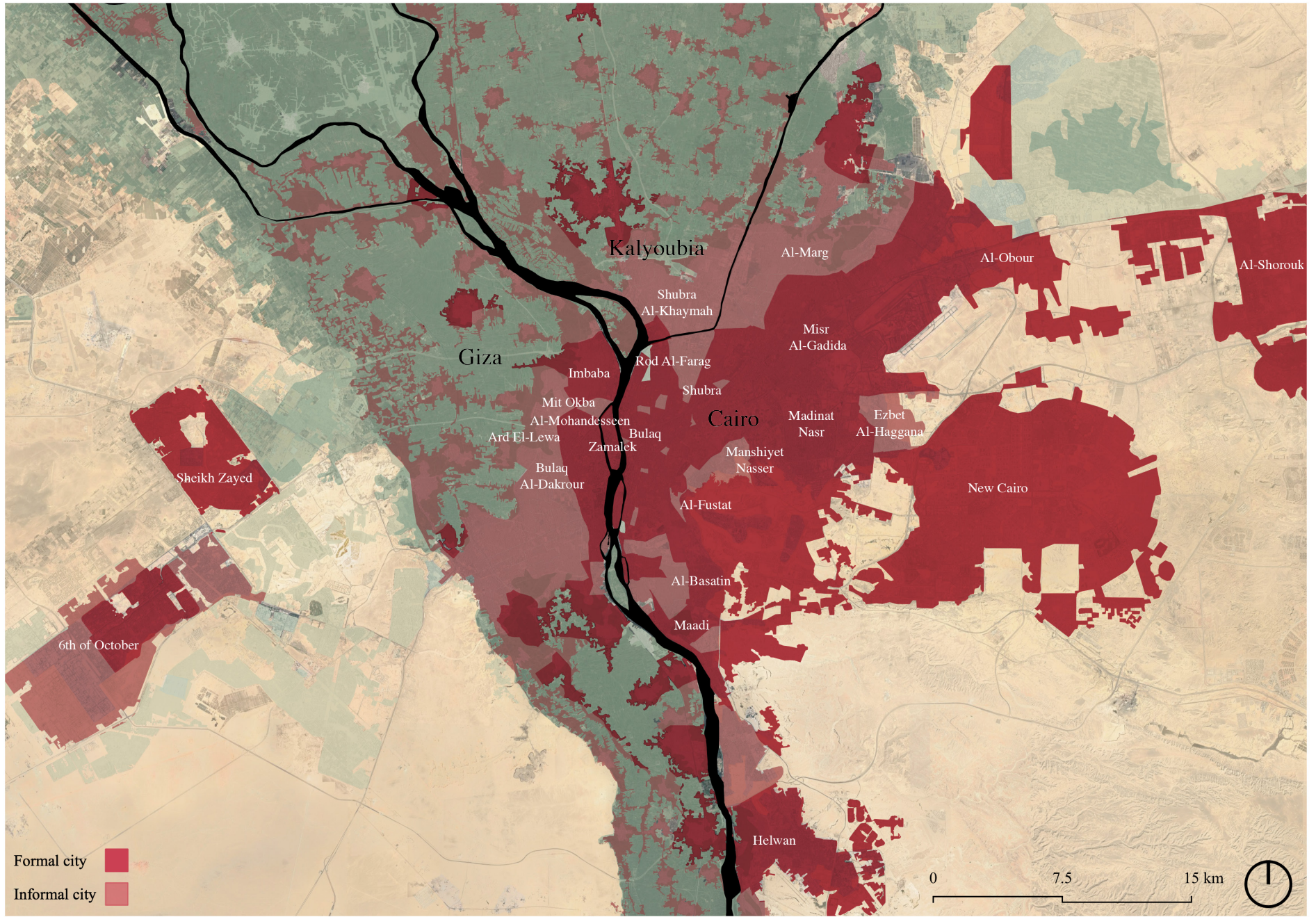


Fig 15. Layers of civilizations
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Urban fabric analysis

Greater Cairo's urban fabric is a very intricate one. Often times, as rush hour seems to be every hour in Cairo, people view the city as extremely crowded, polluted, and chaotic. Yet, there are many underlying, complex reasons that give the capital merit, so as to silverline the everyday commotions. The following sub-sections will be the reader's first acquaintance with the unbreakable bond of Cairo's unjustifiably infamous dichotomy.

As of 2021, Cairo counts about 9.5 million inhabitants, whereas this number soars to 21.3 million when the cities of Kalyoubia and Giza are joined to it, composing the city's greater boundary (Map 0). Greater Cairo has an area of approximately 4'367 square kilometers, 48% of which are in the Cairo governorate, 47% in Giza, and 5% in Kalyoubia (Khalifa, George, & Catney , 2019).



Map 1. Formal and Informal City Map, 2021

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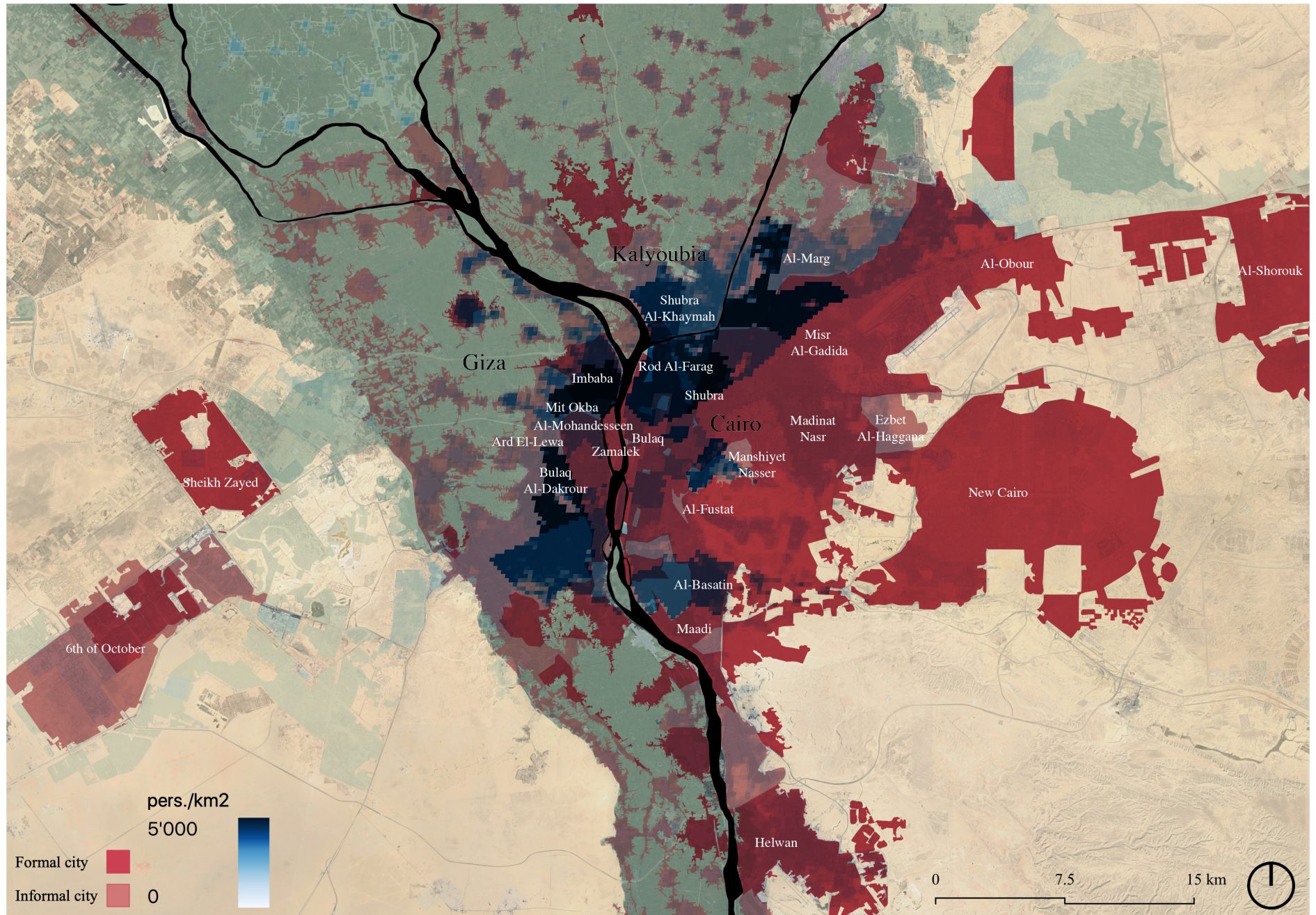
Data Sources: OpenStreetMap, Marine Regions, The Humanitarian Data Exchange, Global Human Settlement Layer, Africapolis

Grasping Greater Cairo's urban dynamics

In 1950, the city was practically only formal, contained in the Cairo governorate, and its population count stood at about 4 million. Hence, it is eyebrow raising to note that, in 70 years, the capital's population increased 5 fold, while within the boundaries of the formal city it merely doubled (Sims & Abu-Lughod, Understanding Cairo: The logic of a City out of Control, 2010). For clarity purposes, it is important to note how the informal parts of the city were determined in (Map 1). As explained earlier in the paper, the informal areas on (Map 1) are all urbanized zones built outside formal processes and regulated zones. Furthermore, it is also important to note that the precision of such areas is determined down to the district level. Hence, it is possible that a formal district on the map may have informal areas, but as the district is overwhelmingly formal, then it is represented as such.

Cairo shares similar traits to megacities in other developing countries. The magnitude of the informal city vis à vis the formal city (Map 1) expresses the immense share it holds in the city's urban fabric. In fact, from 1976 to 1986, the informal city absorbed 95% of rural in-migrants, and this share only decreased to 79% from 1996 to 2006 –

remaining substantial (Sims & Abu-Lughod, Understanding Cairo: The logic of a City out of Control, 2010). Today, about 60% of Cairenes live in informal housing (Angelil & Malterre-Barthes, 2016), and in 2017, 65% of the urban housing production belonged to the private informal sector (Shawkat, Egypt's Housing Crisis, 2020). The informal sector housing more Cairenes is aligned with what is observed on (Map 2). An important aspect of the population's distribution, however, is its concentration around Cairo's core, mainly in the Cairo governorate. In fact, in 2017, Cairo had a density of 50'259 persons per square kilometer, compared to 7'276 in Giza and 5'265 in Kalyoubia (Khalifa, George, & Catney, 2019). What is even more surprising, however, is the immense population density differences between the formal and informal areas within the Cairo governorate. For instance, Manshiyet Nassir, one of Cairo's largest informal areas, has a density of 47'200 persons per square kilometer, whereas Misr al-Gadida, a formal neighboring district has 14'900 persons per square kilometer (Egypt: Greater Cairo, 2020). For comparison purposes, Paris has a population density of 20'300 persons per square kilometers (Statista, 2021), and is Europe's most densely populated city (World Atlas, 2017). Back in the 1950's, the poorest quintiles inhabited the informal districts of *Bulaq*, *Sayeda Zeinab*, *Misr al-Qadima*, *Mit Okba*, and *Imbaba*, while a few others luckily found



Map 2. Population Density x Formal and Informal City Map, 2021

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Data Sources: OpenStreetMap, Marine Regions, The Humanitarian Data Exchange, Global Human Settlement Layer, Africapolis

affordable alternatives in some of Cairo's expanded urban quarters of al-Wayli, Shubra, Rod al-Farag and Heliopolis (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010), which constitute today some of Cairo's most densely populated areas (Egypt: Greater Cairo, 2020).

Cairo's core being saturated and having high levels of noise and air pollution, it has been the tendency over the past two decades for wealthier citizens to move into compounds¹ located on Cairo's outskirts. The latter are desert cities that began emerging in the late 1990's. Today, they house schools, universities, offices, shopping malls, hospitals, and all that is necessary for daily life. As the wealthier Cairenes relocate to formal Cairo's periphery, towards Sheikh Zayed to the west, and New Cairo to the East, new city centres are formed, and residents of such areas avoid as much as possible any commutes towards Cairo proper. The co-dependency of formality and informality in Cairo naturally ends up attracting all social classes to the area, responding to demand across all sorts of job sectors. The following passage about "The Generic City" from Rem Koolhaas' *Junkspace* strongly resonates with what may be

¹ gated communities, with a considerable amount of green and public spaces in comparison with the average Cairene urban fabric

observed in contemporary Cairo:

"The recent belated discovery of the periphery as a zone of potential value - a kind of pre-historical condition that might finally be worthy of architectural intention - is only a disguised insistence on the priority of and dependency on the center: without center, no periphery; the interest of the first presumably compensates for the emptiness of the latter. Conceptually orphaned, the condition of the periphery is made worse by the fact that its mother is still alive, stealing the show, emphasizing its offspring's inadequacies. The last vibes emanating from the exhausted center preclude the reading of the periphery as critical mass. Not only is the center by definition too small to perform its assigned obligations, it is also no longer the real center but an overblown mirage on its way to implosion; yet its illusory presence denies the rest of the city its legitimacy. The persistence of the present concentric obsession makes us all bridge-and-tunnel people, second-class citizens in our own civilization, disenfranchised by the dumb coincidence of our collective exile from the center." (Koolhaas, 2001)

The past's obsession with concentrating all economic activity and housing in the centre, of course without neglecting the factor of its

proximity to the Nile, blew Cairo's density out of proportion. Back then, living by the periphery would actually declass city-goers to "bridge-and-tunnel people", as they would require extra infrastructural support to reach the city. However, the feeling that in Cairo, "the periphery is no longer the periphery but comes into its own as a polycentric, horizontal dispersion that is characteristic of the Megalopolis" (Pope, 2008), is ascending. Perhaps Cairo may be considered as a megalopolis. The latter is defined as "a thickly populated region centering in a metropolis, or embracing several metropolises" (Merriam-Webster Dictionary, (n.d.)). A metropolis, on the other hand, is either the capital city of a country, or region, or merely a large important city (Merriam-Webster Dictionary, (n.d.)). Contemporary Greater Cairo no longer has one center, nor one hotspot. In fact, as the time spent in traffic may easily amount to an absurd number of hours, Cairenes prefer getting everything done around their area, and Cairo's nature makes this possible. What is meant by the latter is that, Egypt's middle and upper classes have a very consumerist nature, which results in the sprouting of many commercial opportunities wherever new residential quarters are established. In (Fig 1), new shops are being built on the street leading up to the Palm Hills compound. That is keeping in mind that Mall of Arabia, and Mall of Egypt, two of the biggest shopping malls in Africa (World Atlas, 2017),

are 8.2 km and 6.7 km away, respectively (Google Maps, 2021). As a result of this dynamic, residents of areas by the periphery are no longer considered "bridge-and-tunnel people", as those "new centers" house a westernized way of living with wide streets, lavish shopping areas, high-end restaurants and contemporary office buildings. It is considered a privilege to escape Cairo's commotions, and dwell in one of those desert cities.



Fig 1. Shops sprouting near Palm Hills Compound
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Physical proximity of disparate realities

Cairo's overwhelming landscape, as well as where most of its inhabitants dwell, remains the informal settlements that sprouted on agrarian lands, as they satiate the lack of affordable housing. For instance, Ard El Lewa, just across the Sudan Street from Al-Mohandesseen, was very popular with Cairo University students seeking cheap accommodation. By taking a closer look, the physical proximity accompanied by the substantial differences in the urban fabric of two neighboring districts, simply separated by a street, is jaw-dropping. This phenomenon is present all across Cairo, as formality and informality are deeply intertwined. The co-dependence of this dichotomy is better grasped through a scenario out of twenty million other possible ones:

Mariam is part of the cleaning staff who works at a super fancy restaurant in Zamalek, a hip Cairene neighborhood. She makes about 2550 EGP per month (Cleaning and Housekeeping Average Salaries in Cairo 2021, 2021). Mariam does not have any other qualifications allowing her to attain better paying jobs. Her family also cannot afford rent in Zamalek, the hip neighborhood, nor can they afford a car to move around one of Africa's largest cities. Mariam, however, can afford

the feeble cost of a microbus² ride, about 1 to 3 EGP that will take her to her apartment in Ard El Lewa, only 15 minutes away when there is no traffic. Rent for a two-bedroom apartment in Ard El Lewa is around 1'900 EGP (Aqarmap, 2021) monthly, as opposed to about 30'000 EGP monthly in Zamalek (Property Finder, 2021). Her father, Salah, has a small auto-repair shop in the ground floor of the building where they reside. His most precious customers are the car-owning Al-Mohandesseen and Zamalek residents who buy spare-parts or other necessities for their vehicles.

