

Cairo from Above:

A Guide to Cairo's Informal Communities & Rooftop Practices

by

Yara Zaki Tawfik

A thesis
presented to the University of Waterloo
in fulfillment of the
thesis requirement for the degree of
Master of Architecture

Waterloo, Ontario, Canada, 2023

© Yara Zaki Tawfik 2023

Author's Declaration

I hereby declare that I am the sole author of this thesis.
This is a true copy of the thesis, including any required
revisions, as accepted by my examiners.

I understand that my thesis may be made electronically
available to the public.

Abstract

In Greater Cairo, Egypt, informal settlements have emerged as the predominant form of urbanization, accommodating over 40% of the city's population. Seventy-five percent of urban areas across Egypt are unplanned. For over fifty years, informal settlers have suffered from marginalization, government negligence, and socio-economic exploitation. Recent changes in planning regulations, political dynamics, and economic demands have led to disorganized urban fabric and inefficiency in streetscapes. In response to limited open space on the streets, informal settlers have turned to autonomous rooftop living.

This thesis aims to comprehensively document and shed light on the diverse rooftop practices within various informal settlements in Cairo. This research examines the role of rooftop spaces in Cairo's informal settlements as indicators of adaptation practices and urban dynamics, exploring their potential for community development within informal settlements.

The thesis emphasizes the significance of "architecture without architects", where rooftop architecture supplements the lack of basic social and economic services in dense informal settlements. Urban informality in Cairo is not a binary condition but rather embodies a range of degrees of formality. The study presents two concurrent concepts for dealing with Cairo's density: the concept of "cities within a city" or an archipelago model, and the notion of raising the ground where rooftops become dual spaces to street level.

Relying on fieldwork, the thesis acts as a city guide seen from above, uncovering the unseen aspects of Cairo, from its street level to its rooftop spaces. By presenting a catalogue of rooftop practices, the thesis challenges negative perceptions associated with these communities, showcasing their spatial creativity and ingenuity. Overall, it offers a layered narrative of Cairo's "invisible cities," emphasizing the significance of rooftops as evidence of residents' spatial agency fostering social and economic change in informal neighbourhoods.

Acknowledgments

To my supervisor, Lola Sheppard, thank you for your careful guidance over the past year. Your thoughtfulness have played a pivotal role in shaping the direction and depth of this research. Your expertise has consistently steered me towards a more nuanced understanding of the subject matter. Your mentorship has shaped not only this thesis but also my academic journey at Waterloo, and I am immensely thankful for your dedication. To my committee member, Rick Andrighetti, thank you for your unwavering support, and valuable insights regarding many of the drawings produced.

To my TRD II instructor and internal reader, Anwar Jaber, thank you for your expertise that have played a significance role in structuring the foundation of the thesis outline, providing further clarity and direction to the research journey. To my external, Mohammed Sooroor, thank you for your expertise in this topic and adding valuable comments.

I would also like to express my appreciation to Tracey Winton, my TRD I instructor, for her insightful teachings and impactful contributions to the early stages of this research.

To all those who have shared their wisdom, time, and encouragement with me along this path, I am profoundly grateful. Your contributions have enriched my understanding and enriched my experience. A special thanks to my family and friends, thank you for withstanding my endless rants about Cairo and pigeon towers. Thank you to everyone who has challenged my ideas and aided my writing.

Dedication

To my loving parents,
Your unwavering support and encouragement
have been the guiding lights throughout my
educational journey.

And to the resilient families who have made
their homes in informal settlements, forming
remarkable communities that inspire us all.
Your strength and unity are a testament to the
human spirit's resilience.

To the city of my childhood, Cairo, and
to those who envision a brighter future
for Egypt—one enriched with culture and
prosperity. May your collective efforts lead to
a flourishing tomorrow.

Table of Contents

iii	Author’s Declaration		
v	Abstract		
vii	Acknowledgments		
ix	Dedication		
xii	List of Figures		
xxii	Preface		
xxiv	Positionality		
1	1.0 Introduction: Informal Settlements		
	1.1 Urbanization and Informality in the Global South		
	1.2 Focus, Scope, and Research Question		
	1.3 Context of a Unique Physical Space		
	1.4 Problem Statement/Critique		
	1.5 Methodology and Book Structure		
15	2.0 Informal Settlements in the Global South		
	2.1 Marginality and Politics of the Informals		
	2.2 Addressing Challenges and Characteristics of Urban Informality		
	2.3 A Comparative Analysis of Informal Settlements: Nairobi to Cairo		
	2.4 A Spectrum of Informality		
	2.5 Morphology and Typology		
43	3.0 Context: The Emergence of Urban Informality in Egypt		
	3.1 An Anti-Glossary to properly define Informality in Cairo		
	3.2 Causes of Informality in Egypt	171	
	3.3 Cairo’s Urban Expansion and Rapid Growth	175	
		179	
			75
			4.0 A Guide to the Invisible Cities of Cairo
			4.1 Informal Settlements on State-Desert Land
			4.2 Informal Settlements on Cemeteries
			4.3 Informal Settlements on Agricultural Lands
			4.4 Informal Settlements on Deteriorated Historic Core
			4.5 Conclusion
			5.0 Cairo’s Rooftop Catalogue
			5.1 The role of rooftops in Cairo
			5.2 Roofs for Pigeon Towers
			5.3 Roofs as People’s Backyard/Satellite Dishes
			5.4 Roofs for Billboards
			5.5 Roofs for Future Growth
			5.6 Roofs for Working Surface/Storage
			5.7 Roofs for Urban Farming and Extension of a Home
			5.8 Roofs for Kite Competitions & Breeding Animals
			5.9 Roofs for Ramadan Nights
			5.10 Roofs for Mosques and Churches
			5.11 Roofs for Daycares and Playgrounds
			5.12 Roofs for Hostels
			6.0 Conclusion: Urbanism of Informality
			Celebratory Drawing of Rooftop Network
			Letters of Copyright Permission
			Bibliography
			Appendix

List of Figures

Figures by the author unless otherwise indicated

Front Matter Figures

1. *Fig. 0.1 World Map highlighting Egypt for context*
2. *Fig. 0.2 Modern Cairo. Residential Buildings on the Nile River with Pyramids of Giza.*
Photographed by Hassan Mohamed
3. *Fig. 0.3 Sketch of Cairo Map highlighting my home, and other informal settlements*
4. *Fig. 0.4 Plan of my Childhood Apartment Building and the neighbourhood of Heliopolis*
5. *Fig. 0.5 Flatbed of Artifacts and personal belongings from Home*

Introduction Figures

0. *Fig.1.0 Office Towers and Favelas - Rio de Janeiro, Brazil. By Adam Jones, Ph.D./Global Photo Archive/ Wikimedia Commons*
1. *Fig.1.1 Slums and Informal Settlements mapped across the Global South.*
2. *Fig.1.2 Number of people living in the Capital City, 2018*
Source: UN World Urbanization Prospects (2018)
3. *Fig.1.3 Densities in Cairo, Mumbai, and New York*
4. *Fig.1.4 Sample Figure Grounds of Informal and Formal Cities in Greater Cairo, Egypt. Google Earth*
5. *Fig.1.5 Egypt Map*

Chapter 2.0 Figures

6. *Fig.2.0 Map of different Variation of Informal Settlements across the Global South*
7. *Fig.2.1 Shift in Regimes.*
8. *Fig.2.2 Factors for the growth of informality.*
9. *Fig.2.3 Characteristics of Informal Settlements*
10. *Fig.2.4 Relationship of Capitalist Economy, Society, and the State. Illustration by author*
11. *Fig.2.5 Quiet Encroachment survival strategy.*
12. *Fig.2.6 Share of the urban population living in slums, 2018. Source: UN Human Settlements Programme*
13. *Fig.2.7 Map of the African content highlighting Cairo, Egypt vs Mukuru, Kenya.*
14. *Fig.2.8 Railway Tracks in Kibera, Nairobi, Kenya. By Thomas Jessica on Flickr*
15. *Fig.2.9 Manshiyat Nasser, Cairo, Egypt. Photographed by Ahmad Yahia*
16. *Fig.2.10 Informal Settlements on a conceptual field of informal/formal morphologies. Adapted from Dovey & Kamalipour, 2018.*
17. *Fig.2.11 Informal building rights and incremental growth (adapted from Kim Dovey)*

Chapter 3.0 Figures

18. *Fig.2.12 General Steps of Informal City Building. Based on Jota Samper's study on the development process of Medellin, Colombia*
19. *Fig.3.0 The City of the Dead from above showing a Pigeon Tower on the Roof. Photographed by Ahmad Yahia*
20. *Fig.3.1 Advertisements for a Gated Compound in New Cairo in the desert*
21. *Fig.3.2 A view of the rooftops in 'Islamic' Cairo with the typical clustering of satellite dishes. Jason L, Flickr*
22. *Fig.3.3 A view of the rooftops in Downtown Cairo - makeshift structures built on the rooftops of Cairo. Pablo Gonzalez, Flickr*
23. *Fig.3.4 Formal/Informal Dichotomy.*
24. *Fig.3.5 Processes of urbanization: From productive agrarian lands to complete occupation of plots. Google Earth Images.*
25. *Fig.3.6 How Informal Settlements came about in Egypt?: Timeline of Events.*
26. *Fig.3.7 Urbanization in Egypt. Timeline of Population growth. Population data extracted from World Bank.*
27. *Fig.3.8 Cairo in 1952, Nasser in Power*
28. *Fig.3.9 Cairo in 1967, Six Day War (El-Naksa)*

29. *Fig.3.10 Cairo in 1973, The Victory and the effects of the Open Door Policy*
30. *Fig.3.11 Egypt's Population from 1995 till 2015.*
31. *Fig.3.12 Cairo's chronological maps tracing its growth from circa 1300 till 2016.*
32. *Fig.3.16 Interior view of Mashrabiya in Coptic Cairo Church.*
33. *Fig.3.13 Islamic Cairo circa 1300*
34. *Fig.3.14 Babylon Fortress. By Néfermaât*
35. *Fig.3.15 Exterior of Mashrabiya in Coptic Cairo.*
36. *Fig.3.17 Khedival Cairo circa 1880*
37. *Fig.3.18 The Citadel and tombs in Cairo, Egypt in the late 1800s. By Antonio Beato*
38. *Fig.3.19 Cairo's French district, Downtown Cairo, 1900-1910. Source: Egyptian Streets*
39. *Fig.3.20 An early morning in Downtown Cairo, 2021. Photographed by Matthew Raef*
40. *Fig.3.21 Cairo in 1970. By author*
41. *Fig.3.22 Heliopolis Neighborhood showing light rail system. Photographed by Andrew Shenouda.*
42. *Fig.3.23 Self-built residential building on agrarian land in Boulaq.*
43. *Fig.3.24 Cairo in 1990s*
44. *Fig.3.25 Cairo in 2016*
45. *Fig.3.26 Informal (left) Ard El Liwa next to the formal neighborhood of Mohandiseen and Dokki. Google Earth.*
46. *Fig.3.27 Satellite Map of Greater Cairo Region showing formal, informal and desert cities. Google Earth.*
47. *Fig.3.28 View of a family's home in Boulaq. The roof terrace offers a safer playground for children than the street. Photographed by Marie Piessat, April 2017*

Chapter 4.0 Figures

48. *Fig.4.0 Map of Greater Cairo Region (Cairo, Giza, Qalyubia) highlighting the informal settlements visited. Scale 1:60000*
49. *Fig.4.1 Map of Greater Cairo Region highlighting the types informal settlements. By Author. Adapted from David Sims, 2010*
50. *Fig.4.2 Figure ground of the four types of informal settlements in Cairo (bright yellow shows pigeon towers).*
51. *Fig.4.3 Residential Infill taken from a pigeon tower in the City of the Dead, Cairo. Photographed by author*
52. *Fig.4.4 Collage showing the different ground floor conditions and challenges of different informal settlements visited in Cairo.*
53. *Fig.4.5 Figure ground and aerial view of Manshiyat Nasser, showing Pigeon towers in yellow (The Garbage City).*
54. *Fig.4.6 Site Plan, showing Manshiyat Nasser (The Garbage City) settlement with its districts.*
55. *Fig.4.7 MN3 district with fruits and vegetables markets. An entrance to Manshiyat Nasser District*
56. *Fig.4.8 A daycare on a rooftop in Manshiyat Nasser (The Garbage City) Photographed by _zadnych_granic on Instagram*
57. *Fig.4.9 Aerial view of Manshiyat Nasser (The Garbage City) showing many Pigeon Towers by _zadnych_granic on Instagram*
58. *Fig.4.10 View taken from a pigeon tower in Manshiyat Nasser looking down to the roof of the building*
59. *Fig.4.11 View of*
60. *Fig.4.12 View taken from a pigeon tower in Manshiyat Nasser showing the garbage sorting in a designated area*
61. *Fig.4.13 Typical Streets of Manshiyat Nasser (The Garbage City)*
62. *Fig.4.14 A typical building typology in Manshiyat Nasser (The Garbage City)*
63. *Fig.4.15 Buildings in Manshiyat Nasser (The Garbage City)*
64. *Fig.4.16 Axonometric Drawing showing the two parallel realms (Ground Condition vs Rooftop condition) in Manshiyat Nasser (The Garbage City).*
65. *Fig.4.17 Shredded dry plastics to be fed into another machine for processing.*
66. *Fig.4.18 Pigeon Tower loft space with the owner in Manshiyat Nasser (The Garbage City)*
67. *Fig.4.19 Figure ground and aerial view, showing high density residential infill in cemeteries (The City of the Dead).*
68. *Fig.4.20 Site Plan of Eastern Cemeteries of the City of the Dead, showing high density residential infill in cemeteries and major tombs and monuments in black.*
69. *Fig.4.21 Site Plan, showing the City of the Dead with its different cemetery names and sizes .*
70. *Fig.4.22 Typical above ground cemetery entrance in the City of the Dead*
71. *Fig.4.23 View from a pigeon tower in the City of the Dead showing the cemetery structures and the informal settlement infill in the background*

72. Fig.4.24 View from a pigeon tower in the City of the Dead showing the cemetery structures and the informal settlement infill in the background
73. Fig.4.25 A typical street in the City of the Dead
74. Fig.4.26 View of the Pigeon Tower on the rooftop of a residential building in the City of the Dead
75. Fig.4.27 View of kids flying kits taken from the roof of a residential building in the City of the Dead
76. Fig.4.28 Pigeon Tower on the roof of a residential building in the City of the Dead
77. Fig.4.29 Pigeon tower, a historic tomb, and people inhabiting rooftops in the City of the Dead
78. Fig.4.30 View from main street on the edge of the City of the Dead
79. Fig.4.31 City of the Dead Typical Tomb Structures. Scale 1:100
80. Fig.4.32 View of historic cemeteries and others with the informal residential infill in the background. Screenshoted from "A walkthrough through The City of the Dead" youtube video by Chris Must List
81. Fig.4.33 A facade of a typical cemetery in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video by Chris Must List
82. Fig.4.34 A typical Howsh inside a cemetery in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
83. Fig.4.35 An entrance to a typical cemetery in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
84. Fig.4.36 Kids playing amongst the cemeteries in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
85. Fig.4.37 A typical Howsh inside a cemetery in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
86. Fig.4.38 Kids burial tombs inside the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
87. Fig.4.39 An entrance to a typical cemetery in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
88. Fig.4.40 A bedroom of the gatekeepers of the cemetery in the City of the Dead. Screenshoted from "A walkthrough through The City of the Dead" youtube video Chris Must List
89. Fig.4.41 Figure ground and aerial view, showing high density residential infill on subdivided agrarian land in Ard El Liwa.
90. Fig.4.42 A Feddan plot measures 4,200 square meters.
91. Fig.4.43 Before and after Figure ground of land subdivision process: From productive agrarian land to complete occupation of plots
92. Fig.4.44 Ground Floor Plan. Scale 1: 150
93. Fig.4.45 Typical Floor Plan. Scale 1: 150
94. Fig.4.46 Typical Floor Plan. Scale 1: 150
95. Fig.4.47 Site Plan, showing Ard El Liwa and the remaining agrarian land and urban voids next to the formal neighborhood.
96. Fig.4.48 A herd of sheep in the streets of Ard El Liwa
97. Fig.4.49 A typical narrow street showing traces of agriculture in Ard El- Liwa
98. Fig.4.50 A typical narrow street showing affordable markets in Ard El-Liwa
99. Fig.4.51 Remaining agricultural lands in Ard El-Liwa
100. Fig.4.52 Residential buildings with a pigeon tower on the roofop in Ard El-Liwa
101. Fig.4.53 A youth soccer field in Ard El Liwa
102. Fig.4.54 Urban voids for parking lots and rug cleaning services
103. Fig.4.55 Workshops in Ard El-Liwa
104. Fig.4.56 The barrier between the formal city of Mohandeseen and Ard El-Liwa
105. Fig.4.57 Site Plan, showing Boulaq El Dakrou, the remaining agrarian land, and urban voids next to the formal neighborhood.
106. Fig.4.58 Urban voids for parking lots that was previously an agricultural land in Boulaq El-Dakrou
107. Fig.4.59 Streets of Boulaq El-Dakrou showing kids' swings in front of supermarkets
108. Fig.4.60 The barrier between the formal city of Mohanseen and Boulaq El-Dakrou showing pedestrian bridges
109. Fig.4.61 A Mosque and Church on the rooftop of one of the residential buildings in Boulaq El Dakrou along the Ring Road
110. Fig.4.62 Pigeon tower on the roof of one of the residential buildings in Boulaq El Dakrou. Photograph by Pablo
111. Fig.4.63 Density in Boulaq El Dakrou of the residential buildings compacted together with no setbacks
112. Fig.4.64 A pigeon tower in Boulaq El Dakrou on the roof of a residential building
113. Fig.4.65 A coffee shop in Boulaq El Dakrou

114. Fig.4.66 A youth soccer field in Boulaq El Dakrou
115. Fig.4.67 Old photograph of Ezbet El Nakhl during 1940s.
116. Fig.4.68 Site Plan, showing Ezbet El Nakhl, the remaining agrarian land, and Heliopolis formal neighborhood.
117. Fig.4.69 A church in the informal settlement of Ezbet El-Nakhl built out of red brick
118. Fig.4.70 The only school in Ezbet El Nakhl and its surrounding conditions
119. Fig.4.71 Godo Rooftop in Ezbet El-Nakhl. Photographed by Mohamed Mamdouh
120. Fig.4.72 Kids playing in the streets amongst the garbage
121. Fig.4.73 Garbage Recycling neighbourhood in Ezbet El-Nakhl
122. Fig.4.74 Godo Rooftop in Ezbet El-Nakhl. Photographed by Mohamed Mamdouh
123. Fig.4.75 Rooftop daycare run by a school and NGO in Ezbet El-Nakhl.
124. Fig.4.76 Kids playing amongst the garbage recycling neighbourhood in Ezbet El-Nakhl.
125. Fig.4.77 Garbage Recycling donkey cart and pigeon towers on rooftops in the background in Ezbet ElNakhl
126. Fig.4.78 Figure ground and aerial view, showing rooftop dwellers in Downtown Cairo. By Marie Piessat
127. Fig.4.79 Site Plan, showing Downtown Cairo and the Nile River.
128. Fig.4.80 View of the roof terrace of a building in Mouinra district. Several families share the terrace together. By Marie Piessat
129. Fig.4.81 New social housing project in downtown Cairo in Maspero Triangle
130. Fig.4.82 Tahrir Square before and after the renovations. Photograph by
131. Fig.4.83 Several families share the terrace together in Downtown Cairo. Photograh by
132. Fig.4.84 A rooftop cafe in Downtown Cairo. Photograph by Marie Piessat
133. Fig.4.85 Talaat Harb Square in Downtown Cairo
134. Fig.4.86 Dahab Rooftop Hostel in Downtown Cairo. Photograph by owner
135. Fig.4.87 The music group Sol Diese rehearses on the roof of the buildings of one of the members in the Mounira district. Photograph by Marie Piessat
136. Fig.4.88 Billboards on rooftops in Downtown Cairo. Photographed by Dan on Flicker
137. Fig.4.89 Sectional Zoning in most Informal Settlements in Cairo
138. Fig.4.90 Horizontal Zoning in most Formal/planned neighborhoods in North American cities and Cairo.

Chapter 5.0 Figures

139. Fig.5.0 Cairo's Rooftop Catalogue.
140. Fig.5.1 Screenshot from arte documentary showing the two realms (Ground vs Roof)
141. Fig.5.2 Screenshot from arte documentary showing the two realms (Ground vs Roof)
142. Fig.5.3 View of the roof terrace of a building in Mouinra district. Several families share the terrace together. By Marie Piessat
143. Fig.5.4 Rooftop in Ezbet El-Nakhl sometimes used as a prayer space for residents during fagr prayer. Photographed by Mohamed Mamdouh
144. Fig.5.5 Screenshot from arte documentary showing pigeon tower owner directing his pigeons
145. Fig.5.6 Six storey Pigeon Tower in Manshiyat Nasser on the roof.
146. Fig.5.7 Pigeon tower in City of the Dead.
147. Fig.5.8 Pigeon tower in Manshiyat Nasser (The Garbage City), Koka's Pigeon Tower.
148. Fig.5.9 Plan of a 10x10 Pigeon Tower loft space.
149. Fig.5.10 Exploded axonmetric drawing showing Pigeon tower construction process.
150. Fig.5.11 Photographs of Physical Model at 1:50 of two pigeon towers on rooftops.
151. Fig.5.12 Pigeon Tower in Manshiyat Nasser. Photographed by Andreas Trenker
152. Fig.5.13 Pigeon Towers in Manshiyat Nasser (Garbage City). Photo by DoctorToonz on reddit
153. Fig.5.14 Weight training for a Nasr City resident. Photographed by Marie Piessat. April 2018
154. Fig.5.15 The music group Sol Diese rehearses on the roof of the building of one of their members, in the district of Mounria. It is the only place they have found to work! By Marie Piessat
155. Fig.5.16 Roof used for satellite dishes
156. Fig.5.17 Billboards on rooftops in Downtown Cairo. Photographed by Dan on Flicker
157. Fig.5.18 Roof used for Billboards
158. Fig.5.19 An informal building typology with exposed structure and rebars. Manshiyat Nasser, Cairo.
159. Fig.5.20 Roof for future expansion
160. Fig.5.21 Photograph Typical Building Typology in Manshiyat Nasser. Roof used as storage/working surface
161. Fig.5.22 Diagram of a typical building typology in Manshiyat Nasser. Roof used as storage/working surface
162. Fig.5.24 Newspaper Article Quoting "A Green Roof. Sayam transforms building roofs to urban farms"
163. Fig.5.23 Hydroponic urban farming on the roof of a mosque in El-Basatin. Photographed by Marie Piessat.

164. Fig.5.25 Diagram of a typical green roof by residents
165. Fig.5.26 An occupied rooftop with cows in Manshiyat Nasser. Photographed by Marie Piessat
166. Fig.5.27 Newspaper Article Quoting “Hand made paper kites for recreation during Ramadan”
167. Fig.5.28 An occupied rooftop with pigs eating compost in Manshiyat Nasser. Photographed by Marie Piessat
168. Fig.5.29 Diagram of the occupied rooftop in Manshiyat Nasser
169. Fig.5.31 Newspaper Article Quoting “Godo spreads joy with the Ramadan atmosphere for the sixth year in a row”
170. Fig.5.30 A family owned renovated rooftop in Ezbet El Nakhl, Cairo. Photographed by Mohamed Ayman Godo
171. Fig.5.32 Diagram of Godo’s rooftop in Ezbet EL-Nakhl
172. Fig.5.33 Interior View of the Ramadan tent on Godo’s rooftop. Photographed by Mohamed Ayman Godo
173. Fig.5.34 Aerial View of Godo’s rooftop. Photographed by Mohamed Ayman Godo
174. Fig.5.36 View of the walls of the roof painted with calligraphy by the residents. Photographed by Mohamed Ayman Godo
175. Fig.5.37 View of the Ramadan tent on the second floor of the rooftop. Photographed by Mohamed Ayman Godo
176. Fig.5.35 Aerial View of Godo’s rooftop. Photographed by Mohamed Ayman Godo
177. Fig.5.38 Overall view of the street and the roof in the neighbourhood. Photographed by Mohamed Ayman Godo
178. Fig.5.39 Mosque and Church on a rooftop on of the illegal buildings in Boulaq El Dakroul along the Ring Road. Photographed by Author
179. Fig.5.40 Diagram of the Mosque and Church on a rooftop.
180. Fig.5.41 A daycare on a rooftop in Manshiyat Nasser (The Garbage City) Photographed by _zadnych_granic on Instagram
181. Fig.5.42 A daycare on a rooftop in Ezbet El-Nakhl. Screenshots from a YouTube video about SOS NGO work in Ezbet El-Nakhl.
182. Fig.5.43 Diagram of a daycare on the roof.
183. Fig.5.44 Dahab Rooftop Hostel, Downtown Cairo. Photographed by the owner
184. Fig.5.45 Layout of Dahab Rooftop Hostel, Downtown Cairo
185. Fig.5.46 A view of Dahab Hostel Rooftop in Downtown Cairo. Photographed by owner
186. Fig.5.47 A view of the second floor of Dahab Hostel. Downtown Cairo. Photographed by owner
187. Fig.5.48 A view of the second floor of Dahab Hostel with Satellite Dishes. Photographed by owner
188. Fig.5.49 A seating area on Dahab Hostel Rooftop. Shading made out of palm thatch. Photographed by owner

Chapter 6.0 Figures

189. Fig.6.0 Two pigeon towers beside residential buildings with children on the roof. Photographed by Ahmad Yahia
190. Fig.6.1 Celebratory drawing of a network of rooftop urban informality

Appendix Figures

191. Fig.7.0 A street in the City of the Dead, showing Pigeon Tower on residential building.
192. Fig.7.1 Pigeon Tower on rooftop of a residential building in the City of the Dead.
193. Fig.7.2 Closeup of a Pigeon Tower in the City of the Dead, Greater Cairo, Egypt.
194. Fig.7.3 Aerial view of the City of the Dead taken from the Pigeon Tower.
195. Fig.7.4 “Salaka”
196. Fig.7.6 “Nadara”. A device used to capture Pigeons.
197. Fig.7.5 Pigeon Tower Structure.
198. Fig.7.7 View from the Pigeon Tower Loft space.
199. Fig.7.8 Aerial view of the City of the Dead taken from the Pigeon Tower.
200. Fig.7.9 Pulleys from the “Nadara” to catch pigeons.
201. Fig.7.11 View from the top of the Pigeon loft showing the Citadel and Historic Cairo
202. Fig.7.13 Pigeons feeding in the loft
203. Fig.7.14 A trapdoor to access the Pigeon Loft
204. Fig.7.10 Interior of the Pigeon loft looking at “the binoculars”
205. Fig.7.12 Interior of the Pigeon loft looking at neighbouring Pigeon Towers
206. Fig.7.15 View taken from the top of the Pigeon Loft looking at Manshiyat Nasser
207. Fig.7.16 KOKA’s Pigeon Tower in Manshiyat Nasser. Taken from the ring road.

208. Fig.7.17 Street View of the entrance of Manshiyat Nasser showing Pigeon tower on rooftop
209. Fig.7.18 Interior view of the building’s first floor showing piles of recycled plastic ready to be sold.
210. Fig.7.19 Closeup of KOKA’s Pigeon Tower in Manshiyat Nasser (The Garbage City)
211. Fig.7.20 A plastic recycling facility located on the third floor of the building. Manshiyat Nasser (The Garbage City)
212. Fig.7.22 An interior view of KOKA’s guest space with windows, seating, and a kitchenette
213. Fig.7.21 Pigeon Tower staircase with bracing structure. Wood painted in blue.
214. Fig.7.23 “Salaka” in KOKA’s Pigeon Tower
215. Fig.7.24 “Nadara” or a watch tower in KOKA’s Pigeon loft
216. Fig.7.26 “abl eswed” kind of pigeons
217. Fig.7.28 A typical home of one of KOKA’s Pigeons
218. Fig.7.29 An Australian Pigeon
219. Fig.7.25 An interior view of the “nadara” to control the nets for capturing pigeons
220. Fig.7.27 “Salaka” in KOKA’s Pigeon Tower
221. Fig.7.30 View of the Citadel taken from the top of KOKA’s Pigeon loft
222. Fig.7.31 Two neighbouring Pigeon Towers in the City of the Dead. Photographed by Ahmad Yahia
223. Fig.7.32 A Pigeon Tower on a rooftop of a residential building in the City of the Dead. Photographed by Ahmad Yahia
224. Fig.7.33 An extension of a home on the rooftop of a residential building in the City of the Dead. Photographed by Ahmad Yahia
225. Fig.7.34 Kid’s playground built using lumber and then painted.
226. Fig.7.36 Kids playing on the roof of their apartment building in the City of the Dead. Photographed by Ahmad Yahia
227. Fig.7.35 A mosque on a rooftop of a residential building
228. Fig.7.37 Kites in the sky amongst Pigeon Towers. Photographed by Hania Shehab
229. Fig.7.38 Sketch of a 10x10 Pigeon Tower loft.
230. Fig.7.39 Structure of 10x10 Pigeon Tower
231. Fig.7.40 Sketch of bracing structure of 10x10 Pigeon Tower
232. Fig.7.41 Godo’s rooftop in Ezbet El-Nakhl. Wooden Pergola. Photographed by Mohammad Godo
233. Fig.7.42 Godo’s rooftop Ezbet El-Nakhl. Painted walls with Calligraphy and re-used tires as seats. Photographed by Mohammad Godo
234. Fig.7.43 Godo’s rooftop in Ezbet El-Nakhl. Ramadan Tent and use of palm thatch. Photographed by Mohammad Godo
235. Fig.7.44 Exterior View of Dahab Hostel Rooftop. Photographed by Hostel Owner
236. Fig.7.45 View of one of the seating areas on the rooftop of Dahab Hostel. Photographed by Hostel Owner
237. Fig.7.46 View of the second story of Dahab rooftop Hostel. Photographed by Hostel Owner
238. Fig.7.47 Thank you Card given to all interview participants.



Fig.0.1 World Map highlighting Egypt for context



Fig.0.2 Modern Cairo. Residential Buildings on the Nile River with Pyramids of Giza. Photographed by Hassan Mohamed

Preface

Growing up in a city framed by the iconic Pyramids of Giza and the Nile River, I developed an unwavering appreciation for Egypt's rich heritage and civilization. However, in the past five decades, Cairo has experienced the most challenging period in its history as it witnessed immense population growth, which has led to the proliferation of informal settlements. Despite these harsh socioeconomic conditions, the resilience and resourcefulness of the Egyptian people have been evident. This thesis aims to demonstrate how they have adapted and sustained their livelihoods in these self-built settlements.

My personal journey took a significant turn when I moved from Egypt to Canada. I had always held a strong interest in exploring Cairo's self-built settlements. Growing up in Cairo, I was immersed in a unique architectural environment where informal settlements coexisted around formal areas. However, the people and the places within informal settlements remained largely invisible. I resided in a formal neighborhood, Heliopolis (Fig. 0.4), near the presidential palace, where the built environment was pristine. Yet, as I navigated Heliopolis' streets, traces of informality became apparent in the vibrant streets.

Gradually, I came to realize how often informal settlements were encountered during commutes. These micro cities and communities, existing between the formal neighborhoods for over 50 years, were revealed to me (Fig. 0.3). The process of writing this book has deepened my understanding of various cultural practices among Cairo's residents, showcasing their ability to adapt and evolve in response to changing circumstances throughout history.

Regrettably, both Egyptians and outsiders often harbor negative perceptions of informal settlements in Cairo, considering them undesirable conditions that should be eradicated. However, my perspective underwent a drastic change following fieldwork in some informal neighborhoods in December 2022. I discovered elements of persistence, solidarity, creativity, effective problem-solving, successful business models, mutual care, and strong social bonds within these communities. I documented some of these self-built and unseen cities, leading me to ingenious rooftop communities. This thesis seeks to challenge stereotypes and offer a more profound understanding of these vibrant and innovative neighborhoods.

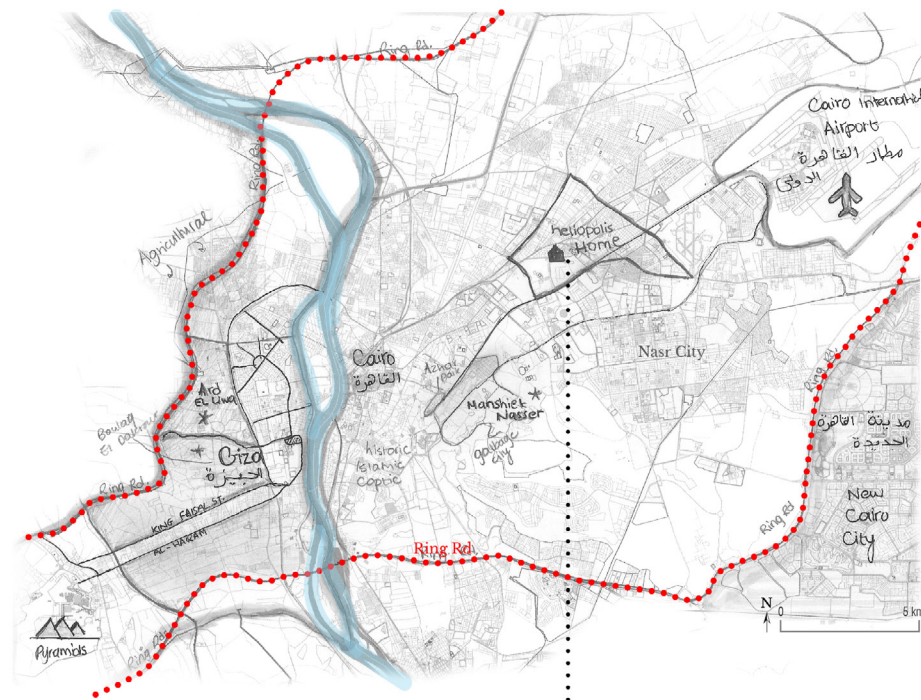


Fig.0.3 Sketch of Cairo Map highlighting my home, and other informal settlements



Fig.0.4 Plan of my Childhood Apartment Building and the neighbourhood of Heliopolis

Positionality

I acknowledge my perspective is rooted in my upbringing in a formal neighborhood, Heliopolis. (Fig 0.5) While I possess a comprehensive understanding of Cairo's broader urban context, I recognize my perspective as an outsider of these informal settlements, including Manshiyat Nasser (Garbage City), Al-Quarafa (The City of the Dead), Ard El-Lewa, Boulaq El Dakrou, and Ezbet El-Nakhl, which are the primary focus of this research. This distinction is pivotal as it has significantly influenced my approach to this study, affording me the opportunity to bring fresh perspectives and an open mindset to my research, and to engage with these informal settlements in a manner that respects and acknowledges their unique characteristics and experiences. It is within this context that I undertake this investigation.



Fig.0.5 Flatbed of Artifacts and personal belongings from Home.

Introduction: Informal Settlements

1.0



Fig.1.0 Office Towers and Favelas - Rio de Janeiro, Brazil. By Adam Jones, Ph.D./Global Photo Archive/Wikimedia Commons

1.1 Urbanization and Informality in the Global South

According to UN figures, one-sixth of the world's population—or close to one billion people—now reside in slums.¹ By 2030, the number is anticipated to double.² This makes slums or informal settlements the most common form of urbanization on the planet. However, categorical terms like “slum” can hide important cultural and socioeconomic differences among low-income communities. These communities, which go by a variety of names, including informal or non-formal cities, squatter settlements, or shantytowns, vary greatly in size, character, age, and degree of political and social organization.³ They can be found in both rural and urban settings due to urbanization, though they are increasingly connected to the world's largest cities, particularly in Latin America, Africa, and Asia.⁴ (Fig. 1.1) The emergence of informal urban settlements in city centers and on their outskirts is caused by both migration and a type of “pirate urbanism,” which doesn't conform to zoning or service regulations of the city.⁵ Increased urbanization is a significant concern for countries in the Global South as this rapid urban growth poses challenges for both policymakers and the urban population, especially in areas where infrastructure and essential services are lacking. Informal settlements share some characteristics: inadequate housing, insufficient living space, insecure land tenure, and lack of access to basic services, especially clean water, and sanitation.⁶ Informal settlement is broadly defined as the incremental, unauthorized, and self-organized production of new urban neighborhoods. Such settlements have become the dominant mode of absorbing rural-to-urban migration, providing affordable housing solutions for over a billion people worldwide.⁷ Even though they are invisible to most of us, informal settlements represent one of humanity's biggest challenges. Yet, they provide great insight into how cities develop and innovate. They are a widespread form of city-making. There have been more than 260 informal settlements mapped in 147 cities, 102 countries and 5 continents across the world.⁸ (Fig. 1.2) The population map (Fig. 1.2) shows the population of the capital cities across the world, where Greater Cairo, Egypt falls amongst the highest in urban population with 22 million people.⁹



Fig.1.1 Slums and Informal Settlements mapped across the Global South.

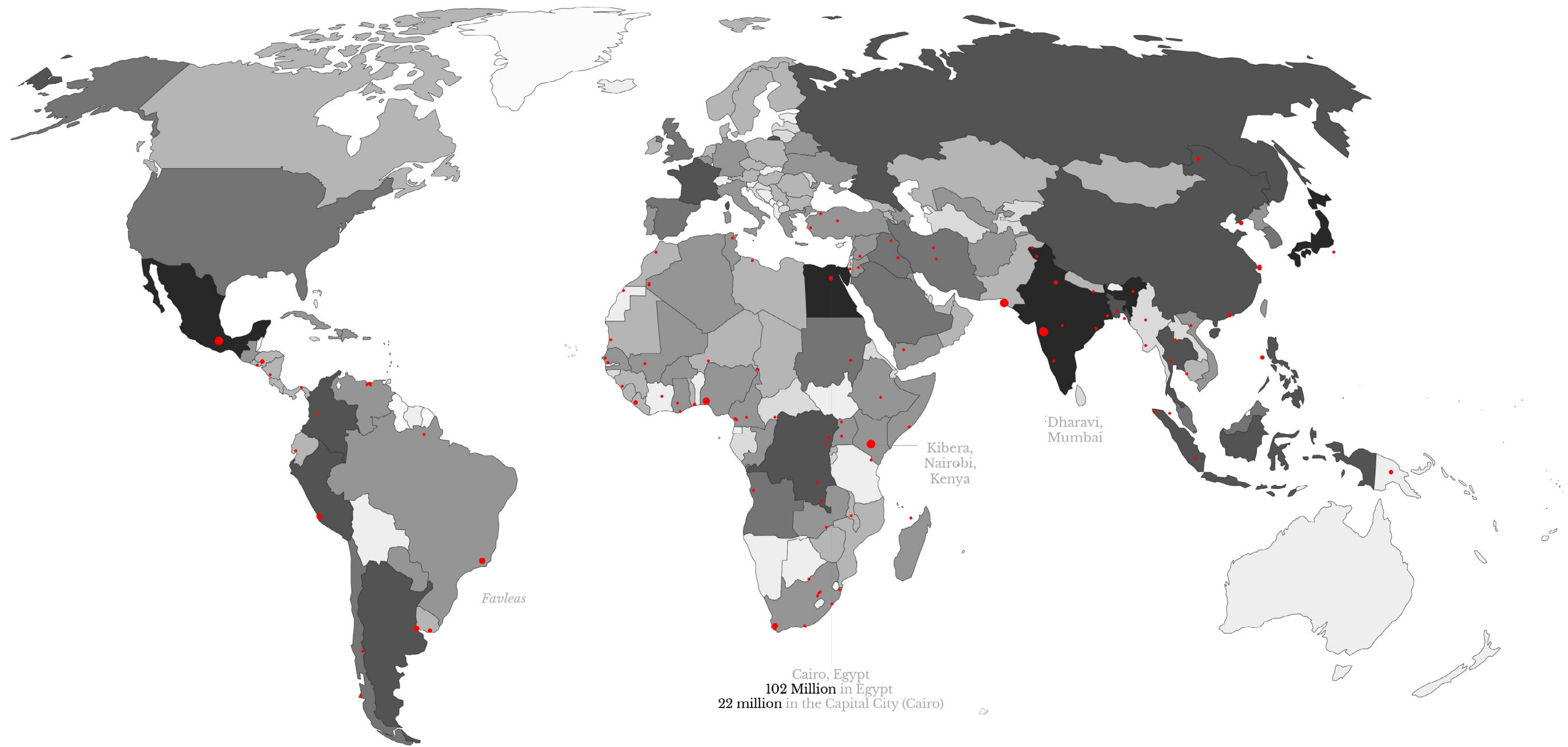


Fig.1.2 Number of people living in the Capital City, 2018
 Source: UN World Urbanization Prospects (2018)



1.2 Focus, Scope, and Research Question

Cairo is Egypt's largest city and its capital. Egypt is home to more than 100 million people, and about 20% of them live within the boundaries of *Greater Cairo Region*. (Fig. 1.5) This thesis focuses on informal settlements within Greater Cairo, Egypt (Fig. 1.5), where a significant proportion of the population resides. According to a recent report¹⁰, the population residing in informal settlements within Greater Cairo stands at 8.614 million individuals. This significant figure accounts for approximately 40% of the Greater Cairo population. Greater Cairo has one of the highest population densities in the world, with 20,800 people per square kilometer at its peak making it close to Mumbai¹¹ and higher than New York.¹² A clear distinction in population density is observable when comparing informal and formal urban areas within Cairo. (Fig. 1.4) It is evident that there is a lack of public and open space in many informal settlements, leading residents to make use of rooftops as their primary open and public areas.

Greater Cairo Region (GCR) includes the Governorate of Cairo, the cities of Giza and Imbaba in the Governorate of Giza located to the west of the Nile River, and the city of Shoubra El Kheima in the Governorate of Qalyubiya to the north of Cairo. (Fig. 1.6)



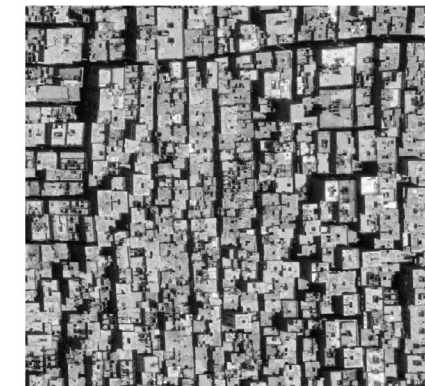
Fig.1.3 Densities in Cairo, Mumbai, and New York

The thesis acts as a city guide seen from above, uncovering the unseen aspects of Cairo, from its street level to its rooftop spaces. (Fig. 1.4) In a city marked by density in informal settlements. The thesis asks:

How do rooftop spaces in Cairo's informal settlements indicate adaptation practices and urban dynamics, and can be utilized for community development?

INFORMAL DENSITY

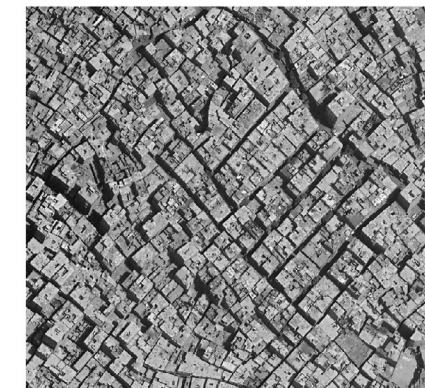
FORMAL DENSITY



BOULAQ EL DAKROUR, CAIRO



NEW CAIRO, CAIRO



MANSHIYAT NASSIR, CAIRO



NASR CITY, CAIRO



EZBET EL NAKHL, CAIRO



HELIOPOLIS, CAIRO



Fig.1.4 Sample Figure Grounds of Informal and Formal Cities in Greater Cairo, Egypt. Google Earth

1.3 Context of a Unique Physical Space

Cairo is the capital of Egypt, and the largest metropolitan area in Africa, the Middle East, the Arab world, and the 15th largest city in the world. As of 2023, the overall Egyptian population is estimated to be 105 million people, with the Greater Cairo Region (dark gray area in Fig. 1.5) accounting for about 22 million.¹³ The Greater Cairo Region includes three governorates: Cairo, Giza, and Qalyubiya. Cairo (*Al Qahirah*) means “The vanquisher” in Arabic, it is indeed one of the few cities in the world that was able to stand the test of time. Cairo occupies an area of about 528 square kilometers in Northern Egypt, 120 km west of the Gulf of Suez and Suez Canal, 165 km south of the Mediterranean Sea, and lies on the banks of the Nile River near the Nile Delta.¹⁴ (Fig. 1.5) Approximately 96 percent of Egypt’s entire land area is desert, leaving a scarcity of grasslands.¹⁵ Consequently, the available arable land comprises merely about three percent of the total area. Despite its limited size, this fertile land sustains an average of eight persons per acre (20 per hectare) and is cultivated multiple times throughout the year. As Egypt receives no significant rainfall, except along the Mediterranean coast, all agricultural land is irrigated. The total irrigated area within the valley is about 3 million hectares, roughly the size of Netherlands.¹⁶ Cultivation ends and the desert begins abruptly both to the east and the west of the Nile Valley. The ancient Greek historian Herodotus called Egypt the “gift of the Nile”. Indeed, the country’s rich agricultural productivity is one of the region’s major food producers. However, present-day Egypt is largely urban. The Nile Valley, which runs over 1,100 kilometers from Aswan in the south to the Mediterranean in the north, contains almost all of Egypt’s population and is the center of all economic activity.¹⁷ The valley varies in width from two to three kilometers from the south at Aswan to twenty kilometers at Cairo, and to the North, the delta fans out to form a large flat, triangular fertile plain, almost like a lotus flower.

This geography helped shape Egypt’s informal settlement patterns, which are mainly condensed along the valley. Practically all the country’s population is crammed within this configuration which means that compact and high-density living is the norm to be closer to the fertile land. As seen in (Fig. 1.5), along the Nile, the population density is one of the highest in the world, with almost 95% of the population living on 4 percent of the land area.¹⁸

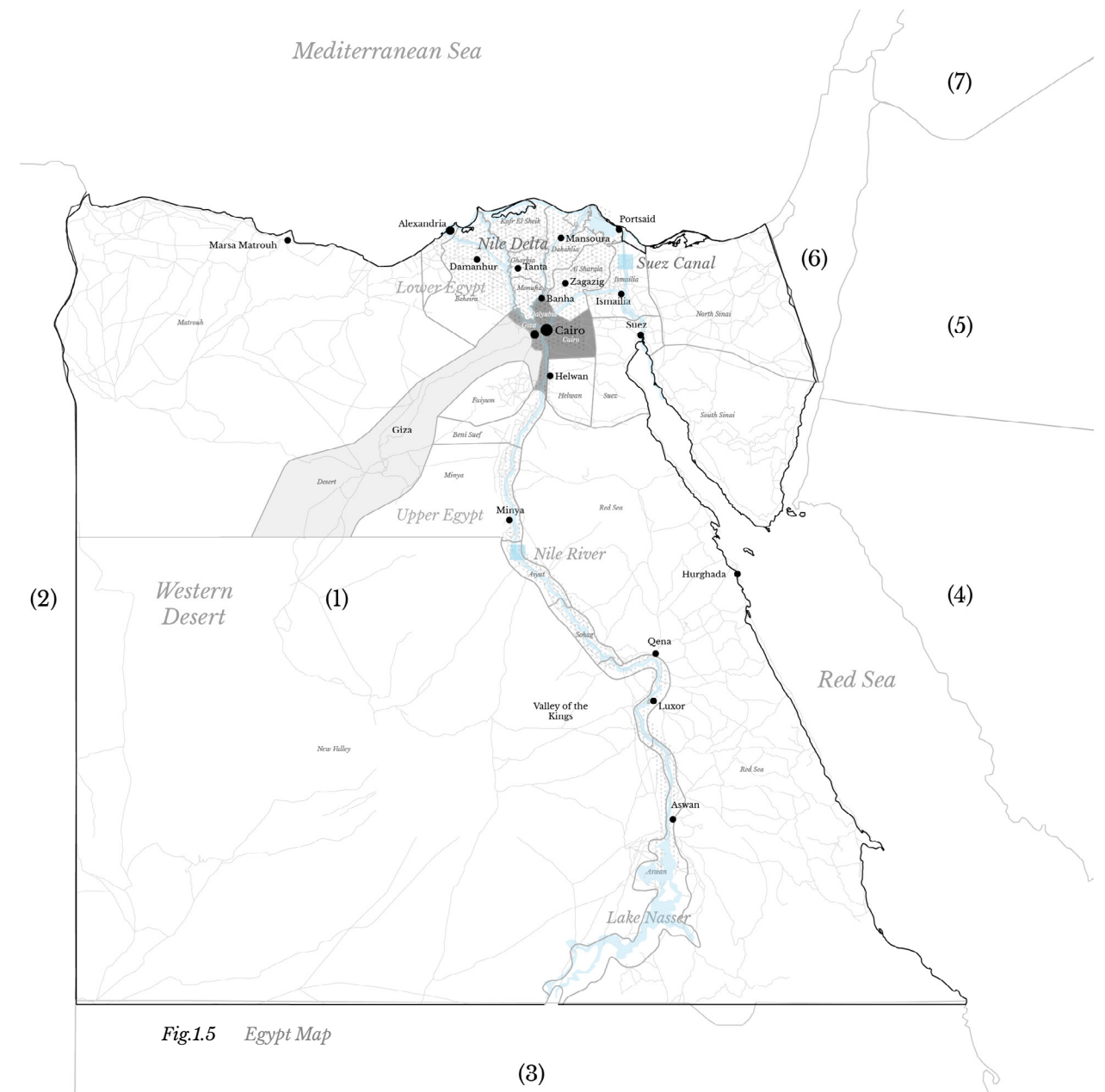


Fig.1.5 Egypt Map

- (1) Egypt (1,002,450 Sq. Km - 105,411,158 million)
- (2) Libya
- (3) Sudan
- (4) Saudi Arabia
- (5) Jordan
- (6) Israel-Palestinian Occupied Territories
- (7) Syria
- (8) Lebanon



	Cairo Governorate (Capital)	Giza Governorate	Qalyubia Governorate	Greater Cairo Region
Total Area	3,085 Sq. Km	13,184 Sq. Km	1,124 Sq. Km	1,002,450 Sq. Km
Population 2023	10,269,285 million	9,540,616 million	1,687,169 million	Around 22,000,000 million

1.4 Problem Statement/Critique

1.4.1 Formal/Informal Dichotomy

Discussions surrounding informality have predominantly followed a binary framework of formal/informal, regular/irregular, or legal/illegal distinctions. This often ties government and the law to formality or aligns the Global North with formality and the Global South with informality. However, ethnographic research frequently reveals the coexistence of formality and informality.²² Scholars are increasingly pointing out that these two concepts are always interwoven. Areas such as the economy, human settlements, and politics aren't solely defined by institutional structures, but are also influenced by personalized actions and transactions. Even seemingly formal domains incorporate informal practices, while highly informal domains are also impacted by formal agreements and procedures. The formal and informal are two intertwined modes of interaction and performance.