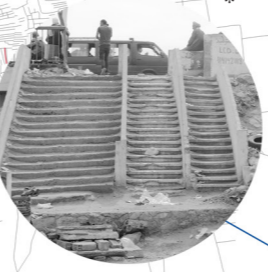
A side note on unemployment in Egypt: it is proportional to the educational status, but not in the expected way. In fact, less than 1% of illiterates are officially unemployed, whereas this number soars to 15% for high school degree holders, and 17% for university degree holders (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010). It is not uncommon, for example, to find cab drivers with higher education degrees. Egypt finds itself oversupplied with degree holders that are poorly qualified for jobs in the formal sector due to an educational system strongly based on rote (Sims & Abu-Lughod,

² a privately-owned van that is also the cheapest form of transportation in Cairo

Understanding Cairo: The logic of a City out of Control, 2010). The ill system of learning paves the way for an underpaid population, trapped in a vicious cycle that hinders them from achieving a better quality of life. The informality phenomenon being so present in Cairo, it holds a strong share not only in its housing and economy, but also in its means of common transportation, which will be explained in the next subsection. First, nevertheless, the reader will be embarked on a road trip from Sheikh Zayed, to the Saladin Citadel, passing by Ard el Lewa, Al-Mohandesseen, Al-Fustat and ending in Zamalek for a total covered distance of 60.2 km, in an attempt to demonstrate the physical proximity of disparate realities present in Cairo (Map 3).

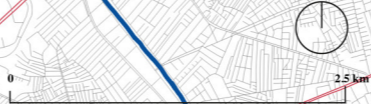
(a) to (b.): 3.4 km

Starting off from Palm Hills (a.), one of Sheikh Zayed's gated communities, we make our way down towards the 26th of July Corridor. At the intersection, a general consensus was reached to place an informal microbus stop (b.), enabling drivers, cooks, cleaners and various other services personnel to reach the area from their homes.



Map 3. Urban Disparities, 2021
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Data Sources: OpenStreetMap, Images: Google Earth, authors and others *



to (c.): 4.6 km

Right as the journey on the 26th of July Corridor begins, two lanes are rendered nearly inaccessible to motorized traffic, as pedestrians and minibuses conveniently claim another minibus stop, right by the junction with the Cairo-Alexandria Desert Road (c.).

to (e.): 16 km

Different sceneries are seen across the tens of kilometers on the 26th of July Corridor. It passes through agrarian lands, that are often turned into informal settlements (d.). As the latter are bypassed by the main road, inhabitants of such areas build ramps and stairs to gain access to the rest of the city, as can be seen with the Motamadeya ramp and stairs (e.). Such ramps and stairs can be seen all along the Ring Road, in order to connect unplanned areas with formal Cairo. This phenomenon may be better understood by looking at section (EE') (Fig 2).

to (f.): 1km

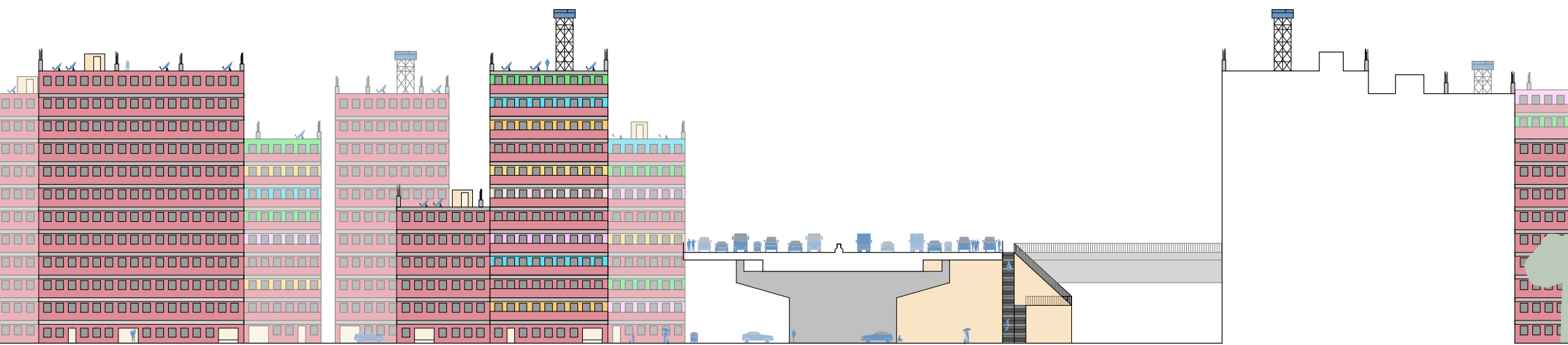
Just a kilometer away is another informal ramp, that of

Al-Nahia. However, as we got closer, it felt unsafe for two young women to head there by themselves. Hence, as we were heading towards the first interchange that would take us back north, we took the wrong turn, (which is very easy to do while driving in Cairo, due to the immense number of bifurcations), and ended up on Saad Abdul Hamid street, parallel to the Ring Road. We found ourselves driving by built-up agrarian lands, overshadowed by the Ring Road. Underneath the latter were cattle, and various workshops, auto-repair shops, and more (f.).

to (h.): 5.8 km

We headed back onto the 26th of July Corridor, to make our way to Al-Mohandesseen. On the way there, we pass next to Ard el Lewa (g.), which is only separated from the upscale neighborhood of Al-Mohandesseen by the Sudan Street. Al-Mohandesseen is a district of the Giza governorate that houses big boulevards delineated by trees, tall residential and office buildings, villas and boutiques (h.).

to (j.): 9.3 km



Al-Omraneya
informal settlement

Ring Road

Al-Nahia staircase

Bulaq Al-Dakroun
informal settlement

Fig 2. Section EE'
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We then made our way towards Egypt's first capital under Muslim rule: Al-Fustat. This district is very culturally rich, encompassing various churches, mosques, the Saladin Citadel, as well as the City of the Dead (a cemetery built back in the 7th century during the Arab conquests, which served as a burial site for the Fatimids, Mamluks, and the Ottomans (Abdou, 2021)). (i.) is a snapshot of Sidey Hassan al Anwar Street, just by the Amr ibn al-Aas mosque. Section (II') (Fig 3) exposes the morbid reality of the different lifestyles on each side of the street. To the west, the formal city, as per usual, has wide streets, sidewalks, vegetation, and public amenities such as hospitals, hotels, restaurants, etc. To the east of the Sidey Hassan al Anwar Street, surrounding the Amr ibn al-Aas mosque, is one of the Cairo Necropolises that extends into the informal quarter of Abu Qarn (j.). Unfortunately, extreme poverty forces about 6'000 persons in Cairo to inhabit alongside the dead (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010), in refurbished tombs and mausoleums. According to an interview led by National Geographic, inhabitants seem to find a silver

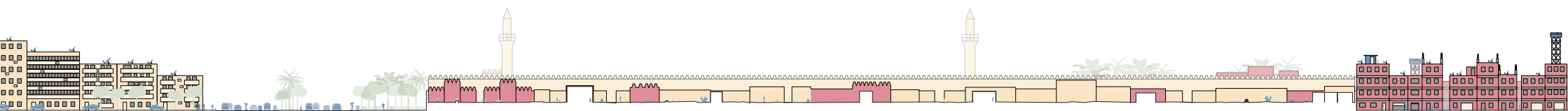
lining in living by princes and pashas (Abdou, 2021).

to (k.): 12.6 km

We then took the Salah Salem street to drive up toward the Saladin Citadel. It is quite an impressive sight to see the citadel's silver domes glistening under the sun, and looming over Cairo's largest informal area: Manshiyet Nasser (k.). The latter is also known as the Garbage City. Home to about 260'000 Cairenes, its dwellers recycle 85% of the garbage brought to them by the garbage men, in an attempt to produce goods and sell them (Marzouk, 2017). As we drove around Manshiyet Nasser on Kobri al Ebageah bridge, we could notice massive piles of garbage on rooftops and in the streets.

to (l.): 7.5 km

Finally, after a very long day battling Cairo's crazy traffic, we went to the district of Zamalek. Developed under the rule of Khedive Ismail in the 19th century, Zamalek is home to rococo style architecture, wide streets by the Nile, lots of trees and hip boutiques, cafes, bars and restaurants.



Al-Fustat
formal settlement

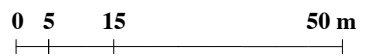
Sidey Hassan
Al-Anwar Street

Foreground:
A Muslim cemetery

Background:
Amr ibn Al A's Mosque

Abu Qarn
informal settlement

Fig 3. Section II'
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This makes it one of the rare areas in Cairo where it is pleasant to walk around. We gladly had a glass of mint lemon juice at the Granita café, while revisiting the day's adventures.

Superficially, there are already staggering differences in the urban fabric. The unpaved streets in the unplanned areas, are a fraction of the width of formal Cairene ones. They also have little to no vegetation, compared to the streets of their counterparts, delineated by trees. Regarding public amenities, they are close to none in the *ashwa'iyyat*. Finally, the infamous redbrick buildings reigning over the unplanned areas are merely a facade to the world they encompass. The next section will expose the main differences between formal and informal areas, but first, it is important to comprehend how Cairenes move around their city.

Getting around Cairo

Two types of roads connect Cairo to its outskirts (Map 4): the motorways, which include the ring road circling Cairo (Fig 4), and the primary roads, including but not limited to the 26th of July Corridor, Rod al-Farag, the Nile Corniche, Al-Tahrir Street and Sudan Street. Such infrastructure has the significant role of interconnecting all parts of Cairo. In fact, the Cairo Ring Road being built between 1985 and 2001 is what shed light on the informality phenomenon that remained in the shadows up until then, and led to various government interventions. (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010). The Ring Road circles Cairo, while the main roads intersect it to create radial connections. They play a crucial role in either connecting different parts of the city, or segregating some of them. As may be observed in (Fig 4), the Ring Road and the 26th of July Corridor, respectively, are bypassing informal parts of the city.

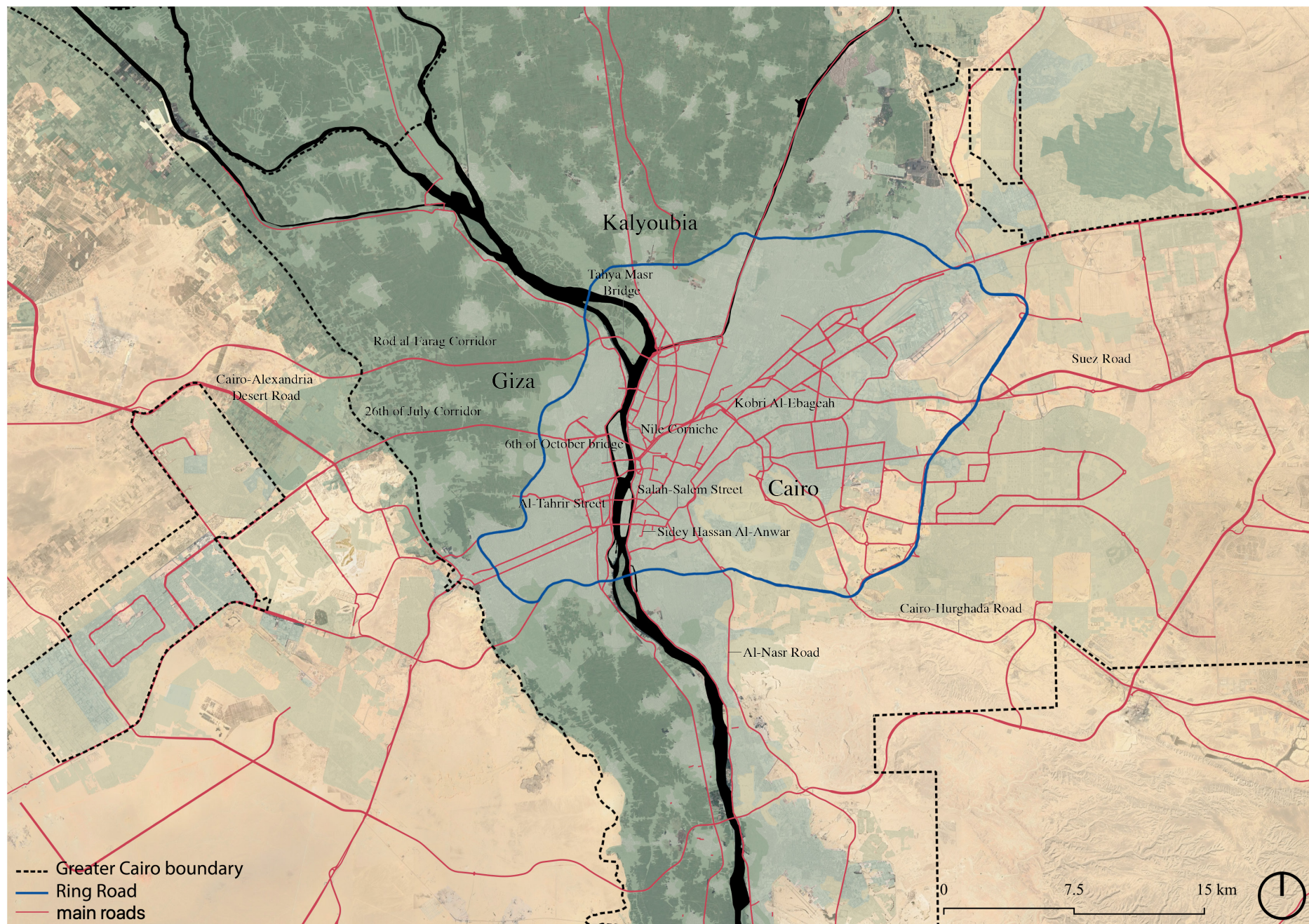
A mere 26% is the private car's share in the Cairene means of transportation (El-Geneidy, Diab, Jacques, & Mathez, 2014). The rest is absorbed by collective means of transportation (Fig 5). Unsurprisingly, public transportation follows in the steps of housing and the economy as



Fig 4. Cairo Ring Road surpassing informal settlements
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Fig 5. Collective public transportation
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Map 4. Cairo Connectivity Map, 2021

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Data Sources: OpenStreetMap, Marine Regions, The Humanitarian Data Exchange, Global Human Settlement Layer, Africapolis

it is also dominated by the informal sector. Cairenes have demonstrated ingenuity by creating and integrating an informal means of public transportation that caters for the citizens' needs, unsatisfied by the government-funded system. The latter, called *microbuses*, are privately owned, and cover all corners of Greater Cairo. One must, however, learn the dedicated hand signals to be able to find their way, and overcome the lack of signs and stations. Their popularity is due to their demand responsive attitude, personalized and flexible stops, and affordability (Alla, 2020). Of the remaining 74% allocated to common transportation, buses and metros account for about 45% of travels, whereas *microbuses* account for 52.3% (Statista, 2016). Official public transportation does not provide an extensive coverage of Greater Cairo, and is therefore in concurrence with the informally established entrepreneurial vans. The difference between formal and informal public transportation stops is visible in (Fig 6) and (Fig 7). Formal stops have a designated space, seating and a sign, whereas informal stops tend to take up one or two car lanes for their convenience, and there are no signs. Their stops are usually found in strategic places that are interchanges between the formal and informal societies. For instance, as seen in the previous subsection as well as in Section EE' (Fig 2), there is usually a *microbus* stop next to the ramp and/or staircase between an unplanned area and a

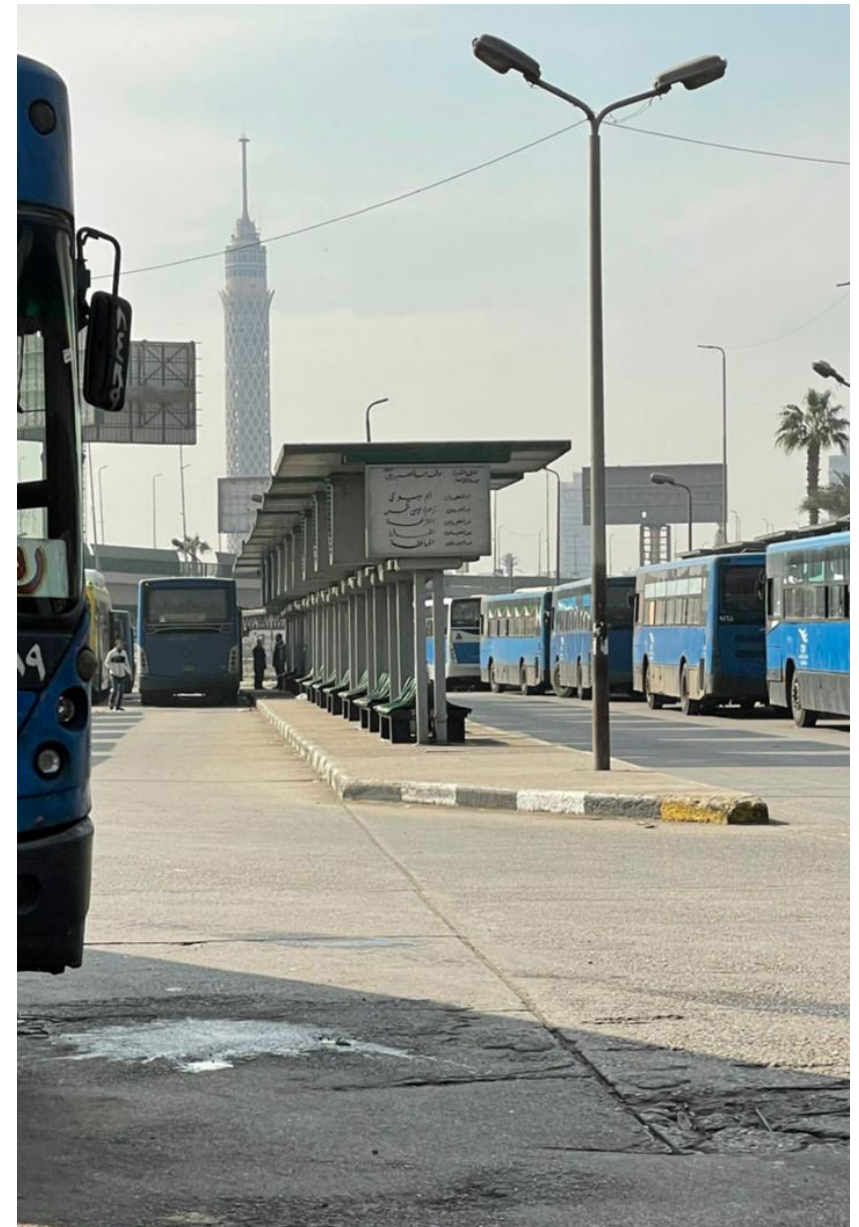


Fig 6. Formal Bus stop
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main road (Fig 8). Dwellers of informal areas take it upon themselves to build stairs or ramps as an interchange with the segregating Ring Road. Furthermore, being highly demand-responsive, apart from being in the obvious central areas, and on Cairo's main roads, they are also found near the entrances of gated communities, or at the interchange between a main road, and another one leading a mall.



Fig 7. Microbus stop on the 26th of July Corridor
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Fig 8. Ramp connecting informal area to the Ring Road
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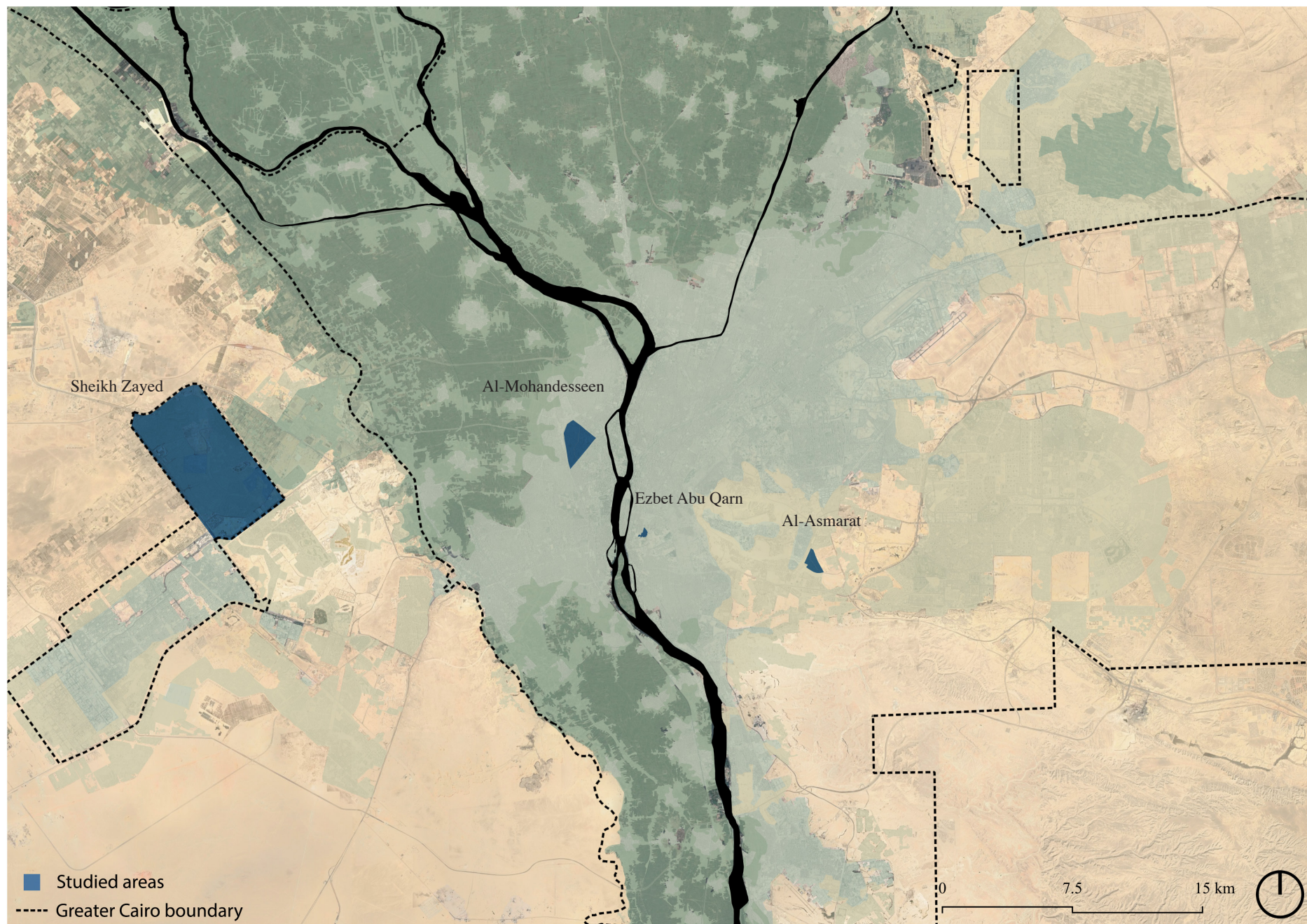
Characteristics of different types of residential quarters

Although Cairo is a megalopolis, Arabic and Islamic culture predominate. Of the 21.3 million Cairenes, 89% are Muslim and 10% are Christian (Cairo Population 2021, 2021). It is needless to say that the population is quite religious, and follows a set of customs that are passed on through generations. Notably, a Cairene's set of customs and beliefs varies greatly depending on their socioeconomic class, and it is not uncommon for people from a certain class in Cairo to stigmatize those from another due to such differences. This phenomenon is present in Greater Cairo, as there are very significant inequalities when it comes to income distribution. For instance, in 2008, the median annual Cairene household income was 7'200 EGP for the 1st quintile, compared to 22'080 EGP for the 5th quintile, or more than 3 times the latter. (Horwood & UN_Habitat, 2011). Moreover, "as one moves from the poorest quintile (the first) to the richest quintile (the fifth), the rate of illiteracy drops dramatically, and the percentage of persons living in informal areas also drops, but less steeply. Conversely the incidence of university education shoots up from 6 percent in the

first quintile to 41 percent in the fifth quintile, as does housing area per capita, which jumps from only 13 square meters in the first quintile to 40 square meters in the fifth.” (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010). The richer districts of Greater Cairo are also those where expats tend to dwell, as well as where there is a greater number of private schools with a foreign education system. Hence, residents of the richer Cairene districts tend to be more aware and exposed to western lifestyles. The unequal wealth distribution in Greater Cairo impacts the social and cultural behavior of the distinct socioeconomic classes, that has repercussions on people’s social behavior, dress codes, outings, and more. Unfortunately, public spaces in Cairo do not promote social interaction between the different groups. (Wanas, Moustafa, & Murshed, 2014). Residents of the richer districts choose restricted social clubs, and exclusive cafes, restaurants and bars for their social gatherings, over public parks and commercial streets, that residents of informal settlements, and other poor areas visit (Wanas, Moustafa, & Murshed, 2014). Such disparities are a side-effect, but also a consolidating factor of the dominating residential segregation in Greater Cairo.

Four types of residential quarters were identified: the ones in Cairo

proper, gated communities in desert towns, informal settlements and new government settlements that *ex-ashwa’iyyat* residents move to. In an attempt to better comprehend the dynamics of the different residential quarters, the next sub-sections will delve into comparative points, that are deemed the most striking. The urban design of the different Cairene urban fabrics will be examined, concentrating on the ratio of built to unbuilt areas, the surface areas allocated to public services and public spaces, as well as the presence of vegetation. A study will also be conducted on the programmatic differences of buildings in the different areas, as well as the differences in typology and density in a housing unit. In order to lead the comparative studies, a neighborhood from each residential type was studied (Map 5). From left to right on the map, O West gated compound (desert town in Sheikh Zayed), Al-Mohandesseen (Cairo proper), Abu Qarn (informal settlement) and Al-Asmarat (new government settlement).



Map 5. Cairo Connectivity Map, 2021

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Data Sources: OpenStreetMap, Marine Regions, The Humanitarian Data Exchange, Africapolis

Urban design and public amenities

The analysis of the urban design of the different residential quarters says a lot about the day-to-day quality of life and comfort of its residents. Over the past few years, Egypt has been launching new campaigns to eliminate slums and formalize the dense heart of the old Cairo fabric, as well as that of other Egyptian cities. A few spatial approaches that “seem limited to nonsensical talk about depopulation and de-densification in order to reshape what is left into some image of a modernist Egypt that never arrives” (Sims, *Egypt’s Desert Dreams: Development or Disaster?*, 2018).

Before heading to the characteristics of the informal settlement of Ezbet Abu Qarn, we will give a general overview of the urban design and amenities of the formal neighborhoods of Al-Mohandesseen¹ and O West². Al-Mohandesseen was built in the 1950’s around the same time when the informal settlements started taking over the city’s urban fabric. Both, Al-Mohandesseen and the first *ashwa’iyyat* found their

¹ Al-Mohandesseen is one of the most popular neighborhoods located in Greater Cairo, in the municipality of Agouza in the Giza governorate.

² A gated community nestled in the heart of Sheikh Zayed. One of the newly emerging desert compounds in Greater Cairo’s desert cities.

way on agrarian lands, the one obvious difference is that one is formal, originally for wealthy people with mansions and villas, and the other one informal for the people’s will of having a shelter and a place to call home. Taking a step back and looking at today’s situation, we question the awareness of the people and the government in destroying a productive natural soil to come up with concrete buildings. The answer in terms of increased density, emergency reaction to the housing crisis, connectivity and proximity could have been defended in the time but today’s government’s spatial decisions towards old agrarian lands and the land reclamation projects in the desert (which are mostly unsuccessful), remains controversial.

An interesting note about the informal areas that sprouted on agrarian lands is that they are more organized than they seem. They follow a regulating outline determined by the clever irrigation system that served the previously agricultural lands. This renders the impression that settlements such as Ard El Lewa followed a designed urban plan, when, in fact, Egypt’s fertile lands entertain a hierarchal canalization system that facilitates their conversion into residential areas. The *feddan*, which is divided into *qirats* (175 square meters), its sub-unit, is bordered by a distribution channel connected to a central ditch that

brings water to the latter. Canals, which were delimited by wide paths or roads, are turned into roads with an incorporated sewage system becoming the main streets in an area. Smaller properties had channels delineated by narrow paths, which are transformed into neighborhood streets and paths. Hence, the agrarian parcels provide “an overall logic and a hierarchized trace to the spontaneous urbanization that takes place on them” (Joshi & Tonarelli, *Sub-dividing Egypt: Processes of Land Management and Development*, 2016). Built on the subdivided *feddan*, the buildings take up the entire plot they are allocated. The *bayt* and the *aimara* typically have a footprint of a *qirat*: 75 to 125 square meters, whereas the tower usually covers 250 to 450 square meters (Kouvari & Jung, 2016). Respectively, the previously mentioned dwelling types are one to two stories high for the *bayt*, three to six stories for the *aimara*, and up to 15 floors for the tower, which may be interpreted as the new *aimara* (Angelil & Malterre-Barthes, 2016).

Due to rapid urbanization, Al-Mohandesseen started to be overly crowded and old villas were rapidly replaced by buildings of around five to eighteen stories. Today’s urban fabric of the neighborhood occupies an area of 13.5 square kilometers (Openstreetmap Contributors, 2021) with 2.6 square kilometers (Openstreetmap Contributors, 2021) of its

surface occupied by an informal settlement in *Mit Okba*. We can clearly distinguish the informal settlement with its chaotic urban organization located in the northern side of the 26th of July Corridor that intersects Al-Mohandesseen. The urban plan witnesses a cohabitation between both formal and informal areas. By digging deeper in 1 square kilometer of Al-Mohandesseen (Fig 1) we note that only 3/10 of the total surface area is built. The chosen sample is bordered by the main streets: *Lebanon* street where we can find well known stores for shopping, *Al-Soudan* street and *Gameat Al-Dewal Al-Arabeya* street. In general, this sample is an example of how well equipped 1 square kilometer can be with public amenities. The green spaces, however, are little to none. We note two of them with only one that is accessible: The *Innovatives Garden*. How shocking it is when comparing Al-Mohandesseen to O West. The urban design is mainly organized around “Green phalanxes” and meandering green spaces that span the development (Orascom Development, 2021). Half of the surface is dedicated to open green spaces (Fig 2). The neighborhood of Al-Mohandesseen is quite rich in public facilities, restaurants, coffee shops and shopping malls. It counts around 20 hospitals with Al Salam Hospital located on the main *Gameat Al-Dewal Al-Arabeya* street. According to google maps, the area has 15 mosques, 3 churches, 3 schools and over 200 stores. The



high-end facilities of O West marks the difference with those of Al-Mohandesseen: from medical centers, international schools to shopping centers with luxurious brands. On a general basis, the two quarters are well equipped when to be compared with Ezbet Abu Qarn.

Birthered around the 1950's after the industrial revolution, Ezbet Abu Qarn's total surface was 0.11 square kilometers (El-Shahat & Attia, 2018) before the start of its demolition in 2021. The urban mass is very dense and compact with a ratio of 7/10 of built area per total surface area. Like any informal settlement in Cairo, the urban design of the neighborhood is done by the people for the people according to their needs. Therefore, no specific pattern or grid is followed while constructing the space. The area kept expanding in an organic natural way since, as always, "the continuous incoming migration and settlers' exponential growth were much faster than the government's decision-making process" (El-Shahat & Attia, 2018).

Apart from being mostly residential, the neighborhood is also comprised of workshops and a few *ahwas*³ (Fig 3). In fact, a significant

³ meaning Coffee in Arabic, an *ahwa* is a traditional coffee shop where Egyptians, mostly men, meet to have coffee, smoke *shisha* and play *tawlah* (backgammon)

characteristic of informal settlements is its inhabitants' proximity to their workplace. In Ezbet Abu Qarn, Am Anwar, an elderly man we interviewed expressed that at least half of the working population works in the neighborhood. Informal settlements are considered walkable neighborhoods. Unfortunately, Ezbet Abu Qarn does not have access to adequate public facilities within the area. In fact, an initiative to improve the educational facility in Ezbet Abu Qarn was done by Ezbet Project for the primary school Abou Al Saoud (Fig 5), where they upgraded shading elements, courtyard, greenery, playground areas with a collective participatory process and low cost materials.