1.4.2 Problem Statement

We should not look at informality as social anarchy, or as the castoffs of globalization.¹⁹ An informal city has its own institutions, which have developed extra legally to fill globalization's gaps. It has its own hierarchies and leaders, its own markets, its own economic order that is superimposed and interlinked with the formal economy.²⁰ We should recognize the inherent strength of the informal city, which flows from its social adaptability. How then can the informal city perceived by those who see and hear about it from the other side of the spectrum: the formal?

Informal architecture is vernacular architecture that addresses the lack of affordable housing. Informal settlements are one of the best examples of adaptability and incremental growth. They develop through a bottom-up process and demonstrate a level of community participation that is rarely seen in planned developments. Their morphology is an outcome of the negotiations between the different decision-makers of the settlement.²¹

1.5 Methodology and Book Structure

The methodology of this thesis encompasses fieldwork, site visits, watching documentaries focusing on specific communities in Cairo, conducting interviews with residents from selected informal communities, analyzing Arabic news articles, and utilizing mapping techniques. The introduction presents the topic of Informality in Cairo through facts and statistics. The second chapter is a literature review that extends beyond Cairo's boundaries to the Global South to gain broader insights to better define informality in Cairo.

With a renewed and focused lens, the third chapter addresses the context of urban informality in Cairo and positions informality in Cairo to be on the formal side of the spectrum. The third chapter examines the root causes of this phenomenon in Cairo, which leads to the emergence of rooftop dwellers.

Subsequently, the fourth and fifth chapters form two interconnected parallel realms that coexist to explain the socio-economic challenges faced by many informal cities in Cairo. The first realm explores the idea of "cities within a city" or an urban archipelago model, which sheds light on the circumstances faced by marginalized urban populations in Cairo and leads to the second realm. The second realm involves the exploration of rooftops, which function as dual spaces to the ground floor, providing an escape from the chaos of daily life. Chapter four serves as a guidebook, offering insights into the invisible cities that exist within Cairo. On the other hand, chapter five acts as an expansive rooftop catalog, presenting a detailed account of the various activities and functions that take place on rooftops throughout Cairo's invisible cities.

The conclusion of the thesis primarily focuses on learning from the creative endeavors of the community in terms of self-sufficiency. The conclusion imagines an interconnected world of urban informality on the rooftops of Cairo that stems from the people's architecture.

Endnotes

- 1 UN-Habitat (2018). SDG Indicator 11.1.1 Training Module: Adequate Housing and Slum Upgrading. United
- 2 Ibid.
- 3 Werthmann and Beardsley, “Improving Informal Settlements.”
- 4 Dovey et al., “Towards a Morphogenesis of Informal Settlements.”
- 5 Ibid.
- 6 Ibid.
- 7 Ibid.
- 8 “Atlas of Informality.”
- 9 Hannah Ritchie and Max Roser (2018) - “Urbanization”. Published online at OurWorldInData.org. Retrieved from: ‘<https://ourworldindata.org/urbanization>’ [Online Resource]
- Shehayeb, “Cairo’s Informal Areas Between Urban Challenges and Hidden Potentials.”
- 10 Rania Hanafi and Salah Gharab, “Al-Ahram Newspaper:”
- 11 “Demography | Mumbai Suburban District, Government of Maharashtra | India.”
- 12 Bureau, “Understanding Population Density.”
- 13 “Central Agency for Public Mobilization and Statistics (CAPMAS).”
- 14 “Nile River | Delta, Map, Basin, Length, Facts, Definition, Map, History, & Location | Britannica.”
- 15 “Egypt - Agriculture, Fishing, Nile | Britannica.”
- 16 Sims, Understanding Cairo. Page 26
- 17 Ibid. Page 28
- 18 Ibid.
- 19 Hernández, Kellett, and Allen, Rethinking the Informal City. Page 128
- 20 Ibid.
- 21 Turner and Fichter, “Freedom to Build, Dweller Control of the Housing Process.” Page 154
- Davis, Planet of Slums. Page 27
- Dionne, “A Review of Canadian Homelessness Data, 2023.”
- 22 Smart and Koster, “Beyond the Formal-Informal Dichotomy.”

Informal Settlements in Global South:

2.0

2.0 Introduction

By examining different forms and variations of informality in various regions of the Global South, this chapter concludes that informality can be understood as a spectrum. This viewpoint will be supported through the examination of diverse informal settlements globally, comparing their characteristics and forms. Compared to informal settlements in Sub-Saharan Africa and other settlements in Latin America, Cairo's informal settlements will be redefined. Informality in Cairo is not a binary concept but rather a continuum, encompassing a range of degrees or levels of formality in the urban context, this exploration situates informal neighborhoods in Cairo to exist on a spectrum that spans from being informal to gradually acquiring formal characteristics.

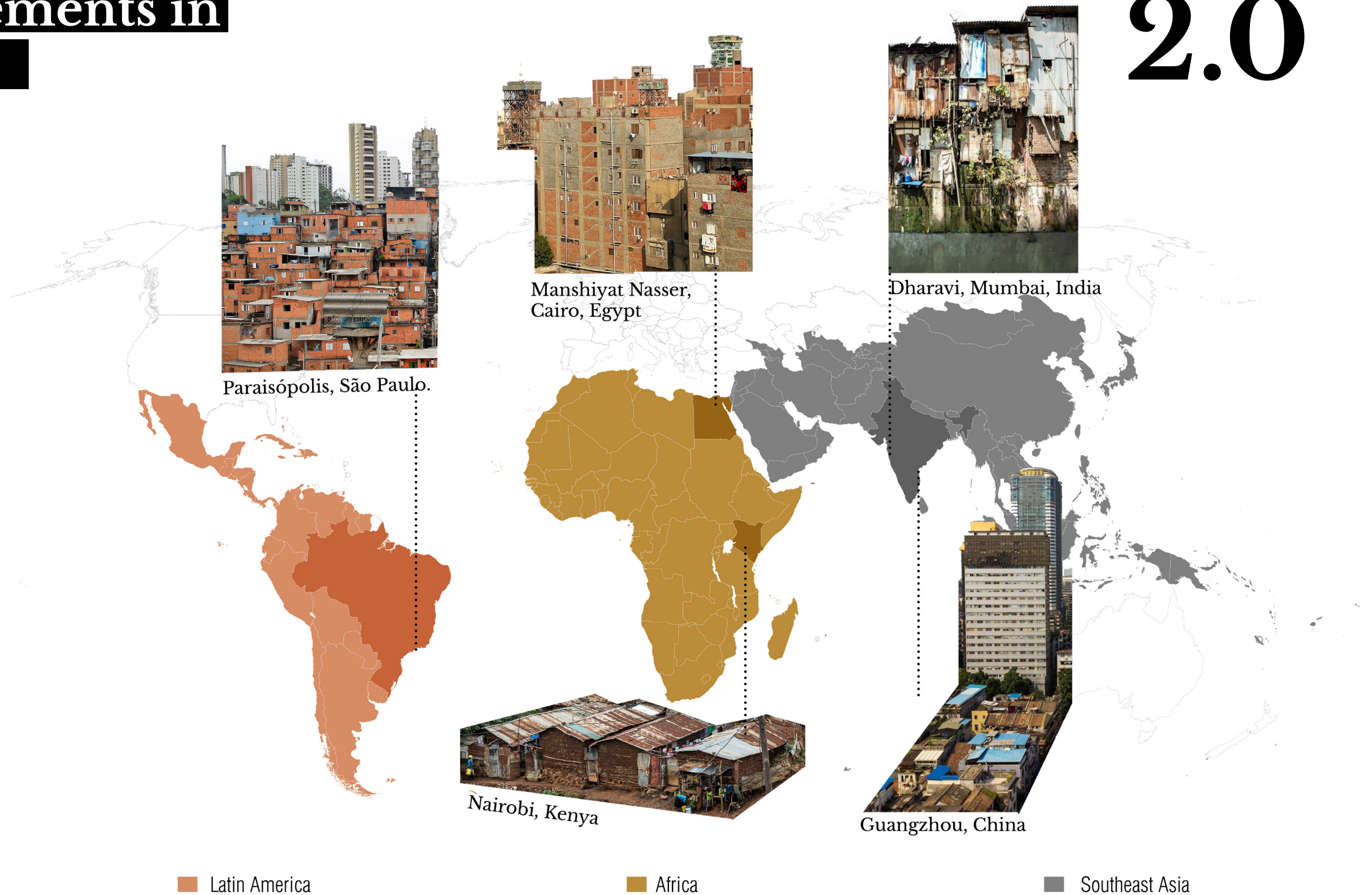


Fig.2.0 Map of different Variation of Informal Settlements across the Global South

2.1 Marginality & Politics of the Informals

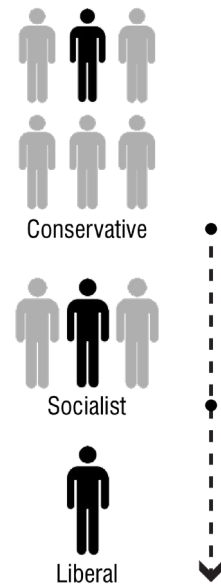
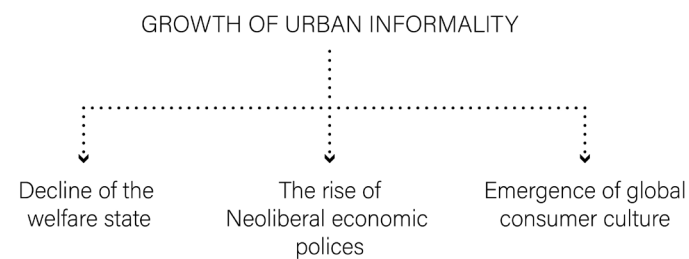


Fig.2.1 Shift in Regimes. Illustration by author

The earliest developed literature regarding urban informality may come from sociology. The book “Urban Informality: Transnational Perspectives from the Middle East, Latin America, and South Asia” aims to challenge the dominant Western understanding of informality as a problem to be solved, instead it frames it as a complex and dynamic aspect of urban life. Asef Bayat’s essay in this book talks about the socio-political frameworks of urban informality and explores the relationship between globalization and the emergence of informal economies in the Global South. Bayat argues that the rise of informal economies is not simply because of poverty or underdevelopment, but rather a response to the changing economies and political conditions of globalization. (Fig. 2.4) He identifies three key factors that have contributed to the growth of informality.¹ (Fig.2.2) First, is the decline of the welfare state, second, the rise of neoliberal economic policies, and lastly, the emergence of global consumer culture. The historic shift from socialist and populist regimes to liberal economic policies has led to a considerable erosion of the social contract, collective responsibility, and former welfare-structures. (Fig.2.1) Thus, millions of people in the Global South who once depended on the state must now survive on their own. A reduction of spending on social programs has meant shrinking access to decent education, healthcare, urban development, and government housing.

Fig.2.2 Factors for the growth of informality. Illustration by author



The push for privatization led to significant layoffs, with no clear indication of how it would stimulate the economy or generate alternative employment opportunities. According to the World Bank, in the early 1990s, as countries in Latin America and the Middle East transitioned to market economies after socialism, formal employment decreased by 5 to 15 percent.² The increasing inequality of the 80s was, in part, due to privatization. The government was selling off state assets, which are owned by a wealthier subset of the population, thereby increasing the gap between the rich and the poor. As a result, many of the once-educated, middle class (professionals, government employees, students, etc.) have been pushed into the ranks of the urban poor in labor and housing markets.

Urbanization
Poverty
Land Teure issues
Informal economy
Lack of affordable housing
Political Instaility and conflict

Fig.2.3 Characteristics of Informal Settlements

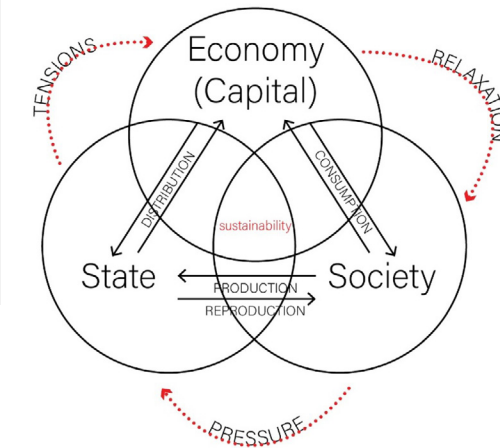


Fig.2.4 Relationship of Capitalist Economy, Society, and the State. Illustration by author

Bayat then argues that eventually this new structuring has contributed to the growth of vast new populations of marginalized people in third world cities. (Fig. 2.3) The new population of the marginalized includes the unemployed, the partially employed, casual laborers, street-subsistent workers, street children, and members of the underworld-groups that have been interchangeably referred to as “urban marginals.” (Fig 2.5)³

The sociological examination of urban marginality dates to 19th century Europe. The term appears to have been used first by Robert Park, one of the key scholars in the Chicago School of urban sociologists, in his 'Human Migration and the Marginal Man' (1928) For him, marginal man was a man on the margin of two cultures and two societies which never completely fused.⁴ The marginal man is a migrant in the city, one who retains his original culture, and is not integrated in the new society. But this state is not entirely negative. In fact, in contrast to the current prevailing perceptions, Park sees something positive in this marginal man: he is the one who might initiate change and innovation in his society.

Following Robert Park, thinkers like Everett Stonequist (1935) pushed this notion of marginality further into the psychological domain, describing marginal man as displaying a double personality that carries both rural and urban attributes.⁵ The French sociologist, Emile Durkheim, was particularly keen on their "anomie". Anomie is a social condition where there is a disintegration or disappearance of the norms and values that were previously common to society. The concept thought of as normlessness, where Durkheim discovered through research that anomie occurs during the following periods of drastic and rapid changes to the social, economic, or political structures of society. According to Durkheim, it is a transition phase where the values and norms common during one period are no longer valid. Such conceptualization of the marginal character profoundly influenced the later understanding and studies of migration and poverty in the 1950s and 1960s. Thus, it became a principal model with which to examine and understand rural-urban migration, migrant's behavior, and poor people's housing in major cities in transition, like Cairo.

Bayat then talks about the "survival strategy" which the marginals adopt to change their lives. He implies that although the poor are powerless, they don't wait for fate to determine their lives. Rather, they are active in their own way to ensure their survival. The notion of "*Quiet Encroachment*" describes the silent, prolonged, but pervasive advancement of ordinary people in relation to the powerful, and the former's ability to survive and improve their lives.⁶ They escape their struggles without clear leadership, ideology, or structured organization. It becomes a survival strategy and everyday resistance. (Fig.2.5) Bayat writes about the concept of marginality and the socio-political theories around the term, Bayat argues that marginality may not be a curse, it can and does serve as an opportunity. A space where those who cannot afford the cost of the 'normal' where the majority can survive.⁷

Quiet Encroachment refers to non-collective, but prolonged direct action by individuals and families to acquire the following basic necessities of life in a quiet and unassuming, yet illegal, fashion:

1. Land for Shelter
2. Urban Collective Consumption
3. Informal Work
4. Public Space

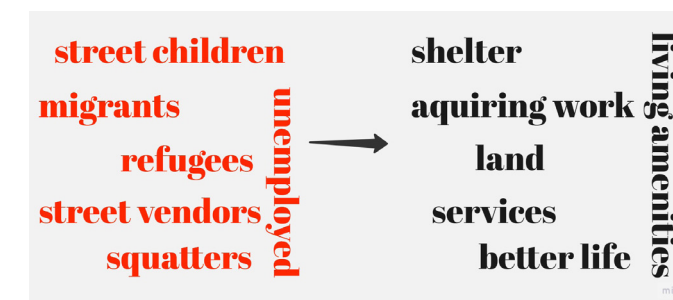


Fig.2.5 *Quiet Encroachment survival strategy. Illustration by author*

2.2 Addressing Challenges and Characteristics of Urban Informality

2.2.1 “Slums” vs “Informal/Squatter Settlements”

UN-HABITAT defines a slum household as a group of individuals living under the same roof in an urban area who lack one or more of the following:

1. Durable housing of a permanent nature that protects against extreme climate conditions.
2. Sufficient living space which means no more than three people sharing the same room.
3. Easy access to safe water in sufficient amounts at an affordable price.
4. Access to adequate sanitation in the form of a private or public toilet shared by a reasonable number of people.
5. Security of tenure that prevents forced evictions.

The definition of “slums” focuses on their environmental and physical qualities of living (QoL) aspects.⁸ A slum displays the worst physical factors of a built environment that lacks many factors that are considered crucial to a healthy living environment, for example, the lack of sewage collection, water supply, toilets, and personal space. In slums, makeshift shacks serve as shelter instead of proper houses or buildings. On the other hand, the term “informal/squatter settlements” refers to the political state and how the government perceives them, as they are constructed without permits on state land.⁹ However, it’s important to note that being labeled as informal settlements does not necessarily mean they are slums. Not all informal settlers are squatters, either. Squatting is understood as the opposite of ownership, and squatters are often seen as free-loaders. But the majority of residents in informal settlements have either bought the land – or house – from someone or are in many cases renting. This is the case in some of Cairo’s settlements. Informal Settlements in North Africa or Latin America are structurally enclosed using in situ concrete and red bricks. In 2014, 23% of the urban population in South Africa were living in shacks, which are built poorly out of tin and corrugated metal with other materials.

Therefore, a slum is a condition that describes a settlement. As Melbourne University professor Kim Dovey points out, “informality is not a condition, but a process.” An informal settlement can start with a “slum” condition but gets upgraded by building permanent structures and homes. Contrary to popular misconception, there are no specific areas within Cairo’s informal city that fit the typical stereotype of a “Third World slum.” The characteristics commonly associated with shack-built slums found in many developing regions are only observed in small pockets of the city, often on public rights of way or recently occupied desert areas. The majority of the informal settlements in Cairo do not conform to this slum definition.

Quality of living standards in urban centers is an important measure of wellbeing. One metric of living standards is the share of the urban population living in slum households. Based on the UN Human Settlements Programme, the map (Fig 2.6) shows the share of urban population living in slums across the globe. Based on the data from early 2000s, the share of the urban population living in slums in Egypt was 40 percent. However, based on recent data¹⁰, (Fig 2.6), most countries, in Latin America and Asia, including Egypt, has between 10 to 30% of urban populations living in slum households (some Slightly higher).¹¹ Slum households were most prevalent across the Sub-Saharan Africa; most had more than half of urban populations living in slum households, and some (such as Sudan, South Sudan, and the Central African Republic) had more than 90%. This shows the variations and complexity of this phenomenon across the globe, and emphasizes that Cairo’s informal settlements are not slums.

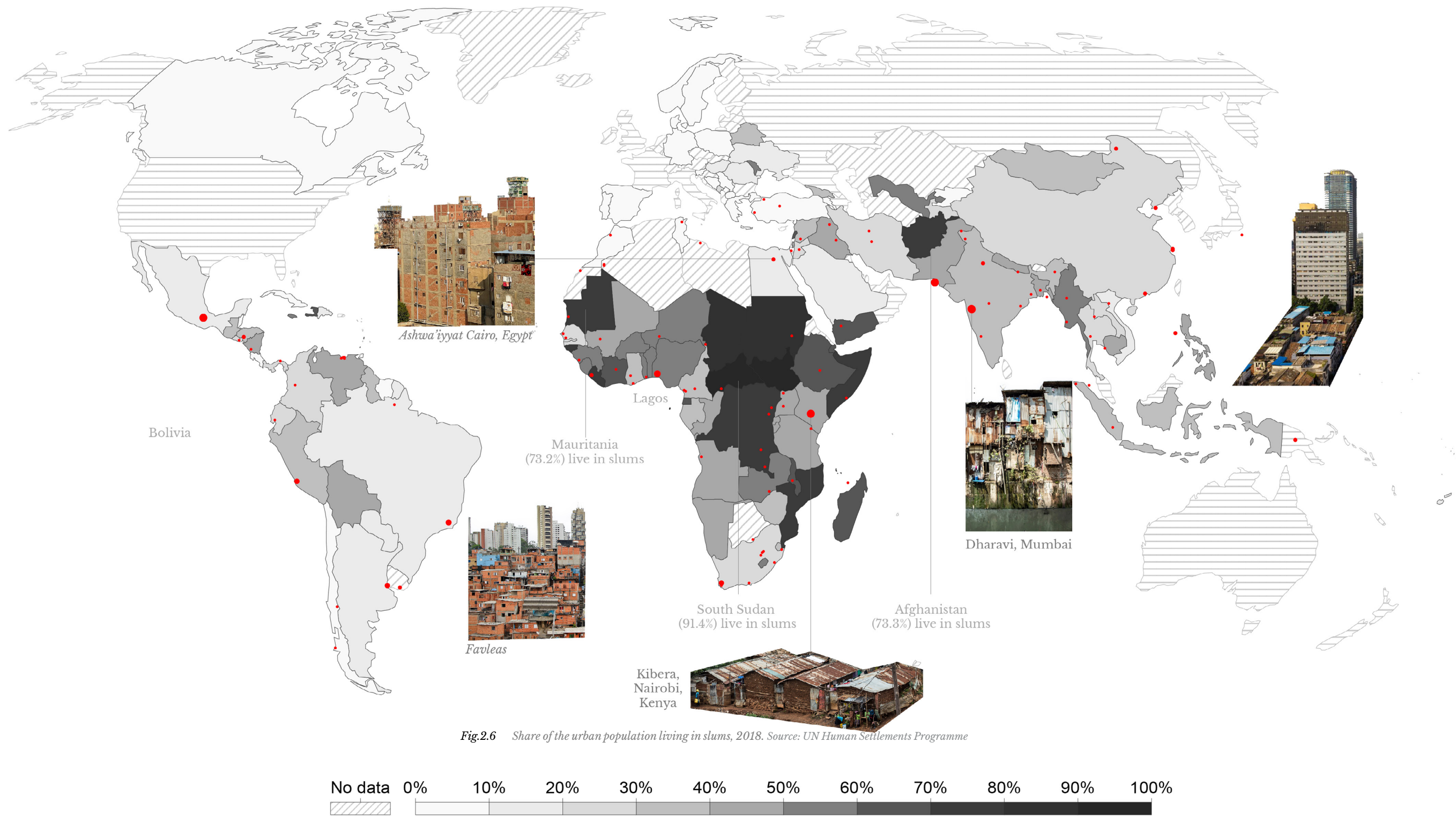


Fig.2.6 Share of the urban population living in slums, 2018. Source: UN Human Settlements Programme

2.3 A Comparative Analysis of Informal Settlements: Nairobi to Cairo

In this study, a comparative analysis will be conducted between informal settlements in South Africa's Nairobi, Kenya and those situated in North Africa's Greater Cairo Region. The comparison will encompass their physical, social, economic, and environmental challenges and characteristics that address the definition of "slums". The goal is to further understand the different forms of informality (slums vs squatter settlements) and better situate informality in Cairo. In Nairobi and Cairo, most of the settlements are unplanned, however the conditions in Mukuru, Nairobi seems to be dire compared to settlements in Cairo, due to poor infrastructure networks, unpaved streets and no sidewalks. Mukuru slums are located in Nairobi, Kenya. The slums cover almost 650 acres and are home to at least 300,000 people.¹² An informal settlement in Cairo, like the Manshiyat Nasser is home to 800,000 to one million.¹³ As Greater Cairo is home to 22 million people compared to Nairobi, with 5 million¹⁴, high density living dominates in many informal settlements in Greater Cairo.



Fig.2.7 Map of the African continent highlighting Cairo, Egypt vs Mukuru, Kenya. Illustration by author

2.3.1 Physical Challenges/Characteristics in Mukuru, Nairobi, Kenya

In Mukuru, families are packed into windowless one-room 3 x 4m shacks, with mud walls, a corrugated tin roof and a dirt or concrete floor, accommodating up to eight people or more with many sleeping on the floor.¹⁵ The recycled and often highly flammable cardboard and metal sheeting causes frequent fire spreads.¹⁶ When the water level of the Ngong River rises in Mukuru, the makeshift homes sometimes float downstream. Most floors are earthen or usually damp as a result of frequent flooding that sometimes seeps into people's homes (Fig.2.8).¹⁷



Fig.2.8 Railway Tracks in Kibera, Nairobi, Kenya. By ThomasJessica on Flickr

2.3.2 Environmental Challenges/Characteristics in Mukuru, Nairobi, Kenya

There is no public waste collection and disposal services in Mukuru. The slum serves as a reflection of decades of neglect from the Kenyan political elite. This neglect is evident in the form of impassable roads, especially during the rainy season, sewage flowing in the streets, standing water, abundant plastic and uncollected garbage, as well as residents living in densely packed and overcrowded informal settlements.¹⁸ Most slum households must fetch their water from a standpipe and deposit their waste in open drains. Therefore, the need for water and sanitary disposal services is acute.¹⁹ Most of Nairobi's slums have a few pit latrines which serve the majority of the population, while few slums have none, thus there is an eruption of "flying toilets".²⁰ A report on the urban environment sanitation project by UNDP-World bank on regional water sanitation in 1997 indicated that about 150 people share one pit latrine and up to 54% households do not have bathing facilities.²¹ This contributes to many diseases associated with poor hygiene.

Furthermore, electricity from the industries is not professionally extended in Mukuru, and due to its illegality, most are dug underground and sometimes exposed. Most people use kerosene, charcoal, or firewood for cooking, in the corner of the houses or outside. The majority eat food without leftovers, in case of leftovers, often the food is poorly stored due to lack of storage facilities, exposing it to dust and flies.

2.3.3 Socio-economic Challenges in Mukuru, Nairobi, Kenya

The social challenges can be harsh on both settlements in South Africa and in North Africa, which can include ineffective services, lack of sanitation, high illiteracy levels, lack of health services and access to education, inferior quality of life, and lack of security. In Mukuru, lack of drainage and sanitary systems create conditions hazardous to health.

Many of the slum dwellers in Mukuru work as casual laborers in the manufacturing industries situated close to the slum. Others operate small-scale businesses selling vegetables and fruit or hawking various items. Earnings are low and often inadequate to feed their families. Consequently, their children look to other means of survival such as prostitution, drug peddling, begging and other criminal activities. There are efforts to overcome these challenges in Mukuru, including UNICEF, The Red Cross, and smaller organizations in Mukuru like the Ruben Centre which is a faith-based charitable trust that provides education and health services.

2.3.1 Physical Challenges/Characteristics in Manshiyat Nasser, Cairo, Egypt

Due to the densely populated capital, Cairo, there tends to be a more durable construction of buildings using concrete and red brick infill. Some streets are paved while sidewalks are narrow. The multi-storey buildings can go up to 15 storeys, with no open spaces between buildings which restricts ventilation or sunlight. The narrow lanes in Cairo's informal areas mean that in many cases emergency vehicles can hardly pass. However every building typically consists of 10-15 fully equipped apartments, depending on the number of floors. (Fig. 2.9)



Fig.2.9 City of the Dead Cairo, Egypt. Photographed by Ahmad Yahia

2.3.2 Environmental Challenges/Characteristics in Manshiyat Nasser, Cairo, Egypt

As compared to the complete lack of infrastructure in Mukuru, Nairobi, informal areas in Cairo went through different attempts by the government at regularizing and upgrading the basic infrastructure in Cairo's informal settlements, like access to clean water, electricity, and proper sewage system. The doubling of households with connection to electricity happened over just one decade, 1976-86.²² This may be partly because the Aswan hydroelectric dam had been in use since the early 1970s. However, this was also the time when over half of the urban dwellings were being informally built. In 1993, a country wide National Project for Upgrading Slums took place for upgrading informal settlements which included the provision of infrastructure and urban services for all informal settlements.²³ Electricity bills have been used as de facto proof of ownership in many informal settlements, however many settlements need piped water for drinking and sanitary sewage collection.²⁴

2.3.3 Socio-economic Challenges in Manshiyat Nasser, Cairo, Egypt

However, from personal observations in Cairo, there are strong knitted communities, strengthened social ties where the streets and rooftops are the only open spaces where expression of culture and traditions are held. In Cairo, informal areas are not inhabited only by the poor. Authorities declare that almost 17 million Egyptians live in informal areas around cities.²⁵ That figure includes many more than just the very poor. Studies reveal that the profile of informal areas includes a wide spectrum of socio-economic groups. Residents of informal areas include government employees, street vendors, workshop owners, and artisans, as well as professionals such as doctors and lawyers. An interview was conducted with an NGO based in Manshiyat Nasser, Cairo, aimed at uncovering the socio-economic challenges faced by the informal settlement that the organization is working to address.

“Illiteracy levels are high and there is a shortfall of public facilities here, which we try to provide in the association. The residents, especially women and children handle the garbage sorting without gloves and basic safety equipment, which cases some lung diseases. There are high levels of hepatitis A and B, with an average life expectancy of 55 years old. Although the recycling business here is profitable, but it’s only profitable for some people, especially men who own these businesses. Therefore, we try to focus on women and children to improve health, provide income generating activities, and provide better access to education for children. The association serves all segments of society, all groups, and all ages, without discrimination in religion, race, color, or gender. The association serves in various service fields. A club for children and literacy for women is a study for school students. We offer multiple health projects that serve all the neighborhoods, and we have a team of female health visitors. We have a soccer field across from us where children come to play. The goal is to improve people’s lives from all perspectives, health, social life, education, and cultural”.

Overall, Egypt scores quite highly on many basic quality-of-life indicators, especially when compared to other developing countries. For example, in 2006 the national rate of infant mortality (aged one year and less) was 19.3 deaths per thousand, a rate that has been declining steadily (it was 37.8 per thousand in 1990). This compares very favorably with the average infant mortality rate for Africa in 2007 (86 deaths per thousand)

2.4 A Spectrum of Informality

Drawing on the earlier delineation of a slum, it becomes evident that Mukuru fits within this category, while settlements such as the City of the Dead or Manshiyat Nasser in Cairo align with the classification of squatter settlements or informal settlements, rather than slums. However, a socio-economic survey undertaken in 2005 revealed that more than 86% of the buildings in the informal district of Manshiyat Nasser in Cairo have a good structure of concrete columns and ceilings: the building quality is fairly good compared to squatter settlements elsewhere in Latin America.²⁶ The imperative for infrastructural or developmental intervention is underscored by the situation in Mukuru. Unlike the informal settlements in Cairo, like City of the Dead or Manshiyat Nasser, Mukuru, and other settlements in Nairobi, Kenya, grapple with a lack of durable housing that can endure extreme weather conditions. Mukuru also contends with limited living space, inadequate access to safe and sufficient water, deficient sanitation facilities, and an absence of secure tenure. It is noteworthy that Cairo's informal settlements, though lacking secure tenure, exhibit other essential facets of a decent quality of life, including permanent housing structures, access to clean and safe water, electricity, and improved sanitation.

This leads to a discussion about a spectrum of informality (Fig. 2.10) that starts with the worst-case scenario of slums to a more formal case, where informality is blurred with the formal sector. This spectrum responds to the tendency to generalize a binary perspective of informality. It addresses the limitations of this black-and-white approach to informality, providing a more nuanced and comprehensive approach to understanding urban informality that considers a range of gradations and complexities.

“If there were a thermometer of informality in architecture and urbanism, it would range from an intense condition of extreme poverty, with dwellings built of unsafe and low-quality construction materials, an absence of legal framework, and no safety of tenure, to a milder condition with lower-solid materials, serviced with some public infrastructures, and with legal land ownership. Most of Cairo’s informal housing is on the lower edge of that thermometer, very close to reaching the formal temperature”²⁷

- Charlotte Malterre-Barthes

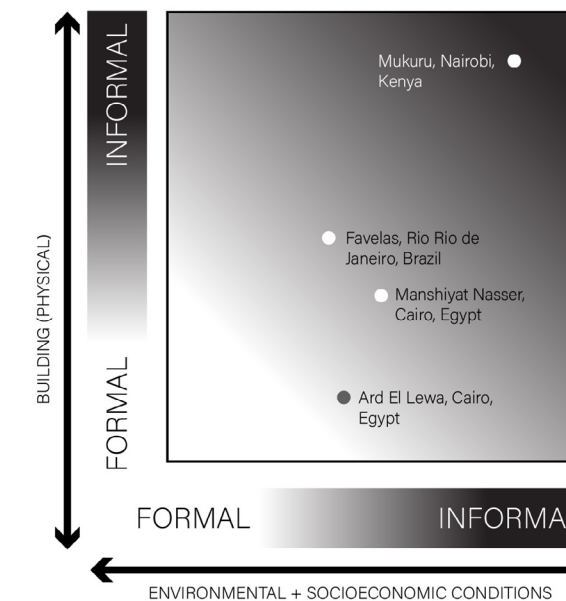


Fig.2.10 Informal Settlements on a conceptual field of informal/formal morphologies. Adapted from Dovey & Kamalipour, 2018.

2.5 Typology and Morphology of Informal Settlements

2.5.1 Incremental Growth

There would seem to be three primary modes or processes of informal settlement growth. The first is by simply settling, as on unclaimed and often unbounded land. The second is inserting into the uninhabited, abandoned, or leftover fragments of urban space. Third is attaching, as informal grows or attach onto the structures of the formal city.

These processes of settling, inserting, and attaching occur in a diversity of urban situations, like unused land, urban infrastructure, edges to formal settlements, rustbelt districts. Informal Settlements can also be categorized under different urban conditions. Districts, Waterfronts, Escarpments, Easements, Sidewalks, Adherences, Backstages, and Enclosures.²⁸ Buildings or shacks are often constructed next to each other, with narrow alleys and pathways between them (Fig. 2.11). As time passes, informal settlements become denser with fewer opportunities for open unclaimed space to be adopted into public space. They build vertically to accommodate married children, elderly parents, and other relatives. There is a distinction between an initial occupation process and subsequent intensification. Informal Settlements constructed in room-by room accretions are low-rise and high coverage. Without formal height limits, every building establishes a form of air-rights, where they build on top of the existing structure (Fig.2.11) Informal air rights often extend to include a right to cantilever upper floors over public space. (Fig. 2.11) While preserving rights of way, cantilevers can have a serious impact on natural light and air quality if the lane way is less than two meters wide. This is the most common example of the tragedy of the commons in informal settlements, when both the public street and the cantilevered rooms are starved of light and ventilation. As these settlements grow, land use in informal settlements is often with a mix of residential, commercial, and industrial activities taking place in proximity. Many residents may also engage in informal economic activities such as street vending and small-scale manufacturing.

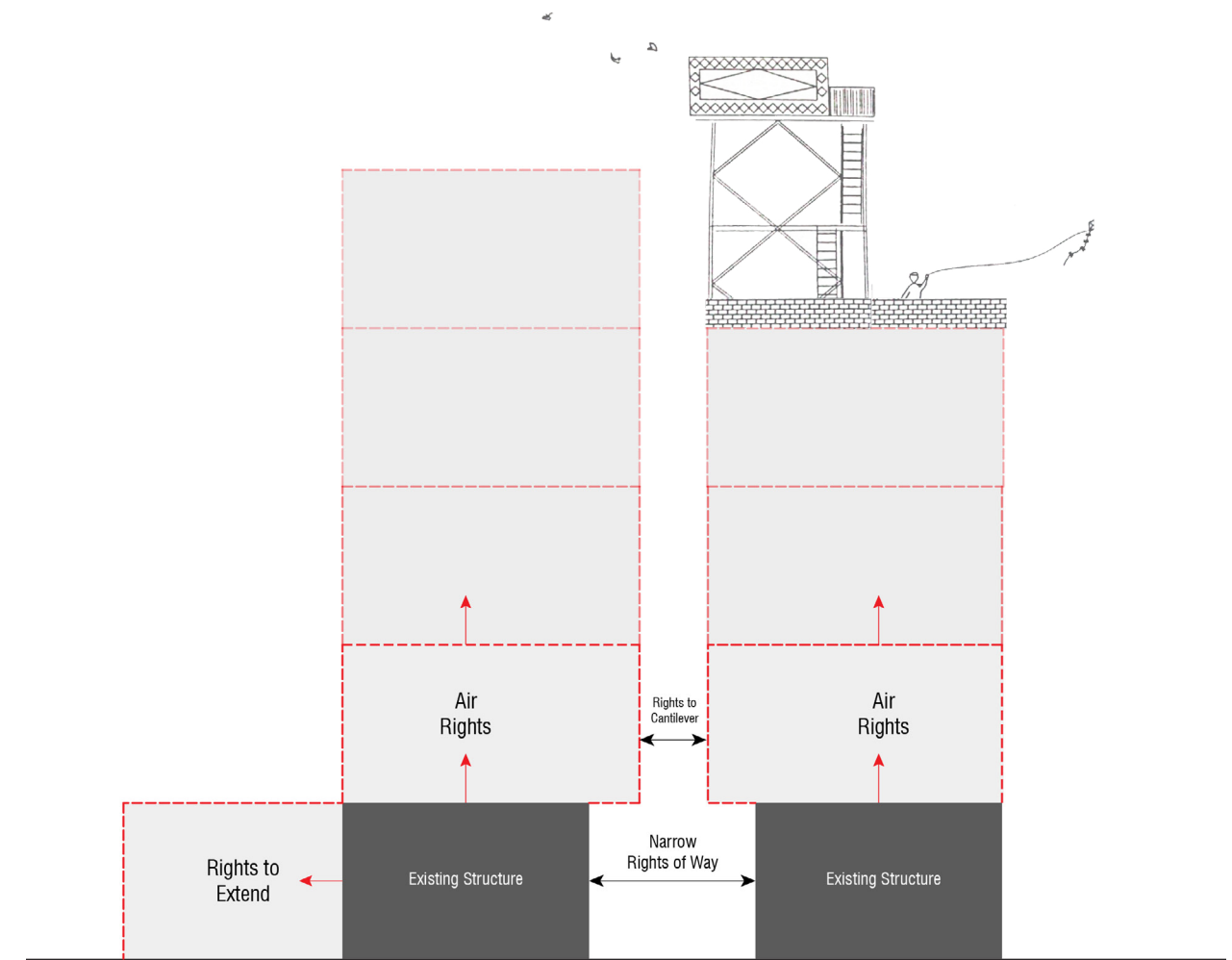


Fig.2.11 Informal building rights and incremental growth (adapted from Kim Dovey)

2.5.2 How spontaneous urban development takes place in informal areas?

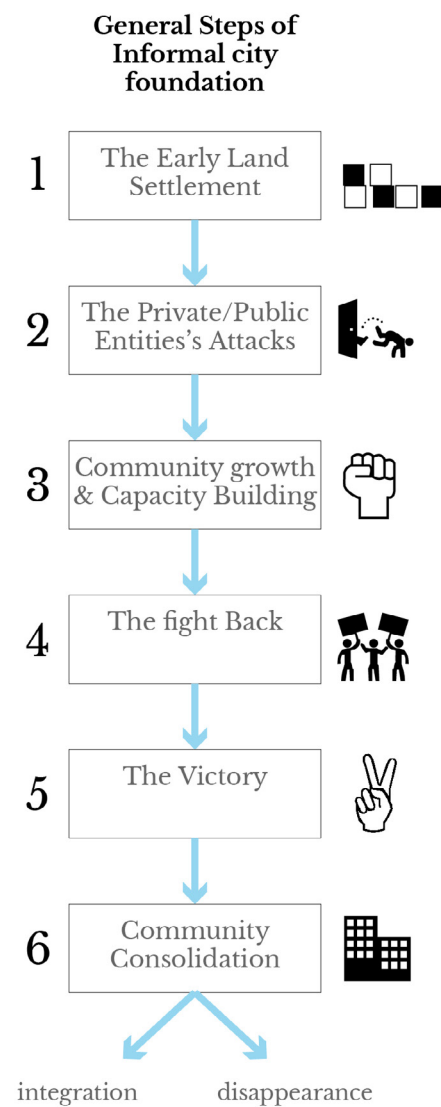


Fig.2.12 General Steps of Informal City Building. Based on Jota Samper's study on the development process of Medellin, Colombia

Urban development in megacities like Cairo typically occurs due to significant investments made to develop and maintain infrastructure. This process relies on a strong local government that can invest in expanding and maintaining infrastructure, supported by an effective tax system. Nonetheless, this system can face challenges from weak or corrupted local governance or an inadequate tax system, resulting in the deterioration of services and hindrance in extending them to other areas. This creates different groups who are associated with facilitating access to informal housing. In the Egyptian context, these are: Providers (landowners), Operators (private developers), Informal service suppliers (contractors, landlords, brokers), Facilitators/Regulators (public/private groups and state agencies), customers (the urban poor), formal sector institutions (merchants, banks, professionals)²⁹

According to Boex, Edwards, Joel, and Lane's Urban Service Delivery Assessment Framework (2014), cities providing better public services tend to attract more taxpaying households and businesses. As a result, in the absence of affordable services for the poor or new job seekers, the informal market, particularly the informal housing market, becomes an alternative solution. While not applicable in all details, a study by Jota Samper, an assistant professor at the university of 's model describing the development process of Medellin, Colombia³⁰ is generally relevant to most informal areas, including Cairo's informal settlements presented in this thesis.

Thus, this model (Fig. 2.12) was adapted to describe the history of informal areas in Cairo, with modifications to better suit the Egyptian context. The seven steps of the informal area's foundation are as follows:

1. The land acquisition:

During this stage, the new settlers typically approach the providers (landowners) through a process known as 'hand claiming.' They seek the approval of the virtual landowners who currently own and manage the land, to divide it and begin squatting in the area. It's important to note that the initial chosen land may have little to no commercial value, but its strategic location on a road that connects to the main city makes it an attractive target for settlement. First thing, construction (at least on the first floor of a building) must be done quickly. Also building in open areas where construction is easily seen from the main roads has become more difficult.



2. The private/public Entities's attacks:

Either the state or the entitled private investor attempts to displace the people from the newly settled area by demolishing their recently constructed makeshift shelters. Second, there is a rising phenomenon of middlemen who specialize in overcoming and circumventing the control of government officials. These may be local lawyers or those who are contractors (*muqawilin*) or similar (agents). In a recent investigation of the informal building process in three neighborhoods of Cairo and Giza, it was found that these middlemen were the primary organizers of construction in 37 to 41 percent of cases. These individuals personally know the local officials from the urban administrative district, agricultural utility offices, and they know whom to ask for favors and how much a bribe will cost.



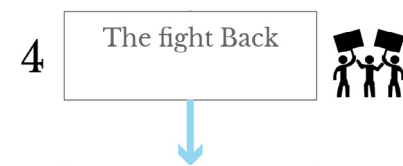
3. Community growth & capacity building :

The initial settlers attempt to attract more people facing similar circumstances to strengthen their position. Suppliers of informal services, in this stage, are brokers (*simsar*) who can achieve this by inviting families and friends from nearby areas or their hometowns who are willing to have better access to the city. Later, some residents may assume a more established role in relation to the sale of both land and houses. With time and increase of tenant residents, they may also act as middlemen between landlords and tenants. In the case of Cairo, the public/private bodies (facilitators) and government agencies (regulators) often support the invasion on agricultural areas by erecting religious centers, usually mosques, public housing complexes, administrative buildings, and/or educational complexes.³¹



4. The fight back

During this stage, the community aims to attract a second wave of settlers to strengthen their position. By increasing their numbers, they anticipate that the attempts to evict them will decrease significantly, as they will have a stronger collective opposition. Since most migrants who settled in Cairo came from Upper Egypt, kin groups, friendship networks, and popular organizations have played a major role in informal development. Community leaders (*umdas*), religious figures (*sheikhs*), and neighbourhood elders plays an important role in this phase. They represent the settlers negotiations with the local administration and often arrange for the installation of and extension of infrastructure (water, electricity, and sewage).³²



5. The Victory

During this stage, the community finds concrete methods to consolidate and organize themselves to gain attention from higher levels of the state. This is often achieved through the efforts of active and educated members within the community who start advocating for their cause. The process may take time as it involves various tools such as media outreach, engaging political parties, seeking support from human rights organizations, and even taking legal action against the state.



2.6 Architecture, Culture, and Informality

Architecture is a socio-environmental art form rather than a fine-art – its criticality is at once aesthetic, environmental, and social. This is indeed why we must look at the challenge of informal settlements through the lens of architecture. After studying different African cities, Myers concludes that: “Informality means different things in different cities, people’s lives vary, and the historic-state-society relation as well”.³³ Culture and informality are also interrelated, in a way that understanding cultural values of a certain area can lead to a better understanding of informality. Culture is not just old buildings, it’s how individuals, neighbourhoods, and cities create rituals and practices to transact their lives, produce processes and systems which enable them to cohabitation. Most of the urbanization in the global south is informal, and the largest employment takes place within the informal sectors within a bazaar culture; such as vending and recycling businesses. Street markets, crowded sidewalks are all part of the life in the cities and the markets are venues for many a cultural practice that modern planners seek to control, and in their task often destroy.

Bayat explains that “*the streets are public spaces where the state has the most evident presence, as expressed in terms of police patrols, traffic regulations, and spatial divisions – in short, in public ordering*”³⁴ Thus, people use the street as a site of dispute between them and the authorities. (Fig.8) The second element shaping street politics, is the operation of what he calls a “passive network.” It’s the instantaneous communication that occur among individuals, which is established by a tactic recognition of common identity, which is mediated through space. For example, vendors on a street are likely to recognize one another, even if they never meet and should a threat occur, they are likely to come together. The space of the street intrinsically makes it possible for people to get mobilized through such passive networks, which is likely to turn into an active communication and cooperation.

2.6.1 Top-down Approach to Informality

Informal settlements have a long history, characterized by the construction of houses by individuals, either with or without the landowner's consent." However, the term "informal settlements" is a more recent Western-initiated development and came out of the writing of Charles Abrams and John Turner, following the 1976 Habitat Conference in Vancouver, Canada. John Turner, a British architect, is credited as the first theoretician of informal architecture. He takes a positive outlook showing that settlements designed with local groups worked better since people are the experts on their own situations and should be given the "Freedom to Build," a phrase that became the title for an edited collection by Turner. Turner argued that architects should not impose their designs on such communities but should instead collaborate with them to understand their needs and aspirations. He believed that architects should help empower informal settlement residents by providing them with the tools and knowledge to improve their own living conditions. He felt that informal settlements should not be seen as a problem to be solved, but as potential solutions to housing shortages.

He advocated for a "self-help" approach to urban development, in which residents of informal settlements were given the resources and support to build their own communities. Turner argues that this approach can lead to more sustainable than a top-down planning approach.

2.6.2 Importance of Public Space in Informal Settlements

Informal Settlements grow organically, they are the result of numerous individual builders trying to meet the spatial immediate needs of the people. For decades, as settlements grew and became denser, no one was thinking about common areas such as walkways, roads, public space, or public amenities. Their presence is therefore limited. This thesis acknowledges the key role of public space as a tool to advance urban integration. On average, informal settlements tend to have less than 0.1 m² per inhabitant, which is 100 times less than the amount of public space prescribed by the World Health Organization WHO (10 M²/inhabitant). Public policy on urban improvement in informal settlements has too often focused solely on housing solutions which can only represent a partial answer given the overwhelming number of people living in those settlements.³⁵ Self-built homes have allowed families to resolve the unmet housing demand.

They have also created communities that in many cases date back to anywhere between 60 and 100 years. Nonetheless, they remain marginal and segregated from city dynamics, revealing that improvement efforts alone have not been enough to lift the stigma from these territories.³⁶ Public space, however, is notoriously scarce in informal settlements, which is why it is important to support social and community development programs. They present an efficient avenue to elevate the well-being and living conditions of residents. A truly comprehensive environment is one that embraces all its sectors leveraging the potential of its cultural, demographic, and urban assets.

Endnotes

- 1 Roy and AlSayyad, Urban Informality. 79
- 2 Ibid. Page 79
- 3 Ibid. Page 80
- 4 Bush and Ayeab, Marginality and Exclusion in Egypt. Page 15
- 5 Ibid. Page 15
- 6 Roy and AlSayyad, Urban Informality. Pages 81-90
- 7 Bush and Ayeab, Marginality and Exclusion in Egypt. Page 14
- 8 Ishita Chatterjee and Ishita Chatterjee. 2019. “*The Making of Informal Settlements | Assemble Papers*,” Assemble Papers, April 26, 2022, <https://assemblepapers.com.au/2019/09/17/informal-settlements-never-just-a-slum/#>.
- 9 Ibid.
- 10 Ritchie and Roser, “Urbanization.”
- 11 Ibid.
- 12 “About the Mukuru SPA — Muungano Wa Wanavijiji.”
- 13 German Agency for International Cooperation (GIZ) (2009)
- 14 “Nairobi, Kenya Metro Area Population 1950-2023.”
- 15 Gulis et al., “Health Status of People of Slums in Nairobi, Kenya.”
- 16 “Innovations Field Diary: Mukuru Nyayo, Nairobi | UNICEF Office of Innovation”
- 17 <https://www.brookings.edu/wp-content/uploads/2023/05/Foresight-Africa-Pashayan-20230524.pdf>
- 18 Gulis et al., “Health Status of People of Slums in Nairobi, Kenya.”
- 19 “About the Mukuru SPA — Muungano Wa Wanavijiji.”
- 20 Ibid.
- 21 Ibid.
- 22 Egypt’s Housing Crisis. Page 46
- 23 Ibid. Page 49
- 24 Ibid. Page 46
- 25 Ibid. Page 46
- 26 What happened to Participation. Page 77
- 27 Angéilil and Malterre-Barthes, Housing Cairo: The Informal Response. Page 33
- 28 Forms of Informality: Morphology and Visibility of Informal Settlements
- 29 Roy and AlSayyad, Urban Informality. Page 184
- 30 Samper, “Eroded Resilience, Informal Settlements Predictable Urban Growth Implications for Self-Governance in the Context of Urban Violence in Medellín, Colombia.”

- 31 Roy and AlSayyad, Urban Informality. Page 185
- 32 Ibid. Page 185
- 33 Myers, African Cities. Page 101
- 34 Roy and AlSayyad, Urban Informality. Page 96
- 35 Silva, Pure Space. Preface
- 36 Ibid. Preface

Context:

The Emergence of Urban Informality in Egypt

3.0



Fig.3.0 The City of the Dead from above showing a Pigeon Tower on the Roof. Photographed by Ahmad Yahia

3.0 Context: The Emergence of Urban Informality in Egypt

This chapter seeks to clarify the factors that have fueled the rapid growth of informality within Cairo's urban fabric. This trajectory is closely linked to the city's swift urban development. Over time, this has fueled the expansion of informality and a form of self-initiated urbanism that extends beyond conventional city boundaries. As a result, in the early 20th century, rooftop living became more prevalent as the city's population grew and housing shortages became more acute. Many Egyptians who could not afford traditional housing began constructing makeshift shelters on the roofs of existing buildings (Fig. 3.2-3.3), even in the most formal neighborhoods, like Downtown Cairo. These structures were often made of found materials such as corrugated metal, wood, and cardboard. Moreover, this chapter undertakes an in-depth exploration of Cairo's intricate urban mosaic, encompassing the formal areas, the dynamic realm of informal settlements, and the trend of desert cities. This complex urban interplay has influenced a diverse array of responses, prompting some more affluent residents to migrate from public educational institutions to private alternatives and gated residential communities on the desert fringes. (Fig. 3.1) However, these shifts, intended to enhance quality of life, have inadvertently exacerbated the socio-economic divide, further deepening disparities among different strata of society.



Fig.3.1 Advertisements for a Gated Compound in New Cairo in the desert



Fig.3.2 A view of the rooftops in 'Islamic' Cairo with the typical clustering of satellite dishes. Jason L, Flickr



Fig.3.3 A view of the rooftops in Downtown Cairo - makeshift structures built on the rooftops of Cairo. Pablo Gonzalez, Flickr

3.1 An Anti-Glossary to properly define Informality in Cairo

The term “informality” when applied to the built environment, has been attached to a chaotic, low-quality, spontaneous, slum-like type of housing, typically home to poorer populations unable to afford, or otherwise unable to access a home on the formal market. In Egypt, this term, and the characteristics it is supposed to depict are highly contested. An “Anti-Glossary” is introduced at the start to address these multiple interpretations of the term “informal.” As this thesis argues, informality is based on a spectrum within the formal and informal.

“In general, to define informality, we need to understand what being formal means. Is formal what is approved or made by the government, or is it what society accepts? Is it what corresponds with the official urban development policy? What if there is none, or if it’s inadequate? Opposing formal and informal is a very relative dichotomy, especially in the absence of a clear governmental orientation. Therefore, I think informality can’t be defined in the current indistinguishable vision of what is formal”¹ -Hamdy Reda

“A third definition views informality as the blurred boundaries between formal and informal and is thus slippery and rather mystical. Informality is thus not a position of either-or, but one of both-and. In that sense, it may better be exemplified as the grey zone, the spectrum of negotiation and contestation, rather than being on one end of this binary. An abstract formulation would then be $A = A+B$ ”² (Fig.3.4) - Omar Nagati

“Informality in Cairo is a highly organized physical and social condition that has matured to what would be better called “Advanced informality”, a type of self-processing phenomenon that is becoming ever more meshed with the formal city”³ In Cairo, people have developed their vernacular architecture and rational typology that combines concrete frames with red brick infill, as they are locally available construction materials. We see this multi-story brick and concrete aesthetic that now characterizes the architecture of informality in Egypt. In Arabic, informal settlements are referred to as *ashwaiyyat*, meaning “disorganized”, and by extension “unplanned”⁴

“Cairo has generated its logics of accommodation and development, and that operates largely outside the powers of the government or at best in a symbiotic relation with its weakness. For lack of a better word, these logics can be called “Informal”⁵- David Sims

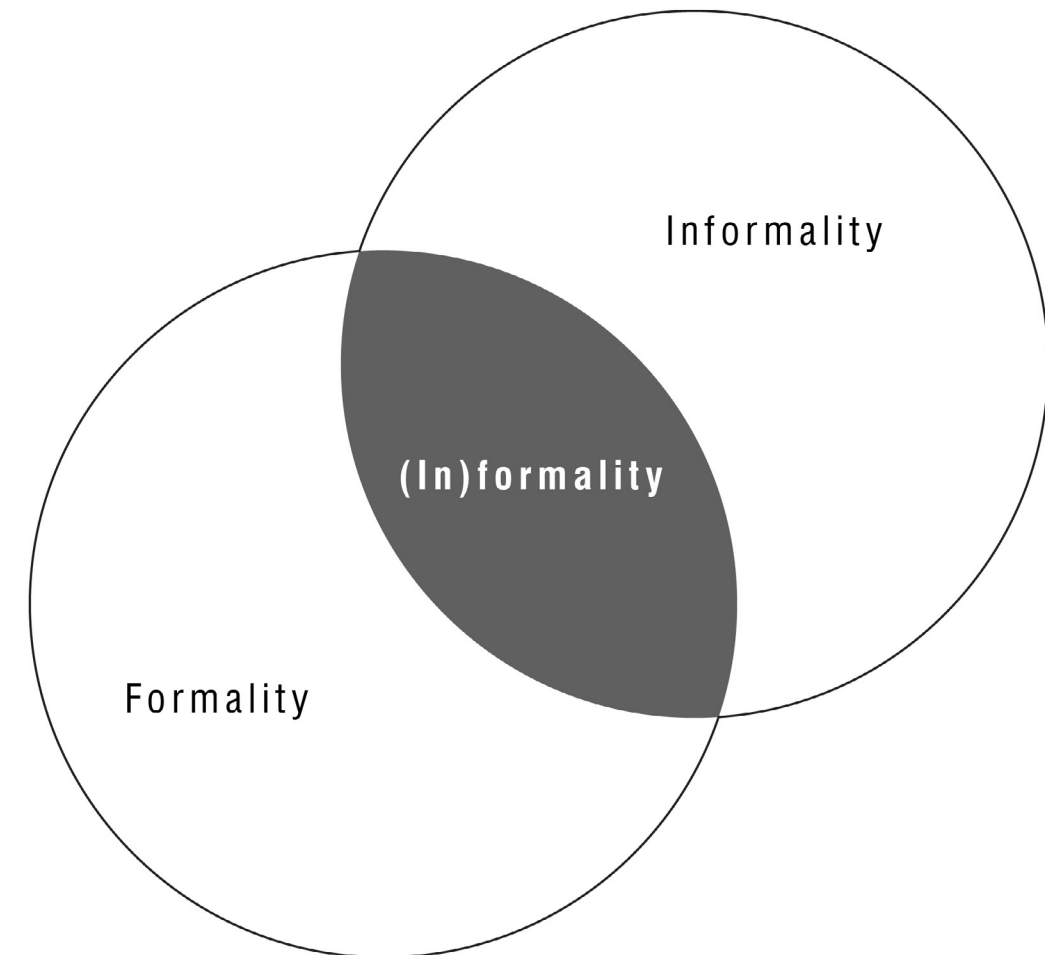


Fig.3.4 Formal/Informal Dichotomy. Illustration by author

3.2 Causes of Informality in Egypt: Political Shifts, Strain, Wars, and Rural-Urban Migration

Several factors have historically been associated with informal residential development on agricultural and desert lands in Egypt. The government either directly or indirectly, has played a major role in all cases. To grasp how Cairo got to where it is now, it is best to start from 1950.⁶ The first timeline (How Informal Settlements came about in Egypt?) (Fig. 3.6) highlights significant events, projects, and wars that influenced the expansion of informal areas in Egypt, putting added pressure on the capital city and the government, which struggled to meet the demand for affordable housing projects. From 1952 onward, the Free Officers' policies of nationalization and state-led industrialization contributed to significant internal migration, as Egyptians abandoned rural areas and moved to cities such as Alexandria and Cairo. The 1967 Arab Israeli War exacerbated this trend, as the Israeli occupation of the Sinai Peninsula led to the internal displacement of more than 1 million Egyptians, who fled to Cairo.⁷ During the wars of the 1960s and 70s, the government housed displaced migrants from the Suez Canal region in temporary shelters that grew later into informal areas.⁸ The introduction of the Open Door Policy (*Infitah*) in 1973, and the surge of Arab and foreign investment caused a sudden increase in land prices. Further instability was created by the Agrarian Land Reform of 1952 which redistributed fertile land from royal families to peasants (*fellahin*).⁹ The Egyptian economy was no longer based on production, but rather on the quest for an annuity. Land value could be multiplied by shifting from agrarian to residential. (Fig. 3.5) Finally, the announcement of official planning schemes has normally led to the urban poor to informally occupy land close by, in order to pursue the job opportunities created in formal cities, like Nasr City (the City of Victory) and Mohandiseen (the Engineers' Quarter).¹⁰

The second timeline (Fig. 3.7) shows corresponding population data (1950-2050) to these events, pointing to high levels of urbanization in Cairo, Egypt. The focus is on the last fifty years or so, a period of explosive growth in which the population has quadrupled, and which has fundamentally changed the city forever. The initial timeline of events can be linked to the population graph, illustrating the impact of various policies and significant occurrences on Cairo's population growth, representing a substantial portion of Egypt's total population.



11/2009



11/2011



07/2021

*Fig.3.5 Processes of urbanization:
From productive agrarian lands to complete occupation of plots.
Google Earth Images. Collage by author*

How Informal Settlements came about in Egypt? Timeline of Events

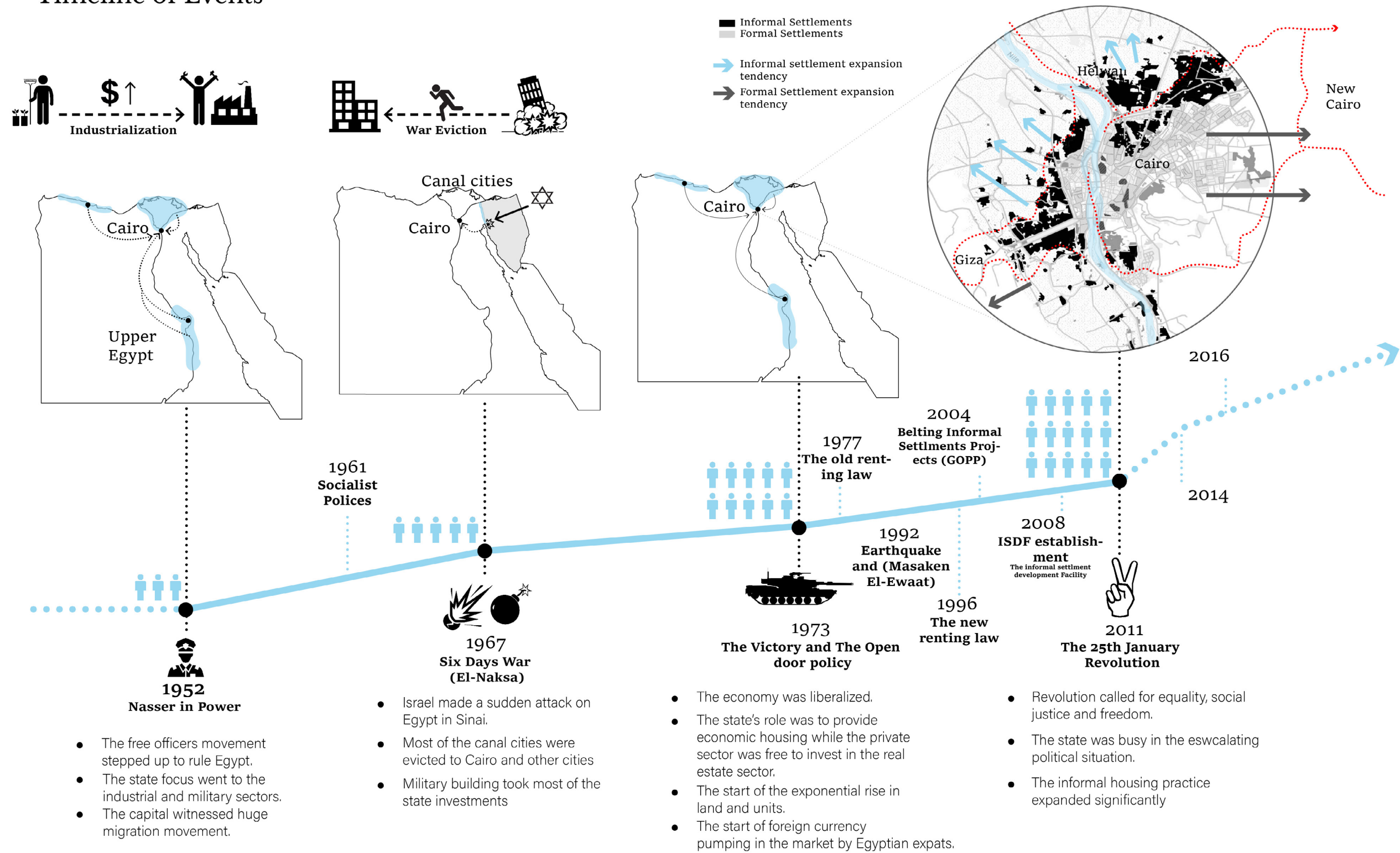


Fig.3.6 How Informal Settlements came about in Egypt?: Timeline of Events. By author

Urbanization in Egypt - Responding to Rapid Population Growth in Egypt Population from (1950 - 2050)

- The introduction of the Infitah System (Open Door Policy) in the mid 1970s
 - the adoption of free-market economics
 - the growth of financial investment companies
 - a capital oriented privatization program
- have helped accelerate the level of urbanization

According to the 1996 census, the national population was about 59.272 million, with an annual projected increase of 1.25 million or 2.1%.

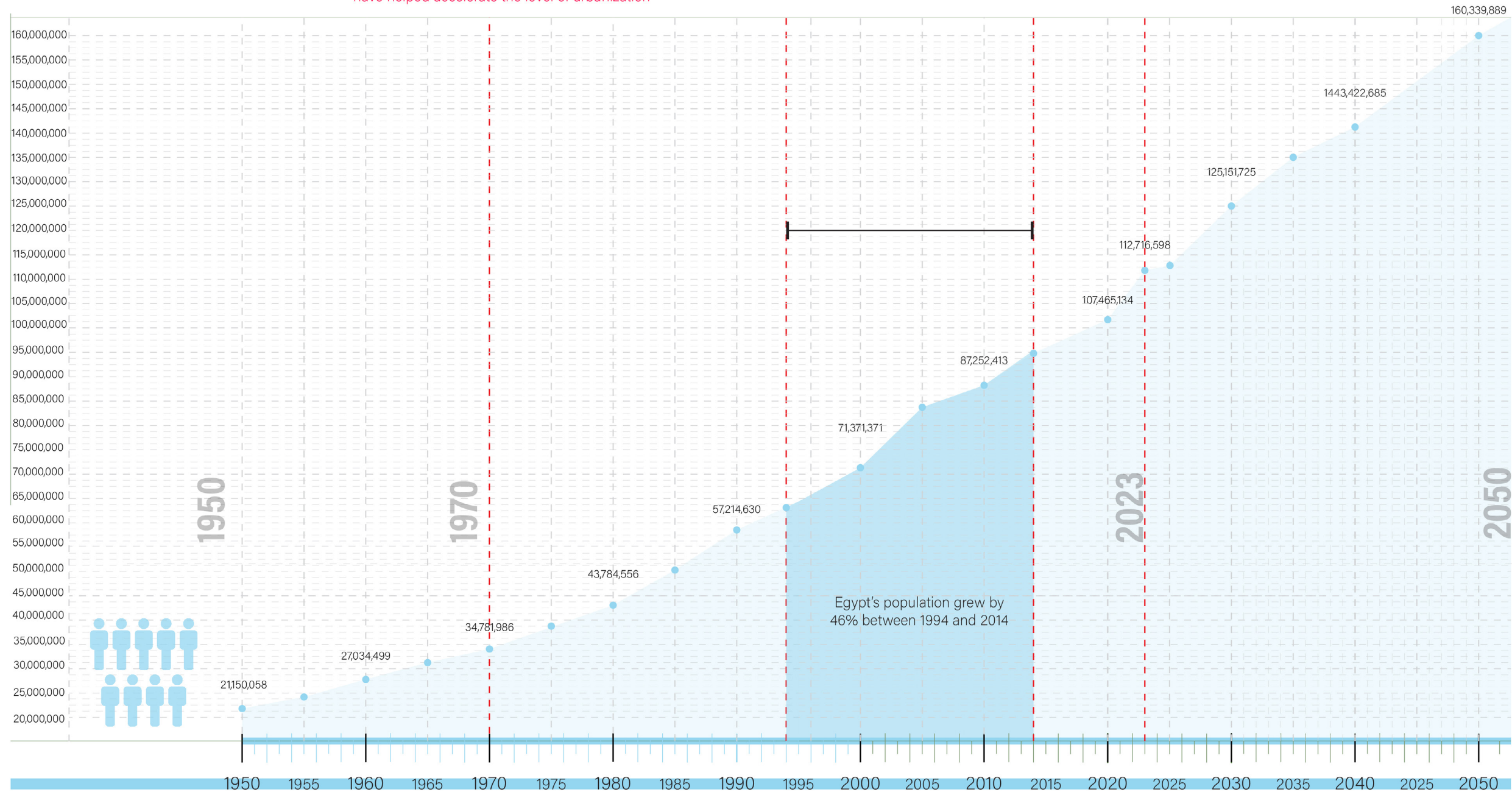


Fig.3.7 Urbanization in Egypt. Timeline of Population growth. Population data extracted from World Bank. Illustration by author

In Egypt, the urban population has grown steadily through the twentieth century, tripling from 1947 to 1976 while the overall population doubled. National increase has been responsible for two-thirds of Egyptian urban growth between 1966 and 1996, and migration for one-third.

At the beginning of the 21st century, the total population of the country is now approaching 68 million.

3.2.1 1952 Free-Officers Movement, Revolution, and Nasser in Power

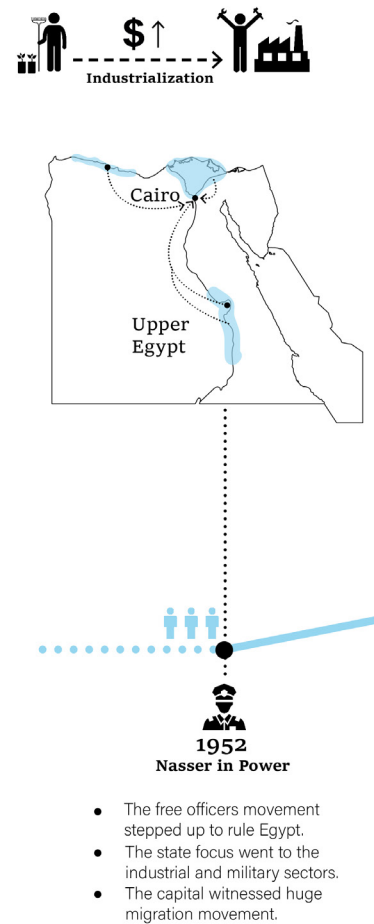


Fig.3.8 Cairo in 1952, Nasser in Power

On July 23, 1952, a group of military officers, also known as “The Free Officers,” led by Gamal Abd El Nasser, were successful in overthrowing the monarchy led by King Farouq in a coup and Egypt was declared a republic. The state before this transformation was a kingdom with a governmental housing arm that builds housing besides paving the way for other private sectors. Egypt’s market was balancing between supply and demand. After 1952, Nasser’s socialist government implemented a series of laws to control the rents of housing units.¹¹ The land reform in Egypt gave residents more rights over their rented properties and limited the power of property owners in dealing with their properties, resulting in changing the real estate market from rental housing to ownership, which contributed to the deterioration of the available rental housing as property owners stopped investing money in maintenance. There was a shift from an agriculture-based economy to an industrial and service-based economy, which created more jobs in and around large cities like Cairo and detracted from development in rural regions.¹² This explains the sudden migration around that time as seen in (Fig. 3.8). The decline in rental housing options, coupled with population growth and urbanization, created a housing shortage, particularly for low-income and middle-class families. Unable to find affordable housing, many individuals and families turned to informal urbanization, particularly on agricultural lands on the outskirts of urban areas. In the teeming medieval quarters, newly arrived peasants, or *fellaheen* in Arabic, have fashioned rooftop shacks from tin and mud brick to house their families, their goats, and their chickens.¹³

3.2.2 1967, “The Six Day War/Third Arab Israeli War (The defeat)

The nationalization of the Suez Canal caused tensions in Britain and France, who partnered with Israel to attack Egypt in what is called the Tripartite Aggression War. They began bombing Egyptian airfields, air defences, and infrastructure, leading to many Canal Cities’ residents fleeing to Cairo. Another reason for the influx of migration to Cairo is the war in 1967. The 1967 war was a continuation of Israel’s wars against the region to achieve maximum territorial expansion.¹⁴ In October 1967, from June 5th to 10th, a Six-Day War, also known as the Arab-Israeli War or *Naksah*, took place in Sinai. Israel attacked Sinai, which is part of Egypt’s territory, the gray area in (Fig.3.9). They managed to not only capture the Sinai Peninsula with the east bank of the Suez Canal, but also captured Gaza Strip, West Bank, Old City of Jerusalem, and Golan Heights in Syria; the status of these territories later became a major point of contention in the Arab-Israeli conflict.¹⁵ The result of that war in Egypt was the loss of Sinai and the migration of many canal cities’ residents to other more stable cities. Being the capital, Cairo witnessed large migrations from Canal cities. Cairo’s significant industrial economy soon started to expand rapidly.¹⁶ In effect, Cairo was ready to expand at a scale never seen in history. At this time, the housing crunch was just beginning to explode in Cairo. The war exacerbated the difficulty of obtaining affordable housing. Over 800,000 people were forced to flee Sinai and the Suez Canal cities.¹⁷ During and immediately after the 1967 war, Egypt’s resources were sunk into the war effort. As a result, few resources went towards maintaining Cairo’s infrastructure, however soon this infrastructure could no longer accommodate the rapidly expanding population. Nasser had died in 1970 and was succeeded by his vice president, Anwar el-Sadat, who ruled Egypt from 1970 until his assassination on 6th of October 1981.



Fig.3.9 Cairo in 1967, Six Day War (El-Naksa)

3.2.3 1973, 6th October War, the victory, and The Open Door Policy

Peace in the Middle East would not last in the aftermath of Israel's decisive victory in 1967, and the continued conflicts led to the 6th of October war against Israel that led to the Egyptian victory.

Departing from the socialist framework of his predecessor, Gamal Abd El Nasser, Sadat introduced the open door policy (*Infitah System*), a program of economic liberalization in Egypt.¹⁸ It aimed to attract both domestic and foreign capitalist investment to revitalize Egypt's substantial yet inefficient public sector. It provided incentives like tax reductions and lower import taxes to investors, while also encouraging the return of foreign banks to the country. The open door policies resulted in an inflection of the country's disparities, with only a small proportion of individuals profiting from the program. However, for Cairo's majority, it caused socioeconomic inequality, urban sprawl and formation of informal settlements, social unrest, and dependence on foreign investment. The adoption of free-market economics, the growth of financial investment companies, and a capital-oriented privatization program are factors that helped accelerate the level of urbanization and have put further pressure on housing resources in Cairo, where demand is greatest. The government allowed private enterprises to become involved in land development within Egyptian new towns, frequently through partnerships with local government. Between the years 1995 to 2000, the government initiated a new economic policy through its privatization program.

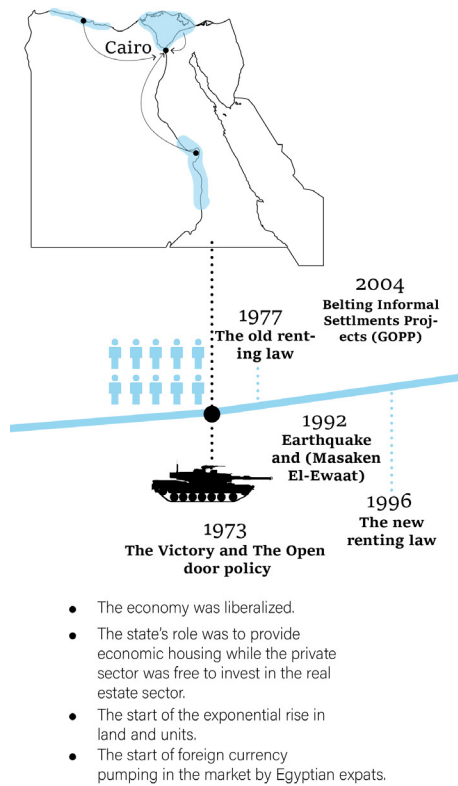


Fig.3.10 Cairo in 1973, The Victory and the effects of the Open Door Policy

At the beginning of the 21st century, the total population of the country is now approaching 68 million. Despite persistent challenges, Egypt's economy continues to encounter obstacles. The country's general standard of living remains low, and its economic resources are limited compared to its population size. Land, as the primary natural wealth, falls short of adequately supporting the people. The growing population has strained resources, leading to chronic underemployment, and a significant number of Egyptians seek employment opportunities overseas.

During the late 1990s, the city had just emerged from its wartime restrictions. According to the 1996 census, the national population was about 59.272 million, with an annual projected increase of 1.25 million, or 2.1%. Between the years 1995 and 2000, the government also initiated a new economic policy through its privatization program where the government sold certain assets, franchised other operations, and contracted for other services. People became less dependent on public services. The introduction of certain free-market mechanisms that included a new rent law that allowed the private sector to put housing units on the market without restriction and according to supply and demand.¹⁹

An astonishing 1.6 million homes were self-built between 1960 and 1976, their builder-owner seemingly unfazed by the cement shortages and the war.²⁰ In 1992, an earthquake measured 5.9 on the Richter scale) caused a fourteen-storey building to collapse in the wealthy suburb of Heliopolis, taking the lives of more than 70 people. The construction license for the building stated that its height should not exceed eight floors and a basement. This shows how likely informality is present within the formal.²¹

According to the 1996 census, the national population was about 59.272 million, with an annual projected increase of 1.25 million or 2.1%.

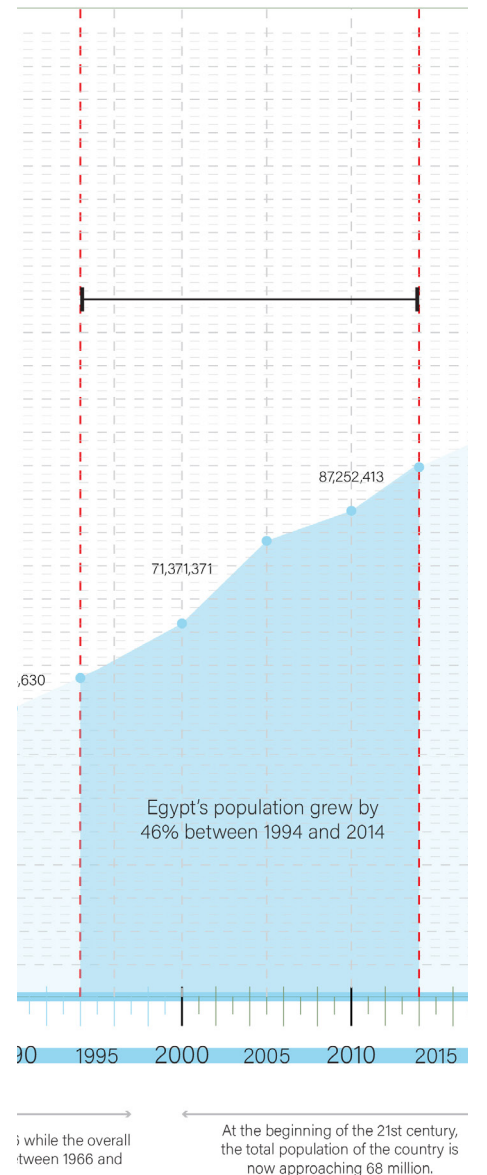


Fig.3.11 Egypt's Population from 1995 till 2015.

3.3 Cairo's Urban Expansion and Rapid Growth

The dynamic growth of the Egyptian population is remarkable. In the beginning of the twentieth century, the population was around 11 million, reaching 44 million by 1981, 53 million by 1988, and 83 million in 2013.²² Cairo is introduced through chronological maps tracing the growth of the capital from its earliest times to today. (Fig. 3.12) Examining the current dynamics of urbanization and the diversion of financial capital into the construction of desert cities outside Cairo. Despite 30 years of attempts by the government to limit unplanned growth and urban expansion on agricultural land around Cairo, as it has in most Egyptian cities and villages, informal settlements around Cairo sheltered more than 7 million inhabitants in 1998.²³ As of 2006, they were estimated to contain more than 65% of the population of the metropolis (10.5 out of 16.2 million inhabitants), and the rate of population growth in these areas is higher than other city averages, increasing 2% between 1996 and 2006. Informal housing saw its share jump to two-thirds of urban housing in the 1996-2006 periods, with a phenomenal 2.6 million units built.²⁴

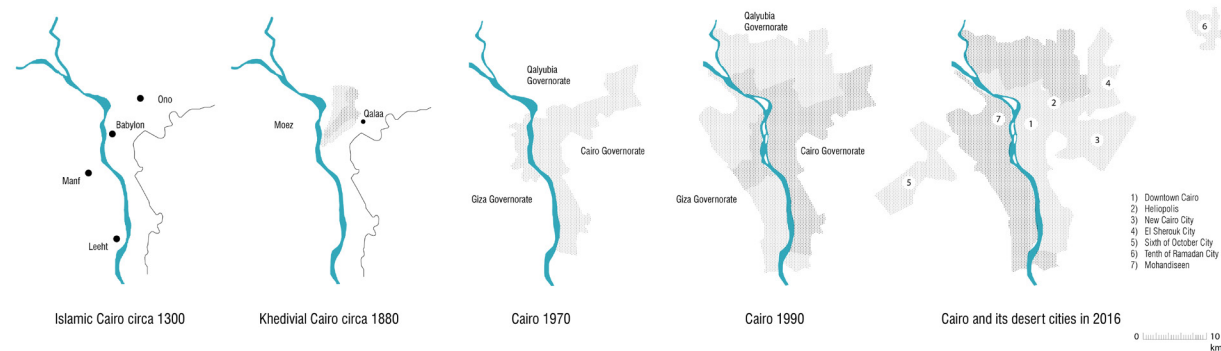
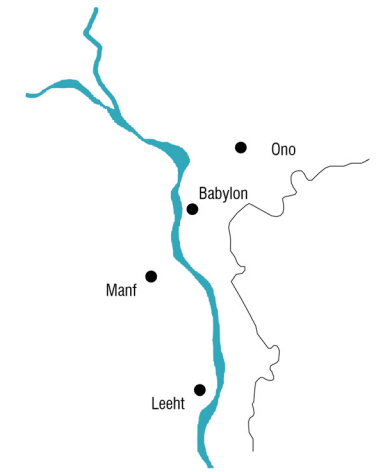


Fig.3.12 Cairo's chronological maps tracing its growth from circa 1300 till 2016. By author

3.3.1 Islamic Cairo: Cairo is born (1300-1798)

The early traces of Egypt can be traced to the Romans 2,000 years back when they took over Egypt and constructed the Babylon Fortress on the Nile, which remains the oldest structure from the era. With the fall of the Roman empire which had transformed into a Christian state, the center of the orthodox community during the Coptic Era in the late 4th century, and today we see the Hanging Church built on the Roman fortress (Fig. 3.14). Islamic Cairo, Medieval Cairo, and officially Historic Cairo, started here with the Islamic Conquest by Muslim Arabs in 643 AD. The Arab conquerors reportedly found 12-14 million when they entered Egypt.²⁵ Islamic architecture became the prevalent style of architectural expression. This explains why to this day, we see architectural elements like *Mashrabiyyas* in historical churches in Old Cairo. (Fig 3.15-3.16)



Islamic Cairo circa 1300

Fig.3.13 Islamic Cairo circa 1300



Fig.3.16 Interior view of Mashrabiya in Coptic Cairo Church. Photographed by author



Fig.3.14 Babylon Fortress. By Néfermaât

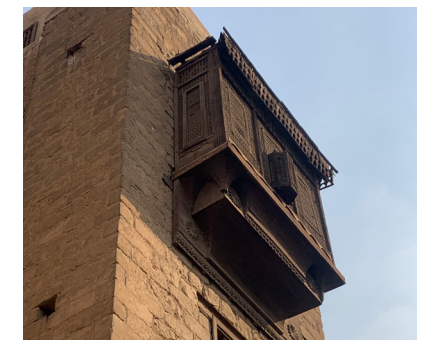


Fig.3.15 Exterior of Mashrabiya in Coptic Cairo. Photographed by author

3.3.2 Colonial and Modern Era: “Paris of the East” (1798 – 1800)

In 1798, Napoleon Bonaparte’s French army invaded Egypt and briefly occupied Cairo. However, the French were eventually expelled by British and Ottoman forces, leading to British control over Egypt. Under the Ottomans, Cairo expanded south and west from its nucleus around the Citadel (*Qalaa*) (Fig. 3.19). The city was the second largest in the empire, behind only Constantinople. After resisting the Napoleonic rule, Muhammad Ali Pasha launched the modernization of Egypt in 1905. The transformation of Cairo, however, is to be accredited to his grandson, the Khedival Ismail. He built downtown Cairo, also known as the Khedival Cairo, and was determined to transform it into the “Paris of the East” in 1863. (Fig. 3.19-20) The population of Cairo approaches 590,000 by 1897.²⁶



Khedival Cairo circa 1880

Fig.3.17 Khedival Cairo circa 1880



Fig.3.18 The Citadel and tombs in Cairo, Egypt in the late 1800s. By Antonio Beato



Fig.3.19 Cairo’s French district, Downtown Cairo, 1900-1910. Source: Egyptian Streets



Fig.3.20 An early morning in Downtown Cairo, 2021. Photographed by Matthew Raef

3.3.3 Mass Housing in 1970s: “The start of the Informal/Formal Cities”

In the lead-up to the war, Cairo had already begun growing rapidly, spilling out of its historic, traditional core and the European sector (today’s downtown, also known as Khedival Cairo) This expansion occurred mostly to the north to the peri-urban parts along two axes (North-East): Shubra/Rod-al Farag and al-Wali/Heliopolis/Ain Shams.²⁷ (Fig. 3.21) Up to the 1950s, construction in Cairo was considered formal, where the modes of city formation has been mainly legal, in the sense that they were real-estate projects and land subdivisions that conformed to the laws and government controls. Cairo witnesses the development of two distant suburbs, Maadi (1904) and Heliopolis or *Masr al-Jedidiah*, referring to a “new Egypt” in 1905. Connected using a light rail system, these suburbs introduced new variations of Westernized urban patterns to the city.(Fig.3.22)



Cairo 1970

Fig.3.21 Cairo in 1970. By author

Concurrently, the 1956 Cairo Master Plan gives birth to the government-sponsored and self-contained satellite communities of Nasr City (20,000 acres) and Mohandiseen. In 1976, Cairo’s share of the Egyptian population growth totaled 18.25%. In the case of Nasr City, the government allowed those engaged in the construction process to settle temporarily on a public site near the project, eventually creating informal settlements to grow, like Manshiyat Nasser squatter settlement.²⁸ Inappropriate segregation planning and standardized housing blocks, along with inadequate services resulted in hostile, barren wastelands of low livability. Only accommodating the upper-income groups who were able to commute to the city for subsistence. This left the urban poor to resort to self-built settlements either by squatting on state land or transforming agrarian land to housing.(Fig.3.23)



Fig.3.22 Heliopolis Neighborhood showing light rail system. Photographed by Andrew Shenouda.



Fig.3.23 Self-built residential building on agrarian land in Boulaq. Photographed by author

3.3.4 Early 20th Century: “Belle Epoque”



Fig.3.24 Cairo in 1990s

In the 1990s and 2000s, Cairo witnessed several improvements and transformations, while its population continued to grow rapidly around this time, leading to urban sprawl and the expansion of the city’s boundaries. (Fig. 3.24) Infrastructure has continued to be extended. The Cairo Ring Road was built in stages, which allowed for easier connections and access to new desert cities that emerged. However, the city faced challenges, including overcrowding, traffic congestion, and inadequate infrastructure. Western planning continues to shape entrepreneurial expansions of Cairo. A collaborative study conducted by the World Bank and GOHBPR in 1981 suggested that around 77 percent of all housing units constructed in Egypt between 1966 and 1976 were informal in nature.²⁹ In a study conducted in 1982, it was estimated that informal housing units accounted for approximately 84 percent of all units constructed in Cairo between 1970 and 1981.³⁰

After a series of exploratory missions regarding urban informality, a project agreement between the Arab Republic of Egypt and the Federal Republic of Germany was signed in 1998.³¹ It inaugurated a Participatory Urban Management Program (PUMP) to be implemented in Greater Cairo by GTZ (German development agency that provided assistance for sustainable development projects in various countries) and the Ministry of Planning, and the governorates of Giza and Cairo as the main counterparts.³² This program was designed with the aim of providing the Egyptian government with policy advice on how to effectively deal with informal areas using participatory methods developed and tested in two local components of Cairo and Giza. The areas are of Old Boulaq, in the district of Boulaq El-Dakrou (Giza Governorate) and the area of Ezbet Bekhit, in the district of Manshiyat Nasser (MN) as they represented the main typologies of informal residential patterns in Cairo.³³

The horizontal spread of Cairo is limited to the north, by the agricultural delta, and elsewhere, by the desert; but also by restrictions and more supervision than in the past on the part of the government concerning the construction of buildings. From the 1980s, a phenomenon of vertical density appeared, which resulted in a intensification of the urban fabric (greater than in Lagos, Manila, or Delhi)³⁴. Indeed, despite the illegality of their situation, the government tolerates this mode of urbanization although it seeks to strengthen its control over the informal expansion of the city.

As of 2006, they were estimated to contain more than 65% of the population of Greater Cairo (10.5 out of 16.2 million inhabitants), and the rate of population growth in these areas is higher than other city averages, increasing 2% between 1996 and 2006.³⁵ Here we see the private sector development that came to dedicate the major changes in the city’s planning, especially in the desert cities: New Cairo, El Sherouk, Sixth of October, and Tenth of Ramadan. (Fig. 3.25)

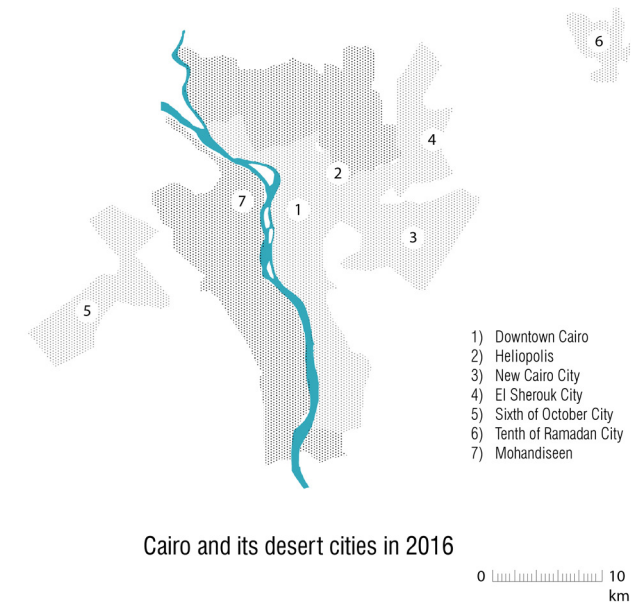


Fig.3.25 Cairo in 2016

3.4 An Undecided City: The Formal, Informal, and Desert Cities

As discussed previously, recent changes in planning regulations, political dynamics, and economic demands have led to high levels of urbanization in the urban center, which eventually led to disorganized urban fabric and inefficient street scape. Looking at Cairo from the eagle eye of Google Earth, one is struck by the diversity of urban fabrics encountered in this city. The street level view confirms and clarifies these variations. In the span of a hundred meters the pattern and texture of the city can change dramatically, as if the city was a gigantic patchwork of different fabrics: green islands, cliff-side settlements, cemeteries transformed into residential areas, old neighborhoods in medieval Islamic quarters, endless rows of raw red brick buildings developed along striped agricultural land, and gated communities with malls and wide highways sprouting out of the desert onto the outskirts.(Fig) To better understand the geography of the Greater Cairo Region, we must look at its three distinct sub-areas:

3.4.1 Greater Cairo Proper: Blurred lines between Formal and Informal

This includes all of Cairo Governorate, Giza City (part of Giza Governorate), and Shubra al-Khayma City (part of Qalyubia Governorate) These areas correspond to the main metropolitan cluster and to almost all of what the Central Agency for Public Mobilization and Statistics (CAPMAS) classified as “urban” in the 2006 Census. The 2006 population of Greater Cairo proper was 11.7 million inhabitants.

Formal Cairo

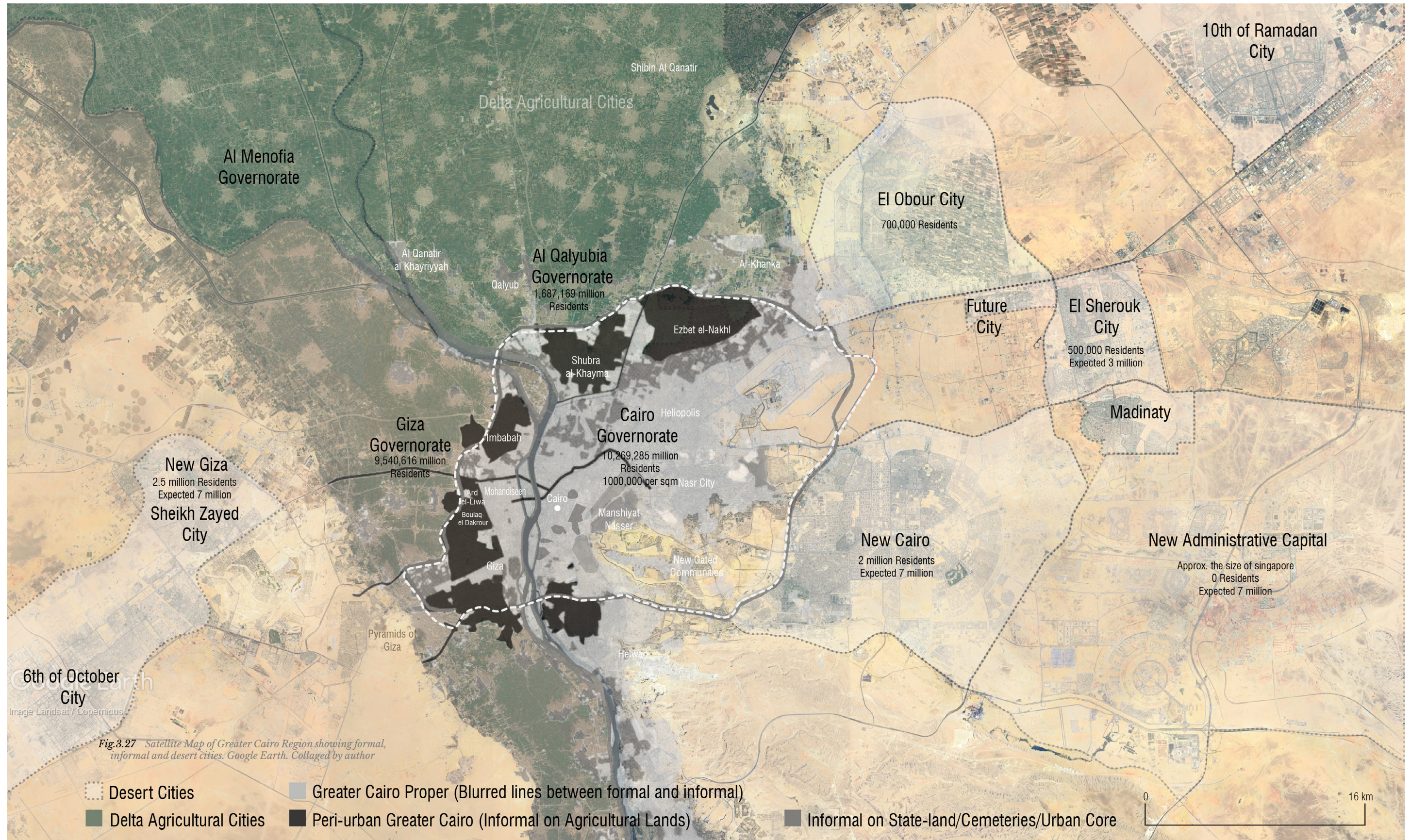
Over the years, various international communities and foreign powers, including the French and British, have made their presence felt in the city, contributing to its diverse cultural heritage and shaping its distinct identity. During the 1900s, there were many attempts to modernize Cairo, which involved implementing methods of social engineering and disciplined solidarity. Nasser’s leadership represented an Egyptian attempt to introduce “scientific socialist planning” and create a highly structured environment. This modernization effort included features of modern planning, with carefully designed linear streets and organized living spaces. New districts in Cairo, Mohandiseen (the engineers’ quarter), and Nasr City (the city of victory), were planned with grids of wide streets and building blocks to reflect modern urbanism ideals and were designated for specific professional occupations.³⁶

Informal Cairo

There wasn’t any record that shows the presence of Informal cities in the 1950s. However, their presence began to appear in the early 1960s.³⁷ During the 1960s, the informal urbanization process on the peripheries sped up. The annual growth rate of Greater Cairo attained 4.4% between 1960-1966.³⁸ Some of the examples are the bleeding and growth just across the railway tracks of Mohandiseen and Dokki on agricultural lands. Adjacent to the purportedly formal area of Mohandiseen lies a notable informal settlement on agricultural land, known as Ard El Liwa, situated on the borderline between formal and informal Cairo. (Fig. 3.29) The distinction between the formal and informal spheres is marked by a simple wall and pedestrian bridges. (Fig. 3.26) Daily, individuals cross this boundary, seamlessly transitioning from the informal to the formal side to access various work and educational prospects. This movement across the physical barrier exemplifies the delicate nature of the line that separates these two domains. Ard El Liwa’s strategic location between formal and informal Cairo offers an intriguing setting to examine the intricate interactions between these two domains. With its proximity to essential services and job opportunities, it becomes a desirable and affordable living option for various individuals, including low-wage workers, drivers, housekeepers, refugees, and students attending Cairo University. Essentially, Ard El Liwa functions as the “back of the house” of formal Cairo.