Nevertheless, as the government had already decided to dismantle Cairo's informal areas, Ezbet Abu Qarn's surface area is decreasing by the day, and its residents are moved to government housing estates on Cairo's outskirts. This is the government's attempt at integrating the marginalized and segregated inhabitants to the rest of the community, as well as providing them with proper housing and public facilities. One of those housing projects is Al-Asmarat (Fig 4). "A housing unit befitting the Egyptian citizen" Ihab Al-Hanafi, The General Coordinator of the Slum Development Fund proudly expressed in an interview. The neighborhood has a built surface of 34 *feddans* out of 65 *feddans* ready

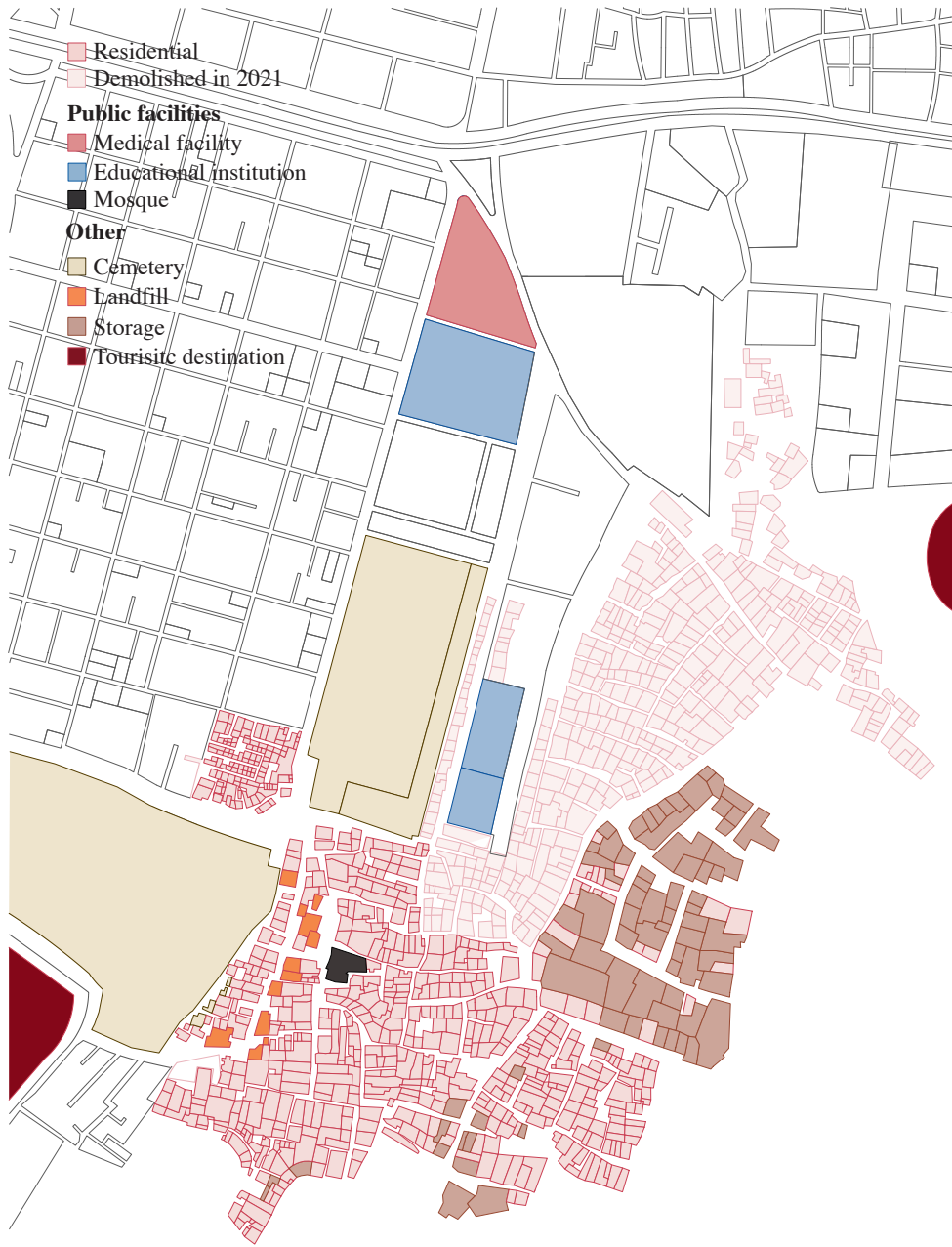


Fig 3. Site plan of Abu Qarn - Scale 1:5000
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Fig 4. Site plan of Al-Asmarat - Scale 1:10000

© 2021 Nabky and Nasreldin

Source: Google Earth



to receive 31'000 people from different *ashwa'iyyat* (Al-Asmarat 3, 2021). A regulated urban design that includes 4 health units, a school, 5 nurseries, a church (Fig 6), a mosque, and social spaces. President Abdel Fattah Al-Sisi is keen on including a mosque and a church in the new settlements as a symbol of acceptance and cohabitation between the groups of different faith.

Juxtaposing the site plans of Ezbet Abu Qarn (Fig 3) with that of Al-Asmarat (Fig 4) brings to light several interesting aspects. First of all, the built to non-built ratio clearly decreases in the new government housing estate, going from 70% built-up area in Ezbet Abu Qarn, to 52.3% in Al-Asmarat. Another advantage to the newly built settlement is that a few public amenities have been added, such as medical facilities and a police station. Unfortunately, the lack of vegetation and green areas in the informal settlement has not been remedied, as only a handful of trees have been added in Al-Asmarat, and a mediocre park. Furthermore, the workplaces integrated in the residential buildings that are a pillar of the informal areas have not been accounted for.

In drawing, the new settlement may seem as a promising project in terms of slum development, but how do the ex-inhabitants of the *ashwa'iyyat*

really feel about this? We will share insights later on in the paper. Before that, we will dig deeper in the urban plans of the respective neighborhoods, to gain a better understanding of the dynamics within the different Cairene urban fabrics.



Fig 5. Ezbet Abu Qarn - Primary school
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Fig 6. Al-Asmarat - General view - Church and sports fields
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Urban public spaces and social interactions

Public spaces in Cairo tend to be more defined as a gathering space rather than an open, accessible place to everyone. We will shortly get in the details of this statement. As mentioned before, a segregation between different social classes prevents social interactions and gatherings (Wanas, Moustafa, & Murshed, 2014). Moreover, exclusive public spaces are multiplying. Gatherings between people of the same social level most often take place inside exclusive social clubs (Fig 7), or “Open public spaces” where you can find different coffee shops and restaurants (Fig 8). Hence, it is more about what is inside the place than the place itself. It is more about the luxury of the services than the urban design. The most hostile public space in the desert can rapidly become a point of interest with the launch of a world-renown cafe (Fig 9). Depending on where you are and in which residential quarter, the public spaces are more or less animated and dynamic, sometimes going from a no-man’s-land to an unbearably crowded space. Besides the segregation between Cairenes, the culture has a huge impact on the social interactions in public spaces. The conservativeness and religiousness of Egyptian culture makes women constantly self-aware and introverted when in public, no matter what social class she belongs to. As a woman, wandering in public parks, is not often conceivable.



Left: Fig 7. Palm Hills Club Entrance - exclusive public space with various activities

Right: Fig 8. Open public space in Sheikh Zayed

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Fig 9. LaDurée before its opening in a public space in the Sheikh Zayed
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Fig 10. Vegetation in the streets of Al-Mohandesseen
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Even with the rising gender equality and women's empowerment over the last decades, the culture seems to always take over, especially in the poorer areas where people are less exposed to western cultures.

As mentioned previously, the green voids in 1 square kilometer of Al-Mohandesseen's case study sample is insufficient. It represents only 0.4% of the total surface compared to around 90% in 1 square kilometer of O West. The O West residents are therefore provided with pedestrian-friendly green spaces, cycling paths, social gathering areas and a membership in the social club of their gated community. O West breeds a community-focused urban environment that facilitates social interactions (Orascom Development, 2021) . Although Al-Mohandesseen lacks of green spaces, the streets are delineated by very old trees (Fig 10), which create a sense of calmness that contrasts with the chaotic traffic. As for Ezbet Abu Qarn, there is no vegetation at all. One may have thought that in the new housing estates, space would be allocated to open green areas, but as seen in Al-Asmarat, the little vegetation that is present remains decorative.

The streets in Cairo, especially in the old city fabric, are populated with cars, people, animals and sometimes street markets or local vendors. A



Fig 11. Unpaved streets of Ezbet Abu Qarn
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dense and lively environment where socio-economic relations happen every day. The social interactions in the streets of Al-Mohandesseen and O West are limited to storefronts and building entrances in front of which the *bawab*⁴ and his family are seated. In contrast, the streets of Ezbet Abu Qarn, and informal settlements in general, gain so much importance, despite their narrowness. They have an average street width of about 2.5 meters (Fig 3). The latter being the only “public spaces” available in the *ashwa’iyyat*, they showcase the life of the community and how tied the relations are between the residents. They are always full of people going about their daily business and socializing while keeping an eye on their workshop or storefront. The streets of the informal neighborhoods are not paved (Fig 11). As a public space development in Ezbet Abu Qarn, Ezbet undertook a project in 2016 to pave the beginning of Am Anwar’s street and embed benches in the delineating walls (Fig 19). Since the typologies of the buildings are very small (Fig 12) most of the time with no living room, the residents use the streets as an addition to their apartment. Thus, the thin line between the public and private sphere is blurred, making the streets, a semi-public place where the residents share the day-to-day life together

⁴ every building in the formal city has a *bawab*, meaning the building guardian in Arabic

(El-Shahat & Attia, 2018). Regarding the streets, they thus encompass various activities:

- “Local residents use it as: 1. A living room when some family members are sleeping inside the apartment
2. A reception to welcome guests
3. A kitchen to prepare the food together and chat
4. A storage area for things they do not have a place for inside their home
5. A playground for children
6. A place for general interaction” (El-Shahat & Attia, 2018).

From Ezbet Abu Qarn to Al-Asmarat, the urban public space notes a drastic change. The main streets of the neighborhood are around 20 meters wide and the pedestrian pathways in between the housing units are 10 meters wide (Fig 5). The streets and open areas make up 22.8 *feddans* (Presidency of the Arab Republic of Egypt, 2020), about a third of the whole surface of the estate. A new scale for the residents of the dense street-scape neighborhoods. The streets, the pathways, and the public spaces were almost empty when we visited even though the

whole neighborhood was inhabited. The new “luxurious” apartments (Fig 14) of the project offer the *ex-ashwa’iyyat* residents a fully furnished 2-bedroom apartment, a living room, a private bathroom, and a balcony. A luxury to the families who only had a 9 square meters room. It is interesting to note that the typical floor plan in an informal settlement (Fig 12) and typical typology in the new settlement (Fig 14)

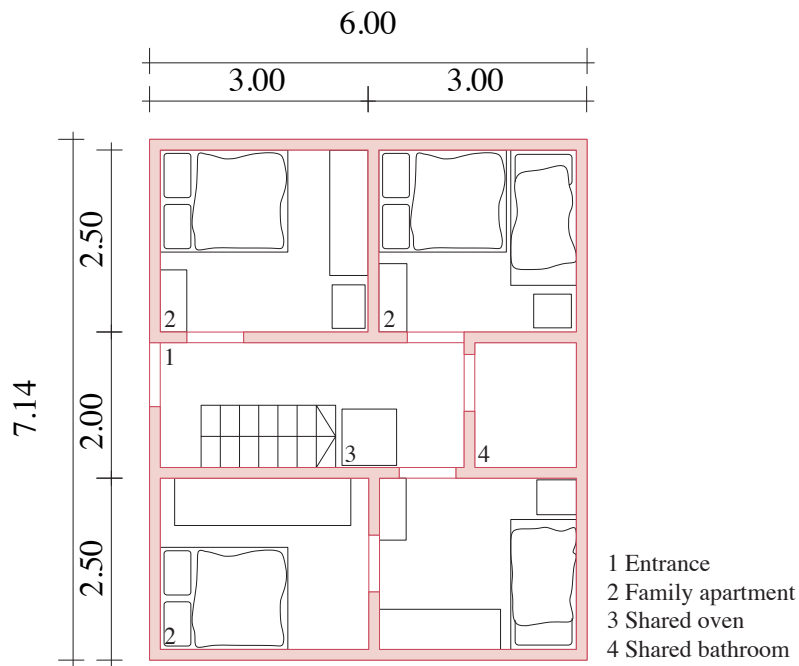


Fig 12. Ezbet Abu Qarn - Typical **Floor Plan**
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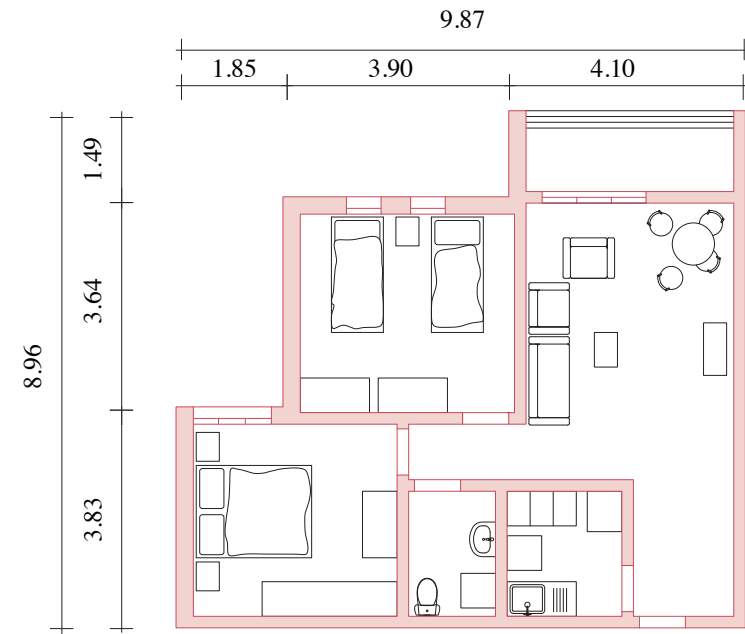
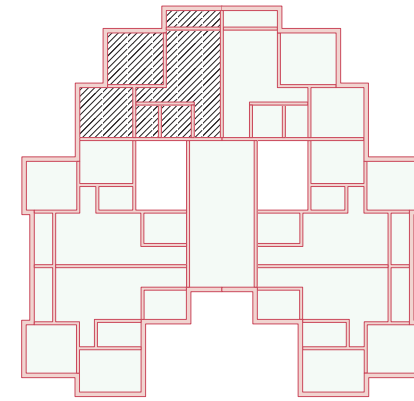


Fig 13. AI-Asmarat - Typical Floor Plan
Fig 14. AI-Asmarat - Typical **Typology** of an Apartment

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Source: Aboulnaga, Alwan, & Elsharouny, 2019

are almost of the same size. The private living space in Al-Asmarat prevails over the public space of the street. Therefore, the street, as a gathering community space, decreases in importance. Another factor that influences the social interactions in the streets is that they do not all come from the same *ashwa'iyyat*. According to the presidency website, Al-Asmarat is a new home for residents from fourteen different areas. When discussing with one of the residents of Al-Asmarat, the woman mentioned that “they are not all from the same social level, and this creates tensions as well as violent outbreaks” (13.08.2021). Therefore, they prefer to avoid new people. Even though the public spaces are still lifeless, we find the typical shading element, “the pergola” (Fig 15), that exists in Abdel Fattah el-Sisi’s slum-development projects. Moreover, the public space of the neighborhood is highlighted with the social and sports club of Al-Asmarat containing 4 multi-use stadiums, a football field, and 3 swimming pools (Presidency of the Arab Republic of Egypt, 2020).

Something seems to be lost in the process of “civilizing” the *ashwa'iyyat*. When constructing new settlements, the community life that constituted the heart and soul of the informal settlements seems to be getting involuntarily destroyed.



Fig 15. Al-Asmarat - Public space
© 2021 Nabky and Nasreldin

(In)formal Activities and Proximity to work

The significant social gap in Cairo is reflected by the formal and informal economies⁵ within the capital. As David Sims states, “the Achilles’ heel of efforts to rid central parts of Cairo of undesired activities has been, and continues to be, the inability of authorities to comprehend just how tied smaller enterprises are to Cairo’s fabric” (Sims & Abu-Lughod, *Understanding Cairo: The logic of a City out of Control*, 2010). The year 2020 marks 50% of Egypt’s economy belonging to the informal sector (Soliman, 2020). In fact, the rise of the informal economy alongside the formal one in the marketplace is due to the increasing demand of the poor sector of the population for cheaper goods and services. The small, unlicensed enterprises therefore offer informal job opportunities for workers who struggle to find jobs in the formal sector. Moreover, some formal enterprises profit from the cheap workforce, goods, and services of the informal sector to avoid paying taxes and paying formal employment jobs. The world bank issued in 2014 a brief reporting 56% informal workers and 70% of the job offers being created by small enterprises, most likely informal (World Bank, 2014). Those “undesired” activities can be seen in neighborhoods like

⁵ Informal economy is all economic activities that are not registered, taxed, regulated, or protected by the government.

Al-Mohandesseen as well as in informal settlements. It is obvious to state that these activities do not take place in gated communities like O West. It is unlikely to find surfaces allocated to commercial use in a residential building in gated communities such as O West, compared to Cairo proper such as Al-Mohandesseen, or informal settlements (Fig 16).

The informal workers inhabit, most of time, informal settlements. The proximity to work is a major element, as the worker should always be available when there is an opportunity of *Akl Eish*⁶, an opportunity of work with good money. Ezbet Abu Qarn is implemented in a dynamic area and directly connected to the touristic destinations of Amr ibn Al-A’as Mosque, the Hanging Church, and Al-Fustat park (Fig 3). Moreover, its proximity to the main street of Salah Salem makes the connection of Ezbet Abu Qarn to the rest of city possible. Despite the job opportunities in the touristic sites, the inhabitants mainly depend on their own workshops and small shops located, most of the time, on the ground floor of their building (Fig 16) and (Fig 17). It depends on the

⁶ *Akl Eish* (roughly translated to “ the eating of bread”) is an expression in Egypt which refers to the work or job that permits the person to eat bread. You can hear workers say *Akl Al-Eish Mor* (the eating of bread is acid) referring to the hard work they need to do in order to eat.

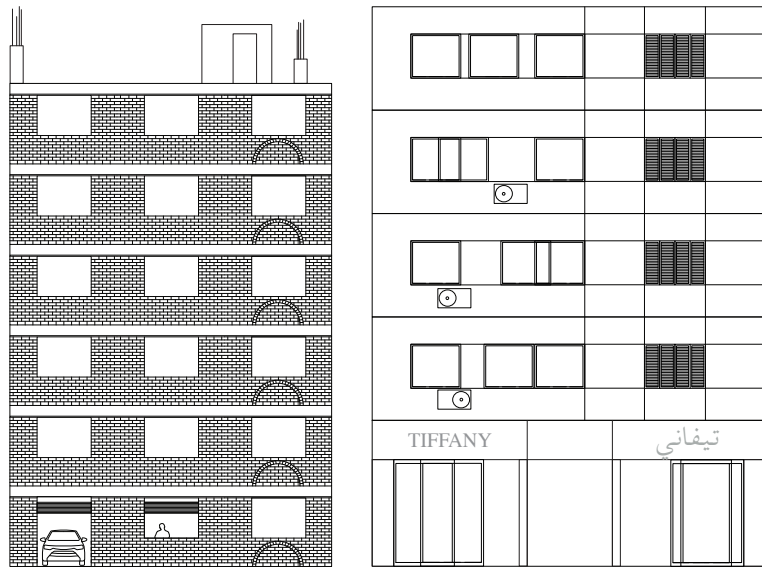


Fig 16. Facades of different types of residential quarters

Top: O West - Facade of a residential building

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Left: Typical facade of an informal building in the *ashwa'iyyat* with workshop on the Ground Floor

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Right: Al Mohandesseen - Facade of a residential building with shop on the Ground Floor

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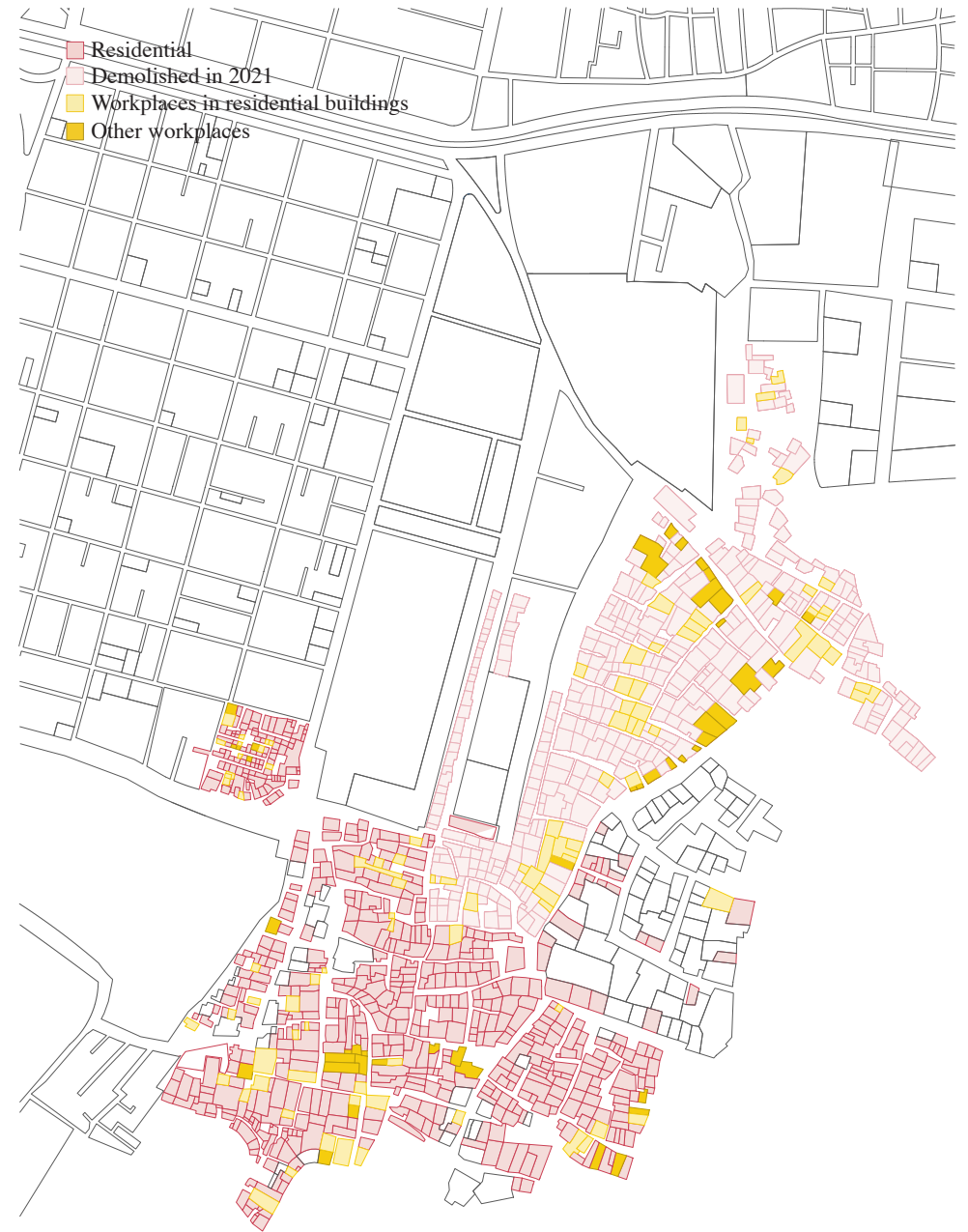


Fig 17. Site plan of Abu Qarn: Work and proximity - Scale 1:5000

© 2018 EZBET Project, redrawn and edited by authors



scale of the *ashwa'iyyat* and the *aimaras* but usually “The first one to two floors are assigned to commercial use, and the rest is residential.

The jobs in the formal sector that do not require higher education

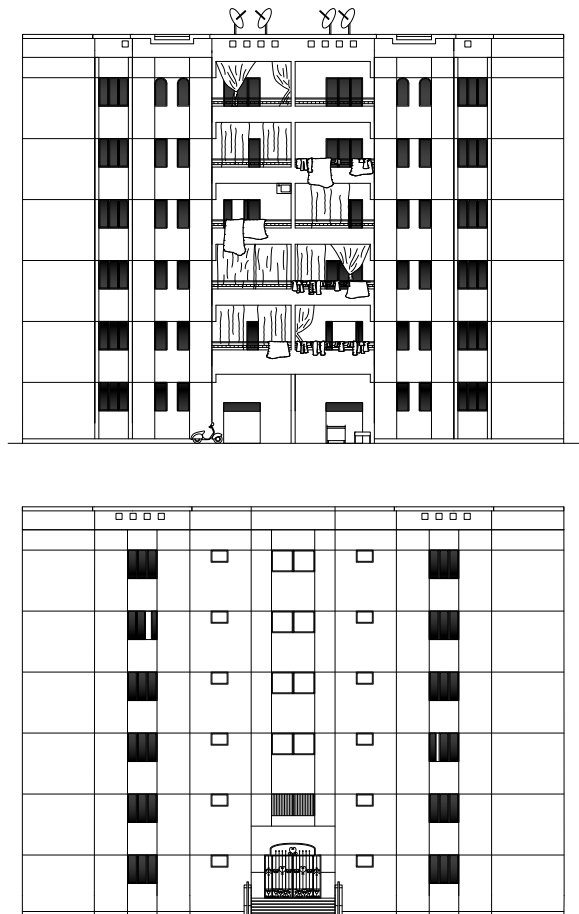


Fig 18. Al-Asmarat - Street and courtyard Facades
© 2021 Nabky and Nasreldin

diplomas are indeed insufficient for everyone, which explains the rise of informal activities. Even though these activities are categorized by the authorities as undesired or informal they showcase the ability of the residents to find a way to earn a living, and showcase their craftsmanship and skill in the workshops. The demolition of the *ashwa'iyyat* and the relocation of the residents is heartbreaking. The main issue is the inability of the government to ensure the residents with secure jobs instead of the ones they had, due to their informality. The installation of their work outside the perimeter of the building, if possible, is prohibited in order to maintain an organized, “civilized” figure of the neighborhood. The scarce given surface for possible commercial use in the new settlements like Al-Asmarat is on the ground floor and the rest of the building is residential (Fig 18). Unfortunately, the allocated spaces are far from enough to satisfy its inhabitants, and many find themselves out of work.

Despite the several inconveniences of working in the informal sector, such as no social protection, low remuneration, irregular working hours, etc., Informal jobs maintain social ties and ensure solidarities (Cergy, 2012). The social ties and skilled manpower is also reflected in the construction, especially in the self-building techniques over the epochs.

Testimonials

With the help of a group of experts from *EZBET*, an academic collaboration between University of Stuttgart and Ain Shams University whose initiative is to provide basic urban and social facilities in Cairene informal areas, we were able to visit the previously mentioned districts of Ezbet Abu Qarn and Al-Asmarat.

One may wonder why a group of experts is necessary for such a trip... In informal areas such as Abu Qarn, anyone may go at their own risk. However, as these places do not cater anything for people outside of its residents, seeing outsiders raises eyebrows, and may lead to uncomfortable situations. As for the newly developed areas such as Al-Asmarat, they are under such high police patrol, that as soon as one sets foot there, their intentions are interrogated. If a member of the *Tanmeya Al Hadareya*, an Egyptian organization working towards urban and social development, had not been present, the police would have most probably escorted us out.

The following pages depict some of the conversations we had, as well as some photographs we made.



Fig 19. Abu qarn- Am Anwar's street and home building with his shop on the groundfloor
© 2021 Nabky and Nasreldin

Interview with Am Anwar, a 60 year old shop clerck whose family has been living in Ezbet Abo Qarn for generations...

" - The area here is unsafe, there are dangerous youngsters around. Drugs are also around. I have children, and I don't let them hang around here. They go to school outside of here, and their friends also live outside. A lot of people here don't know my children. The type of friends they would make here would only drag them down, give them drugs and such. Three of my children are mechanics. I am a craftsman, so my children also have to be productive.

- Do they live with you here?

- Yes, they live here, but they work and have friends elsewhere. Far from what we're in. They only come back to sleep. I also have 5 married girls. Before they got married, they would not leave the house, no one knew them. They would go to school up until 6th or 7th grade. Then, I wouldn't even let them leave the house to get something from outside.

- Did they get married and live near you?

- No, they are a bit further away, in those new areas where

there are better jobs for their husbands. They live more comfortable lives. Sometimes I go visit them, sometimes they come.

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.
.

- So you were saying in 40 days this place will be dismantled?

- Yes, in 40 days, nothing will be left. They told us 2 months ago. They started last week.”

13.08.2021



Fig 20. Demolition of Abu Qarn
© 2021 Nabky and Nasreldin

Interview with a few women sitting by the entrance of a building...

“ - The one who is divorced, or the one who is widowed, and with 4-5 kids, how is she supposed to afford this life?

Yes, the apartment is nice, but we cannot find a bite to eat.

- There are no shops around to work in? Barely, and they look for young workers, they do not want 40-50 year olds.

Do you have a shack for me to live in? I'd rather live in a shack.

- Is it difficult to get around with public transportation, in order, for example, to go back to where your old job was?

- It isn't too bad, I can ride the microbus for 3.25 LE there and 3.25 LE back.

- But when you go back, do the places where you used to work still exist or do they also get dismantled?

- No, they move us out of your homes and dismantle everything, including where we worked. Our men would have shops or garages where they worked as mechanics, electricians, craftsmen... ”

13.08.2021



Fig 21. Al-Asmarat - Building entrance
© 2021 Nabky and Nasreldin



Fig 22. Al-Asmarat -Residential buildings
© 2021 Nabky and Nasreldin

*“We were living in slums, but we had peace of mind.
Imagine a 26 year old young man who wants to
get married. Where will he get the money to get an
apartment? They are making fools out of us.” - Sadeya, a
woman from Al-Asmarat*

13.08.2021

Self-Building over the epochs

According to Yahia Shawkat, housing and urban policy researcher, self-build is how most Egyptians acquire their homes. Self-building is not a recently acquired trend in Egypt. In fact, *fellaheen* have been self-building in the countryside for millennium. The Nubian villages in Upper-Egypt, who employ techniques dating back to Ancient Egyptians, will be compared with the contemporary, more industrial methods adopted recently. Traditional Egyptian architecture demonstrates prowess filled with character and cultural heritage that is unfortunately disregarded today, leaving us in an ocean of helpless attempts of architectural design stripped of any identity or beauty. Perhaps, this may be one of the reasons contributing to why the overwhelming majority of self-builds are considered *ashwa'yyat* by the government. It is important to note that not all self-builders actually build their own properties, but they will at least oversee the entire project from planning, to construction, to the finishing touches.

Modern day self-builders

A significant difference in modern day Egypt, that impacts life within a neighborhood from its urban plan to its typologies and social interactions, is the incremental self-building nature in informal settlements vis à vis the ready-built structures in formal areas. The popularity of building one's own home is due to various reasons. First off, as recently as 2017, more than 60% of the Egyptian workforce was employed in the informal sector without a contract, and half of them did not have regular jobs (Shawkat, Egypt's Housing Crisis, 2020). Without a monthly income to rely on, it is nearly impossible to pay monthly installments or rent on a formally built unit. Hence, incremental building becomes the most adequate solution, as they are able to build piece by piece as their financial situation allows. "The initial money earned goes toward buying a plot, then over the years, family heads are able to finance and oversee construction" (Shawkat, Egypt's Housing Crisis, 2020). Another major factor to the popularity of self-building is the cost factor. On average, 20% of costs are saved by building rather than buying, and if one were to pass the construction part to a third-party, informal building costs are still 10% cheaper than formal ones, with bribes and fines included (Shawkat, Egypt's Housing Crisis, 2020). In

fact, small contractors are usually commissioned, as more advanced skills are required to pour and cast the reinforced concrete slabs, beams and columns (Kouvari & Jung, 2016). Finally, building independently offers an independence that is not possible in the formal market that offers ready-built structures. First off, as seen in the previous subsection, owner-builders will often include a shop or workshop in the ground floor, to be used by them or to be rented. Secondly, as their children get married, floors are added on top of the existing dwelling to accommodate the new family (Shawkat, Egypt's Housing Crisis, 2020). It is not uncommon to inhabit an unfinished building, and only the facades of units that are for sale or rent are plastered (Angelil & Malterre-Barthes, 2016).