Fig.3.26 Informal (left) Ard El Liwa next to the formal neighborhood of Mohandiseen and Dokki. Google Earth. Collaged by author



3.4.2 Peri-urban Greater Cairo (Informal on Agricultural Land)

This includes nine, mainly rural, administrative districts of Giza and Qalyubia governorates. The districts of Qalyubiya are: Al-Qabatir al-Khayriya, Qalyub, al-Khanka, and Shibin al-Qanatir.³⁹ These districts lack many amenities as there is not land management carried out by the government in those areas.⁴⁰ The lands are mainly agricultural.

3.4.3 Greater Cairo's Desert:

This includes eight desert new towns found around Cairo. Sixth of October, Fifteenth of May, El Obour City, El Shorouk City, Sheikh Zayed, New Cairo, Tenth of Ramadan, and many other new developments, like the New Capital City currently under construction. The 2006 population of Greater Cairo's desert was 602,000 inhabitants. The resulting boundaries are shown in a satellite map showing the informal, formal, and new desert cities. (Fig. 3.27)

Desert sites represented the planner's ultimate dream of a blank sheet of paper, avoiding topography or existing urban realities. Copying the North American suburban lifestyle, low housing like villas and townhouses was being built in gated communities and compounds. The idea of developing the deserts around Cairo for urban expansion can be traced back to the 1956 Cairo Master Plan, and the concept was elaborated in the successor 1969 Master Plan.⁴¹ The latter, finally approved in 1974, concluded that Cairo's growth had already exceeded its "carrying capacity" and that the population of the metropolis should be limited to 9.5 million inhabitants. All excess population was to be redirected to four satellite cities, two located in the eastern desert and two in the western desert.⁴²

3.5 The Emergence of Rooftop Dwellers in Cairo, Egypt

In the context of significant demographic pressure and a shortage of affordable housing, alternative methods of settling in Greater Cairo have emerged, such as the utilization of rooftops. (Fig.3.28) Based on research findings⁴³, approximately 1.5 million people inhabit the tightly packed rooftops of Greater Cairo. The history of occupying and living on rooftops in Cairo dates back several centuries. Where rooftops have long been utilized as a space for social gatherings, drying laundry, and even sleeping. Rooftop tranquility has long been cherished by residents of this hot, park-starved city. But as Cairo's population grows by 300,000 each year, its roofs are becoming colonized by what Egyptian officials politely call "the informal housing sector."⁴⁴

"In a more dramatic case, in Cairo, millions of rural migrants, the urban poor, and even the middle-class poor have now quietly claimed cemeteries, rooftops, and state/public lands on the outskirts of the city, creating more than one hundred spontaneous communities which house more than five million people". Once settled, such encroachments spread in many directions. Against formal terms and conditions, residents may add rooms, balconies, and extra space in and on buildings. Even those who have formally been given housing in public projects built by the state, illegally redesign and rearrange their space to suit their needs by erecting partitions and by inventing new space (Fig.2.5) "⁴⁵-Asef Bayat



Fig.3.28 View of a family's home in Boulaq. The roof terrace offers a safer playground for children than the street. Photographed by Marie Piessat, April 2017

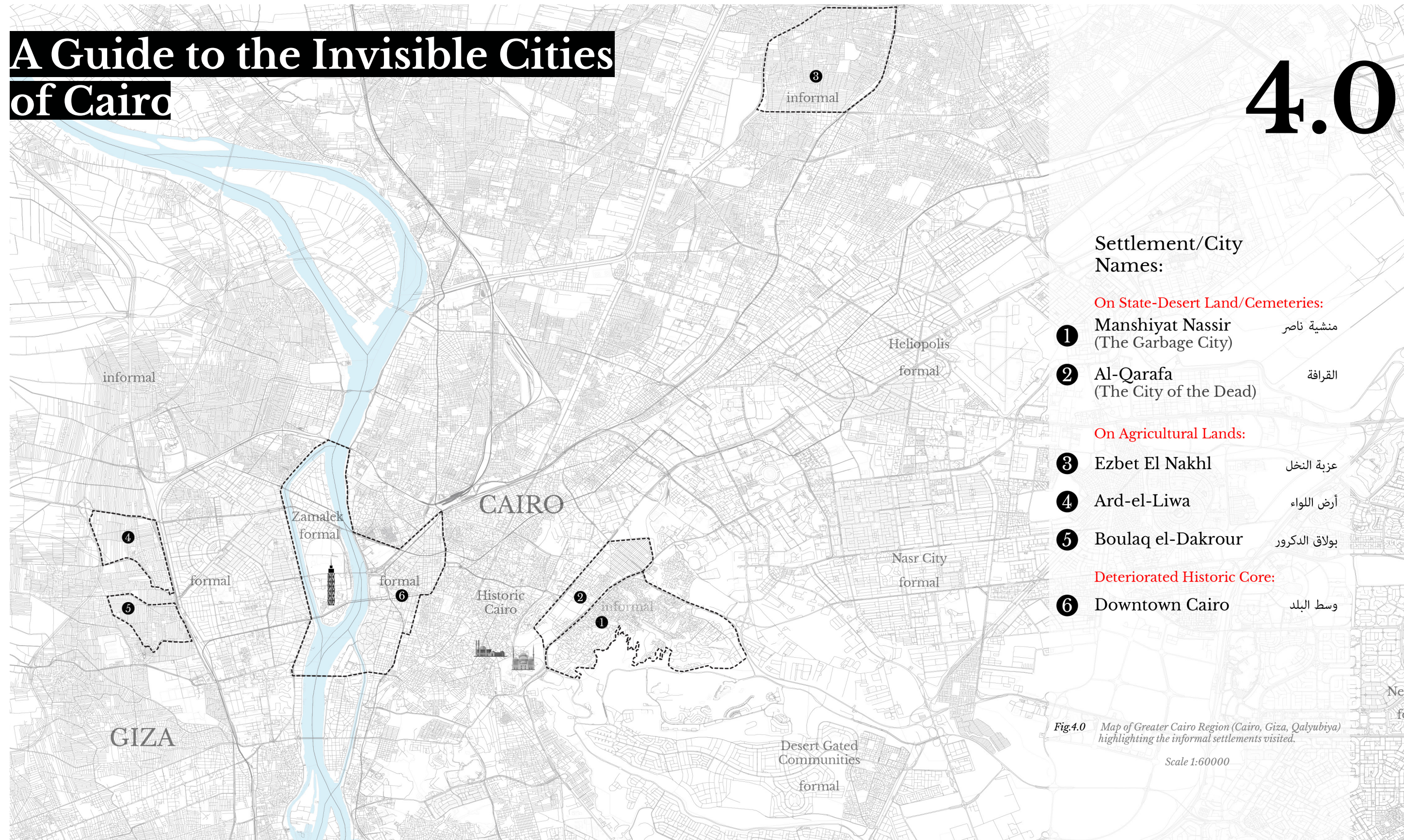
Endnotes

- 1 Angélil and Malterre-Barthes, Housing Cairo: The Informal Response. Page 33
- 2 Ibid. Page 34
- 3 Angélil and Siress, "Cairo: Speculative Informality: DisP - The Planning Review: Vol 52, No 4." Page
- 4 Angélil and Malterre-Barthes, Housing Cairo: The Informal Response. Page 77
- 5 Sims, Understanding Cairo. Page xxi
- 6 Roy and AlSayyad, Urban Informality. Page 176
- 7 <https://www.migrationpolicy.org/article/egypt-migration-and-diaspora-politics-emerging-transit-country>
- 8 Abdelhalim, "Participatory Upgrading of Informal Areas: A Decision-Makers' Guide for Action." Page 3
- 9 Stella Margold, "Agrarian Land Reform in Egypt." Introduction
- 10 Roy and AlSayyad, Urban Informality. Page 180
- 11 Shawkat, Egypt's Housing Crises: The Shaping of Urban Space. Page 21
- 12 Shehayeb, "Cairo's Informal Areas Between Urban Challenges and Hidden Potentials." Page 20
- 13 Goldstein, "In Crowded Cairo, Even the Rooftops Are Teeming with Life."
- 14 "Six-Day War | Definition, Causes, History, Summary, Outcomes, & Facts | Britannica."
- 15 Ibid.
- 16 Sims, Understanding Cairo. Page 45
- 17 Shawkat, Egypt's Housing Crises: The Shaping of Urban Space. Page 12
- 18 Roy and AlSayyad, Urban Informality. Page 174
- 19 Shawkat, "Old Rent."
- 20 Shawkat, Egypt's Housing Crises: The Shaping of Urban Space. Page 14
- 21 Nedoroscik, The City of the Dead : A History of Cairo's Cemetery Communities. Page 43
- 22 "Central Agency for Public Mobilization and Statistics (CAPMAS)."
- 23 Shehayeb, "Cairo's Informal Areas Between Urban Challenges and Hidden Potentials."
- 24 Shawkat, Egypt's Housing Crises: The Shaping of Urban Space. Page 22
- 25 Justin A. McCarthy, "Nineteenth-Century Egyptian Population." Page
- 26 Shehayeb, "Cairo Resilience: City as a Personal Practice." Page 13
- 27 Sims, Understanding Cairo. Page 45
- 28 Roy and AlSayyad, Urban Informality. Page 180
- 29 El-Batran and Arandel, "A Shelter of Their Own."
- 30 Ibid.
- 31 Piffero, What Happened to Participation? Page 14
- 32 Ibid.
- 33 Ibid. Page 16

- 34 Sims, Understanding Cairo. Page 228
- 35 Shehayeb, "Cairo's Informal Areas Between Urban Challenges and Hidden Potentials." Page 23
- 36 Selim, "Between Order and Modernity: Resurgence Planning in Revolutionary Egypt." Page 184
- 37 Sims, Understanding Cairo. Page 59
- 38 Shehayeb, "Cairo's Informal Areas Between Urban Challenges and Hidden Potentials." Page 17
- 39 Sims, Understanding Cairo. Page 7
- 40 Salem, "Peri-Urban Dynamics and Land-Use Planning for the Greater Cairo Region in Egypt."
- 41 Sims, Understanding Cairo. Page 74
- 42 Ibid.
- 43 Barthel, "Rereading Greater Cairo through the Mirror of Density." Page 121-135
- 44 Soliman, "Legitimizing Informal Housing." Page 187
- 45 Goldstein, "In Crowded Cairo, Even the Rooftops Are Teeming with Life."
- 45 Roy and AlSayyad, Urban Informality. Page 91

A Guide to the Invisible Cities of Cairo

4.0



Settlement/City Names:

On State-Desert Land/Cemeteries:

- ① Manshiyat Nassir (The Garbage City) منشية ناصر
- ② Al-Qarafa (The City of the Dead) القرافة

On Agricultural Lands:

- ③ Ezbet El Nakhl عزبة النخل
- ④ Ard-el-Liwa أرض اللواء
- ⑤ Boulaq el-Dakrour بولاك الدكرور

Deteriorated Historic Core:

- ⑥ Downtown Cairo وسط البلد

Fig.4.0 Map of Greater Cairo Region (Cairo, Giza, Qalyubiya) highlighting the informal settlements visited.

Scale 1:60000

4.0 A Guidebook to the Invisible Settlements of Cairo

This chapter serves as a **guidebook**, offering insights into the invisible cities or the realm of “cities within a city”, an urban archipelago model that exists within Cairo. In this guide, I document the informal communities that have been formed out of necessity. They are a symptom of the underlying structural problems facing Egypt. The chapter sheds light on the circumstances faced by marginalized urban populations in Cairo. I document their innovative methods of creating efficient businesses and sustainable livelihoods, showcasing how they thrive beyond the confines of the formal system for housing and economic activities. In these two coming chapters, we investigate the layered narrative of Cairo’s “cities”, from their streets to rooftops. The goal is to explain the coexistence of two distinct realms—the ground floor with its unique challenges and the rooftops serving as dual spaces above the city’s streets. This guidebook will explore how the two worlds co-exist to explain the socio-economic conditions of informal settlements in Cairo. Inspired by Italo Calvino’s renowned novel “Invisible Cities”, the chapter uncovers the narrative of the unseen settlements of Cairo. Each of the following cities are photo mapped and surveyed based on site visits alongside relevant statistics and research.

1. On State-Desert Land/Cemeteries: (Informal)

Manshiyat Nasser (Garbage City)
Al Quarafa (The City of the Dead)

2. Agricultural Cities: (Informal)

Ezbet El Nakhl (Farmland full of Palm trees)
Ard El Lewa
Boulaq El-Dakroul

3. Deteriorated Historic Core: (Formal)

“The Paris of the East”: Downtown Cairo

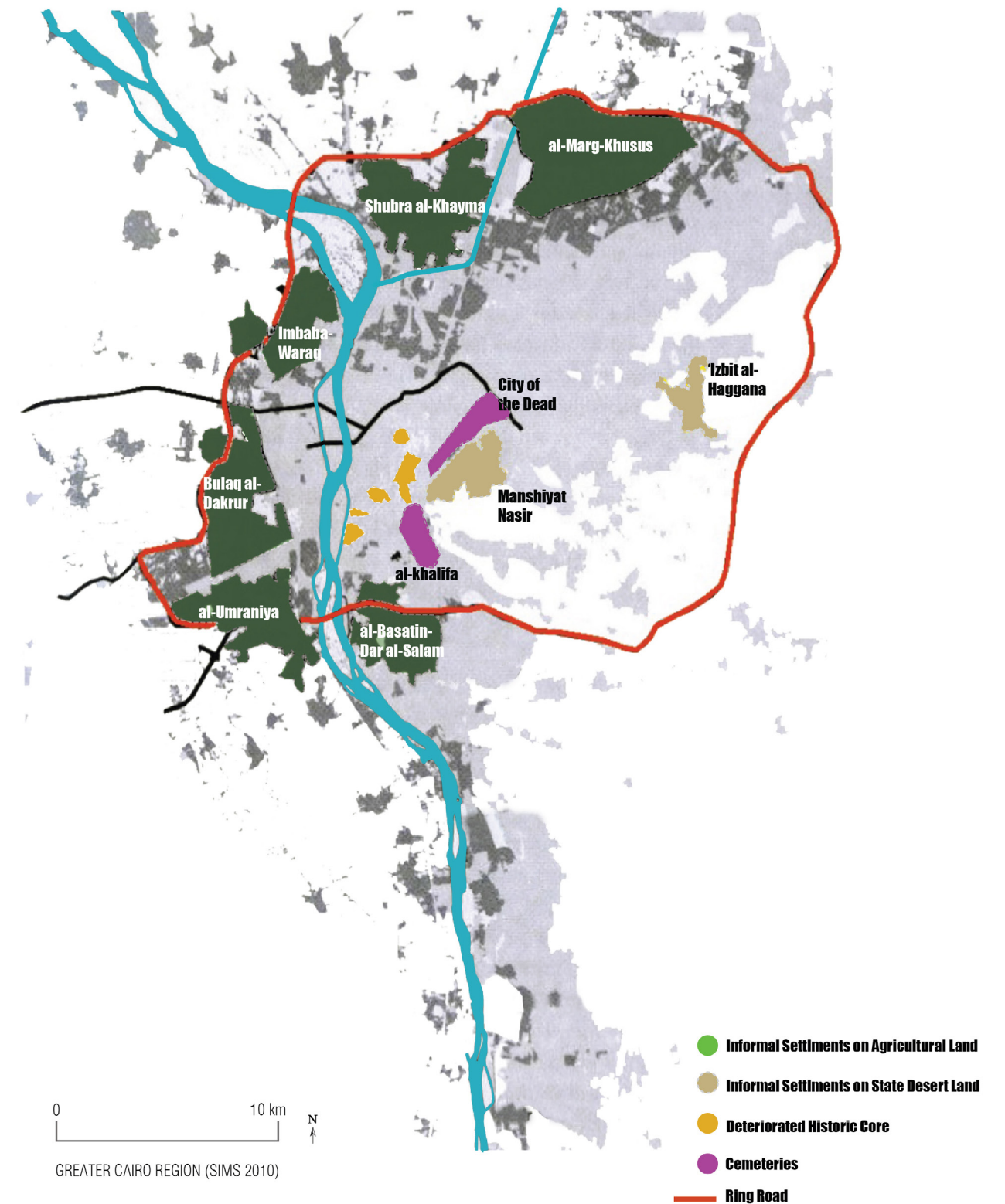


Fig.4.1 Map of Greater Cairo Region highlighting the types informal settlements. By Author. Adapted from David Sims, 2010

● On Agricultural Land



ARD EL LEWA, GIZA

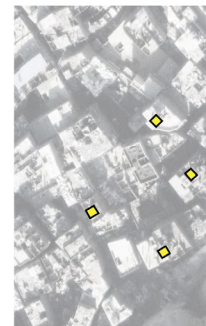


■ Pigeon Towers

● On State Desert Land



MANSHYEA NASSER, CAIRO



■ Pigeon Towers

● On Cemeteries



AL-QUARAF, CITY OF THE DEAD



■ Pigeon Towers

● On Deteriorated Historic Core



ROOFS OF DOWNTOWN CAIRO

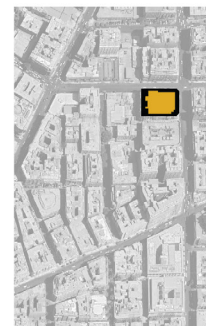


Fig.4.2 Figure ground of the four types of informal settlements in Cairo (bright yellow shows pigeon towers). By Author

Pigeon Tower Phenomenon in Cairo's Invisible Cities

Throughout the exploration of various settlements, a consistent observation was the presence of delicate wooden structures adorning rooftops across these cities (Fig. 4.3). Initially, the connection to pigeons was apparent, but there is an existence of an entire world up on the roofs, complete with unique rules and even a distinct language. A deeper investigation into the subject of Pigeon Towers revealed a fascinating realm of rooftop activities beyond pigeon-keeping, which will be further elaborated upon in the next chapter. Remarkably, Pigeon Towers are unique to the rooftops of informal settlements in Cairo, leading to the conclusion that each settlement consists of two distinct realms coexisting—one on the ground floor, where residents engage in their daily activities, and another on the rooftops with its distinctive logic, where pigeon tower owners passionately pursue the hobby of flying pigeons. (Fig. 4.4)



Fig.4.3 Residential Infill taken from a pigeon tower in the City of the Dead, Cairo. Photographed by author

- density: Lack of open and green spaces
- loss of the remaining agricultural lands
- social injustice: lack of employment, illiteracy
- need for after school care for children
- lack of community development/accessibility
- lack of personal/public space for women
- garbage accumulation/sanitary concerns

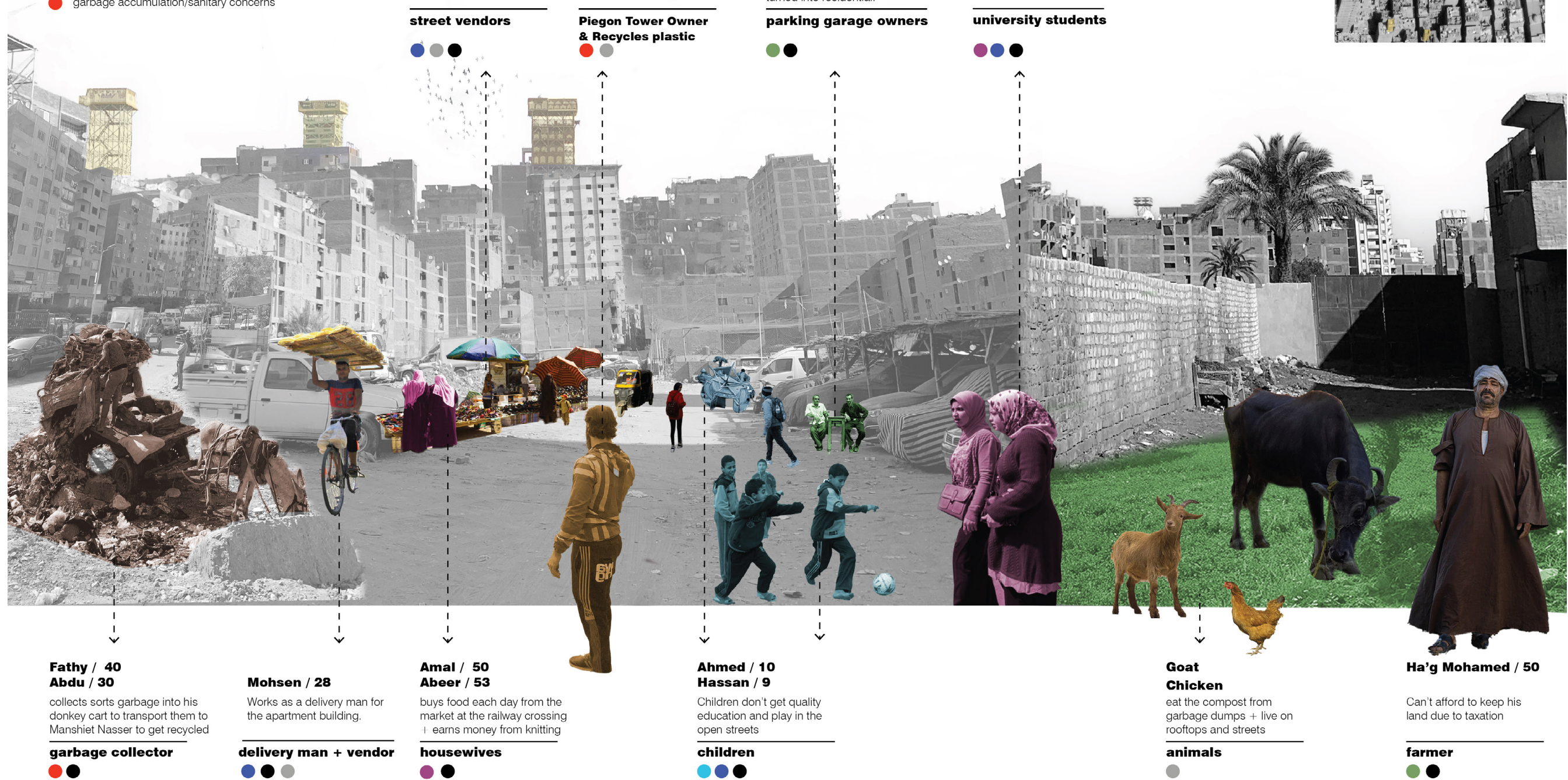


Fig.4.4 Collage showing the different ground floor conditions and challenges of different informal settlements visited in Cairo. By author

4.1 Informal Settlements on State-Desert Land

4.1.1 Manshiyat Nasser (The Garbage City)

Historically, a few significant regions within Cairo's desert were informally settled, notably including Manshiyat Nassir, 'Izbat al-Haggana, and the Fustat Plateau.(Fig. 4.1) These areas, along with smaller pockets on the desert fringes, collectively constitute approximately 10% of the total surface area of all informal settlements surrounding Cairo.¹ The fascinating aspect of informal development on state desert land is how urban fabrics are created. Streets, lanes, and building layouts are determined 'organically' over time through negotiation among settlers, the operations of informal land markets, and the common need for access and circulation. (Fig.4.5) The government has little or no say in the matter. The resulting neighborhood patterns are remarkably reminiscent of medieval urban fabrics in Cairo.



Fig.4.5 Figure ground and aerial view of Manshiyat Nasser, showing Pigeon towers in yellow (The Garbage City).
By author

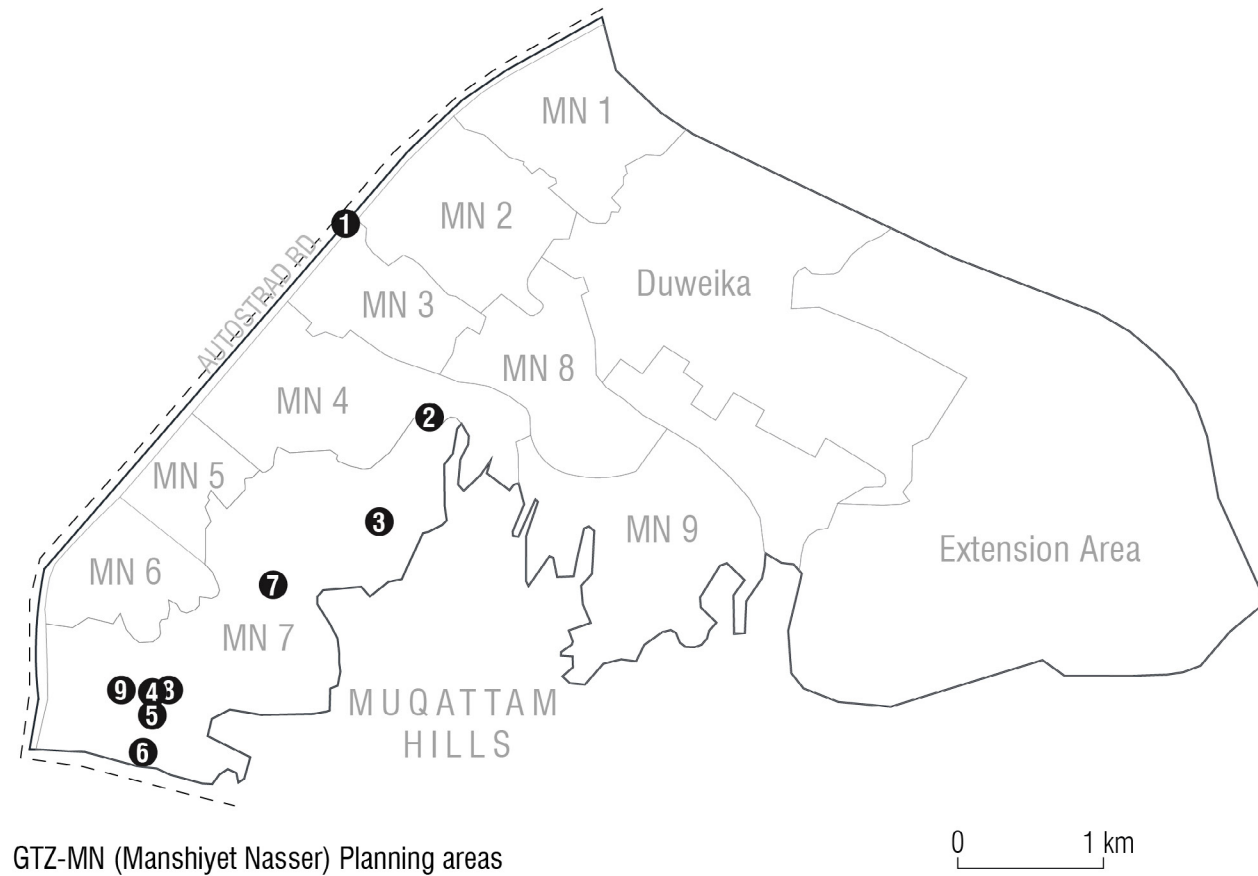
Manshiyat Nasser enjoys a central location within Cairo, at the base of the Mokattam Hills, east of Fatimid Cairo and the cemeteries of Qaitbay. (Fig 4.1-4.6) Its proximity to main streets, Autostrad and Salah Salem, and the connection to downtown Cairo, contribute to its privileged position for cheap accommodations in the city.² The settlement originated in an abandoned stone quarry on the slopes of Mokattam Mountain, representing a typical illegal squatter settlement. The area was used as a limestone quarry from Fatimid times. The nucleus of the settlement was established at the beginning of the 1960s by a group of residents expelled from the Fatimid neighborhood of Darasa and relocated at the base of the dangerous cliffs of the Mokattam. By the end of the 1960s, the population had reached several thousands and President Gamal Abdel Nasser ordered to provide it with water and electricity: hence the name of the settlement. Even though the land is formally owned by the state, residents perceive that they have had somewhat the right to settle in the area: in fact, they claim, it was the government which initially relocated the first inhabitants there and then unofficially recognized their existence by providing services, however minimal.³

Manshiyat Nasser is a district that occupies an area of 7.9 km², inhabited by garbage collectors, sustaining around 6000 families who depend on income from recycling 4000 tons of daily garbage. More than 75% of the families in Manshiyat Nasser are of Upper Egyptian origin.⁴ Currently, Cairo relies on an informal economy, with 40% of its population involved in this sector. Notably, the residents of Manshiyat Nasser play a crucial role in recycling 80% of the city's garbage. Author David Sims, in his book "Understanding Cairo: The Logic of a City out of Control," argues that the informal sector holds the future for people and employment due to its diverse micro-economies and small to medium-scale enterprises.

Now, it houses around 800,000 residents, with 11 districts (MN 1 to 9) are the main districts with two extension areas.⁵ (Fig. 4.7) Economic disparities prevail, with people categorized as either rich or poor, and a lack of intermediate strata. The richer merchants live in the prestigious first row, while poorer residents reside further uphill and closer to the rock cliffs, that can be dangerous to live under, since they have fallen in 2008. Initially desert and no man's land, the government later claimed ownership, and most houses are built without formal land ownership.⁶

Manshiyat Nasser
The Garbage City

منشية ناصر



GTZ-MN (Manshiyat Nasser) Planning areas

MN 1 to MN 5 are the most densely residential densities and are the most densely populated areas and appear to be the oldest and more consolidated core of the district (with peaks of 1503 people per feddan). They are on the main street of Autostrad.

In MN 7 (El-Zarayeb), densities were on the contrary quite low, as buildings are used for garbage recycling activities.

The levels of income reveal that MN 8 is the poorest, with more than half of the residents relying upon less than 250 EGP per month. Slightly better is the situation in MN 5 and MN 3, whereas in MN 7 a significant percentage of the residents enjoys an income of 750 EGP per month or more for their recycling efforts.

In MN 9 (Wadi Faraoon), where the urbanization process started only recently (and is still going) presents low residential densities.

Fig.4.6 Site Plan, showing Manshiyat Nasser (The Garbage City) settlement with its districts. By author



Fig.4.7



Fig.4.8



Fig.4.9



Fig.4.10



Fig.4.11

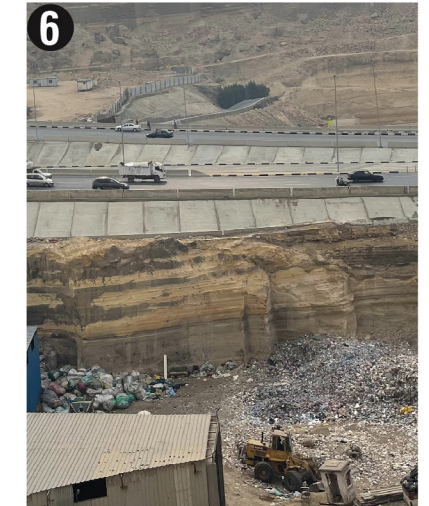


Fig.4.12



Fig.4.13



Fig.4.14

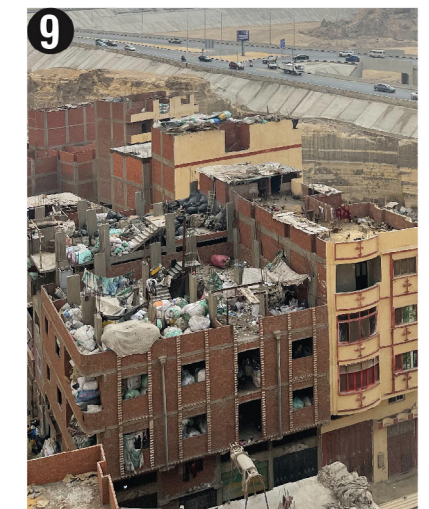


Fig.4.15

4.1.2 Two Realms: Ground as working zone vs Roofs as recreational zone

In Greater Cairo, during the late hours, an unseen workforce known as the *Zabbaleen*, or “garbage collectors” in Arabic, quietly gathers and removes over 14,000 tons of waste everyday.⁷ (Fig. 4.16) Comprising 70,000 Coptic Christians, residing in Cairo’s Mokattam, also called Garbage City, they have transformed this challenging environment into a remarkable recycling hub. Despite the intense labor, the *Zabbaleen* have achieved a recycling efficiency of over 85%, re-purposing discarded materials from a vast population of 12 million individuals.⁸ Passed down through generations, each family follows established collection routes.(Fig.4.16) By relying largely on recycling revenues, they often charge little or nothing for their services, even compensating building owners for collecting trash from tenants.

Upon returning home to Garbage City, women and girls play a vital role in meticulous sorting, an arduous task taking 10-12 hours daily.(Fig.4.16) These families tend to be large, involving all hands and sometimes even animals like goats and pigs. The meticulous separation process sorts materials into general categories and then into highly specific piles of paper, plastic, cardboard, and metal. This practice provides a unique lens through which to understand the urban landscape. As the piles of collected garbage accumulate, the ground floor transforms into a bustling work zone, reflecting the integral role of waste collection in their lives. Notably, organic waste nourishes pigs, a strategy giving Coptic Christians an advantage due to their monopoly on trash collection as pigs are not consumed by Egypt’s predominantly Muslim population. Swine flu brought an unprecedented setback in 2009 when the Egyptian government ordered the culling of all pigs, disrupting the recycling ecosystem and leading to waste accumulation. The *Zabbaleen*, particularly the children who relied on pork as affordable protein, faced hardships.

While the ground floor becomes occupied with the piles of collected garbage, the rooftops present another realm altogether. These elevated spaces offer an escape, where people engage in hobbies like flying pigeons during their leisure time. In Figure 4.16, the yellow masses on the roofs represent the number of pigeon towers in Manshiyat Nasser. This unique duality of functionality showcases the multifaceted nature of the *Zabbaleen’s* lives.

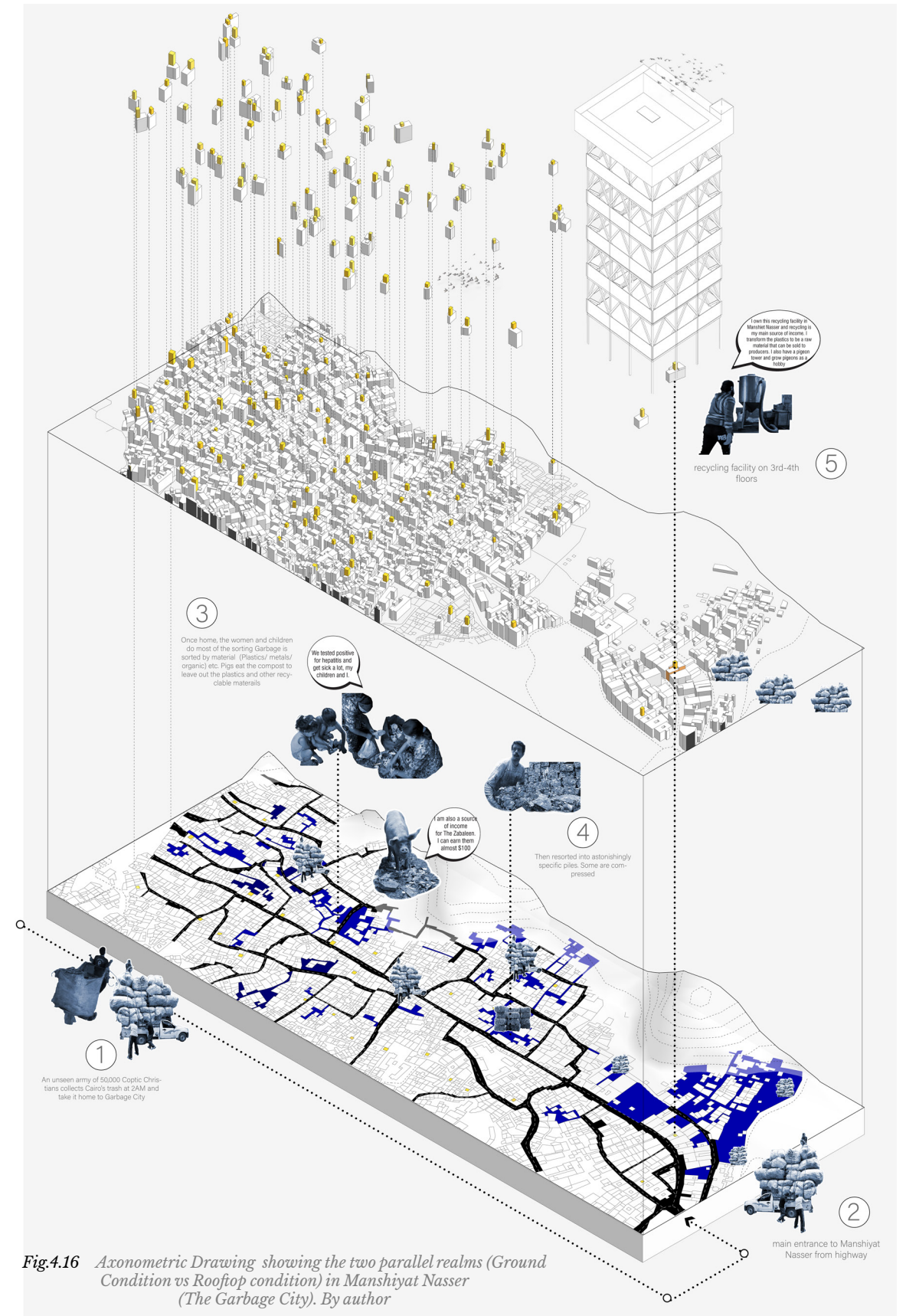


Fig.4.16 Axonometric Drawing showing the two parallel realms (Ground Condition vs Rooftop condition) in Manshiyat Nasser (The Garbage City). By author

4.1.3 Recycling plastics to manufactured goods (hidden factories)



Fig.4.17 Shredded dry plastics to be fed into another machine for processing. Photographed by author in Manshiyat Nasser

The *Zabbaleen* do far more than just sort garbage. They turn it into raw materials, ready for manufacturing. First it must be cleaned and prepped. Plastic bags are shredded, then washed. Machines are used to shred and dry plastics. The clean and dry shreds are then sold to another family-owned business in garbage city where it is mixed with calcium carbonate and fed into another machine. Plastic goo is then extruded like spaghetti and run through a water bath to cool. And finally chopped into tiny pellets, ready to be reincarnated as plastic hanger, chairs, or spoons.

Unexpectedly, during my visit to the Pigeon tower owner in Manshiyat Nasser, I found out that he is involved in the recycling business and owns a recycling facility on the upper floors of the building that has his Pigeon Tower on the roof. He said:

“Once we grew up and had our own running businesses and recycling work in Manshiyat Nasser, we had enough income to afford to build a pigeon tower on the roof of our building. For us this pigeon tower was always an escape, far from the chaos that rules the street. Standing on top of the tower, felt like a different world.”

Despite challenges, the *Zabbaleen* have diversified their livelihoods. They sell collected materials, like plastic bottles, to distant factories such as those in China, after compacting them. They have mastered the art of compressing plastic, even categorizing plastics by brand. Starting at a young age, children play significant roles in these activities, often running the operations by age 8. Among the valuable items in the waste stream are secondhand oil cans, which, when flattened, serve as crucial materials for repairing roofs and walls.

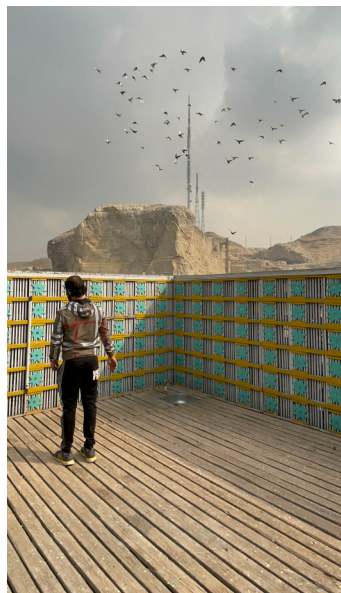


Fig.4.18 Pigeon Tower loft space with the owner in Manshiyat Nasser (The Garbage City)

4.1.4 Non-profit Organizations in Manshiyat Nassir

The Association for the Protection of the Environment (APE), a nonprofit organization, who were interviewed, has been working with the *Zabbaleen* for over 20 years. These quotations are from the interview with the Public Relations Officer and head of the glass recycling unit at A.P.E,

“The association started its recycling projects in 1984, the composting project from leftovers, fertilizers, and paper recycling. Recycling fabrics in the rest of the factories to make carpets, patch works or patchwork, and recycling glass. The association serves all segments of society, all groups, and all ages, without discrimination in religion, race, color, or gender. The association serves in various service fields. A club for children and literacy for women is a study for school students. We offer multiple health projects that serve all the neighborhoods, and we have a team of female health visitors. We have a soccer field across from us where children come to play. The goal is to improve people’s lives from all perspectives, health, social life, education, and cultural.”

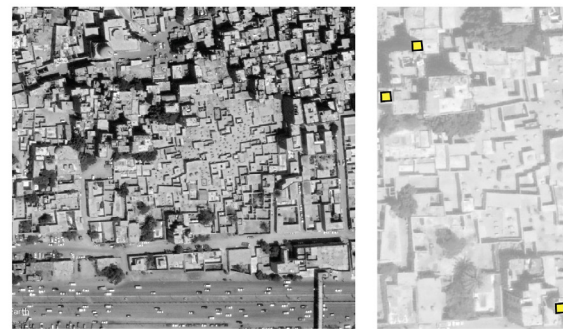
“Illiteracy levels are high and there is a serious shortfall of public facilities here, which we try to provide in the association. Yes, the residents, especially women and children handle the garbage sorting without gloves and basic safety equipment. Most women and children get lung and skin diseases from sorting garbage. There are high levels of hepatitis A and B, with an average life expectancy of 55 years old. Although the recycling business here is profitable, but it’s only profitable for some people, especially men who own these businesses. Therefore, we try to focus on women and children to improve health, provide income generating activities, and provide better access to education for children.”-Public Relations Officer at APE

4.2 Informal Settlements on Cemeteries

4.2.1 Al-Quarafa (The City of the Dead)

In the historic city, Cairo before the expansions which began after 1860, are found neighborhoods with a high percentage of old, crowded, and deteriorated structures within the medieval urban fabric. City of the Dead is an example of an informal settlement within the city's historic and cemetery lands. The deteriorated buildings found in these areas are the result of confused ownership (mostly inheritance quarrels) and/or owner neglect due to controlled rents. Many of the families inhabiting these structures are quite poor, but are living peacefully away from busy streets, within the cemeteries. This includes Darb el Ahmar and El Gamalia (especially the eastern sections along the Fatimid walls), and parts of Masr el Qadima, Boulaq Abou Aala, El Khalifa, etc. Also included are historic "villages" such as Qaitbey which serve the vast historical cemetery areas.(Fig.4.19-20)

On Cemeteries



AL-QUARAFRA, CITY OF THE DEAD

Pigeon Towers

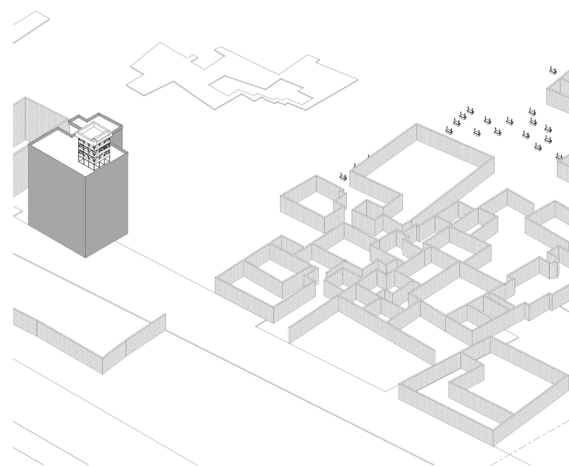


Fig.4.19 Figure ground and aerial view, showing high density residential infill in cemeteries (The City of the Dead).
By author

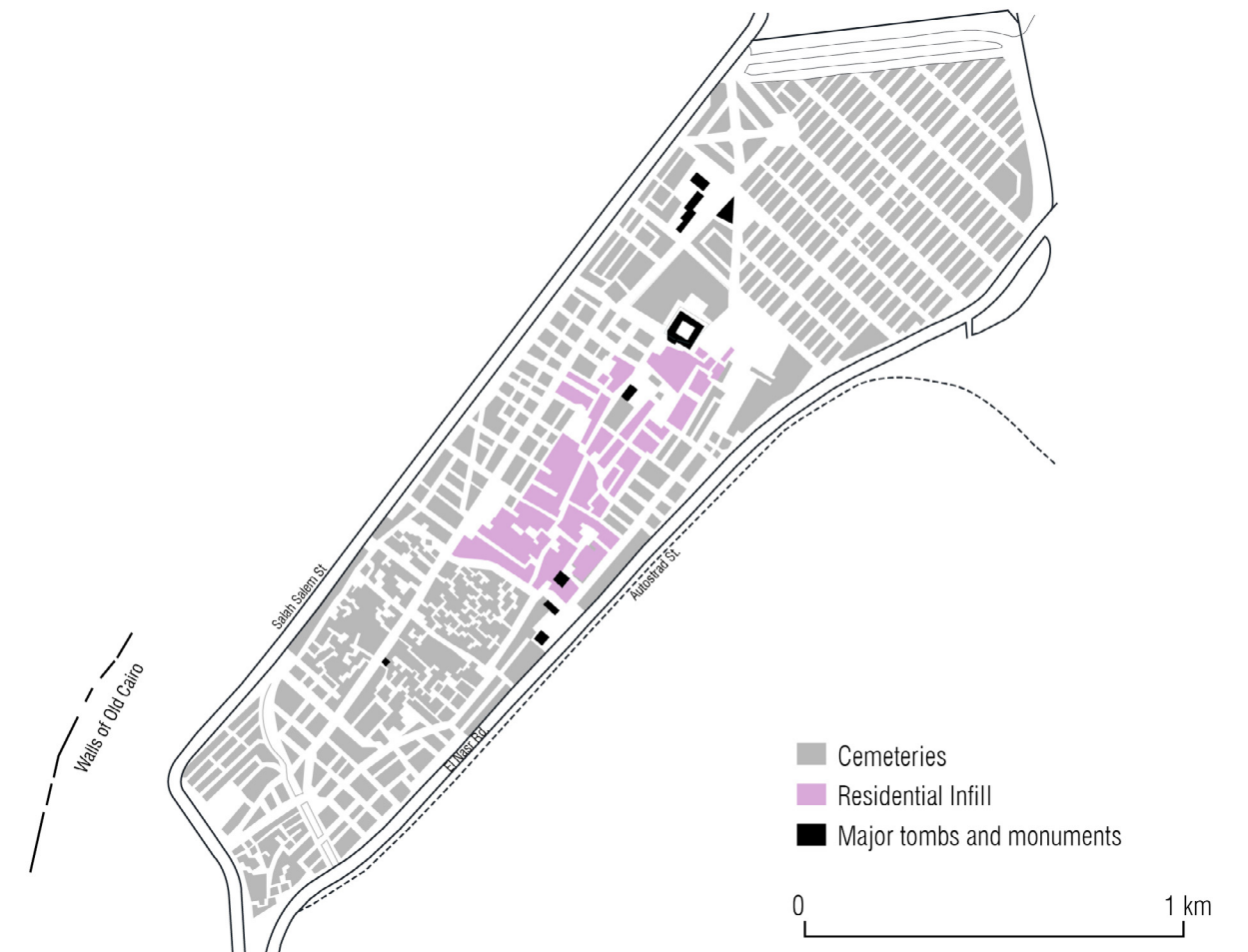


Fig.4.20 Site Plan of Eastern Cemeteries of the City of the Dead, showing high density residential infill in cemeteries and major tombs and monuments in black. By author

The housing crisis that emerged during the twentieth century has made the City of the Dead an increasingly popular shelter for the homeless, with as many as 50,000 residents residing in the cemetery zones alone.⁹ Most residents of the City of the Dead are first, second, or third generation immigrants from the rural areas, most of which came from Suez Canal cities after the 1967 War.¹⁰ People who live here cannot afford luxurious dwellings, but they care about their homes. Houses are colorfully painted or decorated with wall-tiles, many small gardens within the graves are lovingly tended, the tall wooden towers for homing pigeons are genius feats of home-grown engineering ingenuity.(Fig. 4.24) With people going about their everyday lives in the shadow of splendid medieval monuments as they have for more than 700 years, Cairo's City of the Dead is undead (Fig. 4.20-4.29). In the cemetery, families, power lines, multi-story buildings, and a post office mingle with the graves, tombs, and mausoleums. (Fig. 4.20-4.21)

Al-Quarafa The City of the Dead

The City is made up of numerous cemeteries (as shown in the map). There are two main cemetery areas involved, the Southern Cemetery and the Eastern (also known as the Northern) Cemetery. They lie south and east of the old Fatimid or pre-nineteenth century medina area of the city, often known as Old Cairo. The cemeteries occupy much of the area between Old Cairo and the distinctive Muqattam Plateau

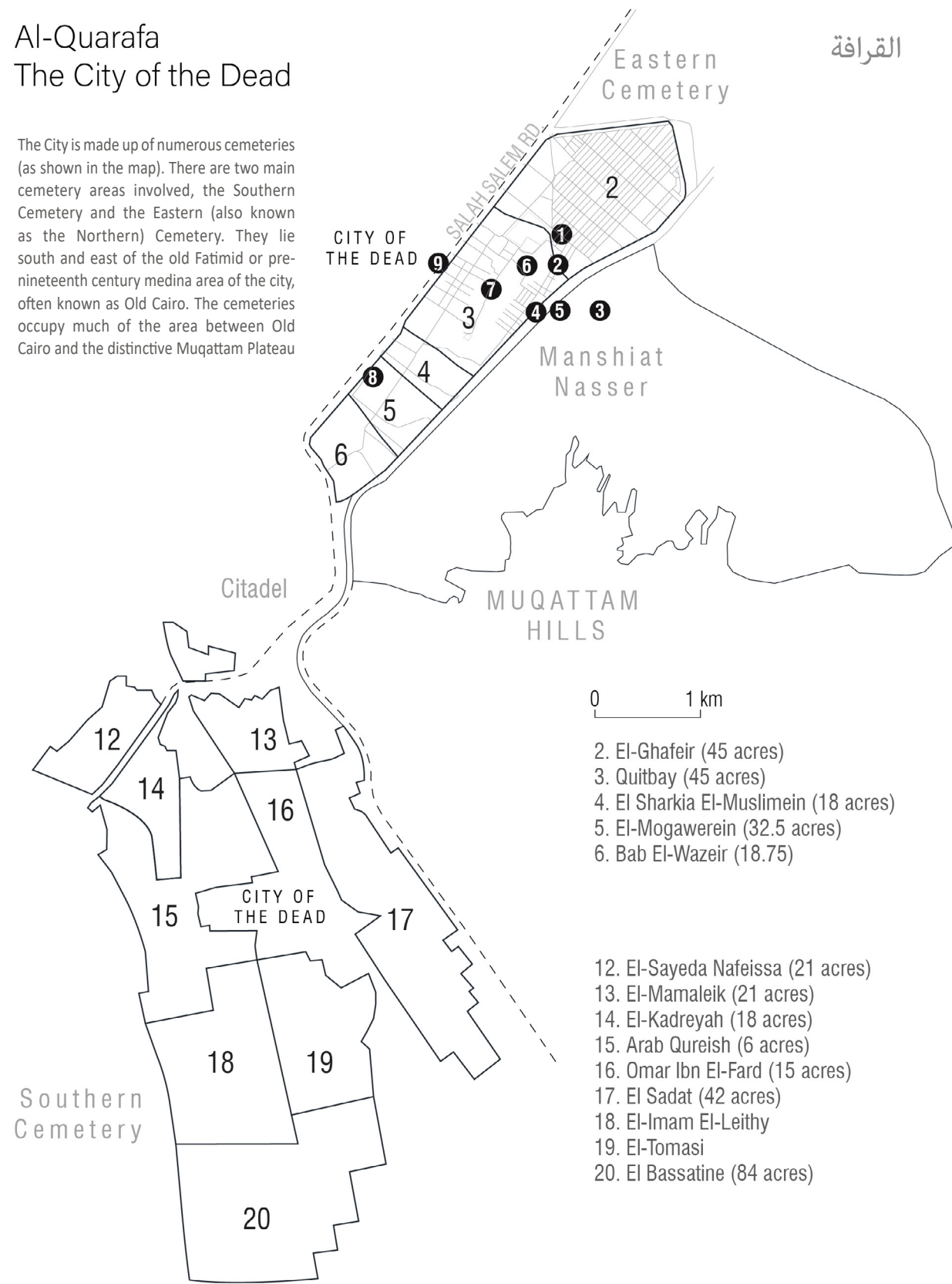


Fig.4.21 Site Plan, showing the City of the Dead with its different cemetery names and sizes . By author



Fig.4.22



Fig.4.25

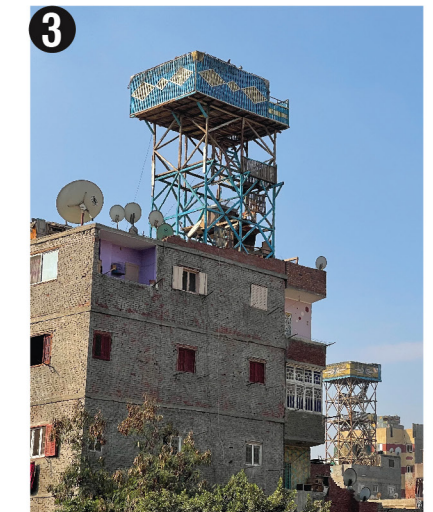


Fig.4.28



Fig.4.23



Fig.4.26

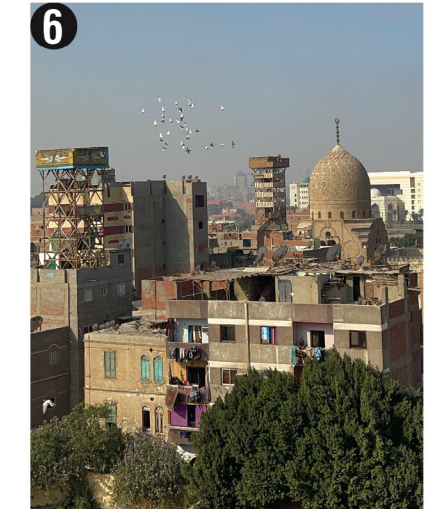


Fig.4.29



Fig.4.24



Fig.4.27

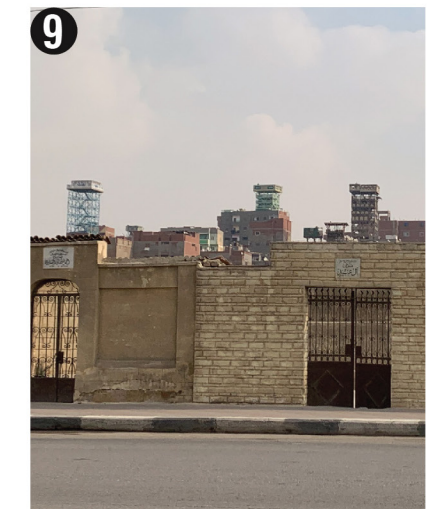


Fig.4.30

Contrary to its name, you will find the City of the Dead to be very much alive as you attempt to make your way through the giant, complex labyrinth. (Fig.4.34) The City is a group of vast cemeteries stretching across some five square miles of Cairo. The people of the cemetery are just another community in the varied social mosaic of Cairo, living their everyday lives and celebrating festive occasions, working, trading, shopping, raising children. Unlike cemeteries in Western countries, where burial plots are typically six feet deep with gravestones marking the burial sites, in the City of the Dead, most burial sites consist of above-ground structures. These structures often have a walled courtyard (*howsh*), which can be as large as houses, constructed on top of substantial underground tombs (see Figures 4.31-4.37).¹¹ These structures demanded caretakers or gatekeepers whose accommodations were provided for. Those with little money found themselves settling in the cemetery. Some of them have a family who has a burial plot in the City of the Dead, so they are able to move in to that area, where their family members are buried. More often, they find themselves invading a tomb, or renting that tomb from the owners for a cheaper rate, in return of the up keeping of the tomb structure.(Fig. 4.31)

Each family has a small enclosed room where their family members are buried. Looking down upon the City of the Dead, the eye meets a tapestry of square and rectangular interlocked of those structures interspersed with the major monuments. (Fig. 4.21) The enclosed rooms are arranged in neatly planned rows. In other areas, the structures are hodgepodge, lacking any discernible direction.

The City of the Dead is registered as part of historic Cairo, and on the list of world heritage sites held at UNESCO since 1979.¹² It has always been an enchanting and mysterious place that holds up a mirror to the intangible and tangible heritage and history of Egypt. Its formal listing aside, the site became a living representation of an ancient idea that death is not the end, but rather a beginning. Ancient Egyptians spent much of their lives preparing for the afterlife, and little have changed since then. Traditionally, when Egyptians bury their dead there is an extensive mourning period of about forty days.¹³ During this period, and according to Cairene tradition, the family of the deceased frequently live in a room or rooms built up around the tomb. In modern times, because of lack of affordable housing and services, many of these funerary rooms have become temporary or permanent homes for many of Cairo's urban poor. Residents have taken over the ancient tombs and mausoleums in the city's vast and old cemeteries. Some of them reside directly inside the mausoleums, while others have built makeshift structures in the spaces between and around the tombs. Every Thursday and Friday, women sell colorful flowers to people who come to visit their family tombs.

The City of the Dead, since the 9th century, was always intended to be also a part of the city of the living. The cemetery had accommodation for overnight stays for visitors as well as long term accommodation of scholars and Sufi convents.¹⁴ The cemetery had accommodation and residences for rulers and dignitaries who were buried there attached to their tomb's mosques which were considered as teaching institutions. Yet life finds its way in. Some people live in funerary enclosures turned into residential courtyards, some in former guards' rooms and historic buildings, and some in hastily erected new houses that have proliferated especially after 2011. Everybody knows everyone else in close-knit communities. Groceries are sold at the marketplace, craftsmen work in their workshops and sometimes right on the streets, people hang out their laundry and do their everyday chores. Boys play football in empty alleys, children run around flying kites, crowds gather to celebrate annual religious fairs (*mulid*), the colorful festivals in honor of venerated *shaykhs* buried here.¹⁵

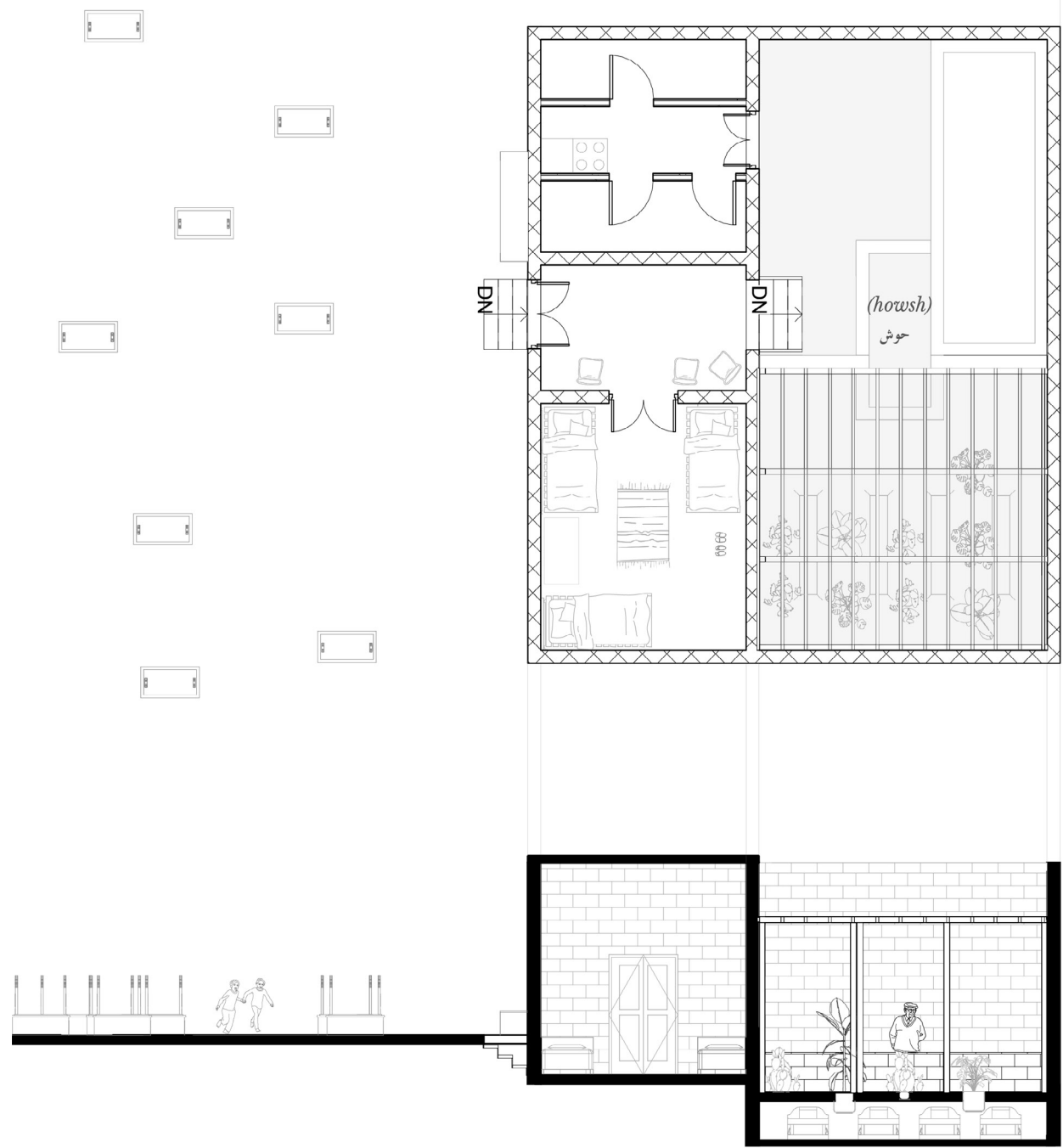


Fig.4.31 City of the Dead Typical Tomb Structures.
Scale 1:100



Fig.4.32



Fig.4.35



Fig.4.38

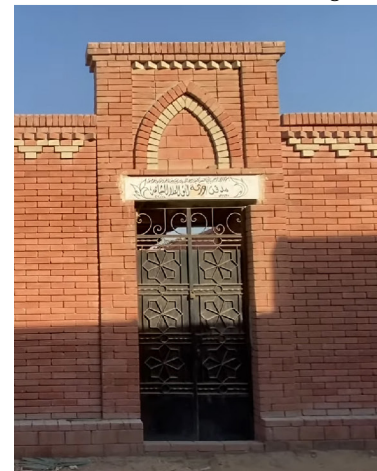


Fig.4.33



Fig.4.36



Fig.4.39



Fig.4.34



Fig.4.37



Fig.4.40

Screenshots from a YouTube walk through the City of the Dead

4.3 Informal Settlements on Agricultural Lands

4.3.1 Land Acquisition and Conversion

Informal Settlements on agricultural lands is defined as private residential buildings constructed on agricultural land purchased from farmers in areas where there were no subdivision plans and where building permits were not given. (Fig.4.41) As such, the words “squatting” or “invasion” cannot be applied. These areas are illegal, but settlers have certain customary rights derived from interpretations of those portions of the civil code pertaining to hand claims on desert land. Around 80 percent of all informal development has occurred on this privately-owned Agricultural land, and the trend continues with ongoing informal development and is anticipated to be the case for future informal expansion as well.¹⁶



Fig.4.41 Figure ground and aerial view, showing high density residential infill on subdivided agrarian land in Ard El Liwa. By author

Most of the agricultural land on the Nile floodplain is privately owned as freehold property, typically in small land parcels. Following President Gamal Abdel Nasser’s nationalization of the country’s assets and the 1961 Agrarian Land Reform, ownership of the Nile’s fertile land was redistributed to small landlords with a maximum area of two hectares per household.¹⁷ The landlords then rented their property to farmers. It is estimated that the annual total of agricultural land converted to urban use in Egypt is 20,000-30,000 hectares.¹⁸

Two main factors aid in the development of so-called informal markets. Land acquisition and land subdivision facilitated future developments. This system increased both the fragmentation is the desire among owners of agricultural lands to subdivide their land into smaller plots for sale.¹⁹ The nature of agricultural lands in Egypt combined with the well-designed irrigation system of water canals makes the conversion from agrarian land to residential development extremely efficient, easy, and logical. The subdivision process of the canals begins with rectangular fields called “feddaden”.²⁰ A feddan is a traditional unit of area in the Middle East equivalent to 4,200 square meters, which is equivalent to 1.42 acres. (Fig. 4.42)

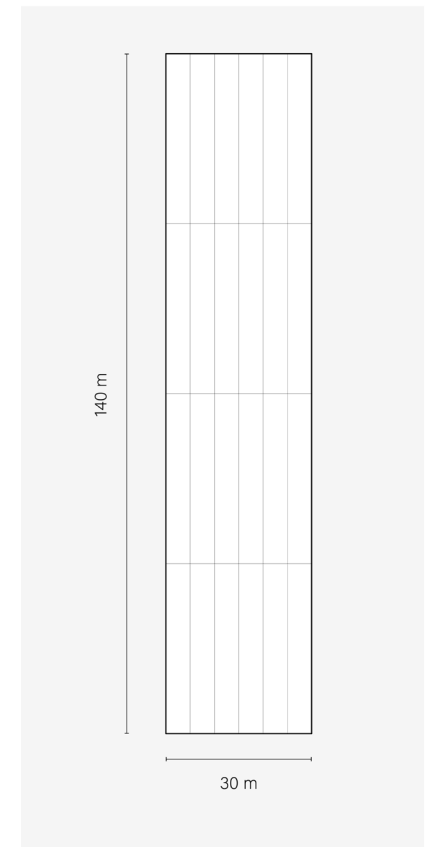


Fig.4.42 A Feddan plot measures 4,200 square meters. By author

- Owners of agricultural lands desire to divide their lands into smaller plots for sale due to increased demand for such plots.
- Subdivision of inherited agricultural land resulting in small, uneconomical farm plots.
- Owners who inherit farmlands, not in the agricultural sector, prefer to sell their land for development rather than deal with the challenges of finding farming tenants.
- Unfavorable farming conditions, such as damage to crops from neighboring dwellings or overshadowing by adjacent dwellings in urbanizing areas.
- Main canals are turned into access roads; smaller channels and inner ditches become neighborhood streets and lanes, therefore the narrow streets seen in (Fig. 4.50) The grid and subdivision makes it easy to upgrade with public services (roads, sewage connections, etc.)²¹

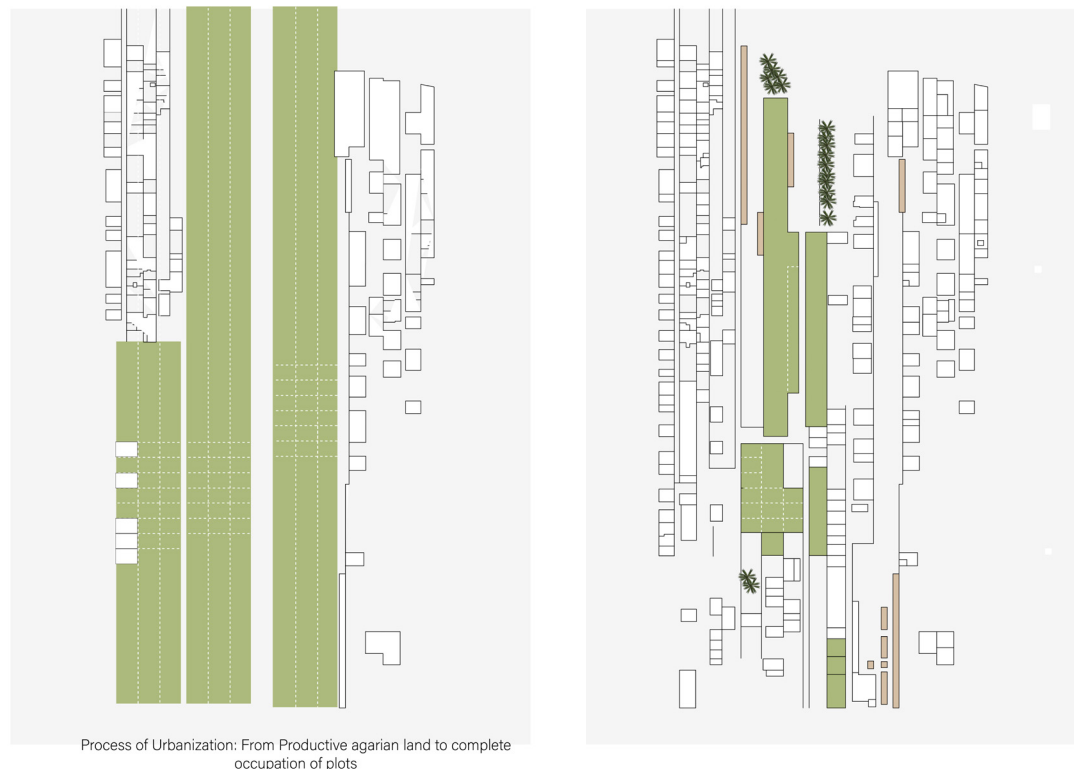


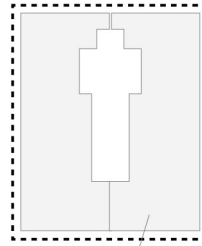
Fig.4.43 Before and after Figure ground of land subdivision process: From productive agrarian land to complete occupation of plots

4.3.2 Ard El-Liwa, and Boulaq El Dakrour

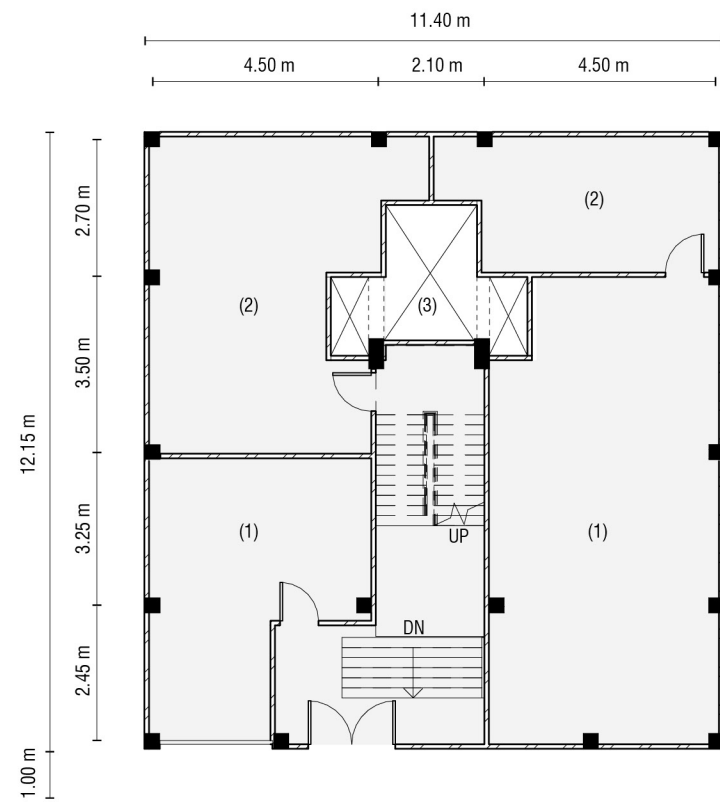
To the west of the Nile, Ard El-Liwa and Boulaq El Dakrour both share a very critical location within Giza. They are both separated from the formal (El Mohandseen and Dokki) by the railway tracks which physically separates them from the formal, almost like a border between people in them and the others.(Fig. 4.60) Several conditions coincided to create the demand for settlement in the locations of Boulaq el-Dakrour and Ard El-Liwa. A main driver behind their growth was the development of a planned extension to Greater Cairo in the 1950s on what used to be agricultural land. Madinat Al-Awqaaf, nowadays Mohandiseen, consisted of land subdivisions for sale to mainly middle-class professionals. This development created jobs for lower income groups and gradually transformed the neighboring villages from agricultural to industrial and service-based economies. Both these cities can be seen on the other side of the ring road, that separates them from the rest of the agrarian land to the east. The settlement of Ard El Lewa is a classic of a familiar mode of Egyptian informality, where the land is converted from agricultural land in the Nile Delta to an urban settlement. The city's social fabric is more diverse than in Manshiyat Nasser. Yes, their socio-economic conditions seem to be on the more formal side than Manshiyat Nasser and Al-Quarafa.

Drawing from a survey of various residential buildings in Ard El-Liwa²², figures 4.44-46 represents a typical “informal” residential building situated on one of the first streets developed in the area. Initially built by its original owner, the property is currently under the ownership of the owner's brother and is occupied by his sons and cousins. The eight-story building has a typical layout, with no elevator, a central staircase ,and two apartments per floor, each 67 square meters. There are seven residential floors, and the ground floor is occupied by two seperate commercial and production spaces. A single cross-shaped vertical shaft is connected to the staircase, facilitating access for plumbing and wiring. The residents view the rooftop as an extension of their living space, often using it for barbecues and urban farming because of limited kitchen space in their apartments.

Surface for:
 Distribution: 5.6%
 Shafts: 7.5%
 Window/Floor ratio: 9.7%

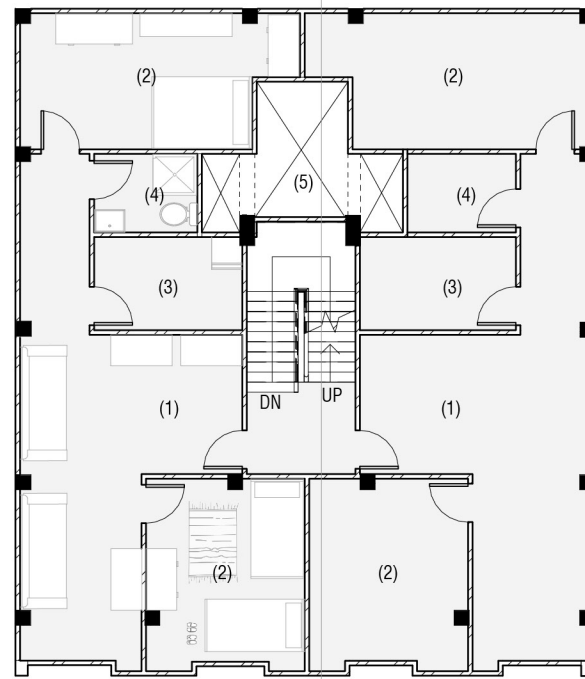


110 Sq m



- (1) Commercial/Workshop space
- (2) Storage
- (3) Shaft for utilities (Lightwell)

Fig.4.44 Ground Floor Plan. By Author
 Scale 1: 150



- (1) Living-room
- (2) Bedroom
- (3) Kitchen
- (4) WC-bathroom
- (5) Shaft for utilities (lightwell)

Fig.4.45 Typical Floor Plan. By Author
 Scale 1: 150

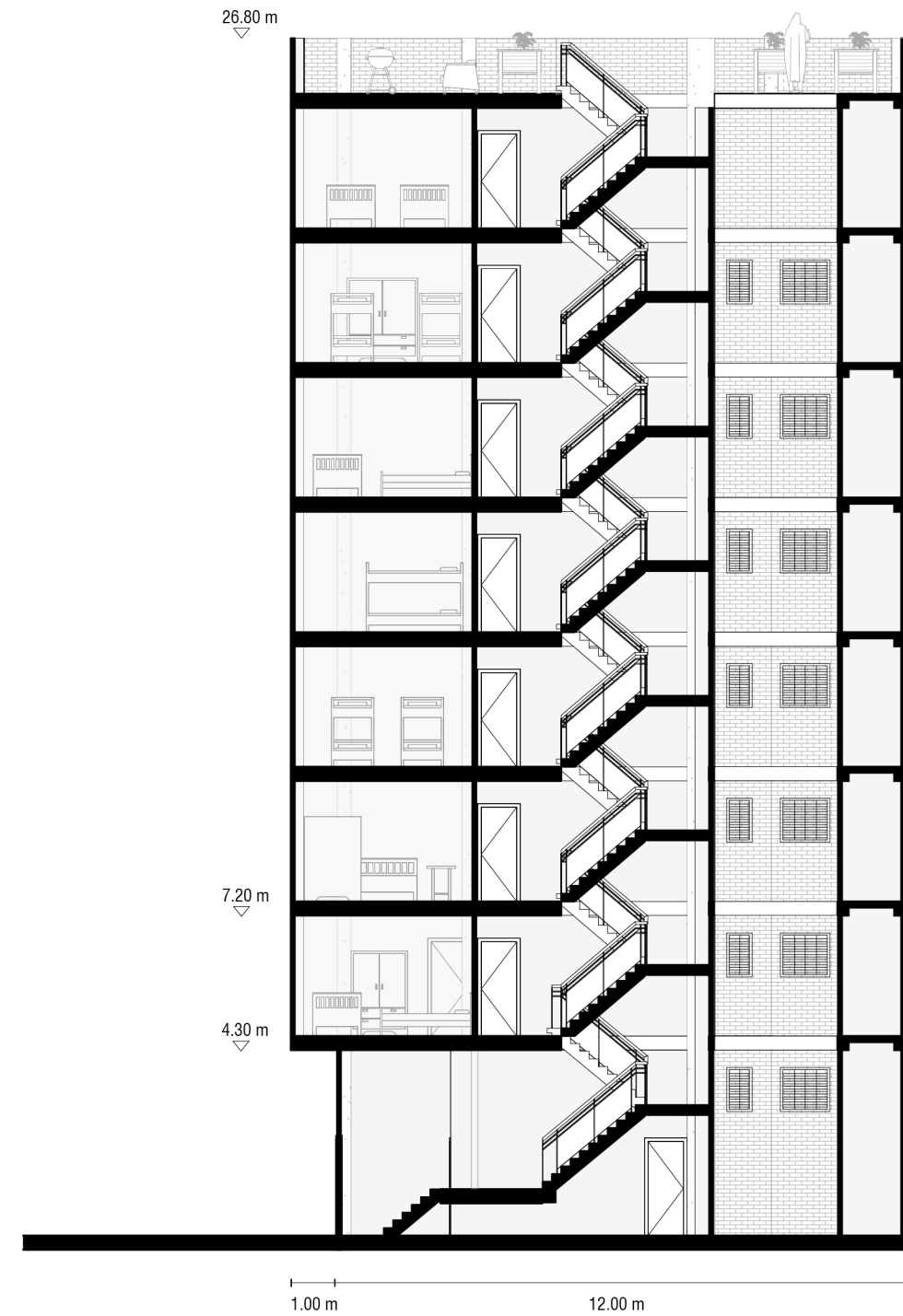


Fig.4.46 Typical Floor Plan. By Author
 Scale 1: 150

Informal areas face various constraints in terms of their growth, often located on agricultural or unsafe terrains. Factors such as entrepreneurial initial subdivision and subsequent infrastructure development contribute to significant drawbacks in residents' quality of life.²³ Inadequate road quality and transportation options, inadequately ventilated dwellings, and unregulated construction further exacerbate these issues, potentially varying in safety based on local contractors' expertise.(Fig.4.60) The absence of regulations is a key contributor to these challenges.

Services such as garbage collection, street lighting, street cleaning, and public landscaping are performed quite successfully in residential streets, where narrow widths restrict the access by strangers, and through-traffic allows those streets to be appropriated and controlled by their residents. People clean and maintain what they feel is theirs. (Fig. 4.47)²⁴

An informal area west of Greater Cairo, Boulaq el-Dakroul (Fig.4.54) is nine square kilometers, and said to house around 1.2 million inhabitants.²⁵ Studies reveal that the profile of its inhabitants includes a wide spectrum of socio-economic groups; from street-vendors to medical doctors and lawyers; mainly residents with low car-ownership.²⁶ Only 10% of residents own a private car) who constitute most pedestrians and users of mass transport.²⁷ This preference is driven by the compact layout of structures and the integration of commercial pedestrian streets with residential pathways, resulting in a lack of wide vehicle routes. The controlled access of residential streets to slow-moving cars is reminiscent of pedestrian zones in Europe. Following walking, micro buses are the second most utilized means of transport. (Fig. 4.52) However, concerns have arisen among residents about the quality of micro buses, highlighting issues of overcrowding, cleanliness, and safety. This aspect presents an opportunity for improvement through interventions aimed at regulating the transportation system.

Boulaq el-Dakroul and Ard El Liwa (Fig. 4.44) include different types of informal housing. The most widespread is made up of medium height. High-density brick and reinforced concrete buildings. In some areas, the average building height is 6-8 floors, with some structures on the wider perimeter roads rising to a height of more than 12 floors.²⁸

Overall, based on this analysis of people's daily life, has highlighted a few spatial characteristics of informal areas that support positive aspects of the residential environment, such as "walkability," "self-sufficiency" in terms of daily needs, "convenience" and "home-work proximity", safety in residential streets, and resident participation in the provision of public amenities and regular upkeep.²⁹

Based on site visits in these two areas, one will notice a pattern of voids that consist of either soccer fields and parking lots or leftover agricultural land waiting to be subdivided and transformed into residential use. In Ard El Liwa, traces of palm trees can be seen in the middle of the streets (Fig. 4.46). Within those voids, residents own car and rug washes as a small enterprise that brings them enough income to live.(Fig.4.51) There is a pattern of youth centers with large soccer fields for children to play after school. (4.50) Although the streets are narrow (Fig. 4.47), but there are varieties of coffee shops and workshops (Fig.4.47-52-62) Residents also appreciate the fact that goods in those shops and markets are affordable and perceive them positively as a source of income for area residents.

Ard El Lewa
Agricultural City

أرض اللواء



Fig.4.47 Site Plan, showing Ard El Liwa and the remaining agrarian land and urban voids next to the formal neighborhood.
By author



Fig.4.48



Fig.4.51



Fig.4.54



Fig.4.49



Fig.4.52



Fig.4.55



Fig.4.50



Fig.4.53



Fig.4.56

Boulaq El Dakrouk
Agricultural City

بولاق الدكرور



Fig.4.58



Fig.4.61

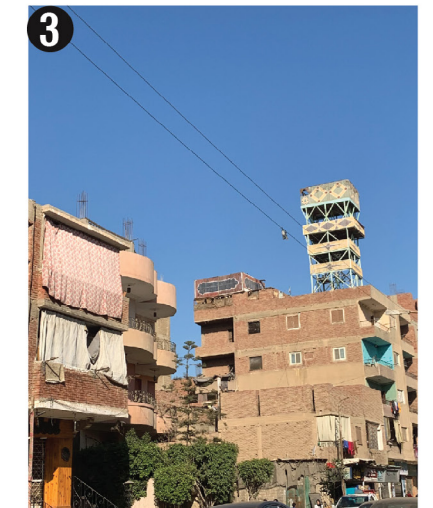


Fig.4.64



Fig.4.59



Fig.4.62



Fig.4.65



Fig.4.60



Fig.4.63

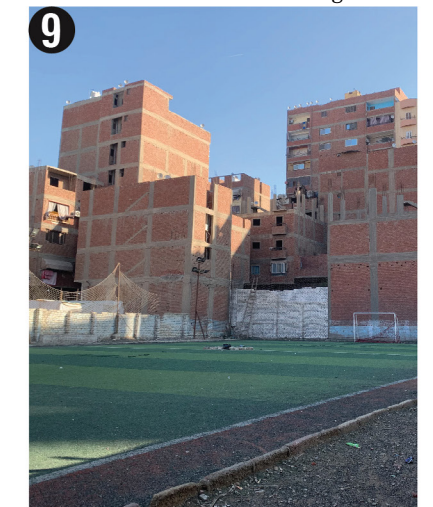


Fig.4.66

Fig.4.57 Site Plan, showing Boulaq El Dakrouk, the remaining agrarian land, and urban voids next to the formal neighborhood. By author

4.3.3 Ezbet El-Nakhl

From its name, you can tell the history and story behind this town. The word “Ezba” is the Arabic word for a plot of farmland village. “El Nakhl” literally translates to “the palm trees”. Ezbet El Nakhl therefore implies that the district was once a farmland full of palm trees. (Fig. 4.64) Unfortunately, today it’s a residential area with very few palm trees remaining. It is in the northern region of Greater Cairo, east of the Nile, in Egypt. The district is separated by the metro station (Ezbet El Nakhl station) into two regions, Eastern Ezbet El Nakhl & Western Ezbet El Nakhl.

The district is separated by the metro station (Ezbet El Nakhl station) into two regions, Eastern Ezbet El Nakhl & Western Ezbet El Nakhl. One part belongs to the Cairo Governorate and the other to the Qalyubia Governorate. (Fig. 4.65) Being divided between two governorates means services like education and health are unreliable.

Ezbet El Nakhl is partly a slum and partly has multi-storey concrete and red-brick infill buildings. (Fig. 4.70) Living conditions in Ezbet el-Nakhl are worse than Manshiyat Nasser, but similar in terms of its informal economy of Garbage collecting and recycling. Majority of the population in Ezbet El Nakhl are Coptic Christians who have made their own recycling workshops within the area. (Fig. 4.74) In a residential neighborhood in Ezbet El Nakhl, various activities on the rooftops can be seen, including daycares and families coming together for prayers (Figures 4.72, 4.68, 4.71). These rooftop scenes stand in contrast to the activities on the ground floor, as depicted in Figures 4.67, 4.69, 4.70, and 4.74.



Fig.4.67 Old photograph of Ezbet El Nakhl during 1940s.

Ezbet El Nakhl
Agricultural City

عزبة النخل



Fig.4.68 Site Plan, showing Ezbet El Nakhl, the remaining agrarian land, and Heliopolis formal neighborhood. By author



Fig.4.69



Fig.4.72

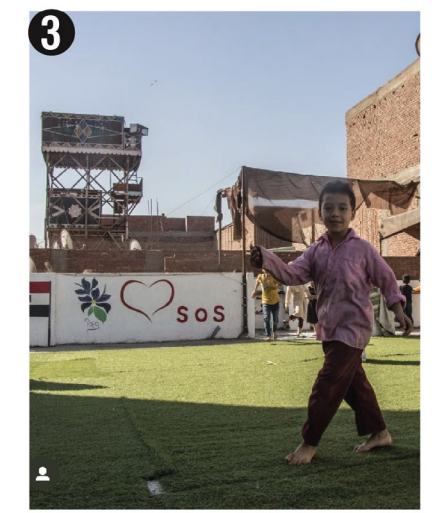


Fig.4.75



Fig.4.70

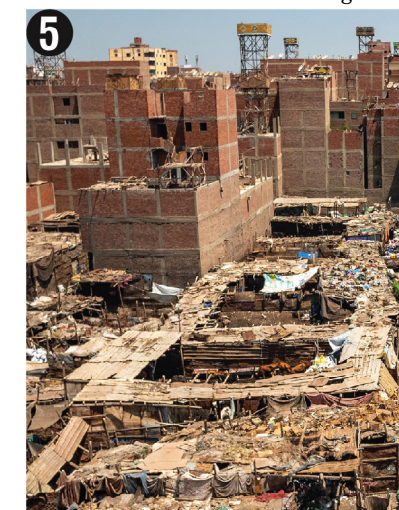


Fig.4.73



Fig.4.76

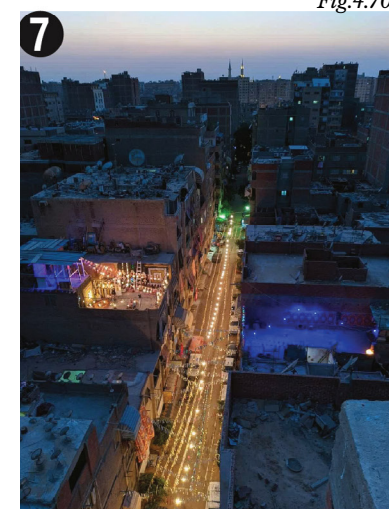


Fig.4.71



Fig.4.74

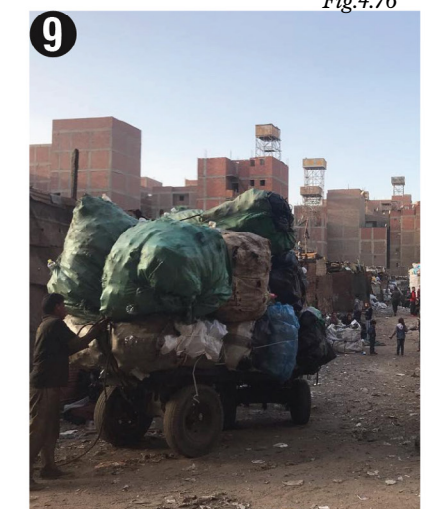


Fig.4.77

4.4 Informal Settlements on Deteriorated Historic Core

4.4.1 Downtown Cairo

Historic Cairo still has many undiscovered potentials, the most prominent of which are the roofs of heritage buildings in Khedival Cairo. Amongst all cities mentioned above, downtown Cairo is considered formal, however it is deteriorating, and there have been efforts to revive and preserve its architecture.

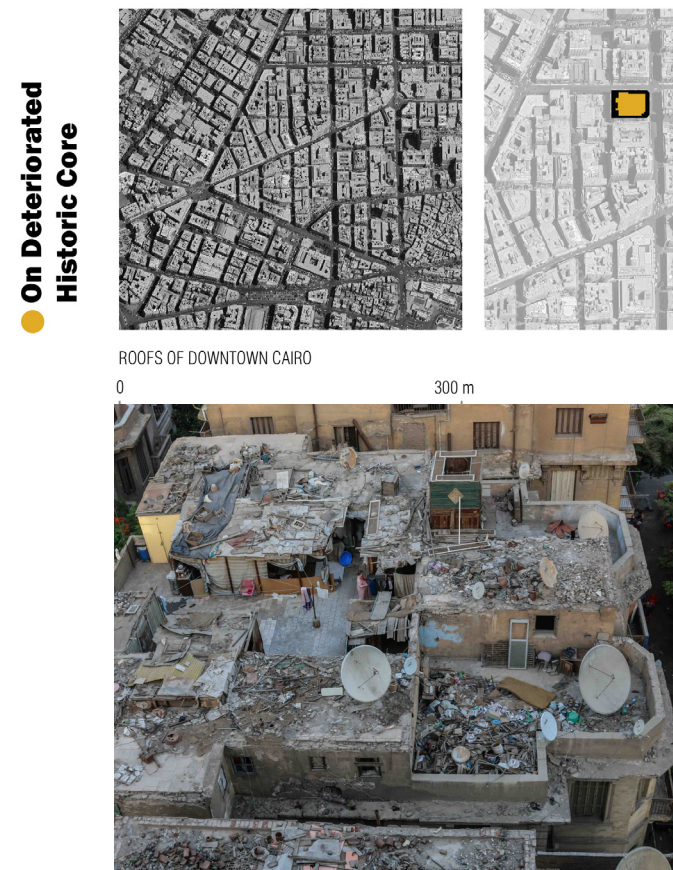


Fig.4.78 Figure ground and aerial view, showing rooftop dwellers in Downtown Cairo. By Marie Piessat

4.4.2 From laundry rooms to housing

While the city explodes and the city changes, the lives of the invisible residents of Cairo's rooftops carry on. Whole families live in makeshift homes on the rooftops of old buildings designed in a style similar to Parisian architecture. (Fig. 4.76-77) Thousands have been installed here, like in real micro villages, through word of mouth, in the 60s and 70s. Rooftop dwellers came from the Delta region, or more often from the region of Upper Egypt, they improvised porters, street vendors and day by day they have welcomed their fleeing families from the countryside. The historical building "The Yacoubian Building" was constructed in 1937 under the patronage of millionaire Jacob Yacoubian, who was a prominent figure in Egypt's Armenian community. Yacoubian entrusted Armenian architect Jaro Balian to design the building, reflecting the elegant Art Deco style with a touch of European aesthetics. Over the years, the building became a residence for various distinguished individuals, including Egyptian pashas, wealthy Europeans, and renowned artists, fostering a diverse community that brought together different religions, ethnicities, and nationalities. However, following the 1952 revolution, some buildings, including this one, came under state ownership, leading to changes in the living conditions of its inhabitants. Many were forced to leave, and the building underwent physical alterations, notably transforming rooftop rooms from laundry spaces to dwelling units.³⁰ The Yacoubian building serves as a metaphor for contemporary Egyptian society.

Rooftop dwellers can be observed in some of the most formal neighborhoods, like Downtown Cairo and others, having secured arrangements to rent rooftop spaces from the building's owners. (Fig.4.75) In exchange for their tenancy, they adopt the role of gatekeepers, managing access to the building, facilitating deliveries, including groceries, for the residents, cleaning resident's parked cars, and ensuring security throughout the day. This unique arrangement blurs the lines between formal and informal elements, forging a distinct dynamic where rooftop dwellers play a functional and valuable role within the more structured urban environment.