Informal self-built buildings are usually made of a solid concrete and brick structure (Fig 1). Once the foundations are dug, the concrete frame for one or two floors goes up and is infilled with bricks (Ostrowski & Zerlauth, 2016). The concrete skeleton's dimensions take into account further vertical expansion. As can be seen in (Fig 1), the reinforcement bars visible above the silhouette show the position of the next level (Ostrowski & Zerlauth, 2016). The tall concrete structures with brick infills typically have three blind facades that are compensated for by

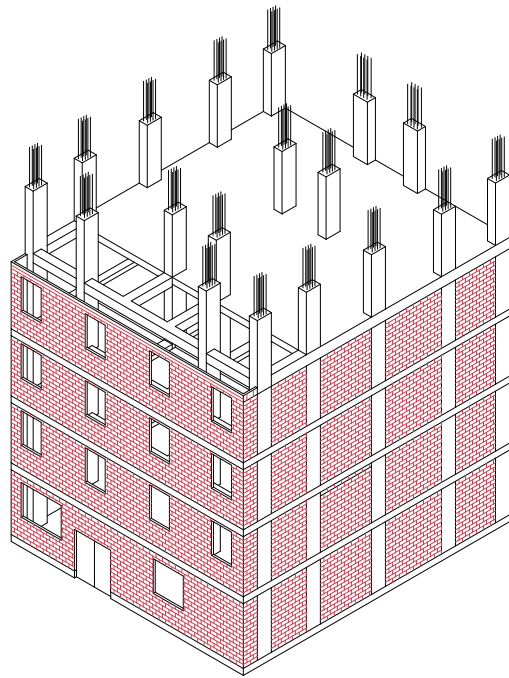


Fig 1. Typical informal building
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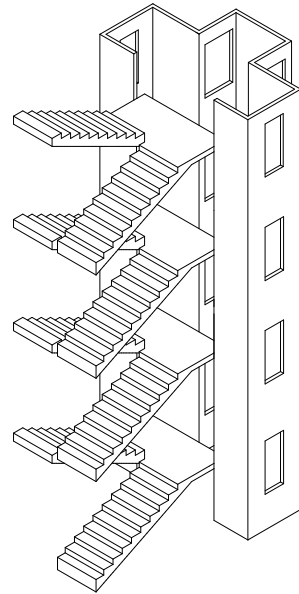


Fig 2. Staircase and ventilation shaft
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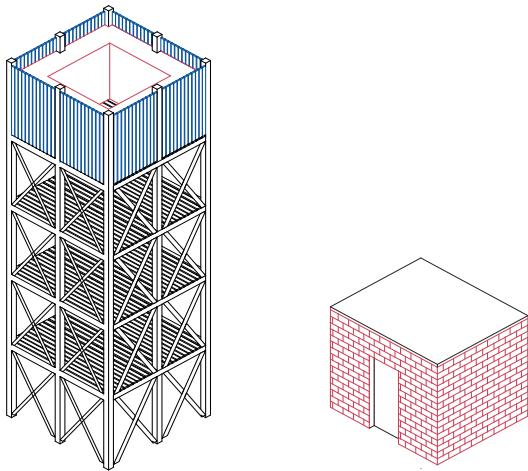


Fig 3. Typical roof additions: pigeon loft to the left,
shack to the right.
© 2021 Nabky and Nasreldin

a shaft in the center of the building for light and ventilation purposes (Fig. 2) (Angelil & Malterre-Barthes, 2016). There is typically only one staircase. The roofs are very often inhabited (Fig. 3), either by a shack (an extra room that may be rented out), a pigeon loft, or both. The pigeon lofts can be up to 15 meters high, and hold more than 100 pigeons (Kingsley, 2014). The bricks that are used for the exterior and interior walls are prepared in brick factories located in southeastern Cairo and southern Giza (Ostrowski & Zerlauth, 2016). The construction site has machinery that allows for the concrete to be mixed in-situ, and poured directly into the formwork (Ostrowski & Zerlauth, 2016). It is needless to say that a set of skills and machinery that is not readily available are required, making the self-building process almost certainly tied to a contractor (Kouvari & Jung, 2016).

Four notable aspects contributing to the self-building technique's popularity in the *ashwa'iyyat* are worthy of being retained: the reduced cost of construction, the possibility of building incrementally as one's financial situation allows, the flexibility in design allowing them to add a shop or workshop in the ground floor, and the ability to vertically expand their construction to accommodate their children and their counterpart once they get married. This being said, this method does

not come without downsides. First of all, not consulting with any experts leads to buildings in danger of collapsing. Many accidents have happened in Greater Cairo due to lack of knowledge in the construction field, killing hundreds at once (Shawkat, Egypt's Housing Crisis, 2020). Another downside, which unfortunately may be considered unimportant by many Egyptians as they have not experienced otherwise, is the deprivation of any architectural identity tying these constructions to their cultural heritage.

There is a very visible loss of identity in Egyptian architecture. As Hassan Fathy denotes, the problem today is that people believe the architectural identity is a question of style, that style is a superficial element, and that “a building can change its style as a man changes clothes” (Fathy, 1969). This opens up the possibility for builders to insert elements they see in western countries, which they then consider as *contemporary*, *beautiful*, and most importantly, *western*. (Fig. 4) illustrates a few examples of decorations around openings that can be seen in informal settlements. “In these nightmarish neighborhoods a craving for show and modernity causes the house owner to lavish his money on the tawdry fittings and decorations of urban houses, while being miserly with living space and denying himself absolutely the

benefits of real craftsmanship” (Fathy, 1969). Unfortunately, migrant workers will be inspired by the metropolitan style they perceive in their country's capital city, and will bring back these building methods to their villages, eradicating traditional ways of building. The latter, not only is it aesthetically and culturally richer, it was also more adapted to the Egyptian climate. In modern day Egypt, over half of the peak load of energy consumption is to satisfy air conditioning demands (Fig 5) (Attia & De Herde, 2009).

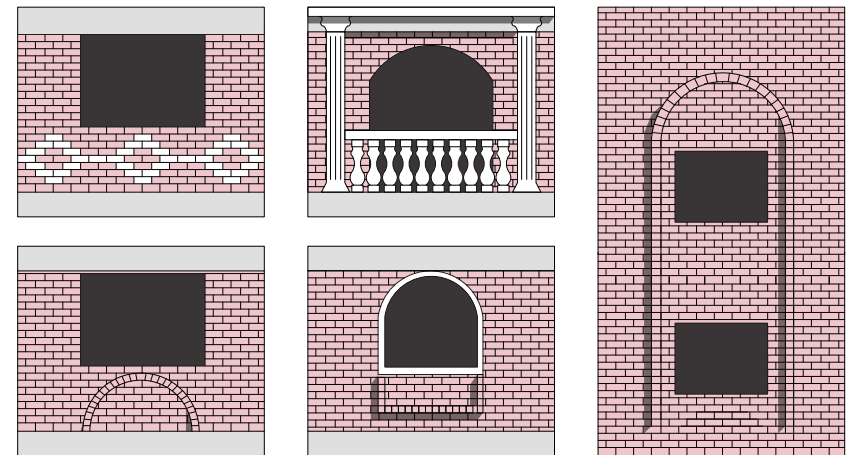


Fig 4. Decorative elements around openings in informal buildings
© 2021 Nabky and Nasreldin



Fig 5. Air conditioners on a building's facade in Al-Mohandesseen
© 2021 Nabky and Nasreldin

Yore self-builders

As Hassan Fathy states in his book *Architecture for the Poor*, “in modern Egypt there is no indigenous style. The signature is missing; the houses of rich and poor alike are without character, without an Egyptian accent. The tradition is lost, and we have been cut off from our past ever since Mohammed Ali cut the throat of the last Mamluk” (Fathy, 1969). In an attempt to revive Egypt’s lost architectural identity, and fulfill a childhood dream, Fathy set off to Luxor and Aswan, to learn about their building methods, which have kept vaults and domes steady for thousands of years. Luxor and Aswan are two cities located along the Nile river in Upper Egypt, where Ancient Egypt’s major city Thebes stood (National Geographic, 2010). At first, he was very disappointed while walking in the city of Aswan, and realizing that the buildings are just as soulless and tradition-devoid as the ones in Cairo. He described Aswan as “a small provincial town, looking like a seedy Cairo transplanted to the country; the same pretentious facades, the same gaudy shop fronts, the same poor-relation, apologetic, would-be metropolitan air” (Fathy, 1969). On the point of giving up, he decides to cross to the other Nile bank, and visit the village of Gharb Aswan (Fig 6 to Fig 8). There he stood in front of people who understood the true *art*



From top to bottom:

Fig 6. Traditional home in Gharb Aswan village.

Fig 7. Courtyard of traditional home in Gharb Aswan.

Fig 8. Entrance to traditional home in Gharb Aswan.

© Ingy Saad, 2020

de vivre. Contemplating the “spacious, lovely, clean and harmonious” homes of the villagers, he states: “I realized that I was looking at the living survivor of traditional Egyptian architecture, at a way of building that was a natural growth in the landscape, as much a part of it as the dom-palm tree of the district. It was like a vision of architecture before the Fall: before money, industry, greed, and snobbery had severed architecture from its true roots in nature” (Fathy, 1969). Feeling re-energized, he takes off to visit multiple historic sites. He was particularly impressed by the vaults he saw at the Ramesseum in Luxor (Fig 9) and the Fatimid cemetery in Aswan (Fig 10). Along with the other examples in the region, these structures that have held for thousands of years are a testimony to the successfulness of the traditional Egyptian building method, not only from a structural viewpoint, but also aesthetically, the way they blend in beautifully with the landscape. Impressed by the simplicity and aesthetics of the Nubian vault, he decided to include it in his project for the Royal Agricultural Society Farm, and later for his experimental village New Gournia (Fig 11), situated in Luxor, near the Tomb of the Nobles in the ancient city of Thebes.

Made of mud-bricks with hard limestone foundations, Hassan Fathy and his team of masons were able to bring to life the village of New



From top to bottom:
 Fig 9. 3'400 year-old vaults at the Ramesseum in Luxor.
 © Thierry Joffroy, 2020

Fig 10. Courtyard of traditional home in Gharb Aswan.
 © Lydia Smith, 2015.

Fig 11. Hassan Fathy's New Gourna Village.
 © Aga Khan Trust for Culture / Christopher Little

Gourna, comprised of 900 houses, and several public facilities, in 3 years. Fathy noted numerous advantages and positive aspects to the use of the mud-brick, as well as the building technique and design of the Nubians. These different aspects include financial reasons, ease and speed of the method, and adaptability to the local climate and landscape.

The brick

The typical Nubian mud-brick is made with a mix of local mud, desert sand, straw and water. Two diagonal grooves in the brick replace the need for any mortar, as the grooves create suction, holding one brick to the next (Fathy, 1969). The materials are cheap and readily available locally. What is even more impressive, is that this passed-on craft can be taught and applied by a much vaster majority of people than the contemporary building methods involving industrial materials. That is thanks to the simple and affordable tools that are required as opposed to expensive machinery, that may be dangerous if handled wrongly. During the New Gourna construction, young villagers learnt to build houses in just about 3 months (Fathy, 1969). The main tool the masons use is a simple axe, with which they adjust the eyeballed, yet beautiful parabola for the vault.

With a climate as hot and arid as Egypt's, materials with poor heat conductivity are the most suited. When it comes to regulating the climate inside of the buildings, the sundried mud-brick is, luckily, very suited for various reasons. First of all, it has very low heat conductivity: 0.22 cal/min/cm², in comparison with 0.48 cal/min/cm² for fired bricks, and 0.8 cal/min/cm² for hollow concrete blocks (Fathy, 1969). Secondly, building with clay bricks requires thicker walls, increasing the thermal insulation. Another challenge in Egypt's climate is the big change in temperature between day and night. Mud-brick walls keep the day's heat for long, releasing it into the night, which may cause spaces to overheat. Hence, natural ventilation is a primordial element of Egyptian traditional architecture.

Natural Ventilation

To ensure thermal comfort in a building, traditional Egyptian architecture incorporates various elements: from structural ones such as ingeniously placed openings and wind catching towers, to the disposition of the rooms, and the building's orientation.

Egyptian vernacular architecture had been including a *malkaf*, a wind catching tower as a means of thermal comfort regulation inside

buildings for centuries (Attia & De Herde, 2009). It is designed to trap wind at a certain height where it is strong and less polluted. The cool air passes through the building, and the hot air escapes through a device located in the central room, with an important ceiling height. (Fig 12) demonstrates an example of a *malkaf* and the internal air flow it produces in the Qa'a Muhib al-Din in Cairo, dating back to the Mamluk era (1250-1517).

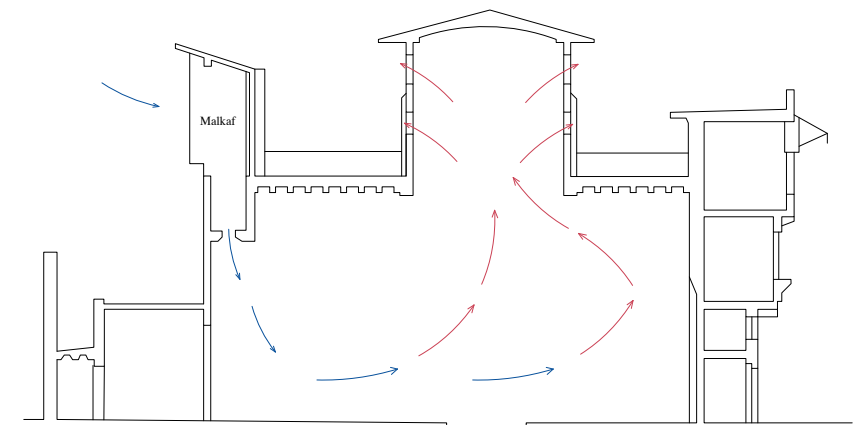


Fig 12. Internal air movement with *malqaf* device - Section through Qa'a of Mohib Al-Din in Cairo

© 2021 Nabky and Nasreldin

Source: Dr. Hossam Hassan Elborombaly

A laudable aspect of traditional architecture is that it harmoniously incorporates such temperature-regulating elements with societal norms in mind. For instance, the *mashrabeya* (Fig 13) is a wooden, perforated structure that lets in air and light. It is ideal for women who wish to unwind in a place where they may keep their privacy from passer-bys, all while enjoying cool air and indirect sunlight.

Finally, to remedy the rise in temperature inside the building at night, traditional Egyptian homes in Aswan are built around a courtyard (Fig 7). The latter behaves like a well, into which cool air descends and freshens the rooms on the ground floor (Fathy, 1969). In addition to cooling the ground floor, it again provides a pleasant outdoors area, away from the looks of outsiders.

Regarding architectural identity, there is no need to look farther than what the traditional material and method imposes. Besides taking into consideration climate challenges and societal norms, “it is also beautiful. It cannot help being beautiful, for the structure dictates the shapes and the material imposes the scale, every line respects the distribution of stresses, and the building takes on a satisfying and natural shape” (Fathy, 1969).

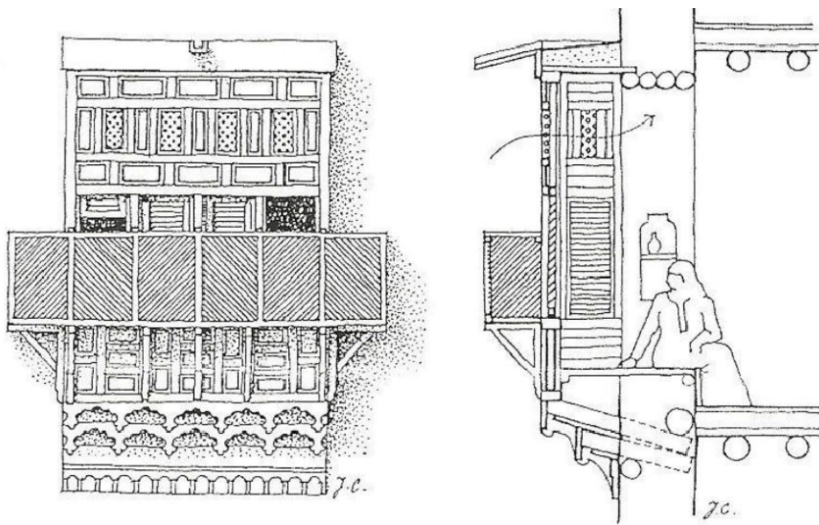


Fig 13. Details Mashrabiya in elevation and section view
© (Ragette, 2006)

Bringing back traditional methods... the challenges

Why is it that, despite all of the advantages it encapsulates, Egyptians seem to avoid this material at all cost. Well, this is a phenomenon that is present in many developing countries. For instance, when world renown architect Francis Kéré went back to Gando, his village in Burkina Faso, bearing the marvelous news that he had saved up 50'000 USD to build a school there, his community was ecstatic. However, this joy immediately faded when he announced it would be made out of clay: “A clay building is not able to withstand a rainy season”, “is this what you went to Germany for instead of working the fields with us?” They exclaimed in despair (Kéré, 2013). This is due to the fact



Fig 14. Francis Kéré Building with clay and community
© Kéré Architecture/ Holcim Foundation

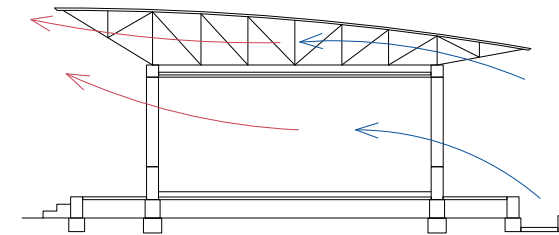
that the natives of Burkina Faso would already build with mud, but their structures would not withstand bad weather conditions. Knowing that the only way to gain his people’s trust and conviction would be to build with them, he worked closely with them on a prototype, providing physical proof of the technique (Fig 14). Convinced, the community participated in the building process of the Gando Primary School (Fig. 16). Using very basic building physics (Fig. 17), natural ventilation is incorporated in the design, and coupled with the thermal properties of mud-bricks, thermal comfort is attained inside the classrooms. Today, Francis Kéré is proud to express that residents of his village no longer have to leave the country to make money. Equipped with the skills, knowledge, and very importantly, the material needed, the men and women he has trained can now participate in construction sites around Burkina Faso, provide for their families, and build beautiful, economically and ecologically sustainable structures (Kéré, 2013).