Downtown Cairo
A Formal City

وسط البلد

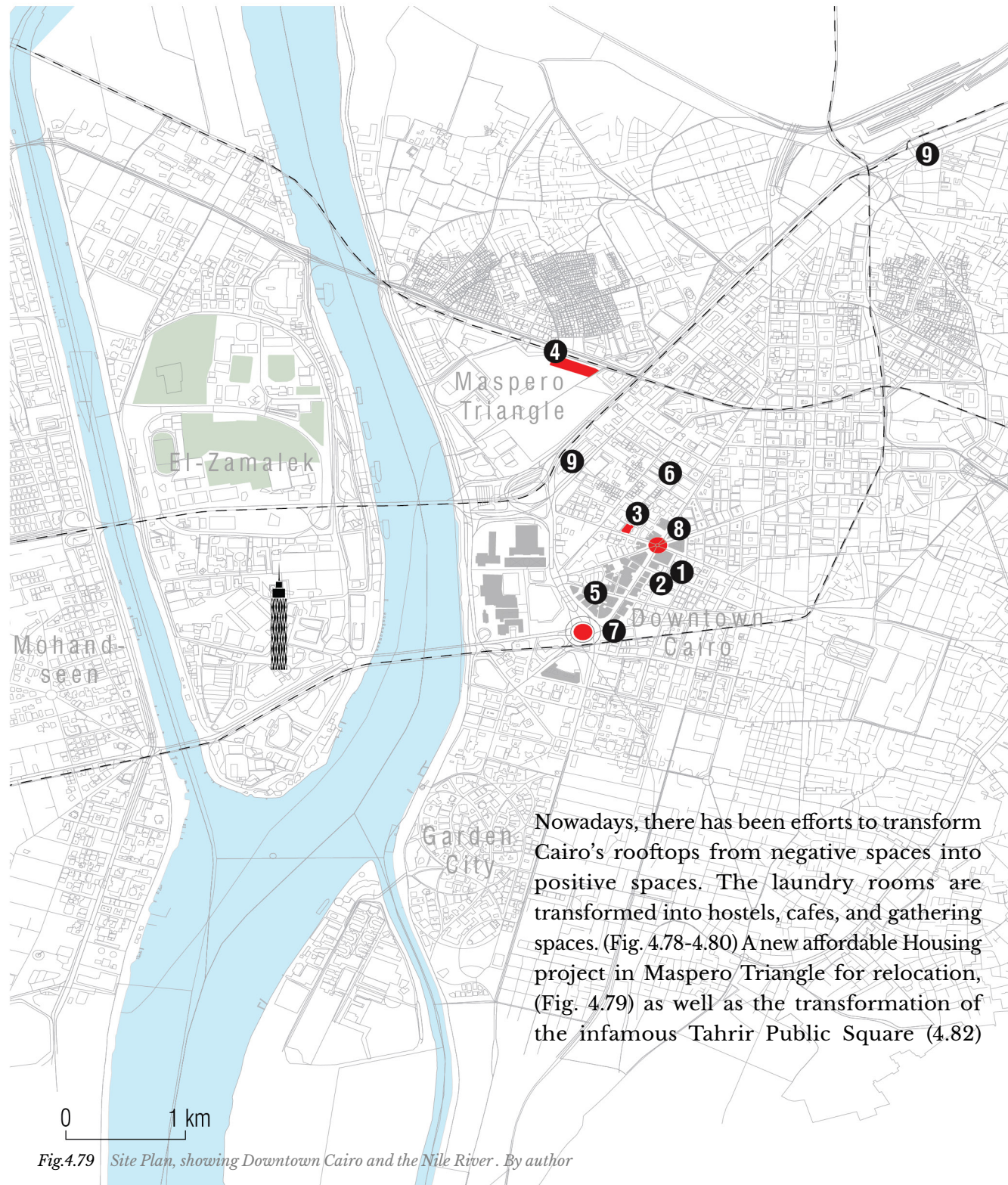


Fig.4.80



Fig.4.83



Fig.4.86



Fig.4.81



Fig.4.84

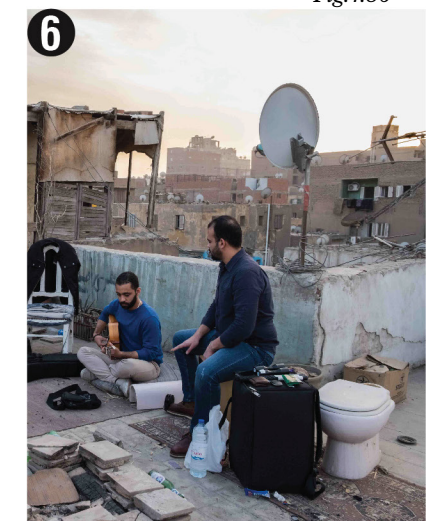


Fig.4.87

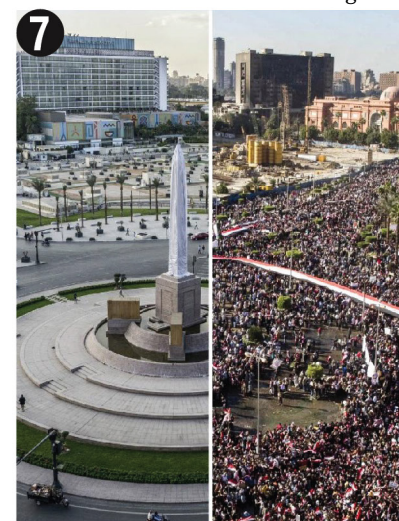


Fig.4.82



Fig.4.85



Fig.4.88

4.5 Conclusion

In summary, this chapter unveiled a complex layered narrative of Cairo's 'invisible cities,' highlighting the informal settlements' role as micro-cities, each with its flourishing businesses, micro-economies, and unique dynamics. One could never comprehend the co-habitation amongst functions like garbage recycling and the dead. However, this coexistence results in a challenging street dynamic where the ground floor is primarily dedicated to industries like garbage recycling. This leaves no space for recreational areas or public spaces, all while contending the issues like air pollution and heavy traffic on the street plane. Therefore, in contrast to the prevailing formality and strict bylaws observed in North American cities, numerous urban centers within the Global South, such as Cairo, establish a strong sense of informality. (Fig. 4.86) This informality serves as a mechanism through which individuals attain agency over their respective spaces. In North American cities as well as new desert cities in Cairo, zoning bylaws are applied on a horizontal plane, and industrial zones are typically zoned away from residential areas. (Fig.4.87) In contrast, informal settlements in Cairo follow a sectional de facto zoning where the ground floor is the industrial plane, and people live above and recreate on rooftops. (Fig. 4.86)

Within these types of informal occupation in Greater Cairo, there is a spectrum of a formal/informal logic. Therefore, the four types of informal occupation can also be situated on a spectrum within Greater Cairo. Based on the informal economy of recycling garbage in Garbage City and Ezbet El Nakhl, they can be on the lower end of the spectrum, however they can be earning more income than other areas in Greater Cairo. Living in the most peaceful area in Greater Cairo with almost no pollution, the City of the Dead comes after as their income is lower. Ard El-Liwa and Boulaq El Dakroul are next as they are considered on the edge of a formal city. Downtown Cairo is considered a formal area, however many of its rooftops are informally inhabited.

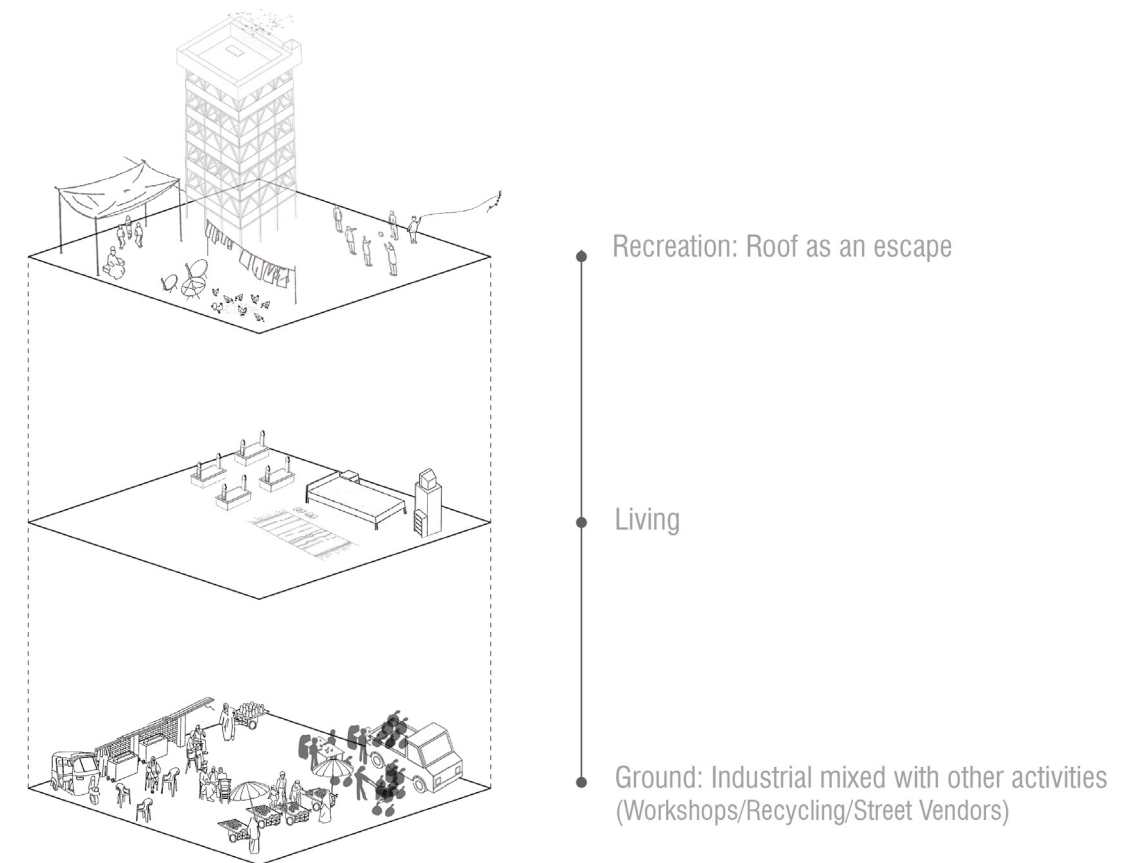


Fig.4.89 Sectional Zoning in most Informal Settlements in Cairo

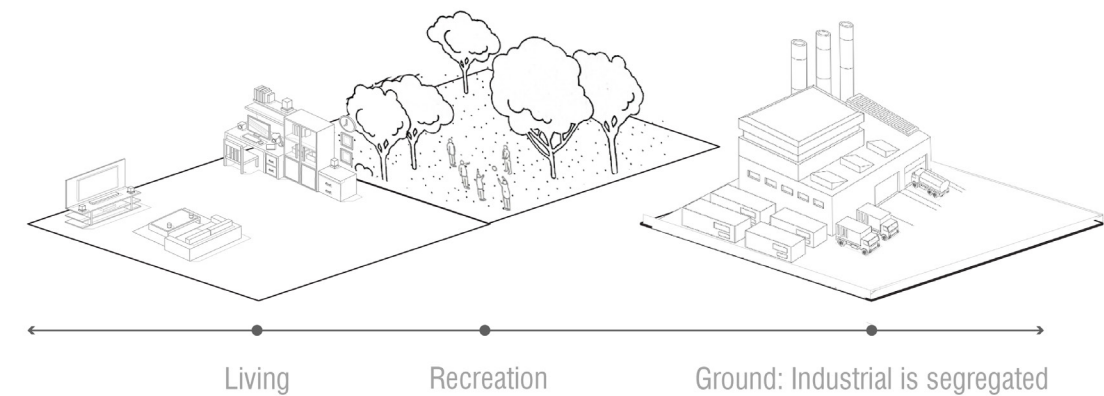


Fig.4.90 Horizontal Zoning in most Formal/planned neighborhoods in North American cities and Cairo.

Endnotes

- 1 Sims, Understanding Cairo. Page 115
- 2 What happened to Participation. Page 74
- 3 Ibid. Page 75
- 4 Ibid. Page 78
- 5 “Manshiet Nasser - Tadamun.”
- 6 Ibid.
- 7 Soth, “Cairo’s Zabbaleen and Secret Life of Trash.”
- 8 Ibid.
- 9 Nedoroscik, The City of the Dead : A History of Cairo’s Cemetery Communities. Page 27
- 10 Ibid. 52
- 11 Ibid. Page 4
- 12 Centre, “UNESCO World Heritage Centre - State of Conservation (SOC 2021) Historic Cairo (Egypt).”
- 13 Nedoroscik, The City of the Dead : A History of Cairo’s Cemetery Communities. Page 2
- 14 Ibid. Page 14
- 15 Ibid. Page 14
- 16 Sims, Understanding Cairo. Page 112
- 17 Angélil and Malterre-Barthes, Housing Cairo: The Informal Response. Page 68
- 18 Roy and AlSayyad, Urban Informality. Page 180
- 19 Ibid. Page 180
- 20 Ibid. 181
- 21 Angélil and Malterre-Barthes, Housing Cairo: The Informal Response. Page 71
- 22 Ibid. Page 133
- 23 Ibid. Page 71
- 24 Shehayeb, “Cairo’s Informal Areas Between Urban Challenges and Hidden Potentials.” Page 20
- 25 Shehayeb, “Cairo Resilience: City as a Personal Practice.”
- 26 Shehayeb, “Cairo’s Informal Areas Between Urban Challenges and Hidden Potentials.” Page 20
- 27 Ibid. Page 21
- 28 Ibid.
- 29 Ibid.
- 30 Aswānī, The Yacoubian Building.
- 31 El Kadi, Architecture for the Dead. Page 255

Cairo's Rooftop Catalogue

5.0

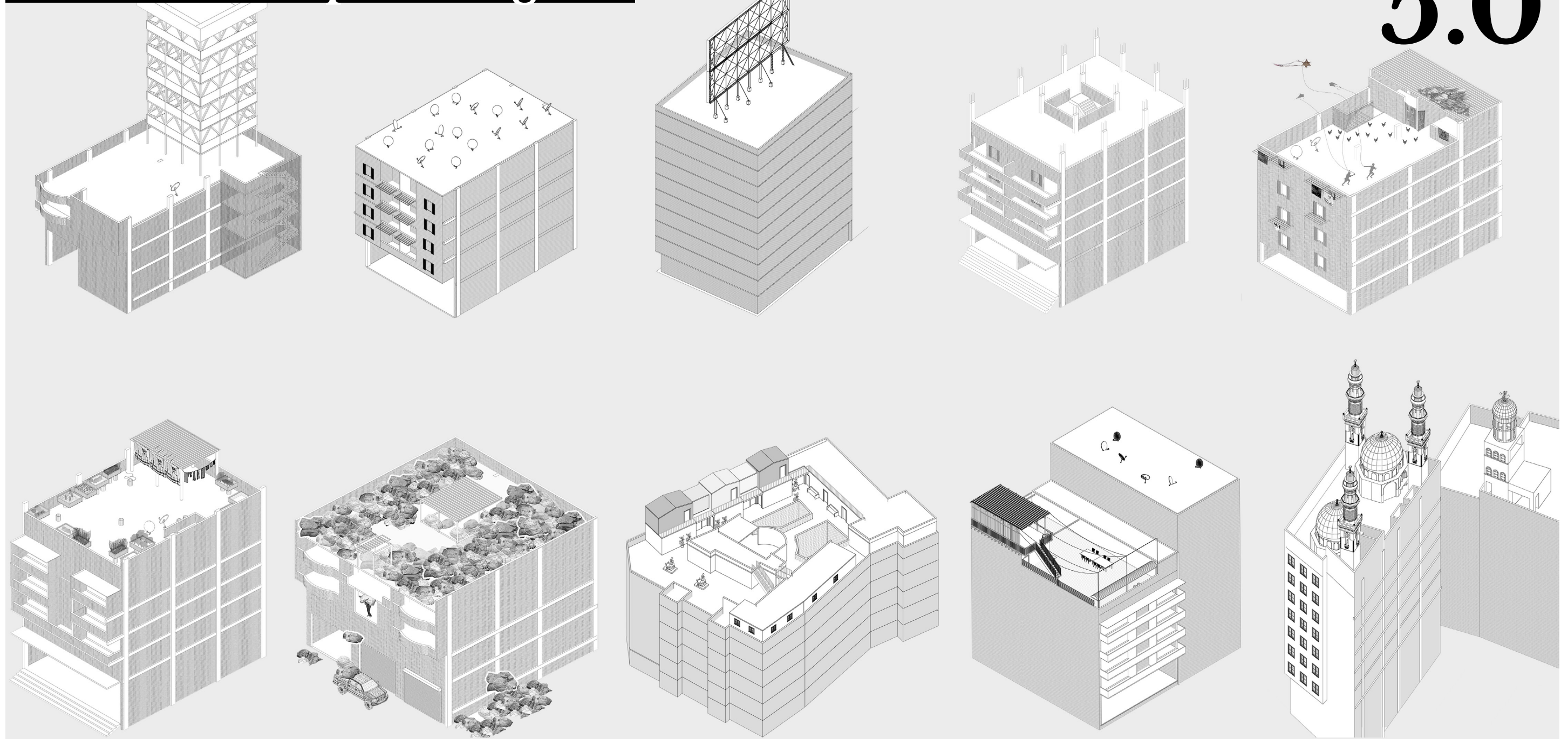


Fig.5.0 Cairo's Rooftop Catalogue. By author

5.0 Rooftop Catalogue: Rooftop Communities & Practices in Cairo

As seen in the last chapter, the urban fabric on ground level can get disorganized and detached, thus creating socially and economically inefficient spaces on the ground floor. Insufficient open space on the streets in informal settlements is due to the nature of their construction patterns. In the context of significant population pressure, “popular ways of inhabiting the territory” emerge, and to address the limited space, new areas are utilized, such as rooftop spaces. Therefore, to escape reality and the chaos of the streets, informal settlers have been living their autonomous life on rooftops, some regard rooftop spaces as their backyard, some may see it as a better place to live in the city.

This chapter presents a catalogue of different rooftops found in the settlements discussed in the previous chapter. This is to show that even through their toughest times, residents have been resilient in their own ways to create a whole different realm above the ground floor and the world below. Emphasizing Cairo’s vernacular architecture without the involvement of formally trained architects. This catalogue is a sample of the scenarios that can be explored in Cairo. The idea behind the catalogue is to show the diverse urban practices of the city and to showcase segments of the population that are often hidden from the casual observer.

The chapter looks from above on the roof surfaces of informal settlements and even formal neighborhoods to expose the reality of this city’s socioeconomic challenges of the street level. In an inverted form, the diagrams depict the lives of the city’s informal residents who seek to secure the livelihood of their day, occupying the highest place of the city, at a height far from everything that goes on below it.

Based on transcribed interviews from the appendix, the chapter quotes different interviews with residents who either live or work in informal settlements. The stakeholders are Pigeon Tower owners to carpenters, a photographer who ventures on different rooftops, different rooftop owners, and finally an NGO in Manshiyat Nasser.



Fig.5.1 Screenshot from arte documentary showing the two realms (Ground vs Roof)



Fig.5.2 Screenshot from arte documentary showing the two realms (Ground vs Roof)

5.1 The role of rooftops in Greater Cairo

The rooftop spaces in Cairo offer a practical housing solution, a concept referred to as the “society of the rooftops” by novelist Alaa el-Aswany in *The Yacoubian Building* (2006). This practice can be traced back to the 1970s during the economic opening initiated by President Anwar el-Sadat. Researchers in the 1980s noticed the development of diverse constructions on rooftops serving as shelters, often associated with the category of “slums.” Some underline the extent of the phenomenon, stating that “from roof to roof, a city parallel to that below was formed”¹ Informality characterizes living on rooftops, as it falls outside the scope of existing laws. The extent of this phenomenon is challenging to assess as it evades statistical measurements. However, the population using these spaces has become diverse over time, including students, single individuals, young couples, and working professionals with stable incomes.

There are several reasons that lead to the roof – one of the main traditional elements of architecture – gaining renewed prominence in the discourse about city transformations.² The roof space is thus a non-ordinary space, which recalls multiple contradictory ways to perceive its potential; a vast and diversified sphere, with two opposing imageries at the two extremes. On one side, the concept of a roof as a luxury domain, and on the opposite side, the so-called informal use of the city.³ Residential settlements in precarious conditions are the result of illegal rooftop occupancy by the poorest classes: autonomous and unauthorized communities that grow outside, literally on top of the legal city. Illegal rooftop occupancy is popular in South Asian and African metropolises, like Hong Kong and Cairo. On the one hand, it is necessary to study the forms of settlement, trying to grasp the instances and tactics through which people make use of space.

People are drawn to rooftop living due to its central location and cost-effectiveness. Rents for rooftop houses range from LE 800 to LE 1,600 per month for areas varying from ten to a hundred square meters.⁴ Unlike cities like Tokyo, New York, or Paris, there are no luxury penthouse-style real estate offerings on rooftops in Cairo. Instead, luxurious villas are found in the new towns on the city’s outskirts. The preference for rooftop living in Cairo is influenced by practical factors like privacy, warmth, cultural factors, and an escape from street conditions.(Fig 5.3-4)



Fig.5.3 View of the roof terrace of a building in Mouinra district. Several families share the terrace together. By Marie Piessat



Fig.5.4 Rooftop in Ezbet El-Nakhl sometimes used as a prayer space for residents during jagr prayer. Photographed by Mohamed Mamdouh

5.2 Roofs for Pigeon Towers

Lodged atop the rooftops throughout Cairo are delicate wooden enclosures where residents of Cairo house their pigeons. The practice of pigeon keeping carries an ancient legacy, first mentioned in Mesopotamian records. Egyptians have engaged in the rearing of pigeons for sport and sustenance for millennia.⁵ Historical references to pigeon domestication⁶ can be traced back to hieroglyphics spanning Throughout ancient civilizations, pigeons held significant roles, serving as messengers, sources of food, pets, religious symbols, medicinal agents, and even aids in navigation. Unlike the perception of pigeons as mere nuisances in some regions, such as the US, pigeon meat holds considerable value for its tender, moist qualities in many other parts of the world, especially Egypt. During fieldwork in Greater Cairo, two Pigeon Towers were documented. One in Manshiyat Nasser (The Garbage City) (Fig. 5.7) and another in Al-Quarafa (The City of the Dead) (Fig. 5.6). Both Pigeon towers are different in terms of their scale and quality of construction, but they both serve the same purpose.

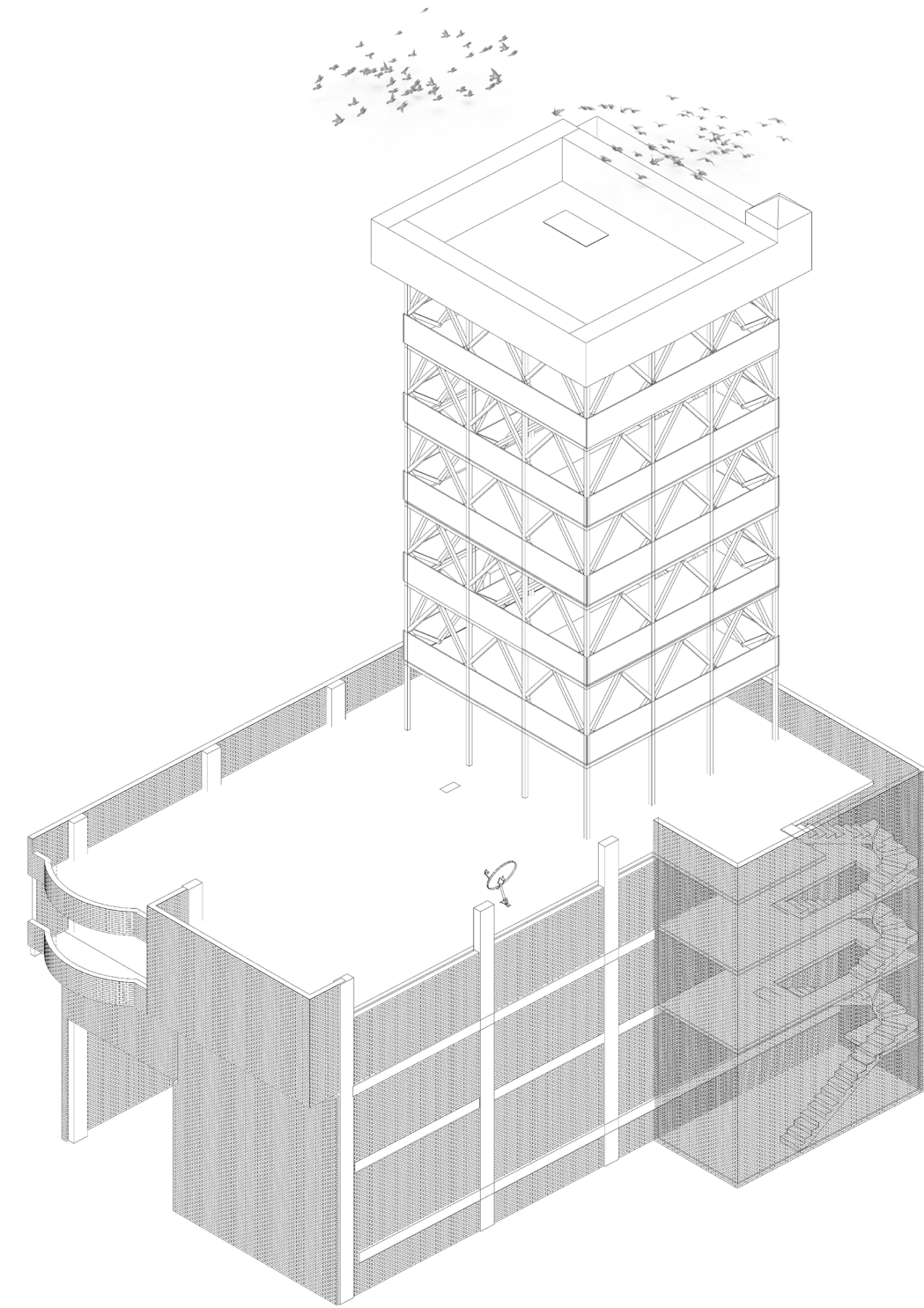
“Think about it like a game or a match. My mission is to catch as many pigeons as possible from the opponent (other pigeon towers around me). There are two areas here in the tower, the loft where I keep my strongest pigeons that fly everyday with other pigeons, the ones I know will always come back and not get caught by others.” - Pigeon Tower Owner in Manshiyat Nasser



Fig.5.5 Screenshot from arte documentary showing pigeon tower owner directing his pigeons

“Pigeon domestication” refers to the practice of raising and caring for pigeons, typically for various purposes such as sport, show, food. It involves the management and breeding of pigeons in a controlled environment to ensure the well-being of pigeons.

See Appendix, pages 177-188, for interviews with two pigeon tower owners.



Roof is semi-public

Fig.5.6 Six storey Pigeon Tower in Manshiyat Nasser on the roof. By author



Fig.5.7 Pigeon tower in City of the Dead. Photographed by author



Fig.5.8 Pigeon tower in Manshiyat Nasser (The Garbage City), Koka's Pigeon Tower. Photographed by Author

5.2.1 Pigeon Tower Construction Process

Step 1: Depending on the size of the loft, cut wood members accordingly. This is a 10x10m pigeon tower. Gather pre-cut wood and start assembling all four sides of the pigeon loft separately. Keep them aside. Once all four sides are assembled and put to the side. Now assemble the foundations of the structure, where it touches the roof. (Fig. 5.10) On the roof surface, lay out a grid using lumber based on the size of the tower needed. For example, the 10 x 10 loft will sit on an 8x8 structure. (Fig.5.9-10) The 8m is divided into 3 so it's going to be 2.66m grid. Step 2: After the foundation is done, start erecting the bracing. The height of each floor is 3m. Take half of the 2.66m grid and that's where the bracing will start. This process repeats every floor based on the number of floors needed. You can assemble the stairs as each level gets built. Now assemble all the four sides of the Pigeon loft. The balcony wraps around the loft, where food and supplies for the pigeons are stored. Every owner has trained their pigeons to fly back through a series of whistles and gestures using a red flag.

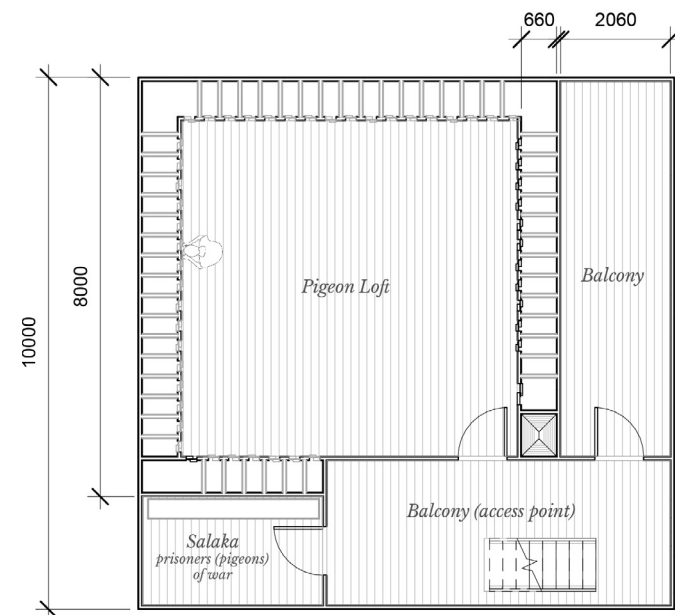


Fig.5.9 Plan of a 10x10 Pigeon Tower loft space. Drawn by author

"We pour a little bit of concrete on the base, where it touches the roof to make it more stable. You will also find cables attaching the tower to the roof to help secure it from strong winds. The structure is very flexible and not too hard to lower the tower, but I do get some help from my friends. Pigeon Towers can get up to 20 meters high, but they must be sturdy!"- Pigeon Tower Owner

See Appendix, page 193, for full interview with Pigeon tower builder

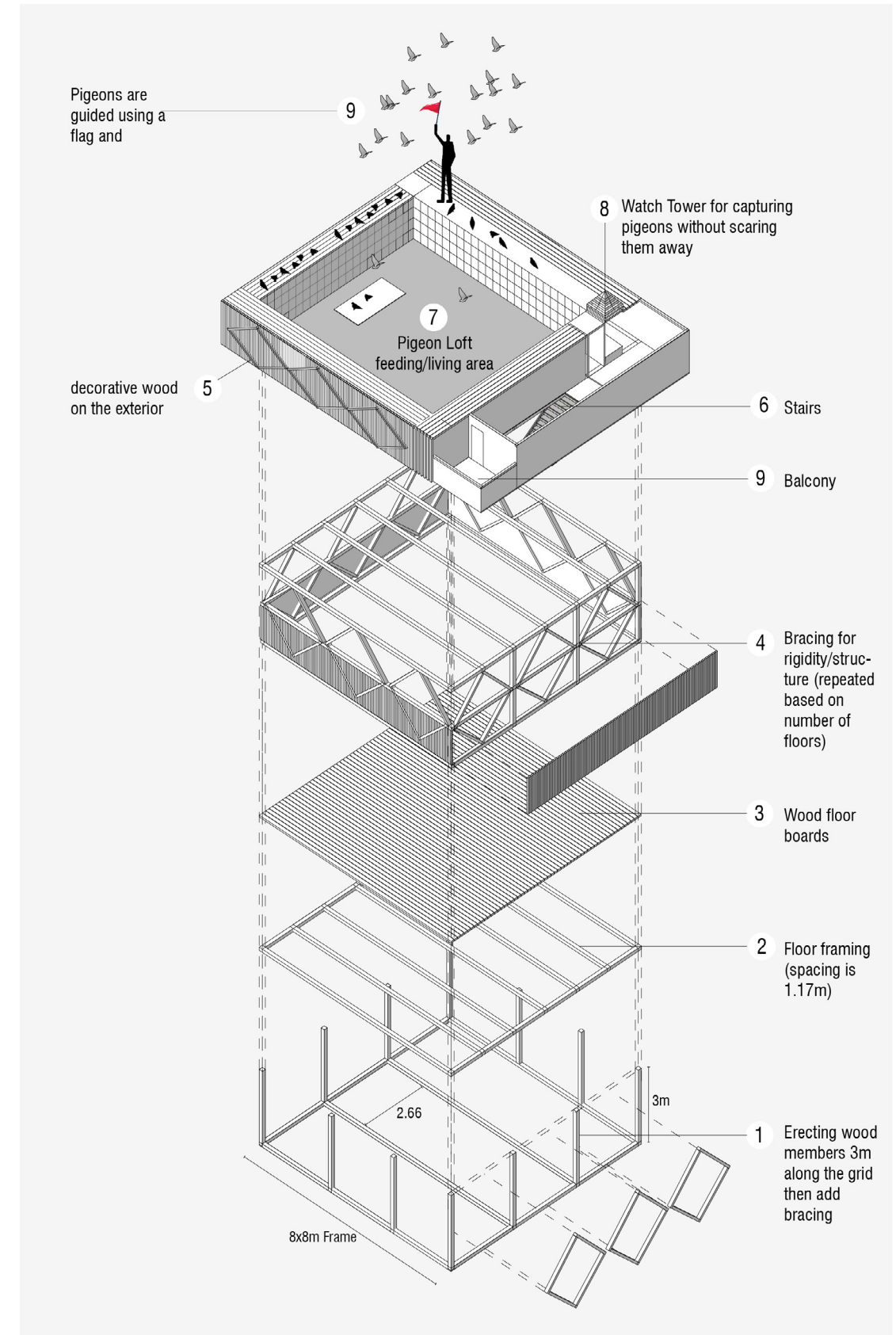


Fig.5.10 Exploded axonometric drawing showing Pigeon tower construction process. Drawn by author

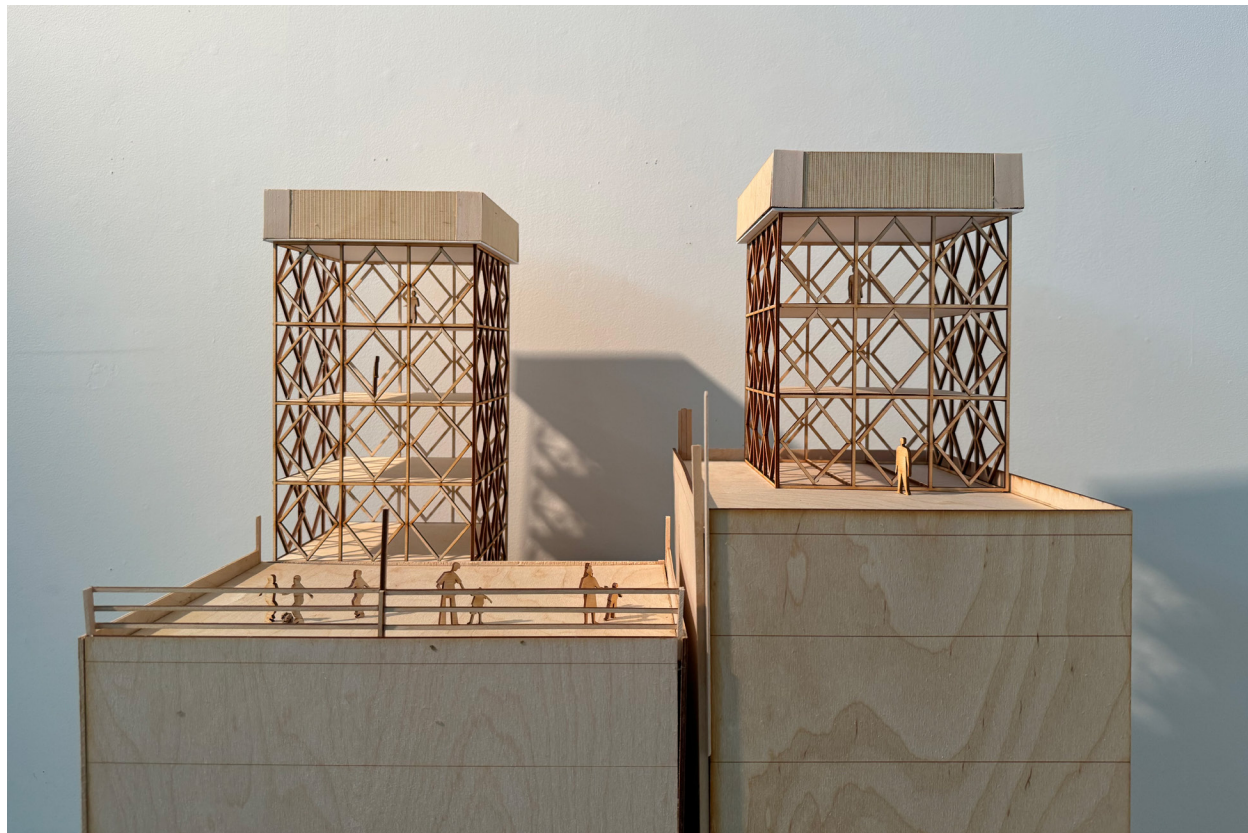


Fig.5.11 Photographs of Physical Model at 1:50 of two pigeon towers on rooftops. By Author



Fig.5.12 Pigeon Tower in Manshiyat Nasser. Photographed by Andreas Trenker



Fig.5.13 Pigeon Towers in Manshiyat Nasser (Garbage City). Photo by DoctorToonz

5.3 Roofs for People's Backyard/ Satellite Dishes

Rooftops in Cairo are used for storage and installing satellite dishes to connect buildings to the outside world. This is present in all neighborhoods in Cairo, even the most formal ones, like in (Fig. 5.12-13) Nasr City. These spaces stand out for their flexibility, meaning they can adapt to users' needs as required.

"The roofs here are used as a public space. Nowadays you'll find that residents of each apartment building take advantage of the roof space and treat it as their own "public space". However, not everyone can access the rooftops because usually there are no elevators, it would be just stairs in the building. Most of the time, the stairs are narrow and not too equipped for the elderly. That explains why the elderly like to sit in coffee shops "ahawe" on the ground floor. Therefore, there is a specific age group of residents where they can easily access those rooftops."-Photographer

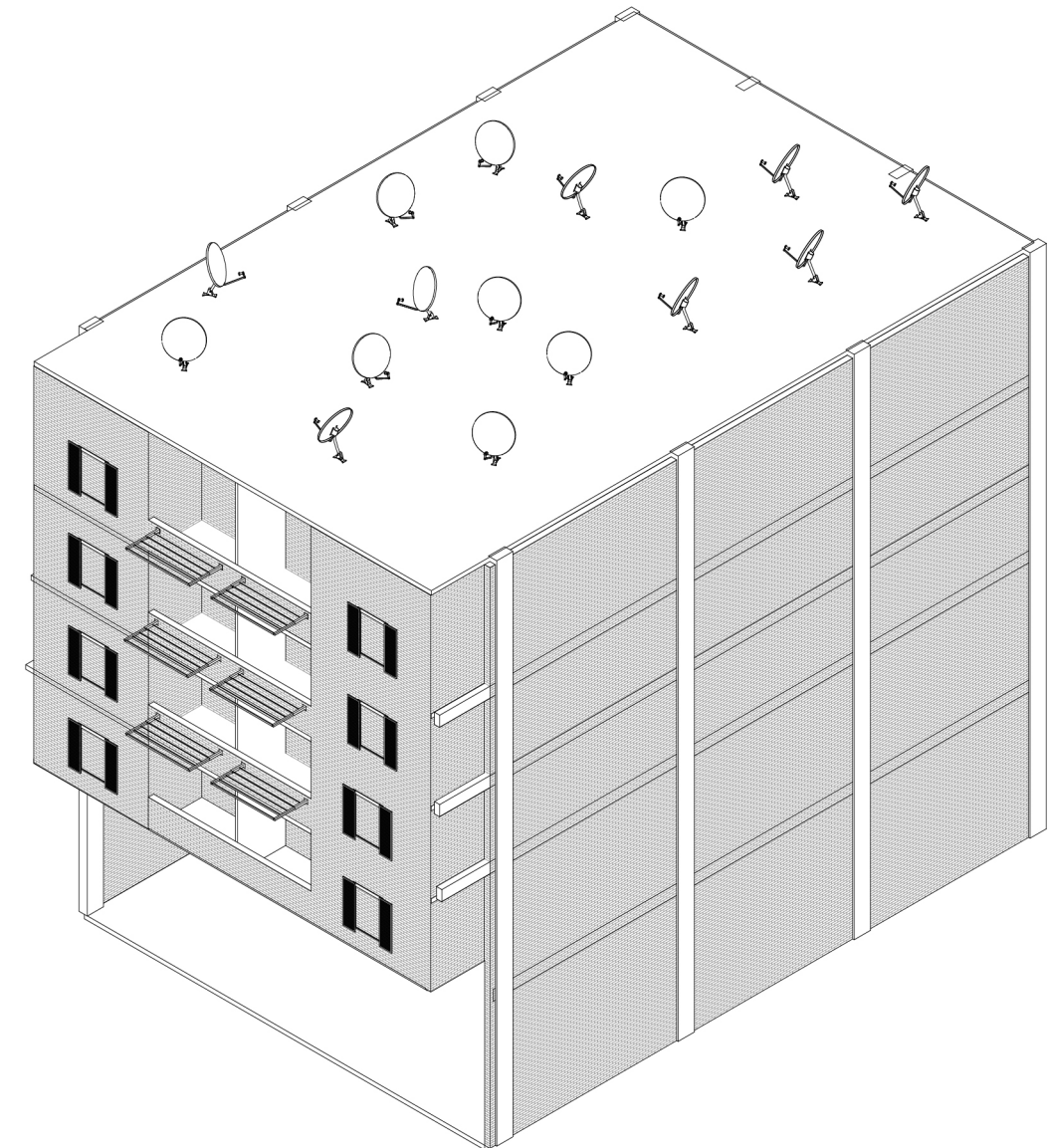
"Yes, but also be careful because in my experience, the roof is typically for the residents of that building only or maybe the neighbors, but not the public like not anyone can come upstairs! The roof typically has a key, and the keys are with either the residents or/and the owner of the builder. I always have to ask the owner for permission to take pictures from their rooftop."-Photographer



Fig.5.14 Weight training for a Nasr City resident. Photographed by Marie Piessat. April 2018



Fig.5.15 The music group Sol Diese rehearses on the roof of the building of one of their members, in the district of Mounria. It is the only place they have found to work! By Marie Piessat



Roof is private

Fig.5.16 Roof used for satellite dishes

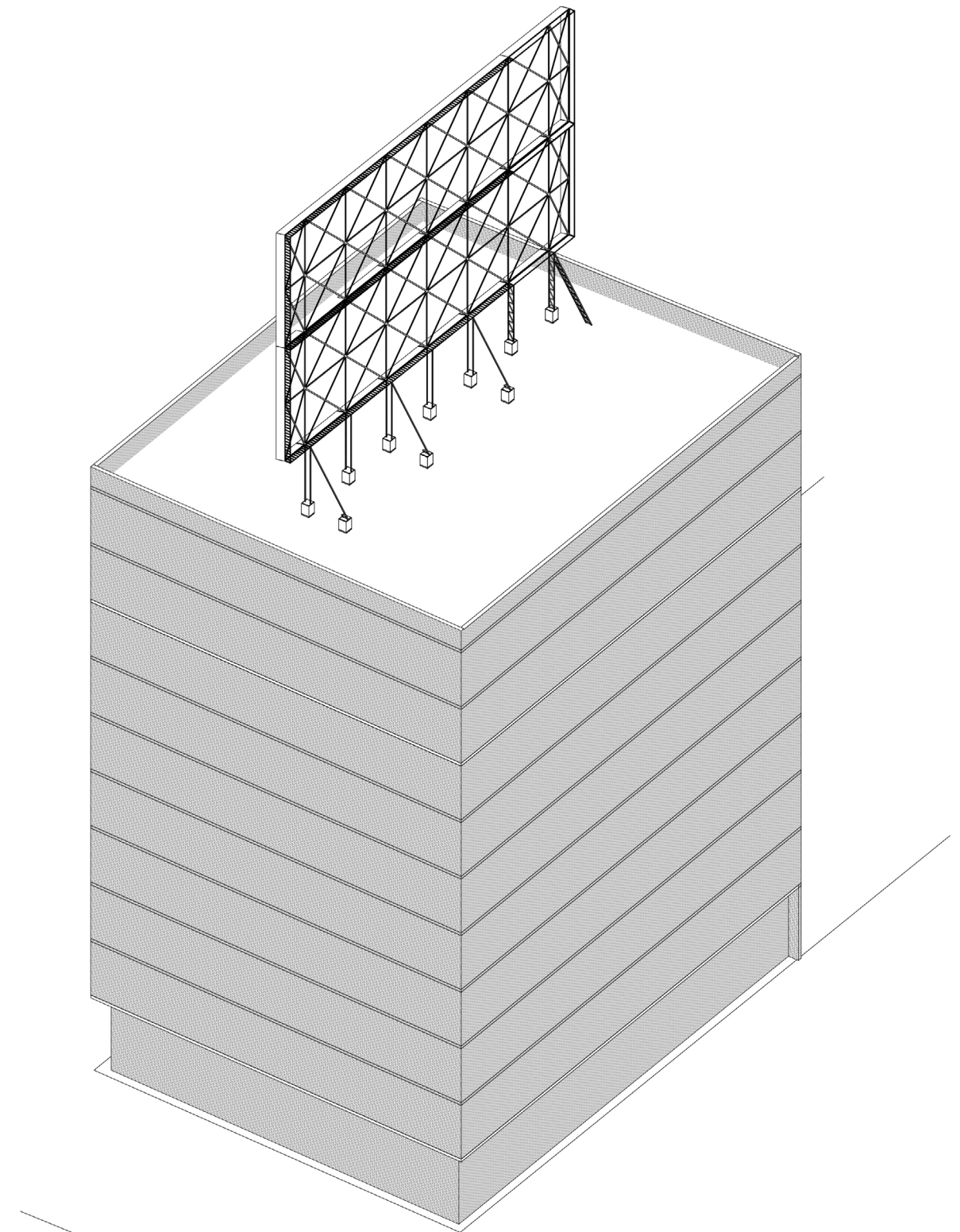
5.4 Roofs for Billboards

Billboards across Cairo advertise luxury homes with “breathtaking” views in compounds in Egypt’s gated compounds, in the desert miles from the Nile-side city that has been the seat of power for more than 1,000 years. Today many billboards promote luxury living, targeting a very limited segment of society. Many marketing agencies have worked with residents to rent their rooftop spaces for different kinds of advertisements.

“In Cairo, some owners rent their rooftops to companies who would like to place an advertisement. Companies choose the highest residential buildings in the neighbourhood, and in return the owner uses the earnings to reduce maintenance cost. In our building for example, the price to rent our roof space is 250,000 Egyptian Pounds a year, which is not bad. So aside from the social aspect, if you need to have something happening on the roof, there needs to be an economical/ income behind it so you can motivate people to use the roof!” - Photographer



Fig.5.17 Billboards on rooftops in Downtown Cairo. Photographed by Dan on Flickr



Roof is private

Fig.5.18 Roof used for Billboards

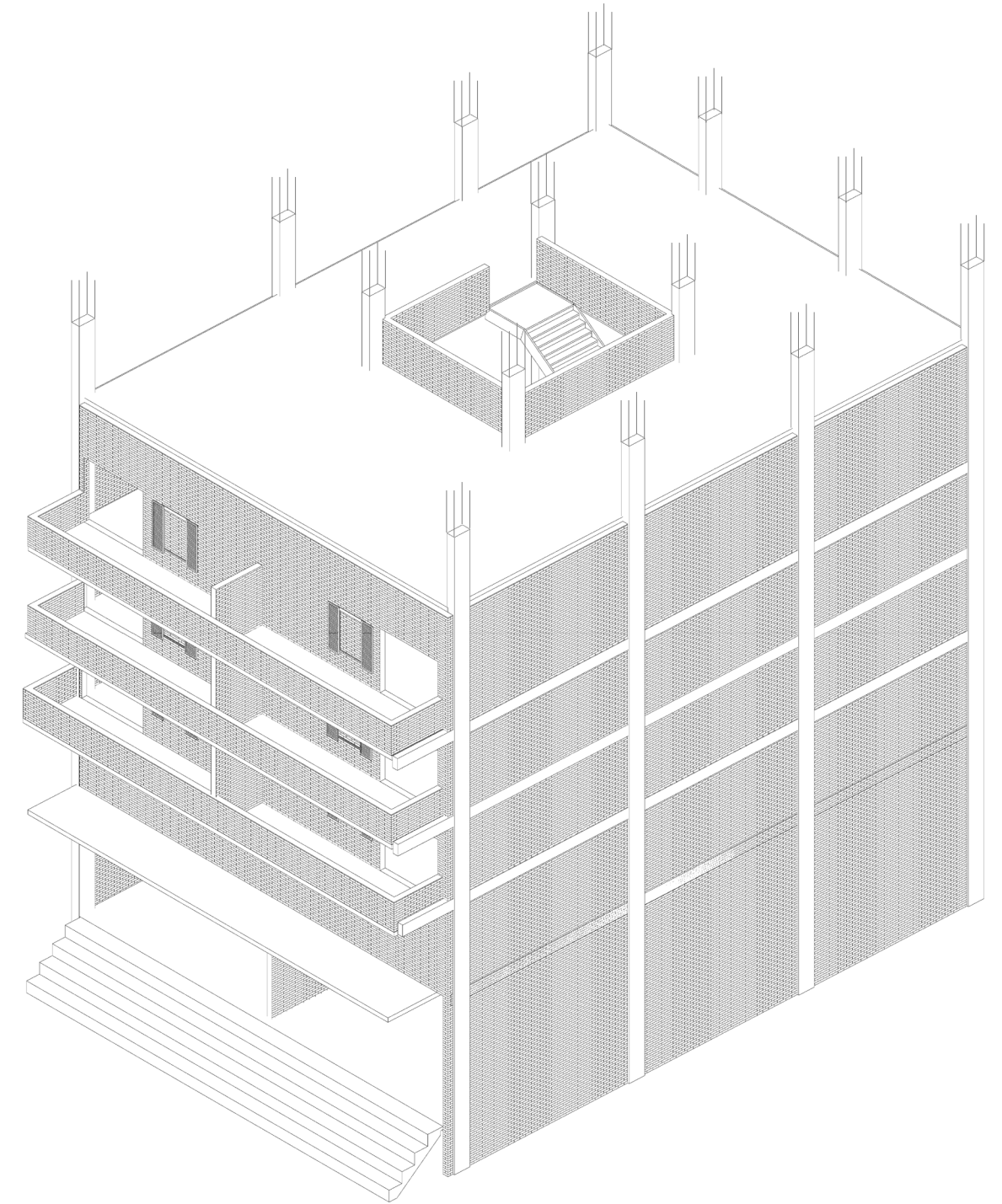
5.5 Roofs for Future Growth

5.5.1 An Informal Typology

Throughout Cairo's informal settlements mentioned in the last chapter, a prominent typology is noticed where structural columns, rebar, and even the stairs are intentionally left exposed, allowing for the possibility of adding additional floors in the future. The construction of buildings often takes several years to be completed, people move to unfinished buildings, adapting the building process to their financial condition. Reinforcement bars and structure projecting above the roof mark the position of the next level. The next level will depend on several factors. Families can build an extra level if their son is getting married, or it can be that the landlord wants to have more units for rent. Sometimes the waiting surface on the roof (Fig. 5.20-21) is used for storage. The uneven skylines of informal settlements testify to their incremental development. Each building and floor are constructed at the request of landowners or prospective residents, for their own use, to rent or sell.