In Egypt, mud-brick structures have been standing for thousands of years. (Fig. 15) even illustrates ancient Egyptian queen Hatshepsut molding mud-bricks. Despite this, our people still want to steer clear of this material. Hassan Fathy had a similar experience to that of Francis Kéré’s, but in Aswan. He recounts: “When we started to build the school

at Fares, the villagers objected to mud brick and said they wanted a concrete school—this although not one of the houses in the village had any concrete in it and many of them had probably never even seen concrete. But when the school was finished, the mayor came to see me one day, glowing with pride, and said that the pilgrims who came every year to celebrate the birthday (mouled) of a holy man and visit his tomb there had this year gone to see the school instead, and that all the village was very proud of it” (Fathy, 1969). Similarly to the Gando Primary School, the Fares School also employs simple but ingenious methods to regulate the climate inside the building (Fig 18 and 19).



Fig 15. XVIIIth Dynasty Queen Hatshepsut molding mud-bricks
© (Fathy, 1969)

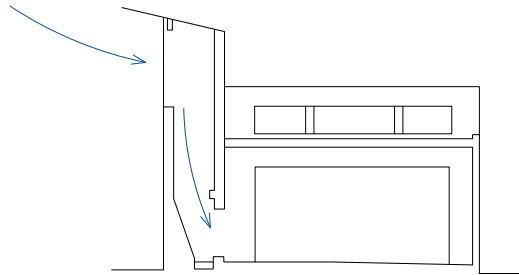


From top to bottom:
Fig 16. Francis Kéré's Gando Primary School classroom
© Simeon Duchoud

Fig 17. Gando Primary School
Redrawn by the authors from (Arquitectura viva, 2022)



There is a reason our ancestors have been building with certain materials and techniques for millennium, and this should not be disregarded. This is not to say that we should disregard the innovative and industrial techniques taught at architecture schools. However, we should use the knowledge that was made available to us to improve traditional techniques, and pass on those skills to local communities. The previously mentioned examples provide a valuable lesson: working with the community empowers it and makes it able to continue growing in a self-sustainable manner, and demonstrates first-hand the benefits of using the locally available materials as opposed to the expensive, less ecological ones.



From top to bottom:

Fig 18. Hassan Fathy's Fares School classroom

© Aga Khan Trust for Culture

Fig 19. Fares School Drawings by Hassan Fathy

Redrawn by the authors from Rare books and special collections library, the AUC

Catalogue of images

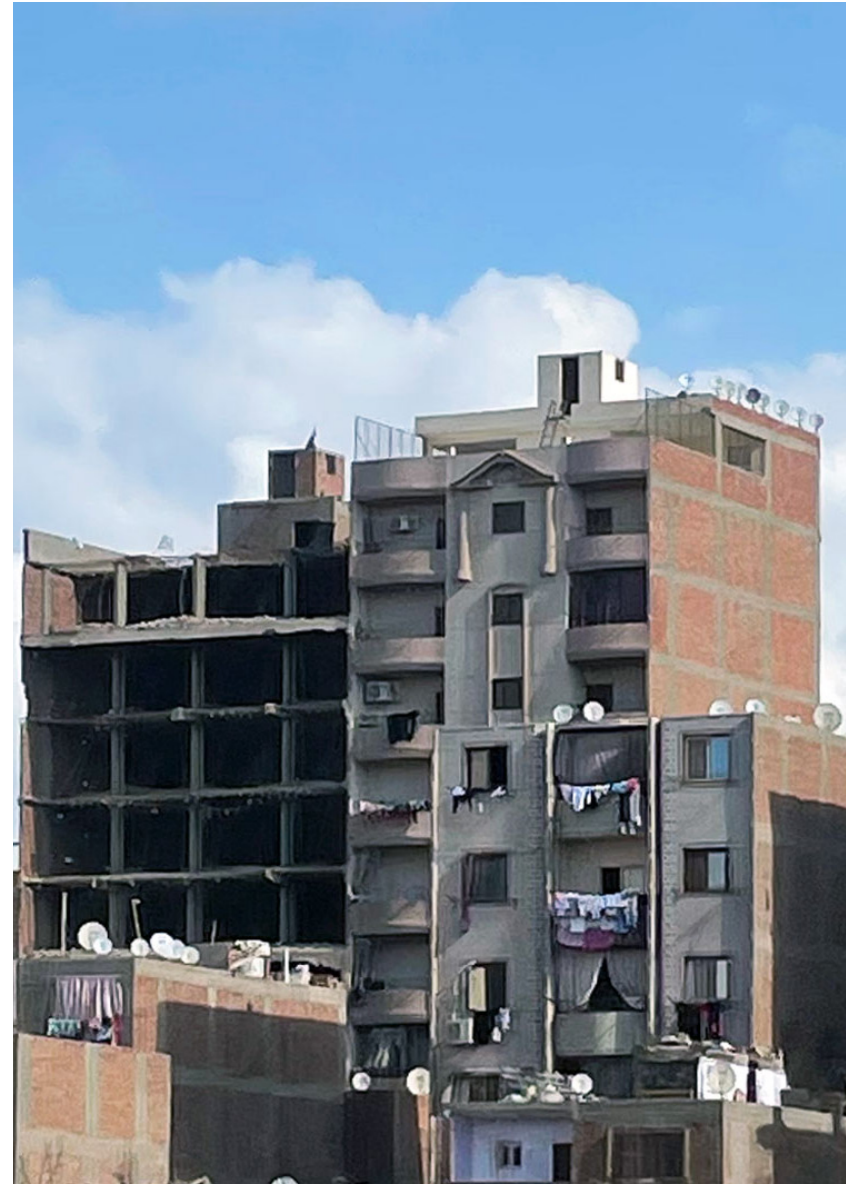
The following images¹ are taken by the authors in different areas around Greater Cairo, from the poorest areas to the most privileged ones. They demonstrate the extremely different environments that are present around the capital city.

We would like to underline, however, how difficult it is to take photographs around Cairo, whether in formal or informal areas. When photographing in the streets, it is common to get objections from pedestrians or the authorities. This is why, to avoid trouble, many pictures are taken from the car, or are not well framed due to the fact that we could not take the time and make it obvious that we were photographing.



¹ All information such as title, date and location can be found in the annex p. 226 - 228































Battling Informality

Poverty and informality are not new phenomena to Egypt. What a paradox it is that in a country with the highest rate of per capita housing production (Shawkat, Egypt's Housing Crisis, 2020), over half of the population does not live in adequate conditions. Over the years, politicians, architects, NGOs and more have tried to overcome them in various ways. Yet, the problem is still persistent, and does not seem to be lessening in seriousness. Perhaps experts who may have an impact on the “issue” of informality are looking at it across the wrong lens. If across the world, 85% of housing is built informally (McGuirk, 2014), does it not gain the merit of experts studying and understanding why it is so prominent? Maybe, as author of *Radical Cities* Justin McGuirk said, “favelas are not the problem of urbanity, but the solution?” (McGuirk, 2014)

Recent attempts at eradicating informality in Cairo

Informality has been a Cairene reality since the 1950's, and with every president since then came a different social housing program. To be more precise, as Yahia Shawkat states, perhaps it is more correct to call them *urban government housing*, “because not all of it has served a social purpose. Many of the housing units were not built for the poor but for designated target groups – usually those closest to the ruling regime or poor residents who happened to be in the way of urban gentrification” (Shawkat, Egypt's Housing Crisis, 2020). In fact, in 1978, there had been a general move towards buying rather than renting units, which turned housing into a commodity. The latter hence ruled out a great portion of the poor, who cannot compete with higher earners, as they neither have the money to, nor the right credentials to: applicants often must meet very discriminatory criteria, having a job in the formal sector being one of them (Shawkat, Egypt's Housing Crisis, 2020). From Hosni Mubarak's regime (1981-2011), to Abdel Fattah al-Sisi's (2014-present), two major projects were developed in an attempt to tackle Egypt's housing crisis. Mubarak's regime initiated the National Housing Program (NHP), which promised half a million housing units, and al-Sisi's doubled this target for his Social Housing

Program (SHP). Both programs were intended for the poor. Both, however, had elusive results due to inconclusive planning. The NHP ended up building 380'000 units between the years of 2005 and 2011, of which tens of thousands were standing empty on the year of their “patron's demise” (2011) (Shawkat, Egypt's Housing Crisis, 2020). The SHP resulted in even more vacancy, as out of the approximate 500'000 built units between the years of 2012 to 2018, more than half remain empty, and those that are not, were not necessarily delivered to poor families (Shawkat, Egypt's Housing Crisis, 2020). One of the problems with the thousands of units being built yearly, is that it is not clear who will end up living in them, and a very large portion of them remain vacant. Another one, is the futile planning: “there were thousands of completed or nearly completed units that applicants had rejected because of incomplete infrastructure. Others had already been allocated to beneficiaries, but either because of lack of services, transport, security or possible speculation, they had not moved into them” (Shawkat, Egypt's Housing Crisis, 2020).

With the goal being to rid Cairo of its informal areas all together, as al-Sisi proclaimed in 2016 “all slum residents should be relocated to adequate homes in two years, not three” (Shawkat, Egypt's Housing

Crisis, 2020), the main nemeses to the government interventions may be summarized in few points. First of all, applicants are subjected to strict application requirements that further hinder the least fortunate from being eligible. Secondly, the cost of construction, as low as it may be with government subsidies, remains too high for the 1st income quintile families. Hence, those that were able to overcome the first obstacle, found themselves burdened with great debts. Finally, having to be on state-owned land, they are often in remote areas of Greater Cairo, far from their place of work, not to mention their other social connections, and do not have access to transportation.

“If slum clearances and mass housing strategies did little to dent the housing deficit, it was because the government was treating the symptoms of urban poverty rather than the causes.” (McGuirk, 2014)

The following are two examples of new settlements built under Abdel Fattah Al-Sisi:

Bashayer al-Khayr (Fig 1) houses 30'000 families amounting to about 150'000 people in 1 square kilometer of *cookie cutter* housing blocks.

When one of the authors visited it back in 2018, it was as though the covid-19 pandemic had already struck and people were scared to come out of their homes. The streets were empty, sparkling clean, and a sterile ambiance reigned over the identity-devoid concrete blocks. To be fair, however, it is important to give credit to an implemented system that brought joy and economic benefit to its residents: Bashayer al-Khayr has institutions that train those who are interested in several fields, providing them in the end with a certificate. They are then trained electricians, mechanics, or other, and the certification allows them to attain better paying jobs. There are also workshops, mainly attended by women, where they learn to make crafts that are then sold.

Al-Asmarat (Fig 2) is not much dreamier (Chap. III), its residents live under heavy surveillance (as previously mentioned, the authors' motives were immediately questioned by the police upon entering the estate). On top of that, the rents are too high, forcing some residents into a second eviction, or a two-year prison sentence for protesting rent payments (Shawkat, Egypt's Housing Crisis, 2020). Needless to point out the same sterile ambiance that reigns.



Fig 1. Bashayer al-Khayr
© Mariam Adli, edited by authors



Fig 2. Al-Asmarat
© 2021 Nabky and Nasreldin

Similar issues arose in different parts of the world when governments tried eradicating informal areas. In Brazil's Rio de Janeiro, for instance, author of *Radical Cities* McGuirk explains that nearly a century of federal, state and municipal policies have failed to eradicate the social inequality of the *favelas* because “they erred too much in one direction or the other: they placed too much emphasis either on architecture (as with the mass housing programmes) or, conversely, on economic policies that ignored the spatial dimension altogether” (McGuirk, 2014).

Perhaps Mahmoud Riad, Egypt's first housing minister, was spot on when he exclaimed that “the people living in the slums cannot, in most cases, afford to pay an economic rent for properly built houses. In fact, as John Turner, a British architect who has been conducting research in the field of self-managed home and neighborhood building for decades (Turner, 1988), rightfully states, “their highest priority is for secure tenure, but it is unlikely to be for plastered masonry walls and ceilings, let alone for modern kitchenettes and w.c.s. These are extremely costly items, and unless furnished properly, their naked dinginess is often alien and unattractive while the honestly poor shack is often personal and warm.” (Turner, 1968). If building housing estates for slum-dwellers does not seem to work, what other solutions could there be?

The architect's role – finding a balance

Many of the downfalls of previous attempts at overcoming informality include economic and political aspects. This is because the solution has to act on all planes, and not just one. We believe that what McGuirk states about Brazilian *favelas* is applicable to informality in general: “there is no one solution to the social divisiveness of the *favelas*. Rather it needs to be approached with social measures tackling poverty and spatial interventions improving the quality of the urban fabric. Only a combined strategy, operating at a scale both of the individual *favela* and the entire city, can possibly succeed” (McGuirk, 2014). However, this paper will focus on what may be done as architects and urban planners. First of all, we must be clear on what is meant by overcoming informality. It is perhaps wrong to call it as such. In fact, we hope that this paper has demonstrated that there are many ingenious aspects in informal settlements and informality in general that architects, politicians, and anyone involved in city development should learn from. As University of Montreal professor Gilbert Renaud beautifully describes in an article he wrote about this dichotomy: informality is a seamless and unpredictable social force, an impulse, that outsmarts instrumental order to shatter the monotony imposed by formality and

find ways to draw out deviations from the culminations it was meant to abide by (Renaud, 1995). Magda Mostafa, architect and professor at the American University in Cairo, states “this is not a call to romanticize informal settlements, with their issues of safety, hygiene, lack of viable infrastructure, etc. However, when a built environment is self-financed, demand-driven, grows incrementally, is compact, has low-energy demands, is walkable, self-sufficient and provides a work-home proximity, how can it be viewed as a failed architecture? If anything, this list of characteristics describing informal settlements reads almost like a sustainability index” (Mostafa, 2014). She roughly summarized the laudable aspects in informal areas, and denounced those that are to be improved, which were more closely studied in the previous sections.

Keeping in mind that relocating residents of informal areas in ready-built units has shown little success, let us turn to experts who have discussed different methods, that of consolidating and upgrading the already existing slums, and that of participatory design. One of the earliest mentions of participatory design was made by John Turner. The main takeaways to underline are : “there is a grossly underestimated and underused potential in non-commercial, community-based and non-governmental organizations which assist and support the people

who already build the great majority of homes and neighborhoods in low-income countries”, and “government policies which attempt to compensate for the market’s failure to provide lower or even middle-income households by building housing projects must change from ready-made housing from a central source to supporting the efforts of self-managed, community-based organizations and their helpers in producing their own homes and neighborhoods” (Turner, 1988). In other words, we need to switch from a *supply* attitude to a *support* attitude. It is interesting to link Turner’s statements with Hassan Fathy’s, who in his book *Gourna, a Tale of two villages* outlines the benefits of supporting communities in self-building. He states “in the same way, to make use of the natural desire of the villager to build, we must apply ourselves to preparing the ground by creating an atmosphere or social climate in which building will flourish, and we must not waste our energy on the construction of buildings which, however smart or striking they may be, will be as sterile and unproductive as artificial flowers. Indeed, the seeds are already there in the ground, germinated and ready to push up to the surface; the plant has adapted itself over long centuries to the land, and will flower abundantly. We need only give it a little encouragement, a little weeding, a little hoeing, perhaps a sprinkling from the watering can. The least assistance from science, the smallest

encouragement from the government will, if intelligently given, be enough to bring about a rebirth of peasant initiative in building that will be infinitely more powerful than any ready-made government building program can be” (Fathy, 1969). His thoughts on simply demonstrating to self-builders how to build better structures with readily available and affordable local materials and tools is what an architect should do. It is crucial to use materials and tools that are readily available, as well as skill level that is attainable by the community. Because if not, once the external aid to the community is over, so will the “illusory feeling of progress and superiority”, and the residents will be left with deteriorated neighbourhoods that they are unable to fix (Fathy, 1969).