Fig.5.19 An informal building typology with exposed structure and rebar. Manshiyat Nasser, Cairo. Photographed by author



Roof is private

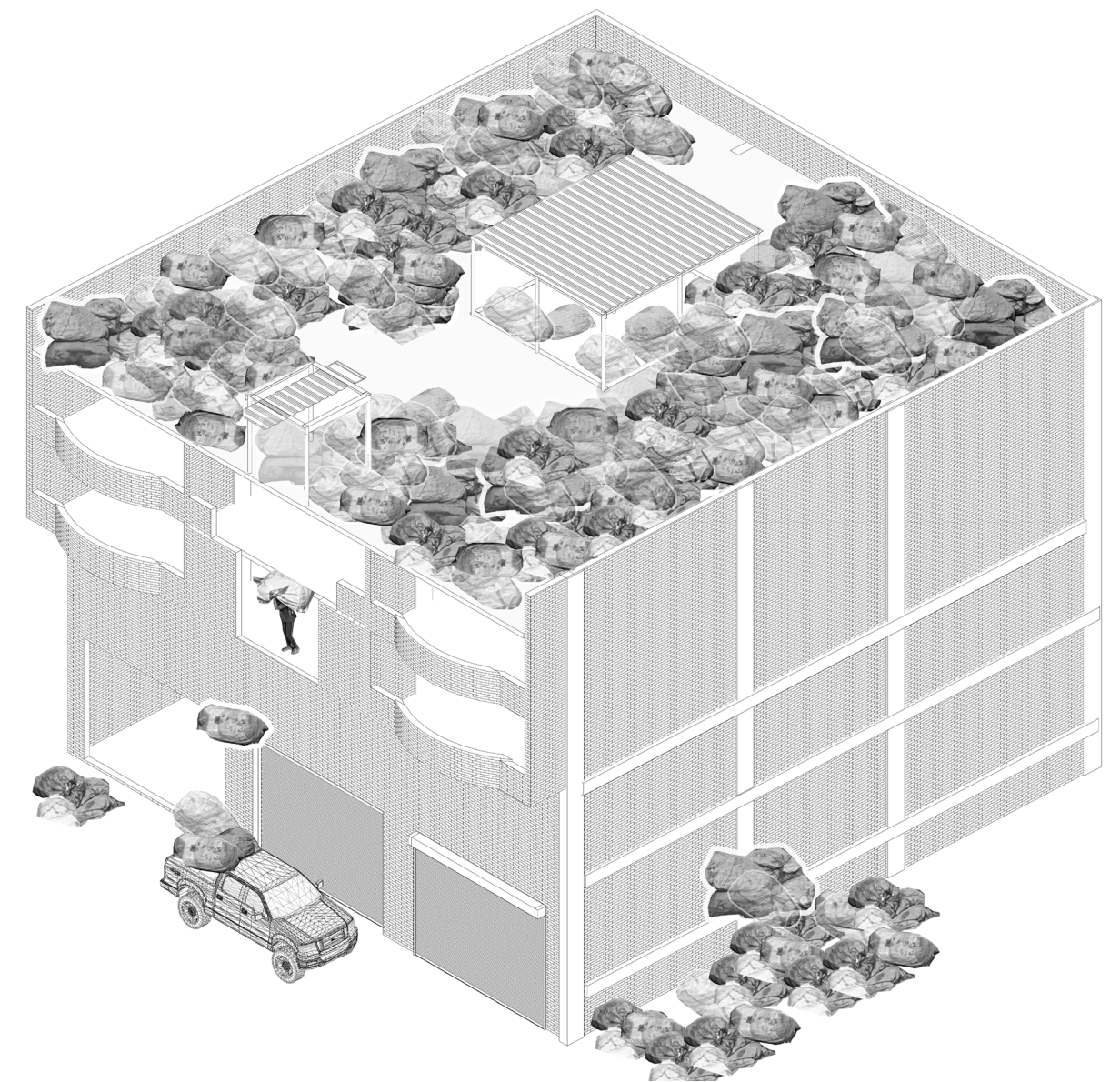
Fig.5.20 Roof for future expansion

5.6 Roofs for Working Surface/Storage

“The nature of the work of the residents of the garbage collector’s neighborhood differs from other neighborhoods in terms of the use of houses and roofs. On the ground floor, they sort the garbage, and sometimes raise animals that consume leftover food, even utilizing rooftops for this purpose. Additionally, they use all available rooftop surfaces to store solid materials like plastic until they are sold. Electric winches are employed to lift these materials to the rooftops for storage and handling.”- NGO Interview in Manshiyat Nasser (The Garbage City)



Fig.5.21 Photograph Typical Building Typology in Manshiyat Nasser. Roof used as storage/working surface



Roof is collective

Fig.5.22 Diagram of a typical building typology in Manshiyat Nasser. Roof used as storage/working surface

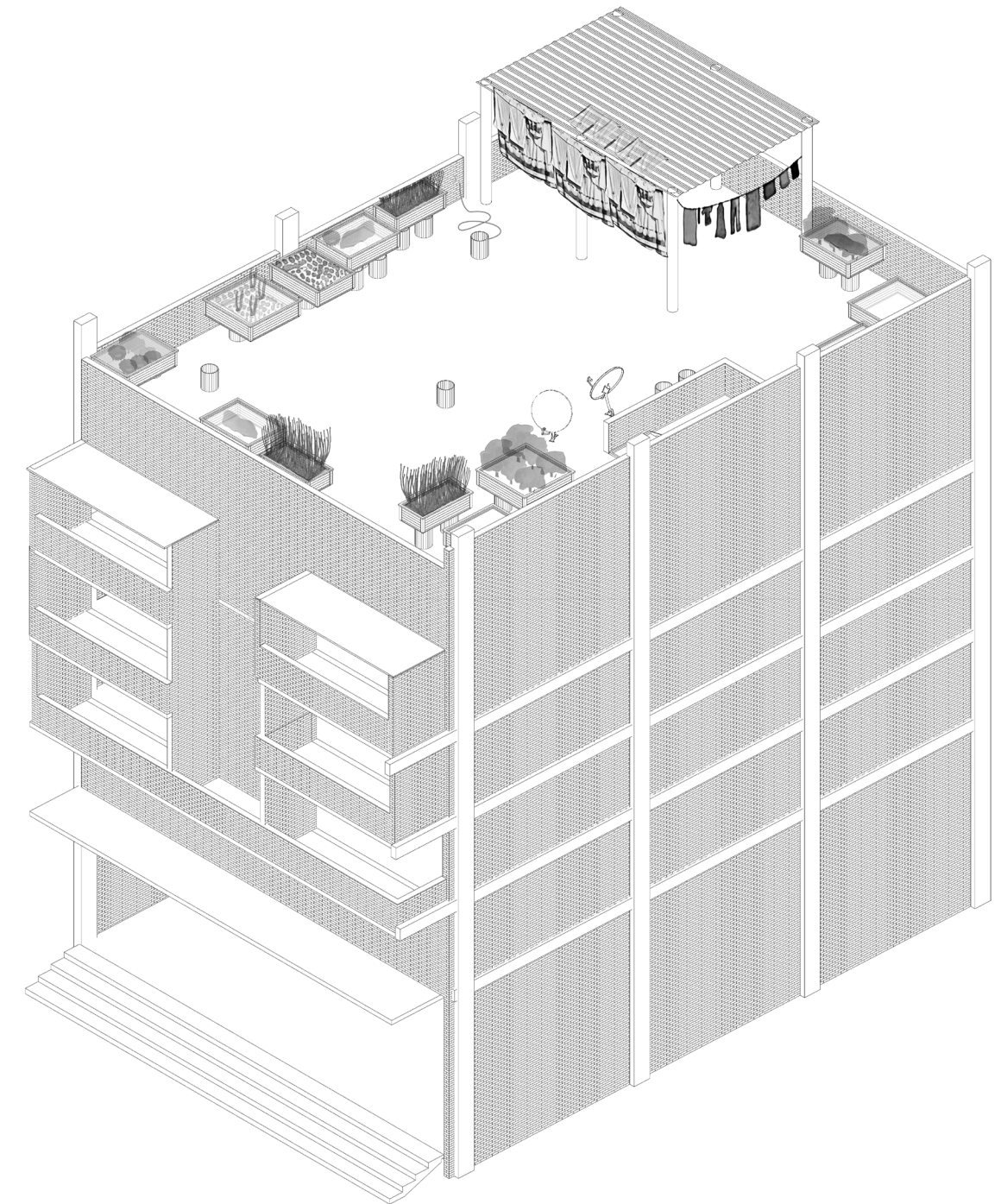
5.7 Roofs for Urban Farming & Extension of a Home

Urban agriculture is increasingly recognized for its potential to provide a better food supply, an additional source of income, and social and environmental benefits, with special regard to the urban micro climate. Rooftop farming has been shown to improve living conditions and generate income. In informal settlements of Greater Cairo, a pilot rooftop farming project was started in the spring of 2004, supported by GIZ, as part of the Participatory Development Program. GIZ, commissioned by the Federal Ministry for Economic Cooperation and Development (BMZ), with two NGOs and one private company implemented the project “Urban Agriculture in the Greater Cairo Region.”⁷⁷ The implementation started with the selection of participants, followed by training and technical setup on the roofs. To cover the costs for the technical installations, the low-income families received repayable loans (by Schaduf Company) which were repaid by monthly crop sales. A hydroponic system of waterbeds was proposed and installed by Schaduf Company on the rooftops. Farmers were typically able to repay the loans within one year. Families kept roughly 10 percent of the crops grown for personal consumption.



Fig.5.23 Hydroponic urban farming on the roof of a mosque in El-Basatin. Photographed by Marie Piessat. May 2017

Hydroponic System is the cultivation of plants in nutrient-enriched water, with or without the mechanical support of an inert medium such as sand or gravel.



Roof is collective

Fig.5.25 Diagram of a typical green roof by residents

«سطح أخضر».. «صيام» يحول أسطح البنايات لمساحات زراعية



Fig.5.24 Newspaper Article Quoting “A Green Roof. Sayam transforms building roofs to urban farms”

5.8 Roofs for Kite Competitions & Breeding Animals

Pigeons are not the only animals to frequent the heights of the city. Poultry, rabbits, sheep, goats, pigs and even cows or buffaloes are relegated to the roofs when space is lacking on the ground.

“Children playing on the roofs is very common, where the residents of each apartment building are okay with their children playing on the roof of “our apartment”. Parents are then comfortable with this idea. Another cultural activity that takes place on the roofs is flying kites as a way of competition/sport. When it’s windy, children and young adults fly their kites to who would have the last kite flying? (Only kite standing) And another is who has the highest-flying kite”



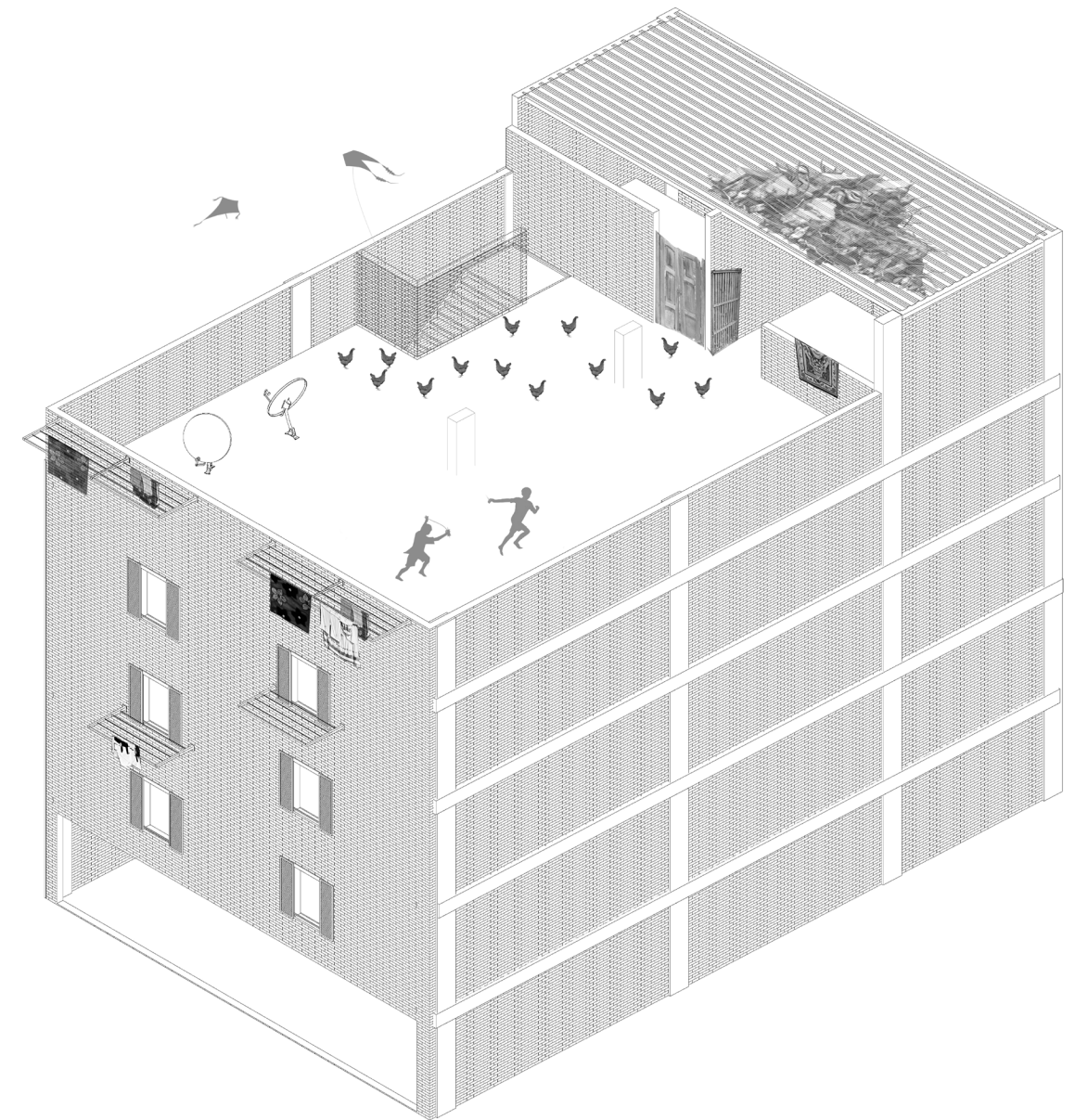
Fig.5.26 An occupied rooftop with cows in Manshiyat Nasser. Photographed by Marie Piessat



Fig.5.28 An occupied rooftop with pigs eating compost in Manshiyat Nasser. Photographed by Marie Piessat



Fig.5.27 Newspaper Article Quoting “Hand made paper kites for recreation during Ramadan”



Roof is collective

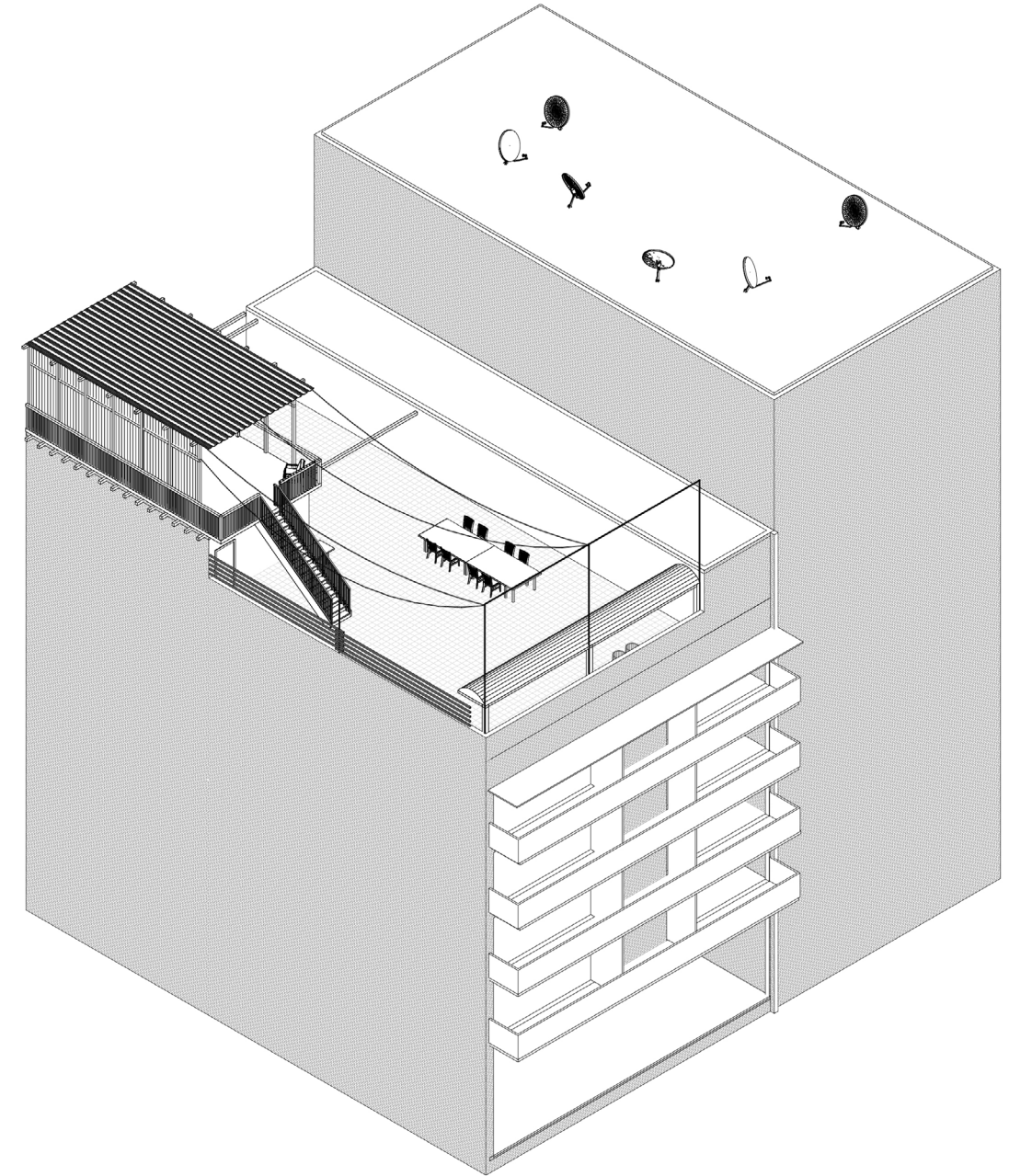
Fig.5.29 Diagram of the occupied rooftop in Manshiyat Nasser

5.9 Roofs for Ramadan Nights

“Rooftops are not a storehouse of Junk.” This slogan was raised by the brothers Mohamed, Mazen, and their father, and they followed this approach, for six consecutive years. They were able to come up with new and different ideas to change the shape of the roof with the lowest costs and limited capabilities, and turned it into an amazing Ramadan tent in their neighborhood, Ezbet-El Nakhl. About the famous Ramadan tents, in which many stay up late, eat the *Suhoor* meal, and spend enjoyable times with family or friends, especially after the spread of the Corona virus, and many are afraid of walking in restaurants, cafes, and various malls. The story started in 2015, when the family used to gather on their rooftop every week or every month. The family used to clean the rooftop every time they used to gather and found it hard to keep up with the cleaning and setting up. They only used it for storage during the other times they were not using it. In 2015, the big brother, Godo came up with the idea to clean the roof and renovate it so that it looks more finished.



Fig.5.30 A family owned renovated rooftop in Ezbet El Nakhl, Cairo. Photographed by Mohamed Ayman Godo



Roof is collective

«السطوح مش للراكيب».. «جودو» ينشر البهجة بأجواء رمضان للعام السادس على التوالي



الأسرية والعائلة التي اعتادوا عليها منذ سنوات، حتى التجمعات مع الأصدقاء، أقرن «بتناول تنزه» بجداريات التباعد الاجتماعي في السطح، وأحياناً بنظرة فوق السطح مع بعض أو تتنجر فيه بعداً عن الطرح في الأماكن المزدحمة مشان محشياً فيرمس لأي أشرار صحية بسبب فيروس كورونا، وكان بعد غلاء الأسعار.

صنع أيديها وكها «مراكيب» قديمة تمت إعادة هيكليتها واستغلالها مرة أخرى بمساعدة أسواقهم.

بعد انتشار فيروس كورونا، ramadan تم إلغاء ما يسمى «فهرس nights»، تحولاً من التنجس «فهرس» كروتها، باتخاذهم أمثلة لعائلة، ولكن اقتلقت عن الأعياد السابقة، من هنا قرر «جودو» ألا تنشي العادات والتقاليد الخاصة بالتجمعات

تكرس منها العواصم، لتتم إنارتها ليلًا، ويصومات ملونة على الجدران التي على شكل هلال رمضان، والجدران الرمضانية المبهجة، كما وضعت عطلات مزينة بمفارش من الخيفيم بالونين الأحمر والأزرق، مستخدمين لإضفاء السحر.

وأضاف «جودو»: «علقت بعض فروع الزينة والشميات المسيرة للفرحة الكعبة من أشكال الهلال والتجوم، وفي حديثه للمصري اليوم: «لم تختلف الزينة كثيراً عن العام الماضي، هذا العام رأيت فيه الإضاءة الرمضانية المبهجة، كما وضعت عطلات مزينة بمفارش من الخيفيم بالونين الأحمر والأزرق، مستخدمين لإضفاء السحر.»

وقال محمد أمين الشهر «جودو» بالزينة التقليدية تغير شكل السطح، بدلاً من الهياكل من التي يسمى الكاثيرايفين وهو عبارة عن خطوط عربية مكتوبة بجانب بعضها البعض، متدرجين ما بين الأسوان الذهبي والبرتقالي والأسود، مع طبقات مضيئة تسطعها مبريات مضاءة وإضاءات تعطي شعوراً بالراحة.



Fig.5.31 Newspaper Article Quoting “Godo spreads joy with the Ramadan atmosphere for the sixth year in a row”

Fig.5.32 Diagram of Godo’s rooftop in Ezbet EL-Nakhl

The father, Ayman El Shenawy, likes interior design, so he built a pergola made from wood and palm thatch. He added plants and lights and décor pieces. The little brother, Mazen El Shenawy, painted the walls and added calligraphy in Arabic. They made a tradition that every Ramadan, they decorate it with different decorations every year during this time of the month to host gatherings and *iftar* with their friends and family. They have semi-enclosed and enclosed areas where they sometimes use to sleep.

-Palm thatch is a locally sources material as Ezbet-El Nakhl literally translates to farmland of palm trees in English.

“Our neighbors just started to do something like our roof, once they realized how beautiful space can be. So, we have made a good impact when we renovated our roof. It’s not expensive to do what we did. We used the leftover material that was already on the roof, like tires and reclaimed wood and metal sheets.”-Goudo Rooftop Owner

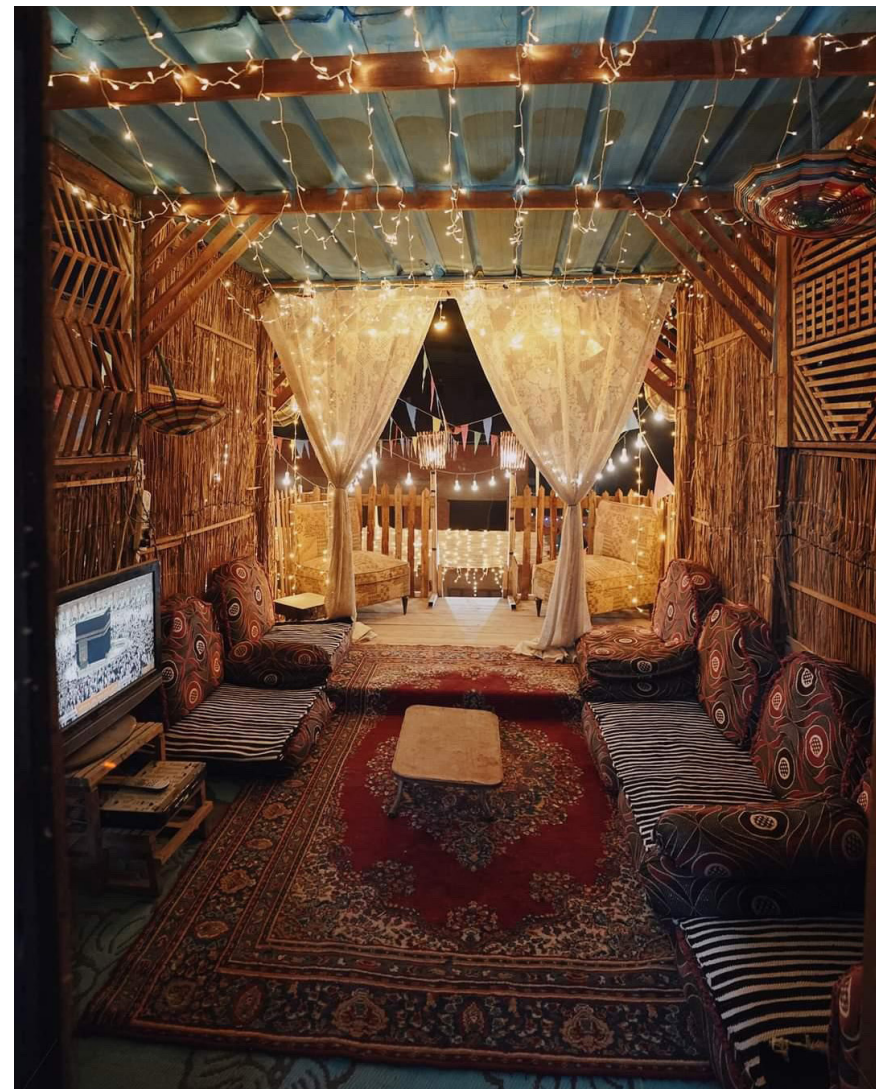


Fig.5.33 Interior View of the Ramadan tent on Godo's rooftop. Photographed by Mohamed Ayman Godo



Fig.5.34 Aerial View of Godo's rooftop. Photographed by Mohamed Ayman Godo



Fig.5.35 Aerial View of Godo's rooftop. Photographed by Mohamed Ayman Godo



Fig.5.36 View of the walls of the roof painted with calligraphy by the residents. Photographed by Mohamed Ayman Godo



Fig.5.37 View of the Ramadan tent on the second floor of the rooftop. Photographed by Mohamed Ayman Godo

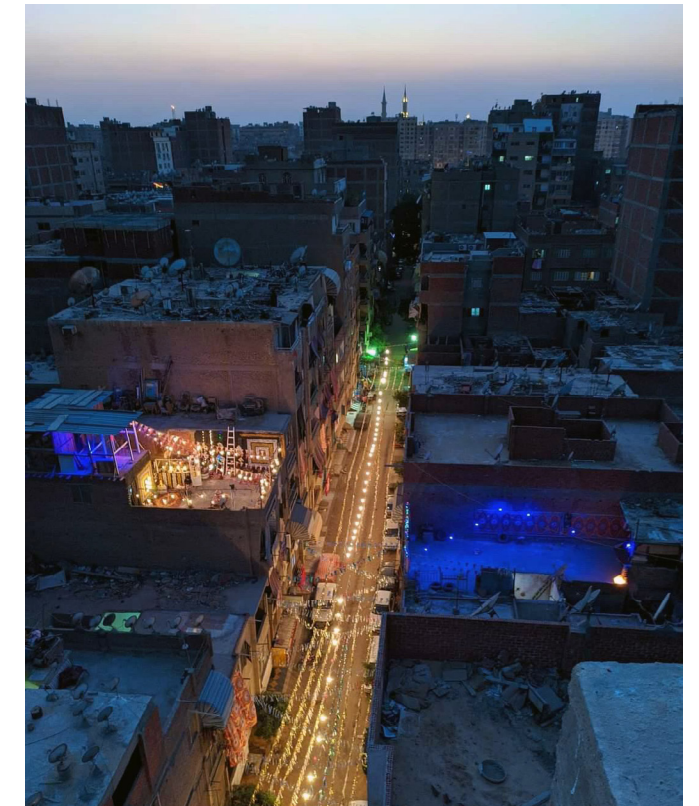


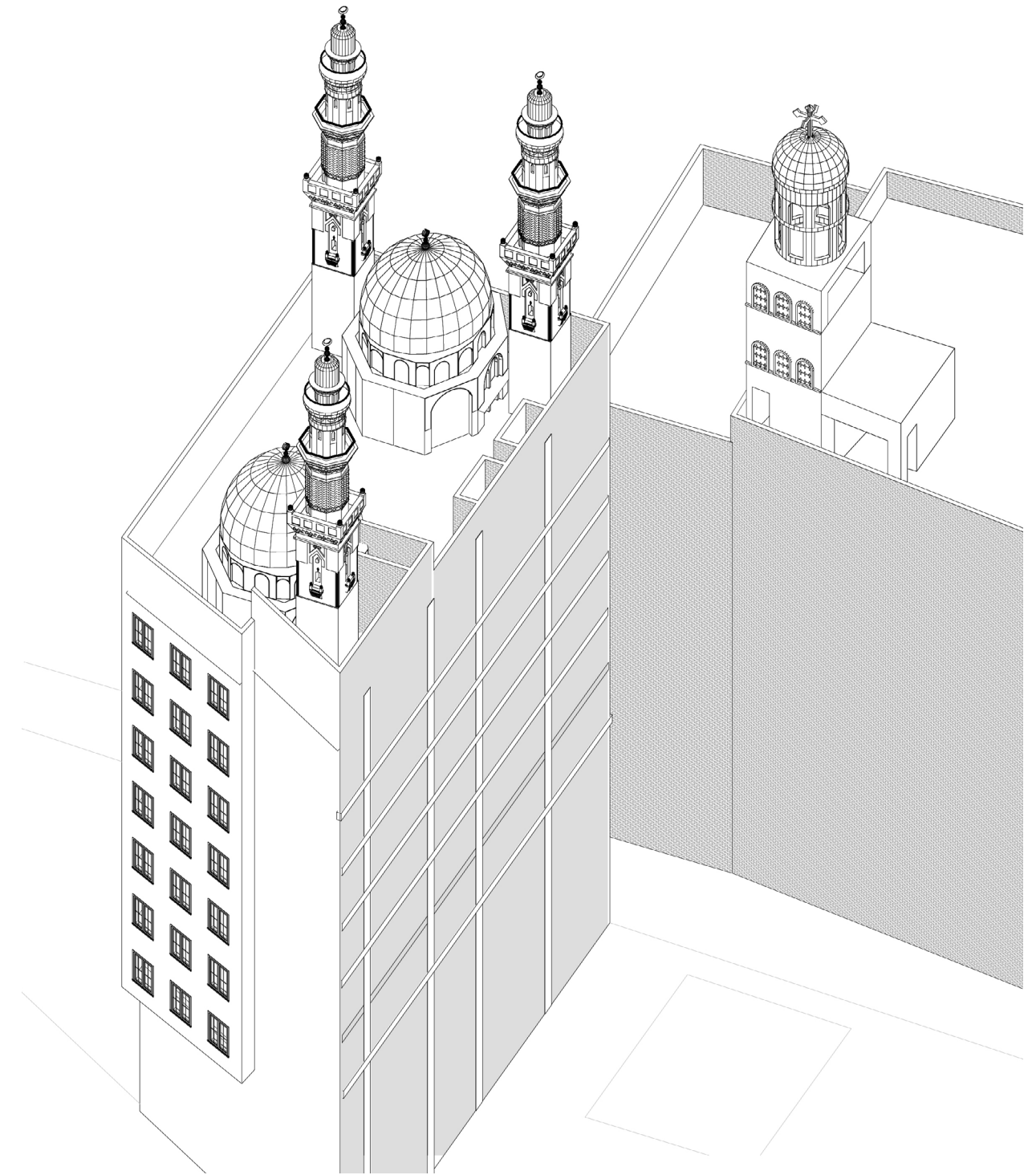
Fig.5.38 Overall view of the street and the roof in the neighbourhood. Photographed by Mohamed Ayman Godo

5.10 Roofs for Mosques and Churches

“This is becoming a trend now, even in around the area where I work, El Darb El Ahmar. It’s interesting why they do that. In most cases, that’s because the apartment building is illegally built so they erect the mosques and churches on top so that it becomes illegal to demolish the apartment building.”-Photographer



Fig.5.39 Mosque and Church on a rooftop on of the illegal buildings in Boulaq El Dakroul along the Ring Road. Photographed by Author



Roof is public

Fig.5.40 Diagram of the Mosque and Church on a rooftop.

5.11 Roofs for Daycares & Playgrounds

NGOs, like SOS Chrétiens d’Orient have partnered with the Coptic church in Ezbet El Nakhl to offer classes and activities on a rooftop daycare run by Miss Marlene’s school. Marlene is an Egyptian woman who decided to dedicate her life to the poorest children by creating her school from scratch. Thanks to the churches around as well as the NGO. In Manshiyat Nasser, there have been attempts to operate rooftop daycares. Based on the interview with the NGO in the Garbage City, the conditions seem to be better on the roofs compared to the streets.

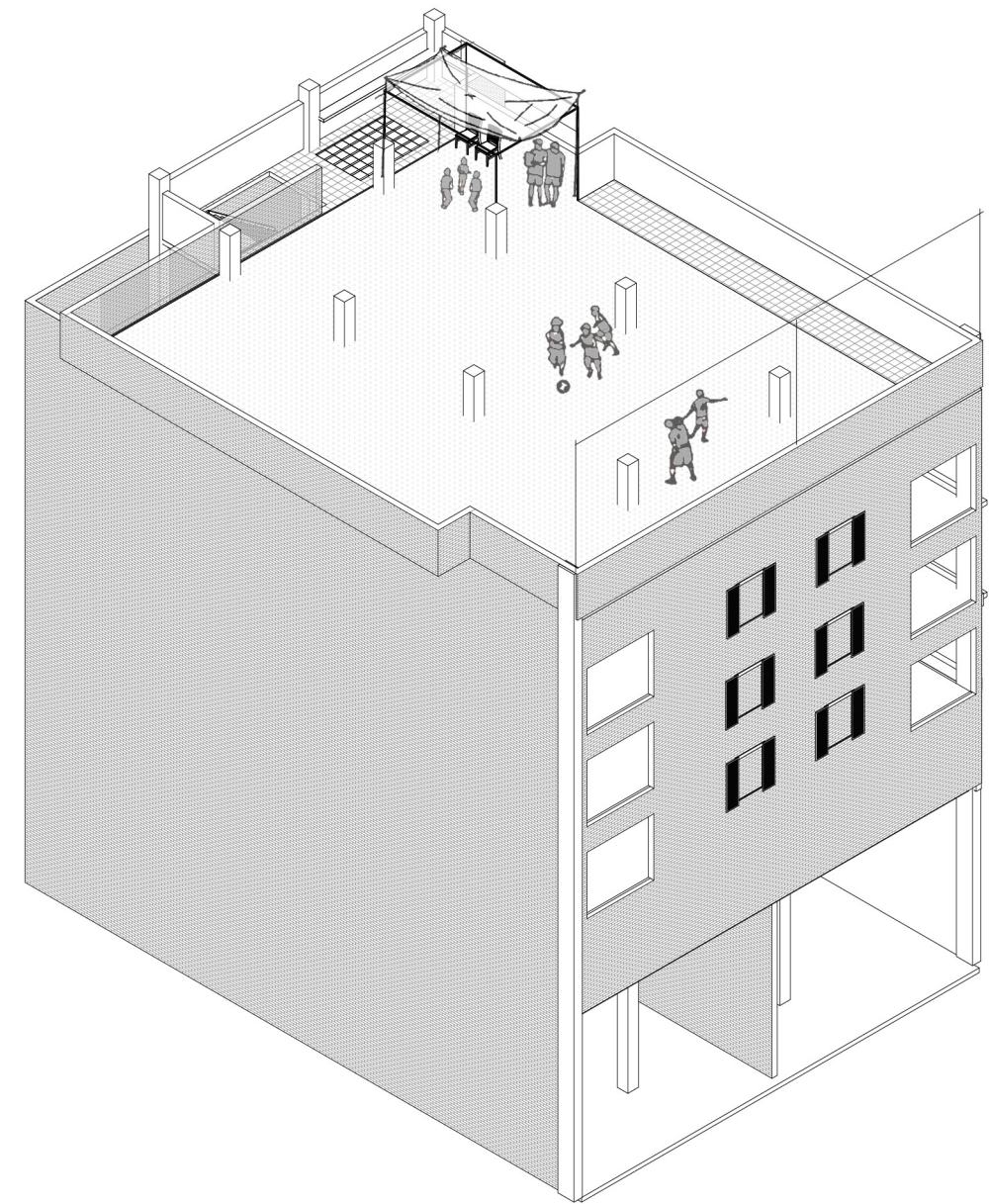
“Yes, I’ve seen daycares operate on the roofs as it provides a safer and cleaner environment for the kids. It is a really good idea. In the association, we even tried to grow vegetables on the roof, but to be honest with you it can get really expensive especially for some residents to do this on their own. It does need some sort of funding. But, in Cairo now, people use the roofs for different social and income generating activities.”- NGO in Manshiyat Nasser



Fig.5.41 A daycare on a rooftop in Manshiyat Nasser (The Garbage City) Photographed by _zadnych_granic



Fig.5.42 A daycare on a rooftop in Ezbet El-Nakhl. Screenshots from a YouTube video about SOS NGO work in Ezbet El-Nakhl.



Roof is public

Fig.5.43 Diagram of a daycare on the roof.

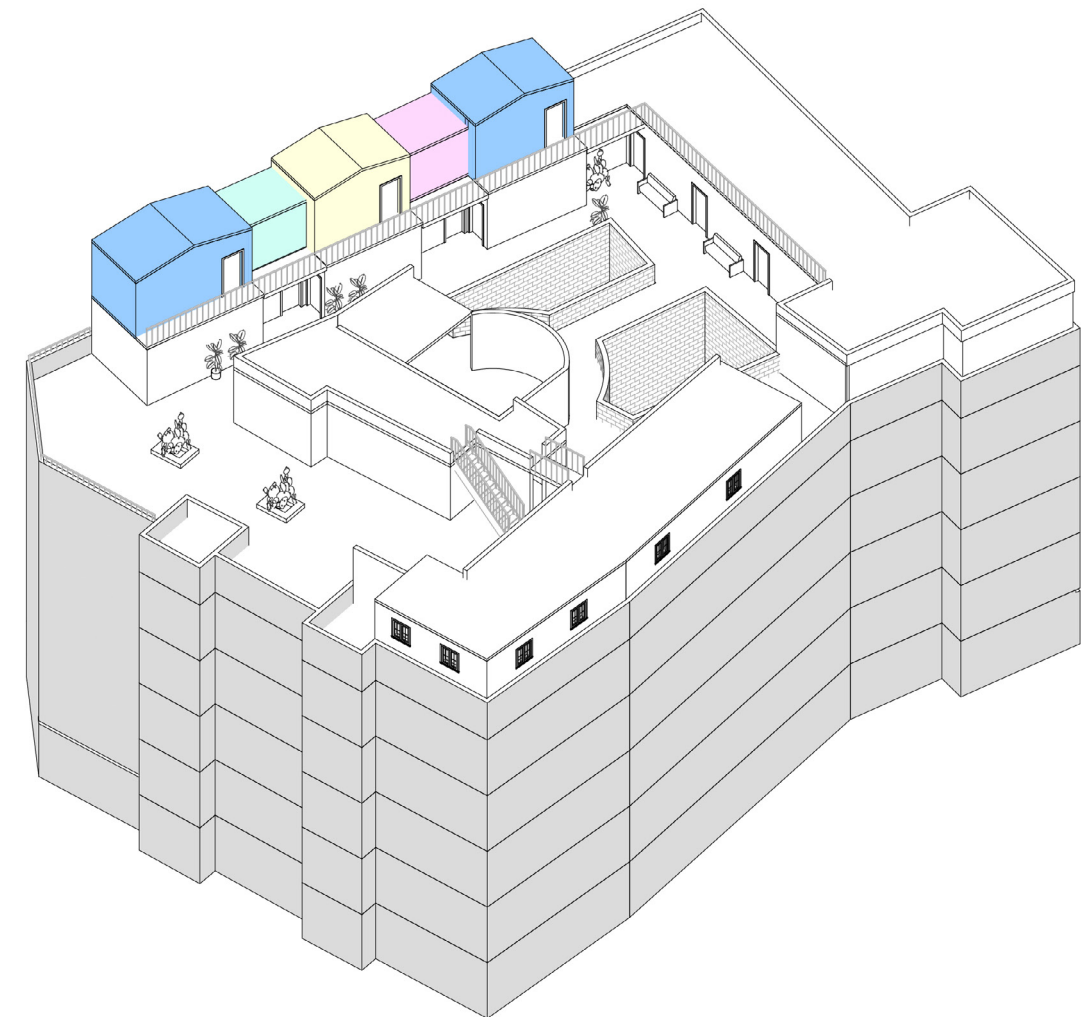
5.12 Roof for Hostels

“Our hostel is built on one of the colonial downtown buildings, exactly like the Yacoubian building, where it had laundry rooms and seller storage rooms built on the roof for chauffeurs and servants who used to work in the building under the aristocrats and wealthy Europeans/Egyptians pashas. Every apartment used to have a room on the roof, and they were made to service those buildings. When those wealthy families who lived here left after the 1950 revolution, many of those roofs became empty. When we bought the roof of the hostel, I think the gatekeeper’s son lived on the roof and it was used for storage for the residents. We offered him a job at the Hostel, and he works here with us.”

“I think this building was owned by a French individuals who lived here around the 1940s. After the 1952 revolution, they left. Around that time, an Egyptian individual bought it from them, which is I think the great grandfather of the current owner. The idea of the hostel started in 1998, when my father, who was a surgeon, knew a friend who lived here and during the visit, he had this crazy idea to turn this roof into a hostel! After my father died, my brother managed the hostel, and when he traveled, I took over after him. Our hostel can accommodate 70 guests at full capacity in 40 rooms. We built extra rooms on top of the existing ones. You can see, the rooftop hostel has two storeys. We tried to make it as inviting as possible by adding plants, using vibrant colors, and incorporating shading elements using palm leaf thatch material.” -Dahab Hostel Owner



Fig.5.44 Dahab Rooftop Hostel, Downtown Cairo. Photographed by the owner



Roof is public

Fig.5.45 Layout of Dahab Rooftop Hostel, Downtown Cairo



Fig.5.46 A view of Dahab Hostel Rooftop in Downtown Cairo. Photographed by owner



Fig.5.47 A view of the second floor of Dahab Hostel. Downtown Cairo. Photographed by owner



Fig.5.48 A view of the second floor of Dahab Hostel with Satellite Dishes. Photographed by owner

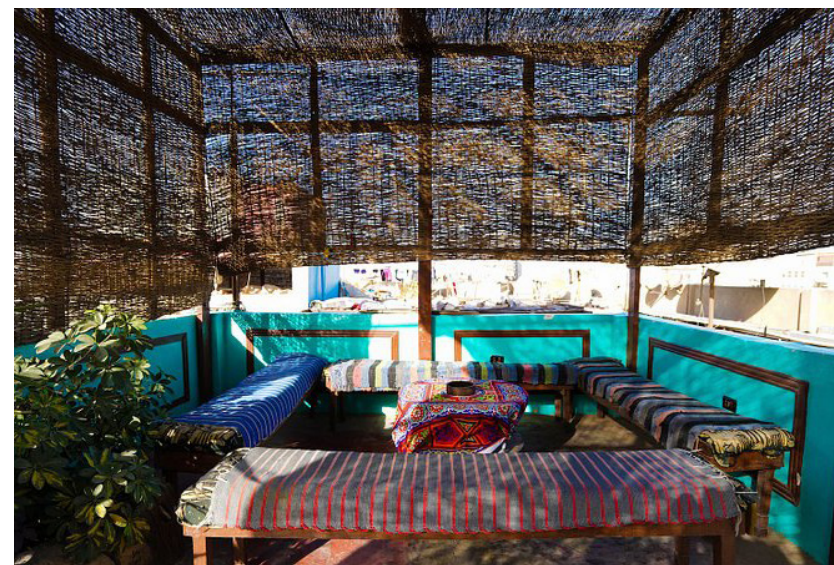


Fig.5.49 A seating area on Dahab Hostel Rooftop. Shading made out of palm thatch. Photographed by owner

Endnotes

1 (Depaule and Arnaud, 1985)

2 Ambrosini, *Roofscape Design*. Page 9

3 Ibid.

4 “Urbanités Africaines / Portfolio : Les Toits Du Caire, Des Espaces

Ressource ? : Urbanités.”

5 Gilbert and Shapiro, “Pigeons.”

6 Ibid.

7 Urban Agriculture in the Greater Cairo Region: An example of Rooftop farming. GIZ

Conclusion: Urbanism of Informality

6.0



Fig.6.0 Two pigeon towers beside residential buildings with children on the roof. Photographed by Ahmad Yahia

In conclusion and after a comprehensive study of urban informality across the Global South, the research argues that informal construction in the Greater Cairo Region is of a very different order than in other parts of the world due to its unusually high quality construction. Informal housing production in Greater Cairo has developed into self-produced, self-sufficient, and efficient form of vernacular architecture. These settlements can be easily identified by their appearance: plain, unplastered red brick infill and concrete slabs. A spectrum of informality is formulated to better explain these variations of informality. Even within Cairo's informal settlements, each settlement varies from informal to formal. This spectrum acknowledges the need to move beyond a simplistic binary view of informality and embraces a more nuanced and comprehensive perspective, recognizing the various gradations and complexities that define urban informality.

This is further explored through a fieldwork study that illustrates the resilience and creativity of residents in Greater Cairo's informal settlements. Site visits of different types of informal settlements were documented to show how residents overcame the lack of affordable housing and socio-economic challenges. The findings of this fieldwork reveal the existence of two distinctive yet interconnected parallel realms. The first realm encompasses self-sustaining micro-cities, like Garbage City and City of the Dead. The street plane becomes overcrowded due to recycling industries and various other uses, leading to a scarcity of public spaces. This realm led to the other, which is the rooftop plane. The rooftop plane serves as another functional layer of space. Rooftops are found to be used by residents in many informal settlements where residents either find affordable housing, recreate, socialize, and even use for micro-economies.

In recent urban intensification policies, there is a particular focus on the potential of rooftops as a kind of elevated ground. The idea is to assess whether rooftops can be used to support modest city expansion, creating additional floor space for new purposes or green areas. This approach envisions an "urban acupuncture" logic, where limited vertical extensions can serve as small-scale interventions aimed at enhancing the social and cultural aspects of the communities involved.

Given the limited availability of space in a densely populated area, rooftops have been shown to be important sites for social gatherings, religious rituals, and cultural practices. This has played a significant role in shaping the social and urban fabric of the city. In this time of tight housing markets, mass urbanization and a climate crisis, the rooftop landscape becomes the new frontier for urban development.

Overall, the history of rooftop living in Cairo reflects the challenges and opportunities that come with urbanization and housing inequality. Despite the challenges associated with rooftop occupation in Cairo, many residents continue to value the sense of community and cultural identity that these spaces provide. A celebratory drawing (Fig 6.1) suggests that if all rooftop practices in Cairo are gathered in proximity, we can imagine a whole new city over the existing one. A heightened version of the rooftops explored in this thesis makes up a horizontal network of community spaces using stairs to connect rooftops together. The conclusion seeks to draw lessons from the innovative efforts of residents, which can inform strategies for creating a more inclusive urban environment in Cairo.