A solid example of this method is Francis Kéré’s Gando Primary School project, mentioned earlier in the paper. Although it was previously mentioned in the context of the advantages of building with local materials, it is significant to mention it again here. Through teaching new building techniques to his people with tools and material they can readily find, Kéré was able to empower his community as they had the knowledge required to maintain their buildings. They were also able to access to new jobs on construction sites, opening up a previously inexistent source of income (Kéré, 2013).

Another method that aims at bridging the gap between slums and the rest of the city is that of consolidating such neighborhoods, and treating them as part of the city. Doing so removes the stigmas tied to such areas, by encouraging visitors. Notable projects have been implemented in several parts of Latin America. For instance, in the mid 1900’s, the project of Brazilian architect and urban planner Carlos Nelson in Rio de Janeiro’s *favela* Bras de Pina is one of the first projects with the aim of “urbanizing favelas” (Ascensao, s.d.). Carlos Nelson worked with an NGO, and together with the community and social workers, designed a plan that would fit the residents’ needs. They decided on which houses to remove together, in order to open up walkways, improve circulation and create an overall healthier neighborhood. “It was the first time a *favela* had been treated as a piece of the city worthy of an architect’s attention, and not as a potential tabula rasa.” (McGuirk, 2014) By 1970, the neighborhood was completely integrated with the adjoining lower-middle class area. An important downside to this was that, as the area gained more affluence, older residents sold their homes to buy ones in other *favelas* (Ascensao, s.d.).

The *favela-bairro*, meaning slum-to-neighborhood, was another slum-upgrading project operating on multiple aspects at the same time, that

took place in 1995 (Nora, 2020). Its main focus was connecting the informal areas to the formal city. Staircases, roads and funiculars were added to facilitate mobility between the two areas. Attention was also given to public spaces, which were inserted in the crowded street-scape. Finally, “plazas and meeting platforms were used to create a sense of breathing space, but also to induce civic pride and encourage a sense of community values. [...] making the favelas look more like the rest of the city thus lessening the stigma attached to them” (McGuirk, 2014). The *favela-bairro* was successful in raising the perception of *favelas* in the urban imaginary. It boosted quality of life, civic pride, raised the value of property, and displaced very few inhabitants (McGuirk, 2014). Ten years later, technical experts were sent to check on the upgraded *favelas*, and rate them compared to control groups (*favelas* that had not been upgraded), only to realize that the standards had gone back to their original state. Three categories rated worse than the control groups: garbage collection, sewerage system and electricity, although residents were doing what they could to fix them when needed (Nora, 2020). This is like a testimony to what Hassan Fathy was saying about punctually aiding a community. Once the aid is over, the community is not able to sustain the same standards. Hence, it is crucial to either keep up regular maintenance, or only employ methods using skill and tools

that are attainable by the residents.

Finally, a very commendable project is one conducted in Columbia under Fajardo, Medellín’s mayor from 2004 to 2007. He came up with the bi-functional project of *library-parks*. Essentially, they were to tackle two main issues: that of inequality through education, hence the library, and that of violence, through the parks, which provides open spaces for citizens to reconnect (McGuirk, 2014). One of the most famous ones is Santo Domingo’s Biblioteca España (Fig 3). Situated on top of a hill, the library’s three towers attract gazes that have been subconsciously avoiding the slum-dominated hill for too long. And from the gaps between them, the visitors have a magnificent view of the city. Those towers act “as a beacon, signaling to the city as a whole” (McGuirk, 2014). More importantly, the 150 people who were rehoused were relocated within Santo Domingo, and given subsidies to cover the costs of adding an extra story to their new homes.

About the library-park projects, Medellín’s mayor stated that the main issue any politician or architect who will try to intervene will be the community’s lack of trust. “So you have to build confidence, and the way to build confidence is to make very small agreements with them.



Fig 3. Giancarlo Piretti's Biblioteca de España in Medellín
© Sergio Gómez

If you tell them they'll have a library-park, they won't believe you. But if you tell them we are going to define the design together of a small square or a small park, and in three months we'll come with the mayor and present it to you, and in six months we'll lay the first brick..." (McGuirk, 2014). The lesson to learn from this is that while undertaking a participative design project with the community, it is important to set little, attainable goals, in order to gain the people's trust little by little.

This section has illustrated different ways in which architects can intervene in order to enhance quality of life in existing informal areas, or equip communities with the skills needed to build a self-sustainable neighborhood. When it comes to upgrading slum areas, it is crucial to add infrastructure that connects the area to the rest of the city, promoting social inclusion and providing new economic opportunities. Another method that proved successful is to add a project that is simultaneously a symbol and functional, like the Biblioteca de España. Not only does it provide the residents of the area it is in with access to knowledge and a pleasant place to study, it also attracts others to the area, creating meeting opportunities for people from different corners of the city. It also demonstrates to the community that their wellbeing matters. In this case, as it is a public building, its maintenance will be taken care of.

When it comes, however, to upgrading infrastructure in neighborhoods, it is crucial to keep up regular maintenance, or employ methods that are feasible by the residents. Otherwise, after a few years, the area returns to its original state. Finally, as inhabitants of informal settlements are often self-builders, providing the community with tips to enhance their building method, and perhaps designing a master plan with the people's inputs may be the only necessary work for an architect. As Hassan Fathy said, it is best to provide the least possible assistance.

Beyond the Everlasting Dichotomy

Over one fifth of the world's population lives in informal settlements, because adequate and affordable housing cannot keep up the pace (United Nations Statistics Division, 2022). This truth applies to Egypt, and namely Cairo, its capital city as it encompasses a fifth of the Egyptian population. This paper demonstrated the profound entanglement between formality and informality in Greater Cairo, one cannot survive without the other. Attempts of ridding Cairo of its *ashwa'iyyat* by relocating its residents have proven very difficult and brimmed with issues, from economic to architectural ones. It is crucial to ameliorate the conditions in which slum-dwellers in Egypt live, as the poor structures, unsanitariness, and extreme density, puts the population at risk every day. Another side-effect, that has poisoned Cairo, and trickled down to villages across Egypt, is the devastating loss of architectural identity. Would there be a way of reintegrating traditional building methods and materials, while taking into account that the typical Egyptian *bayt* of older times is not adapted to the immense density of people that is present in Cairene informal settlements? Or must we accept the anachronisms of the *ashwa'iyyat* as the new Egyptian vernacular?

Should we be eradicating the decades old, self-sustainable *ashwa'iyyat* housing tens of millions of Cairenes and replacing them by new housing estates? Or should we be upgrading, and integrating them into the urban fabric? There is evidently not one answer to these questions, yet we will attempt to lay out several scenarios.

The *ashwa'iyyat* – a new vernacular?

Cairo has informal areas that are well inside the city fabric, and some of them are home to hundreds of thousands. Moving all the residents of such areas seems realistically unfeasible. First off, because we saw in the previous section that most often, the government housing projects built for slum-residents end up being too expensive for the poorest or simply unattainable by those who do not have a job in the formal sector. Consolidating such neighborhoods would be the most humane response. People would not be displaced from their respective homes that are close to their social connections and their work places. Of course, there are many problems in Cairo's *ashwa'iyyat*. The buildings taking up the entire plot (to maximize profit) result in very narrow streets where light and fresh air have difficulty circulating, but also emergency vehicles. There are also no public spaces or green areas for residents to enjoy. The government allocates very low budgets to public facilities such as school and infrastructure. Last but not least, residents are plagued with insecure tenure. Knowing they risk eviction at any time, it discourages them from investing in the upgrading of their building and area. As we saw in the previous sections, the *ashwa'iyyat* border formal parts of the city. An idea would be, just as Carlos Nelson

did back in the 1960's in Rio de Janeiro, engage in a discussion with the community about which buildings are to be taken down, in order to widen the streets and create more breathing space. If emergency vehicles can make it inside the informal area, they could transport patients to the hospital or clinic in the nearest formal area; we would be using their proximity as an advantage. Needless to say, by integrating the neighborhood in the city, and upgrading its living standards, the area will gain affluence and rents will go up. It is therefore crucial to provide sufficient economic opportunities as well as good connections to the city, to diversify income opportunities. Of course, as discussed before, one of the main characteristics of informal settlements is that a big portion of the population works in the area. Well, why not enhance their places of work. For instance, *Manshiyet Nasser*, one of the oldest Cairene informal settlements, has about 269'000 inhabitants, and a density of about 47'200 persons per square kilometer (Egypt: Greater Cairo, 2020). It is also known as *The Garbage City*, as its inhabitants recycle about 85% of Cairo's garbage (Bahagijo, 2019). They then make crafts of them and sell them. Unfortunately, they live in some of the poorest conditions, and their neighborhood, despite being declared suitable for upgrading by the government (El-Jesri, 2009), has major sewage and garbage collection problems, without noting

that it is located on an unstable bedrock that has caused a rockslide to kill 75 people in 2008. An imaginable beneficial public building that could be added to Manshiyet Nasser would be one where garbage can be properly collected and sorted. It could also have workshops and shops where inhabitants can produce their crafts and later sell them. Enhancing the infrastructure within the area, adding public spaces, and creating a proper place for residents to exhibit their crafts could attract not only Cairenes, but also tourists to the area. Not only would it boost the neighborhood's economy, it would also have improved the residents' quality of life.

This is one example for one of the Cairene informal settlements. In general, however, many *ashwa'iyyat* need proper connections to the rest of the city, as well as infrastructural and urban planning upgrading and de-densification. Public buildings could also be added in some of the areas, as it proved to be a successful way to promote social inclusion in Giancarlo Mazzanti's Biblioteca de España in Medellin, as it attracts visitors from all over the city, as well as tourists. The park around it also serves as a pleasant open space for the slum-residents and others to enjoy.

Foreseeing the *ashwa'iyat* of the new desert cities

Consolidating already existing *ashwa'iyat* is one thing, but why not proactively act upon the ones that will inevitably sprout around desert cities, which are getting more urbanized by the day? Another imaginable approach would be to initiate a housing complex by an emerging city, for instance the New Administrative Capital, and apply what was learnt by architects about self-building with the community. First of all, as John Turner rightfully stated, no one knows what the community needs, better than the community. As architects, we should pass on knowledge simply on how to build better, using the tools and materials that are readily available to them. This is what Francis Kéré has successfully done in Gando, and what Hassan Fathy preached. Buildings would be made out of mud-bricks or rammed earth, taking advantage of their thermal capacity. They are adapted to the local arid climate, and, paired with the yore traditional building methods, would require minimal additions to regulate the climate inside the building. The structures would come up incrementally, adapted to their owners' current needs and financial situation. Equipped with a new skill, the self-builders would be able to apply this endowment elsewhere, bringing them more sources of revenue. This method is a way to empower a community rather than make them dependent.

*Al-Qahirah*¹ – a harmonious amalgam

Al-Qahira, the City Victorious, is commonly referred to as *Misr*² by Egyptians, demonstrating the significant role it plays in their country. As for Egypt, it still goes by the name *Om al-Donia*³ in the entire Arab world. Informality tends to overshadow the many contributions Egypt has offered the world from ancient times to modern days. Today, an immense gap between rich and poor creates an overwhelming ambiance of inequality in the capital city.

Social work is a fundamental act, that intends to connect people together. However, it would be foolish to believe that all socio-economic classes could comfortably mix. In fact, referring to the *villages urbains*⁴, Yona Friedman states, that we cannot live, socially speaking, but in small groups. Yet we are attracted by the adventures promised by the crowds (Friedman, 2016). We tend to consider the *ashwa'iyat* as a single entity, yet they are all separate urban villages that could be self-sufficient if they were not segregated by the formal city. Provided with

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- 1 The Arabic word for Cairo, meaning “victorious”
 - 2 The Arabic word for Egypt
 - 3 The Arabic term for “mother of the world”
 - 4 Yona Friedman’s employed term for “urban villages”

the proper infrastructure, and adequate needs, the *ashwa'iyyat* could be a flourishing system, functioning as part of the whole. Hence why the aim is to create an environment where all social classes coexist on equitable grounds. Why disregard over half the population, while we could, as architects, learn their language so they could communicate their needs, which they understand better than anyone. To make *Al-Qahira* once again worthy of its name, architecture must find a way to diminish and deal with poverty, rather than helping in relocating it.

Appendix

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Urban fabric analysis

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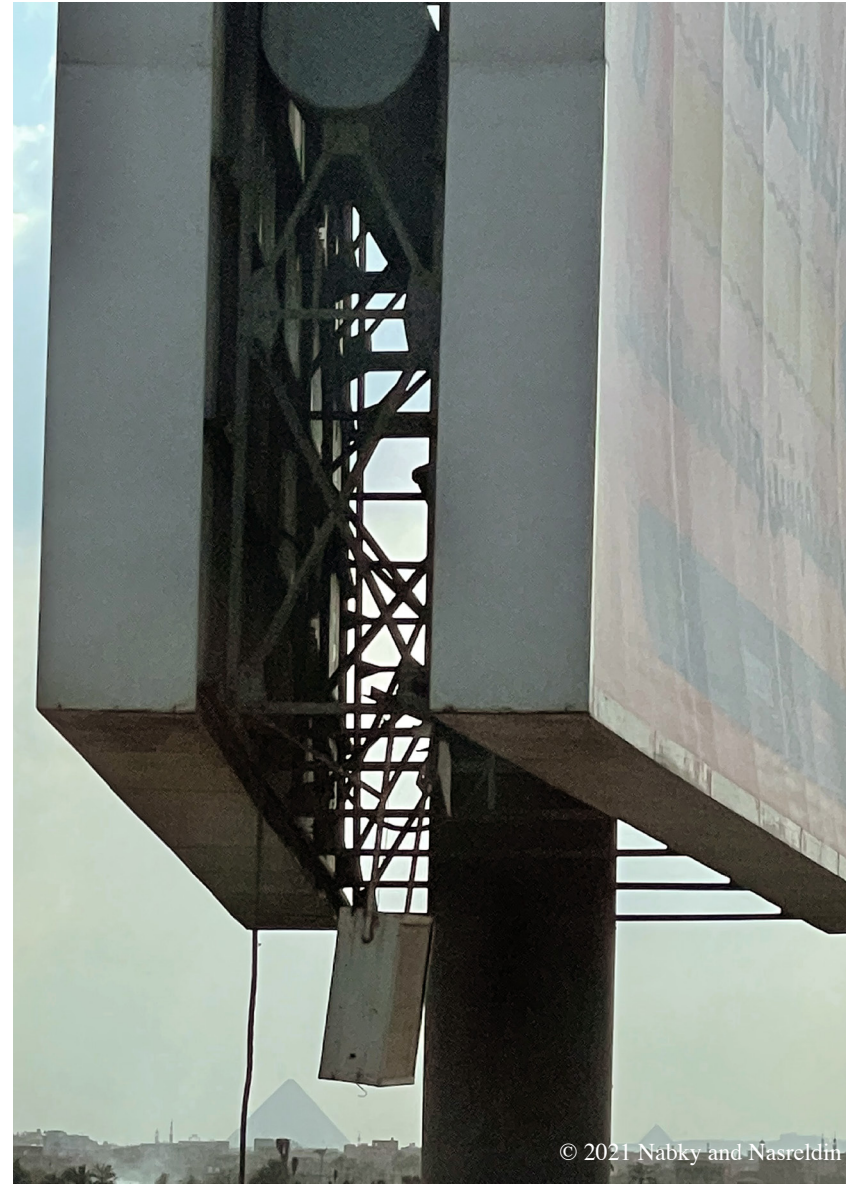
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