Apart from housing and cultural practices, the potential of these rooftop spaces extends beyond the social and economic activities examined in this thesis. These rooftops offer abundant opportunities for the development of self-sustaining neighborhoods. While nearly all informal settlements in Greater Cairo have access to basic infrastructure, certain neighborhoods can further benefit by leveraging this urban rooftop network (Fig. 6.1) to establish low-technology infrastructure. For instance, installing water tanks to collect greywater from these rooftops can support rooftop hydroponic agriculture, thereby enhancing their functionality. Drawing inspiration from the rooftop catalog, the pigeon tower structures serve as a testament to the possible form of low-tech infrastructure hubs within informal settlements. These towers can facilitate the provision of water purification system, water heaters, pumps and other essential services.

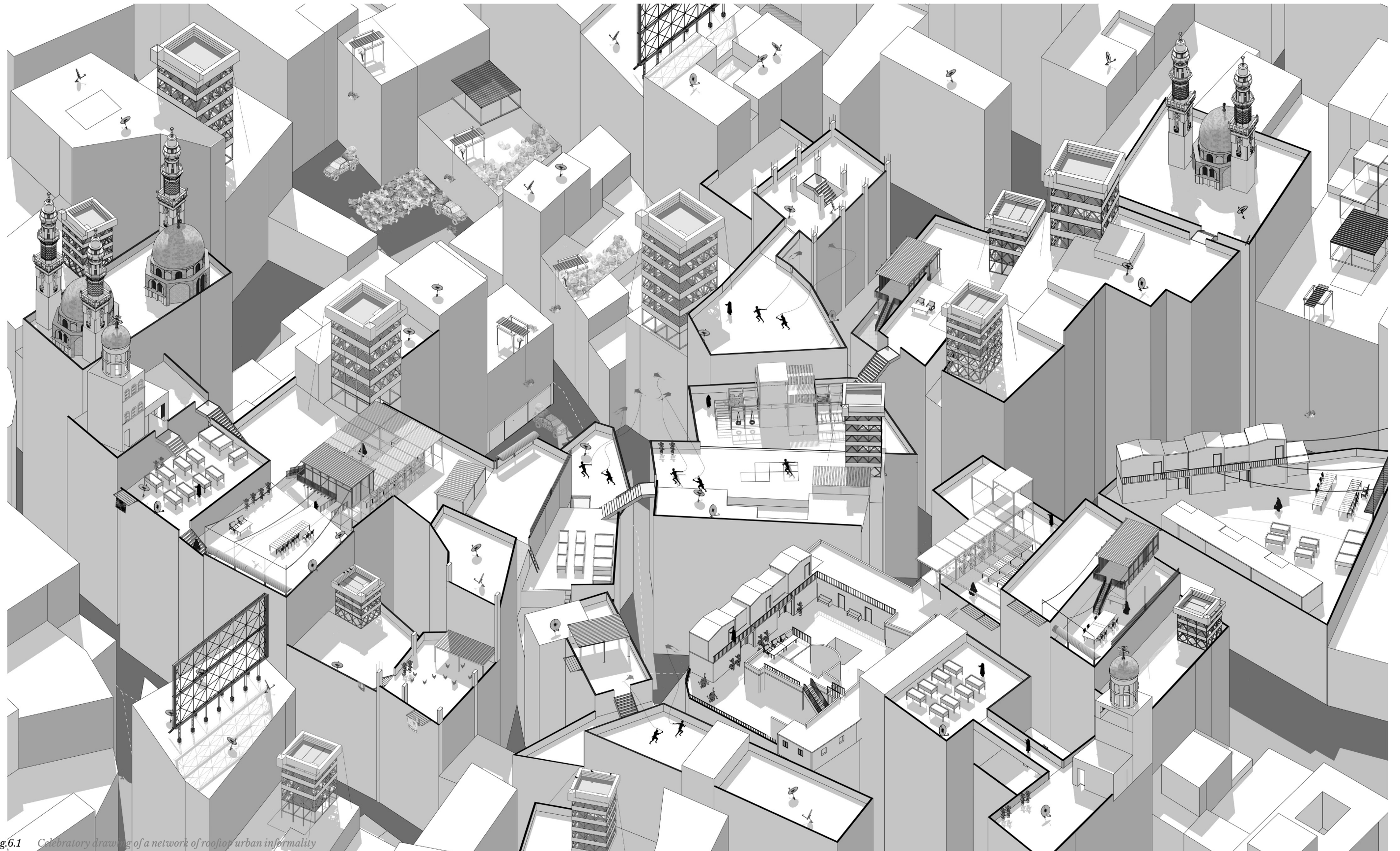
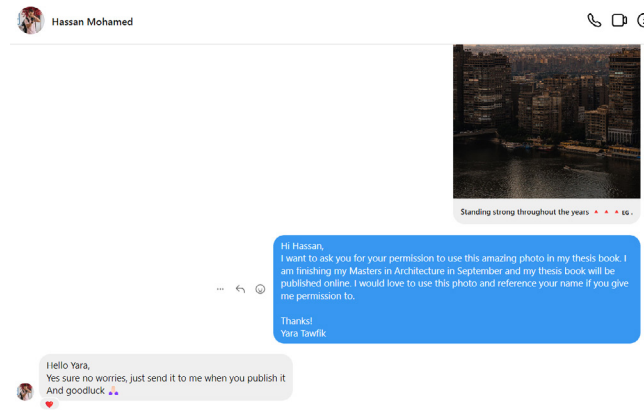


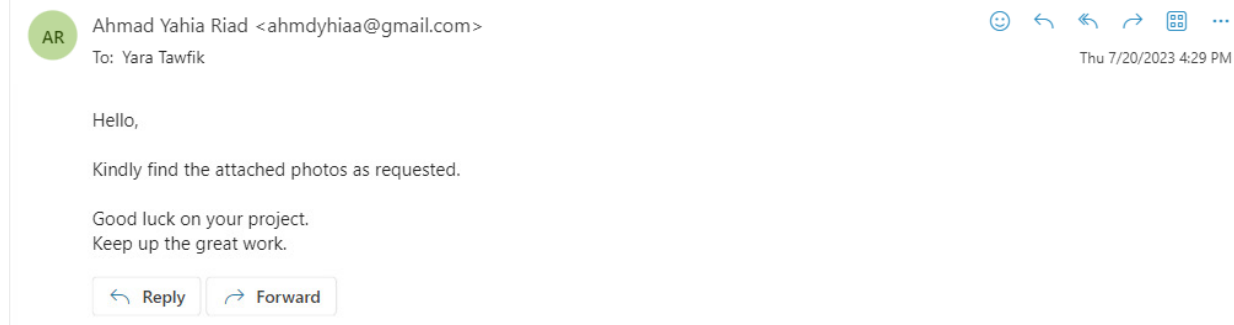
Fig.6.1 Celebratory drawing of a network of rooftop urban informality

Letters of Copyright Permission

Figure 0.2



Figures 2.9, 3.0, 6.0, 7.41-43



Figures 3.28, 4.80-84-87, 5.3

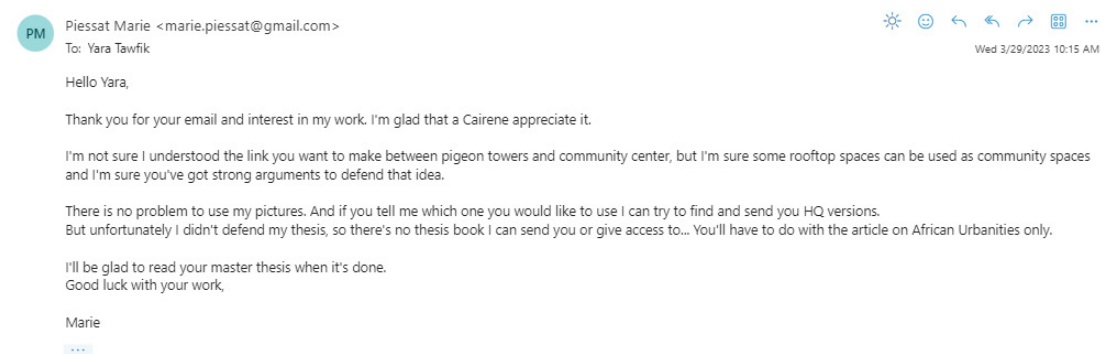


Figure 3.20

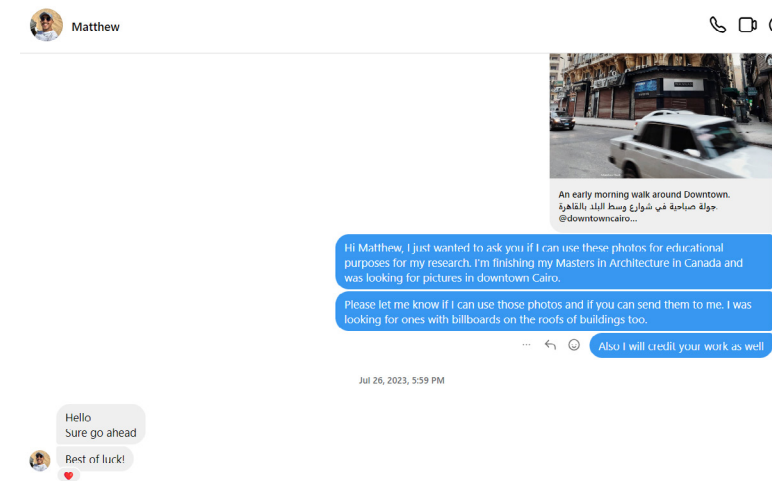
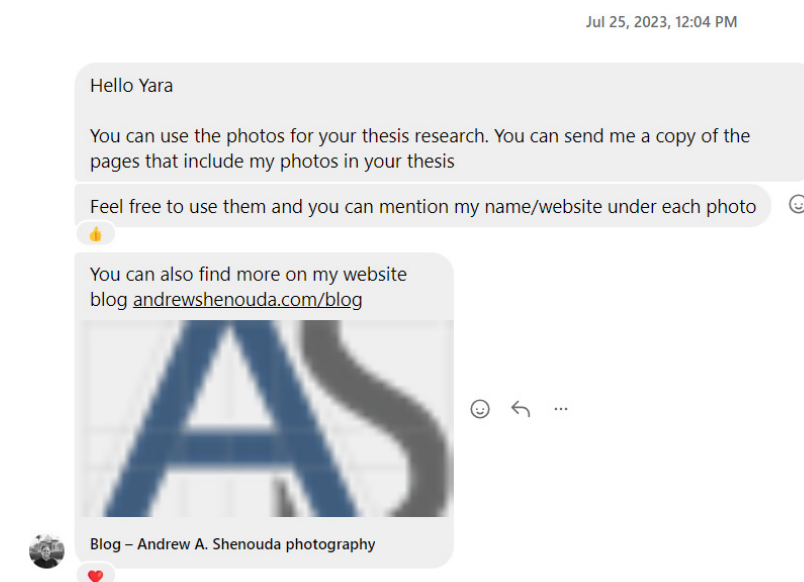



Figure 3.22



Figures 4.8-9



 _zadnych_granic




Hi there,
I was wondering if I can buy these pigeon tower photographs from you for research purposes. I am a Masters student in Architecture at the University of Waterloo and was wondering if I can use these photographs in my thesis book which will be published online.
Please let me know,
Thanks

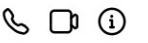
I am documenting rooftop practices in informal settlements in Cairo and these are amazing pictures
I would greatly appreciate if you can send me these photographs by email: yhmztawf@uwaterloo.ca

Sep 12, 2023, 8:07 AM


 Hi
 Yes sure you can use it

Figures 4.71-74

 Mohamed Mamdouh

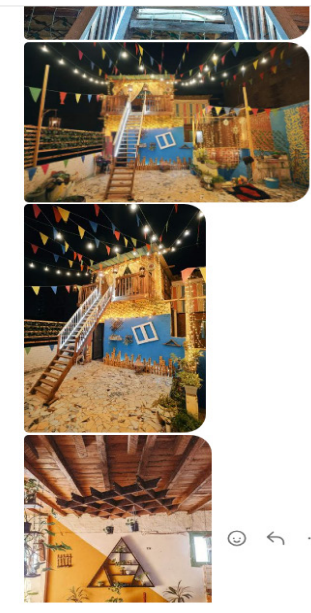
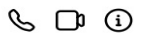






لو عندك اى صور للسطوح و الانشطة المختلفه اليتحصل على السطوح
انا المشروع بتاعى بوثق ازاى المصريين بيستخدمه الاسطح فى مصر انها ال backyard بتاعتهم

 هبعثلك صورتين علي ال mail

Figures 4.71-74

 MOostafa Elshenawy



 Message...   

Bibliography

Abdelhalim, Khaled. "Participatory Upgrading of Informal Areas: A Decision-Makers' Guide for Action." Accessed September 4, 2023. <https://www.citiesalliance.org/resources/publications/cities-allianceknowledge/participatory-upgrading-informal-areas-decision>.

"About the Mukuru SPA — Muungano Wa Wanavijiji." Accessed September 6, 2023. <https://www.muungano.net/about-the-mukuru-spa>.

Agyabeng, Anthony Nkrumah, Augustine Awuah Peprah, James Kwame Mensah, and Ernest Abraham

Mensah. "Informal Settlement and Urban Development Discourse in the Global South: Evidence from Ghana." *Norsk Geografisk Tidsskrift - Norwegian Journal of Geography* 76, no. 4 (August 8, 2022): 242–53. <https://doi.org/10.1080/00291951.2022.2113428>.

Alsayyad, Nezar. "Squatting and Culture." *Habitat International* 17, no. 1 (January 1993): 33–44. [https://doi.org/10.1016/0197-3975\(93\)90044-D](https://doi.org/10.1016/0197-3975(93)90044-D).

Alsayyad, Nezar. "Squatting and Culture: A Comparative Analysis of Informal Developments in Latin America and the Middle East." *Habitat International* 17, no. 1 (January 1, 1993): 33–44. [https://doi.org/10.1016/0197-3975\(93\)90044-D](https://doi.org/10.1016/0197-3975(93)90044-D).

Ambrosini, Gustavo. *Roofscape Design: Regenerating the City upon the City*. Berlin: Jovis, 2021.

Angéil, Marc, and Charlotte Malterre-Barthes. *Housing Cairo: The Informal Response*. Berlin: Ruby Press, 2016.

Angéil, Marc, and Cary Siress. "Cairo: Speculative Informality: disP - The Planning Review: Vol 52, No 4." Accessed August 27, 2023. <https://www.tandfonline.com/doi/abs/10.1080/02513625.2016.1273655?journalCode=rdsp20>.

AP Photos. "With New Egypt Capital Being Built, What Becomes of Cairo?," November 16, 2018. <https://apimagesblog.com/blog/2018/11/16/with-new-egypt-capital-being-built-what-becomes-of-cairo>.

Aswānī, [Alā]. *The Yacoubian Building*. Modern Arabic Writing. Cairo ; The American University in Cairo Press, 2004.
"Atlas of Informality." Accessed September 6, 2023. <https://www.atlasofinformality.com/>.

Bakhaty, Asser, Ashraf M. Salama, and Branka Dimitrijević. "A Validated Framework for Characterizing Informal Settlements: Two Cases from Greater Cairo, Egypt." *Buildings* 13, no. 5 (May 11, 2023): 1263. <https://doi.org/10.3390/buildings13051263>.

Barthel, Pierre-Arnaud. "Rereading Greater Cairo through the Mirror of Density." *Confluences Méditerranée*.

Paris: L'Harmattan, 2010. [Cairn.info. https://www.cairn.info/revue-confluences-mediterranee-2010-4-page-121.htm](https://www.cairn.info/revue-confluences-mediterranee-2010-4-page-121.htm).

Bureau, US Census. "Understanding Population Density." *Census.gov*. Accessed September 12, 2023. <https://www.census.gov/newsroom/blogs/random-samplings/2015/03/understanding-populationdensity.html>.

Bush, Ray, and Habib Ayeb. *Marginality and Exclusion in Egypt*. Middle East Studies. London: Zed, 2012.

Cairo 360 Guide to Cairo, Egypt. "Learn About the Artist Behind the Initiative to Colour Satellite Dishes on Cairo Roofs," October 31, 2018. <https://www.cairo360.com/article/city-life/learn-about-the-artistbehind-the-initiative-to-colour-satellite-dishes-cairo-roofs/>.

"Central Agency for Public Mobilization and Statistics (CAPMAS)." Accessed September 4, 2023. <https://www.capmas.gov.eg/Pages/populationClock.aspx>.

Centre, UNESCO World Heritage. "UNESCO World Heritage Centre - State of Conservation (SOC 2021)"

Historic Cairo (Egypt)." UNESCO World Heritage Centre. Accessed September 12, 2023. <https://whc.unesco.org/en/soc/4070/>.

Davis, Mike. *Planet of Slums*. London ; New York: Verso, 2006.

"Demography | Mumbai Suburban District, Government of Maharashtra | India." Accessed September 12, 2023. <https://mumbaisuburban.gov.in/demography/>.

Dionne, Marc-Antoine. "A Review of Canadian Homelessness Data, 2023," no. 75 (2023).

Dovey, Kim. "Informalising Architecture: The Challenge of Informal Settlements." *Architectural Design* 83, no. 6 (November 2013): 82–89. <https://doi.org/10.1002/ad.1679>.

Dovey, Kim, and Ross King. "Forms of Informality: Morphology and Visibility of Informal Settlements."

Built Environment 37, no. 1 (March 1, 2011): 11–29. <https://doi.org/10.2148/benv.37.1.11>.

Dovey, Kim, Matthijs van Oostrum, Ishita Chatterjee, and Tanzil Shafique. "Towards a Morphogenesis of Informal Settlements." *Habitat International* 104 (October 2020): 102240. <https://doi.org/10.1016/j.habitatint.2020.102240>.

"Egypt - Agriculture, Fishing, Nile | Britannica." Accessed September 6, 2023. <https://www.britannica.com/place/Egypt/Agriculture-and-fishing>.

"Egypt Demographics - Place Explorer - Data Commons." Accessed September 10, 2023. <https://datacommons.org/place/country/EGY?category=Demographics>.

El Kadi, Galila. *Architecture for the Dead: Cairo's Medieval Necropolis* / Galila El Kadi, Alain Bonnamy. Cairo ; New York: American University in Cairo Press, 2007.

El-Batran, Manal, and Christian Arandel. "A Shelter of Their Own: Informal Settlement Expansion in Greater Cairo and Government Responses." *Environment and Urbanization* 10, no. 1 (April 1, 1998): 217–32. <https://doi.org/10.1177/095624789801000109>.

Gilbert, M. Thomas P., and Michael D. Shapiro. "Pigeons: Domestication." In *Encyclopedia of Global Archaeology*, edited by Claire Smith, 5944–48. New York, NY: Springer, 2014. https://doi.org/10.1007/978-1-4419-0465-2_2214.

Goldstein, Eric. "In Crowded Cairo, Even the Rooftops Are Teeming with Life," 1984. <https://www.csmonitor.com/1984/0904/090462.html>.

Gulis, Gabriel, Joshua Anam Amos Mulumba, Olivia Juma, and Beatrica Kakosova. "Health Status of People of Slums in Nairobi, Kenya." *Environmental Research* 96, no. 2 (October 2004): 219–27. <https://doi.org/10.1016/j.envres.2004.01.016>.

Hernández, Felipe, Peter Kellett, and Lea K. Allen. *Rethinking the Informal City: Critical Perspectives from Latin America. Remapping Cultural History ; v. 11*. New York: Berghahn Books, 2010.

"Innovations Field Diary: Mukuru Nyayo, Nairobi | UNICEF Office of Innovation." Accessed September 4, 2023. <https://www.unicef.org/innovation/stories/innovations-field-diary-mukuru-nyayo-nairobi>.

Justin A. McCarthy. "Nineteenth-Century Egyptian Population." *Middle Eastern Studies* 12, no. 3 (1976): 1–39.

Myers, Professor Garth. *African Cities: Alternative Visions of Urban Theory and Practice*. Bloomsbury Publishing, 2011.

Nedoroscik, Jeffrey A. *The City of the Dead : A History of Cairo's Cemetery Communities*. Bergin & Garvey, 1997.

Piffero, Elena. *What Happened to Participation?: Urban Development and Authoritarian Upgrading in Cairo's Informal Neighbourhoods*. Bologna: I libri di Emil, 2009.

Rania Hanafi and Salah Gharab. "Al-Ahram Newspaper." *Al-Ahram*, June 20, 2014. <https://gate.ahram.org.eg/daily/NewsPrint/298333.aspx>.

Ritchie, Hannah, and Max Roser. "Urbanization." *Our World in Data*, June 13, 2018. <https://ourworldindata.org/urbanization>.

Rosa, Marcos L., Ute E. Weiland, Ana María Alvarez, Lindsay Bush, Demet Mutman, Priya Shankar, and Paulo Ayres. *Handmade Urbanism: From Community Initiatives to Participatory Models : Mumbai, São Paulo, Istanbul, Mexico City, Cape Town*. Berlin: Jovis, 2013.

Roy, Ananya, and Nezar AlSayyad. *Urban Informality: Transnational Perspectives from the Middle East, Latin America, and South Asia. Transnational Perspectives on Space and Place*. Lanham, Md: Lexington Books, 2004.

Rudofsky, Bernard. *Architecture without Architects: A Short Introduction to Non-Pedigree Architecture*. New York: Doubleday, 1964.

Salem, M. "Peri-Urban Dynamics and Land-Use Planning for the Greater Cairo Region in Egypt." In *WIT Transactions on The Built Environment*, edited by C. A. Brebbia, 1st ed., 1:109–19. WIT Press, 2015. <https://doi.org/10.2495/SD150101>.

Samper, Jota. "Eroded Resilience, Informal Settlements Predictable Urban Growth Implications for Self-Governance in the Context of Urban Violence in Medellín, Colombia." *UPLanD - Journal of Urban Planning Landscape & Environmental Design* (July 28, 2017): 183–206 Pages. <https://doi.org/10.6092/2531-9906/5265>.

Selim, Gehan. "Between Order and Modernity: Resurgence Planning in Revolutionary Egypt." *Journal of Urban History* 42 (February 2015): 180–200. <https://doi.org/10.1177/0096144214566980>.

Shawkat, Yahia. *Egypt's Housing Crises: The Shaping of Urban Space*. Cairo, Egypt: The American University in Cairo Press, 2020.

Shehayeb, Dina. "Cairo Resilience: City as a Personal Practice." Accessed August 26, 2023. https://www.academia.edu/28122683/CAIRO_RESILIENCE_CITY_AS_PERSONAL_PRACTICE.

Shehayeb, Dina. "Cairo's Informal Areas Between Urban Challenges and Hidden Potentials," July 1, 2009. https://www.academia.edu/2484752/Cairo_s_Informal_Areas_Between_Urban_Challenges_and_Hidden_Potentials.

Silva, Elisa. *Pure Space: Expanding the Public Sphere through Public Space Transformations in Latin American Informal Settlements*. New York: Actar Publishers, 2020.

Sims, David. *Understanding Cairo: The Logic of a City out of Control*. Cairo ; American University in Cairo Press, 2010.

"Six-Day War | Definition, Causes, History, Summary, Outcomes, & Facts | Britannica," August 13, 2023. <https://www.britannica.com/event/Six-Day-War>.

Smart, Alan, and Martijn Koster. "Beyond the Formal-Informal Dichotomy." In *Oxford Research Encyclopedia of Anthropology*, 2022. <https://doi.org/10.1093/acrefore/9780190854584.013.350>.

Soliman, Ahmed M. "Legitimizing Informal Housing: Accommodating Low-Income Groups in Alexandria, Egypt." *Environment and Urbanization* 8, no. 1 (April 1, 1996): 183–94. <https://doi.org/10.1177/095624789600800116>.

Soth, Amelia. "Cairo's Zabbaleen and Secret Life of Trash." *JSTOR Daily*, November 30, 2022. <https://daily.jstor.org/cairos-zabbaleen-and-secret-life-of-trash/>.

Stella Margold. "Agrarian Land Reform in Egypt." *The American Journal of Economics and Sociology* 17, no. 1 (1957): 9–19. "The Pigeon Breeders of Cairo." Accessed August 27, 2023. <https://www.amusingplanet.com/2019/12/the-pigeon-breeders-of-cairo.html>.

Turner, John F C, and Robert Fichter. "Freedom to Build, Dweller Control of the Housing Process." New York, 1972. "Urbanités Africaines / Portfolio : Les Toits Du Caire, Des Espaces Ressource ? : Urbanités." Accessed August 27, 2023. <https://www.revue-urbanites.fr/urbanites-africaines-piessat/>.

Werthmann, Christian, and John Beardsley. "Improving Informal Settlements: Ideas from Latin America." *Harvard Design Magazine*. Accessed August 15, 2023. <https://www.harvarddesignmagazine.org/articles/improving-informal-settlements-ideas-from-latin-america/>.

Shawkat, Yahia. "Old Rent: Survival Tactics to Live in the City - Built Environment Observatory المرصد العمران," June 26, 2018. <https://marsadomran.info/en/2018/06/1582/>, <https://marsadomran.info/en/2018/06/1582/>.

Appendix

The following are the complete, transcribed conversations with residents from Cairo who either live or work in informal settlements. The goal of the conducted interviews was to comprehensively document and gain more insights to explore the diverse rooftop practices within these communities, which aligns with the broader research goals of the thesis. Some interviews were done in-person during my fieldwork in December 2022. The first two interviews were conducted in-person, while the rest were done online, after I had researched more about rooftops in Cairo.

Interviews regarding rooftops in Cairo:

Interview 01	Pigeon Tower Owner 1 (City of the Dead)	177-182
Interview 02	Pigeon Tower Owner 2 (Garbage City)	183-188
Interview 03	Photographer	189-192
Interview 04	Pigeon Tower Builder	193-194
Interview 05	Goudo Rooftop Owner	203-204
Interview 06	Dahab Hostel Rooftop Owner	205-206

Interview regarding conditions in The Garbage City in Cairo:

Interview 07	NGO in Manshiyat Nasser	207-208
--------------	-------------------------	---------

Pigeon Tower Owners - Interview 01

1. Pigeon Tower Owner in Al-Quarafa (The City of the Dead)

My father and uncle took me to the informal settlements that I had planned to visit. When approaching the City of the Dead, we noticed how peaceful the area was. However, the roofs of the city's residential infill were animated by many Pigeon Towers, so we thought to stop by a random one (Fig.7.0-1) to see if the owner would allow us to visit. We saw a street vendor underneath the building, and asked him if he knew the owner of the Pigeon Tower. He was very welcoming and invited us for a cup of tea. Surprisingly, he knew the owner's name and just shouted his name, and we saw him coming down. The Pigeon tower owner was very welcoming and, in fact was glad that people recognized his tower. He took us upstairs through the narrow apartment building's stairs, which led us to the roof seen in (Fig). We then started to have a conversation about the tower.



Fig.7.0 A street in the City of the Dead, showing Pigeon Tower on residential building. Photographed by author



Fig.7.1 Pigeon Tower on rooftop of a residential building in the City of the Dead. Photographed by author

This is the first time I have seen one of those Pigeon towers this close. What is the height of this tower, and do you live here in this building?

Wait until you get up to the pigeon loft, the view will be better! This is my neighborhood and I live downstairs, just below the roof. I was born and raised here. My pigeon tower is 3 floors high. You know what, it was higher before, but I recently lowered.

Why would you need to lower it and is it this easy to lower this structure? How high do you think Pigeon Towers can get?

I lowered it almost two floors because of the strong winds we've been getting here. It can get dangerous, especially with strong winds because there have been accidents before where the tower just collapses. That's why if you look on the roof floor, on the bottom there, we pour a little bit of concrete on the base, where it touches the roof to make it more stable. You will also find cables attaching the tower to the roof to help secure it from strong winds. It is very flexible and not too hard to lower it, but I do get some help from my friends. Pigeon Towers can get up to 20 meters high, but they must be sturdy!



Fig.7.2 Closeup of a Pigeon Tower in the City of the Dead, Greater Cairo, Egypt.

I see that all the towers around are built/designed the same and structure is made of wood. Did you build this tower? (Fig. 7.2)

Yes, you'll find that these pigeon towers are built the same everywhere you go, but some are higher, some are built with better wood, some have stairs that are designed within the structure. Here I have those simple ladder stairs. The structure is made of wood that is then painted these really vibrant colors so that the owners personalize their towers however they want. I built this with the help of my friends from this neighborhood who also own pigeon towers, experience with can be reclaimed. Let's go upstairs!

What is this wood container here (Fig. 7.4)?

This is called "Salaka" and this is where I put all the pigeons that are captured from my opponents (other pigeon towers) around and are still new to the pigeon loft. Let's keep going up! Don't worry, the structure is sturdy, you see all these wood braces are made to make it sturdier. Just be careful.

What is this flag and pulleys you have here (Fig. 7.6)?

This flag is what I use to guide pigeons, to tell them to fly or to come back. If you put your head through this device here, we call it "Nadara" (The glasses), where you carefully peek your head to operate the nets when you want to capture pigeons without scaring them. Come inside the loft, I'll show you. Welcome to my daily escape from everyday life! This view here (Fig. 7.3), you'll see the residential infill between the cemeteries down there. This area is called Qaitbay, and the other side is Manshiyat Nasser, where you'll also find Pigeon Towers. Pigeon towers are everywhere around areas like this.



Fig.7.4 "Salaka"



Fig.7.5 Pigeon Tower Structure.



Fig.7.3 Aerial view of the City of the Dead taken from the Pigeon Tower. Photographed by author



Fig.7.6 "Nadara". A device used to capture Pigeons.



Fig.7.7 View from the Pigeon Tower Loft space.

What are the dimensions of this loft? (Fig. 7.7)

Here we are in the pigeon loft. Yes, this is a 3x3 loft, which is small compared to other pigeon towers. Each pigeon here has its own little space with its own little door. You see the nets are on top of the loft, where the pigeons like to stand. Once I put food in that tray on the ground, they'll come to feed, then I close off the nets, using those pulleys you see through the "Nadara". I put the captured pigeons downstairs as I usually give them back to the competitor, because I'll know who these pigeons belonged to.

When do you come up here and how often do you fly your pigeons during the day? Like what time?

Around 6pm, when the sun is setting, my friends and I let our pigeons fly for about half an hour or so. Do you see all the other towers over there? These are all my friends, but also my competition! I come up here, far away from all the traffic and noise of life downstairs right after I finish work. Once you get up to the Pigeon Tower, you forget everything happening down there! From here you can feel and see the whole city. It's quite peaceful. Every owner has trained their pigeons to come back through a series of whistles and gestures using this flag. Let me show you some of the pigeons I have. I have different kinds. There is one that can do flips in the air. It's called "shaa'labaz". Each pigeon is unique. Other pigeons lead the rest when flying.



Fig.7.8 Aerial view of the City of the Dead taken from the Pigeon Tower. Photographed by author

This is what they usually call "The binoculars". This device helps the owner peek through to see the competitor's pigeons that land



Fig.7.9 Pulleys from the "Nadara" to catch pigeons.



Fig.7.11 View from the top of the Pigeon loft showing the Citadel and Historic Cairo



Fig.7.13 Pigeons feeding in the loft



Fig.7.14 A trapdoor to access the Pigeon Loft



Fig.7.10 Interior of the Pigeon loft looking at "the binoculars"



Fig.7.12 Interior of the Pigeon loft looking at neighbouring Pigeon Towers



Fig.7.15 View from the top of the Pigeon Loft looking at Manshiyat Nussy

Pigeon Tower Owners - Interview 02

2. Pigeon Tower Owner and Plastic and Recycling Specialist in Manshiyat Nasser (The Garbage City)

After leaving the City of the Dead, we were planning to head home. However, I was eager to visit one more tower. We were on the ring road, and I stumbled upon one of the tallest, colorful pigeon towers I've seen. (Fig. 7.16-17) We turned towards it, to see if we could go up and meet the owner. Thankfully, the owner was there. However, I was surprised to see that he works in the recycling industry. (Fig.7.18) The first floor has high ceilings, with many recycled piles that are ready to be sold. We had a brief discussion before we went upstairs to the roof.



Fig.7.16 KOKA's Pigeon Tower in Manshiyat Nasser. Taken from the ring road.



Fig.7.17 Street View of the entrance of Manshiyat Nasser showing Pigeon tower on rooftop



Fig.7.18 Interior view of the building's first floor showing piles of recycled plastic ready to be sold.

Thank you for meeting with us. So what is the story behind, not just your Pigeon Tower? But when and how did this Pigeon Tower phenomenon start in

This tower belonged to my brother who got married and traveled abroad to the US. That's why you'll see his name "KOKA" decorated outside of the tower. (Fig. 7.19) You'll even see my Pigeon Tower on the news and on YouTube because it's built condition is very sturdy and one of the highest towers around here. Many people come here to take pictures. I'll show you around and you'll even get the chance to meet all the kinds of Pigeons I have upstairs. In Egypt, people are very fond of pigeons. Pigeon keeping is a phenomenon that's embedded in the Egyptian culture, and is something that is always passed down from many generations ago. When I was 8 years old, my brother and I would always run from school and go to the pigeon market to be surrounded by pigeons. This has always been a hobby for many people in Cairo, to feed pigeons and keep them on their balconies.



Fig.7.19 Closeup of KOKA's Pigeon Tower in Manshiyat Nasser (The Garbage City)

Father: Yes, I even used to have pigeons as a kid on our balcony . You'll find many black and white Egyptian movies, like the movie *Platform No. 5*, from early 1900s depicting people keeping pigeons on the roof. Maybe they didn't have elaborate towers like these, but the idea and hobby were there. Maybe now, people have developed this idea further and built towers to have height away from any rodents like rats or cats that could harm the pigeons?

Pigeon Tower Owner: Yes, your dad is right! People who live here also want to own something that will be their pride and joy. The hobby of keeping pigeons starts from childhood and continues with you. For people like me, pigeons are more important than anything else. Sometimes we delay important milestones in life like marriage , just to take care of pigeons. Once my brother and I had our own running businesses and recycling work, we could afford to build this tower on the roof here. Let's go upstairs!

How did you get into this recycling business in Manshiyat Nasser?

We'll go upstairs through this side door here. Once we are up, I'll show you my recycling facility. The recycling business in Manshiyat Nasser is always passed down from previous generations. For example, my uncle, was born here. His father and grandfather were one of the earliest garbage collectors here. He was a garbage collector himself until he turned 19. In 1991, he created a small business for recycling plastic bags. We re-use garbage, like a polyethylene high-density plastic bag, we shred it into tiny pieces. The pieces of plastic are then melted into one large mass through a machine. The machine then produces granulated hard pieces that are sold. 15 different types of plastic are re-used here. They are prepared for a second life. I will sell this 50 kg bag (Fig.7.20) at the local market, which will then be used to make garbage bags and pipes. My uncle is proud to be one of the so-called "environmentalists of the Middle East" The garbage here is not only sorted and recycled but is also used again where it has been re-processed. Let's continue up to the roof.

Who built it for you or did you build it yourself? And how big is this tower?

Yes, you'll even see I have a guest room with a kitchenette, fridge, TV, and seating. (Fig. 7.22) Come on in! Here are some snacks and drinks if you want The person who built this is a carpenter who lives in the area of Manshiyat Nasser, you would never think that he would build this accurate! Let me open the windows for you. Have a seat. This tower is 10x10m and is probably about 11 m high for about 7 floors, but if you add the height of the building itself, which is 16 m, you'll get a total height of 27m when are at the top! Let's continue upstairs, I want to show you one more thing before we go to the pigeon loft. I'll show you the "salaka", where I keep the captured pigeons. I also have a place here where I keep the young pigeons that are still learning to come back here. Let's go to the loft now!



Fig.7.20 A plastic recycling facility located on the third floor of the building. Manshiyat Nasser (The Garbage City)

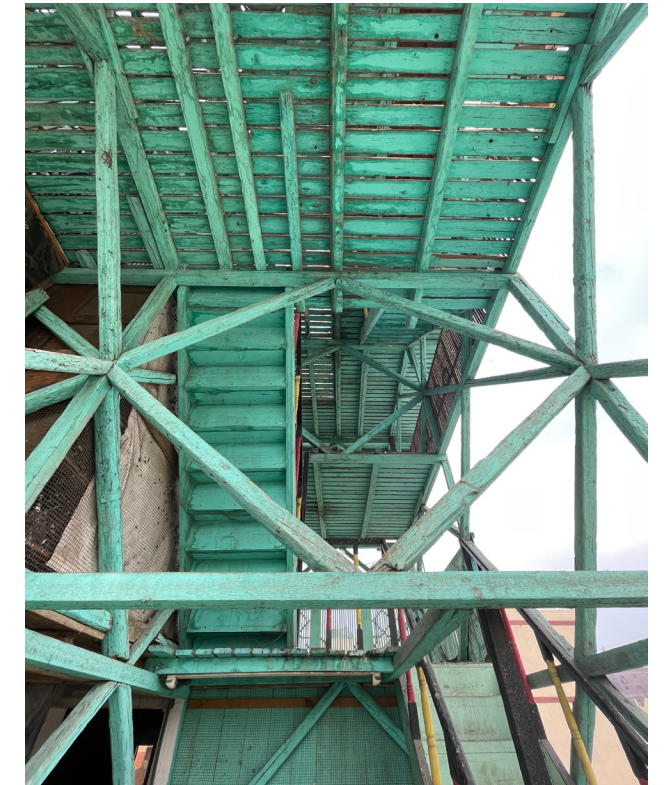


Fig.7.21 Pigeon Tower staircase with bracing structure. Wood painted in blue.



Fig.7.22 An interior view of KOKA's guest space with windows, seating, and a kitchenette

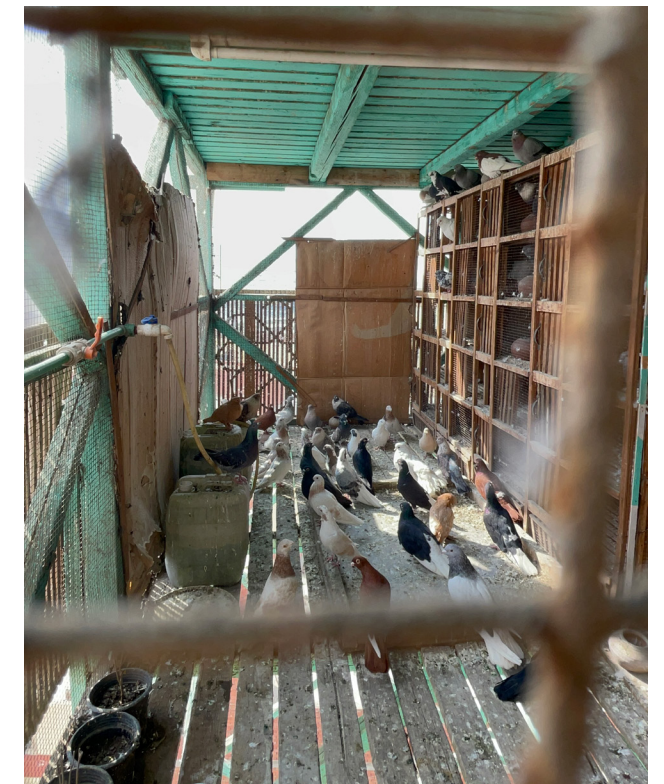


Fig.7.23 "Salaka" in KOKA's Pigeon Tower

I never expected to see you have electricity and running water hooked up here and a great guest room! So I heard from the other pigeon tower owner that you capture each other's pigeons. Can you elaborate more on how do these pigeon racing/competitions operate?

Think about it like a game or a match. My mission is to catch as many pigeons as possible from the opponent (other pigeon towers around me). There are two areas here in the tower, the loft where I keep my strongest pigeons that fly everyday with other pigeons, the ones I know will always come back and not get caught by others. The pigeons that I capture in the contests from other towers go under the loft, in an area called the 'salaka' or the 'dungeon'. (Fig. 7.23) I never fly them again. They become 'prisoners of war' here. My brother used to be the strongest inside the community of pigeoners here. You know sometimes we like to have bets with our friends on who will catch more pigeons, etc. This all depends on how well the pigeons are trained. If I fly my pigeons, as you can see, it will know to come back again to its home here.

How many pigeons do you have? I see you have different types too. When do you come here during the day? And how do you feel when you come up here?

If you look around, I have exactly 330 doors for 360 pigeons. It's totally another world up here away from all the pollution we get on the streets. I come here everyday to spend time with my pigeons. It's very relaxing here, compared to the stress of work downstairs. For us, this pigeon tower was always an escape, far from the chaos that rules the street. (Fig. 7.27) Standing on top of the tower, felt like a different world. Let me show you the pigeons, this black and white one is called "abl eswed" and the white beautiful one is called Australian. You see each pigeon has a ring around their feet with their numbers, those numbers are also on the

So is this how the enemy would know that they captured your pigeons?

Yes, sometimes my brother would even stamp their wings with his name so they recognize it's his pigeons.



Fig.7.24 "Nadara" or a watch tower in KOKA's Pigeon loft

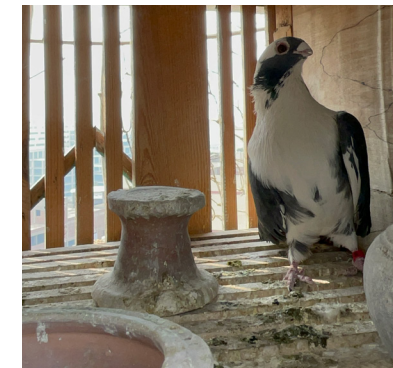


Fig.7.26 "abl eswed" kind of pigeons

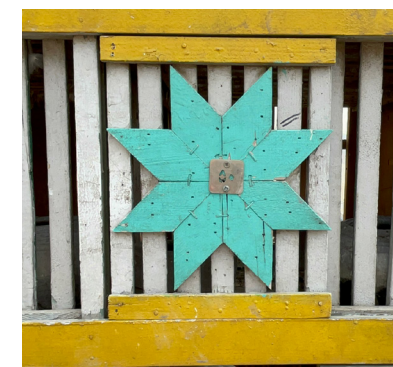


Fig.7.28 A typical home of one of KOKA's Pigeons



Fig.7.29 An Australian Pigeon



Fig.7.25 An interior view of the "nadara" to control the nets for capturing pigeons



Fig.7.27 "Salaka" in KOKA's Pigeon Tower

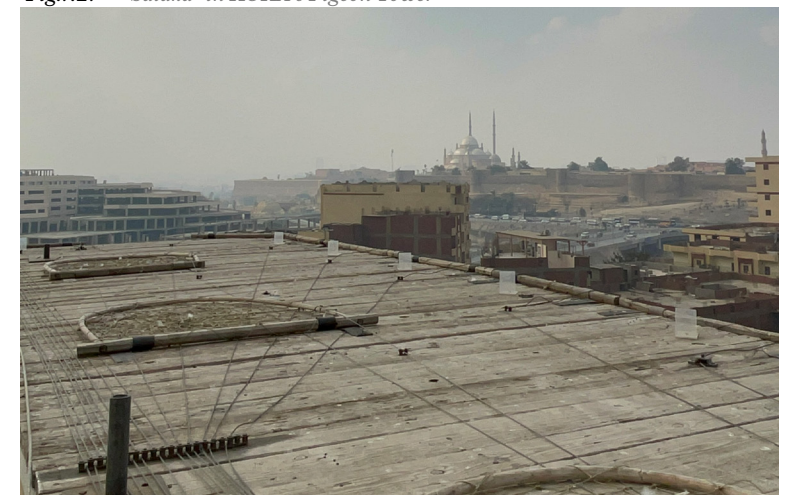


Fig.7.30 View of the Citadel taken from the top of KOKA's Pigeon loft

Artist/Photographer - Interview 03

3. Photographer/ works on Heritage restoration projects in El-Darb El Ahmar in Historic Cairo

Thank you for meeting with me Online. I had the chance to go through some of your photographs on your website, and they are all wonderful. Since most of your photos that you capture are of Pigeon Towers, what are your observations about this phenomenon?

Based in the area where I work, in Darb El-Ahmar, there is usually a *souq* (market) just for pigeon trading. People who work in this market know the pigeoneers in the area who are willing to sell their pigeons. Aside from the hobby and the racing, which makes the pigeons more valuable, it is also a source of income and investment for the owners. Pigeon owners usually sell their pigeons in a nearby market. Pigeons that are well-fed and have been well cared for usually cost more.

Oh, that's interesting, because I only thought that this is just a hobby for them. So, the more the pigeon flies, the healthier it gets?

Yes, each pigeon has its life cycle. Once the pigeons hatch out of the eggs, the owner makes sure it's well fed and kept, until they fly. The owner flies the pigeon around 6PM everyday to fly and comes back with a series of whistles and gestures with red flag to direct pigeons in a specific direction. Once the pigeons grow old and doesn't fly like before, the owner sells them in the market as a source of income for the owner. It's like a business for them apart from the hobby. The cycle then goes on to repeat.

These are all rooftop activities I have discovered happening on the roof in Cairo. Because of your exposure to rooftops, I wanted to discuss with you these rooftop practices.

Yes, this is all true. The roofs here are used as a public space. Nowadays you'll find that residents of each apartment building take advantage of the roof space and treat it as their own "public space". However, not everyone can access the rooftops because usually there are no elevators, it would be just stairs in the building. Most of the time, the stairs are narrow and not too equipped for the elderly. That explains why the elderly like to sit in coffee shops "*ahawe*" on the ground floor. Therefore, there is a **specific age group** of residents where they can easily access those rooftops. It depends of course on the height of the apartment building. Aside from age groups, something that I noticed is that most of the rooftop spaces are inhabited by males rather than females, but this only applies to Pigeon tower owners, where it's a male-dominated space. Sometimes in other roof, you'll just find women who dry their laundry, so it can also serve as a backyard to the homes, which can also be women-dominated. This also ties in to how much privacy is important in the Egyptian culture!



Fig.7.31 Two neighbouring Pigeon Towers in the City of the Dead. Photographed by Ahmad Yahia



Fig.7.32 A Pigeon Tower on a rooftop of a residential building in the City of the Dead. Photographed by Ahmad Yahia



Fig.7.33 An extension of a home on the rooftop of a residential building in the City of the Dead. Photographed by Ahmad Yahia

I know that the apartment buildings are private, which limits the rooftops to the residents, and not everyone can go up on the roof. How do you think the roofs can operate as a public space or let's say a daycare?

The roof typically has a key, and the keys are with either the residents or/and the owner of the builder. I always must ask the owner for permission to take pictures from their rooftop. The owner can only agree to rent the roof if there's a source of income for them. This playground for kids on the roof (Fig.) is a good idea, because it provides a source of income for maybe the stay at home women who live in the building to run a daycare on the roof.

What was your experience with capturing pictures of Pigeon towers and going on rooftops to take your pictures?

To capture some pictures from the top, like this photo, for example. I go up to the minarets of Qutbay Mosque, in the City of the Dead. I found children playing on the roofs which is also another very common thing, where the residents of each apartment building feel like their roof is a safer environment than the streets for their kids to play. One of your diagrams shows kites! Yes, It's another cultural activity that takes place on the roofs! This is a growing thing now, especially when it's windy. There are areas where it gets competitive! I've seen areas where young adults put a razor in their kite to compete and cut off other kits so that his kite is the last one flying! Children and young adults fly their kites to see who would have the last kite flying (Only kite standing) And another is who has the highest-flying kite. This was very common during COVID. I even sometimes like to fly kites and I used to design them as well!

Have you ever seen mosques and churches on the rooftop before? I wasn't sure of the reason they would build such religious institutions on the roof?

Yes! This is becoming a trend now, even in around the area where I work, El Darb El Ahmar. It's interesting why they do that. In most cases, that's because the apartment building is illegally built so they erect the mosques and churches on top so that it becomes illegal to demolish the apartment building. In Cairo, some owners rent their rooftops to companies who would like to place an advertisement. Companies choose the highest residential buildings in the neighbourhood, and in return the owner uses the earnings to reduce maintenance cost. In our building for example, the price to rent our roof space is 250,000 Egyptian Pounds a year, which is not bad. So aside from the social aspect, if you need to have something happening on the roof, there needs to be an economical/income behind it so you can motivate people to use the roof!

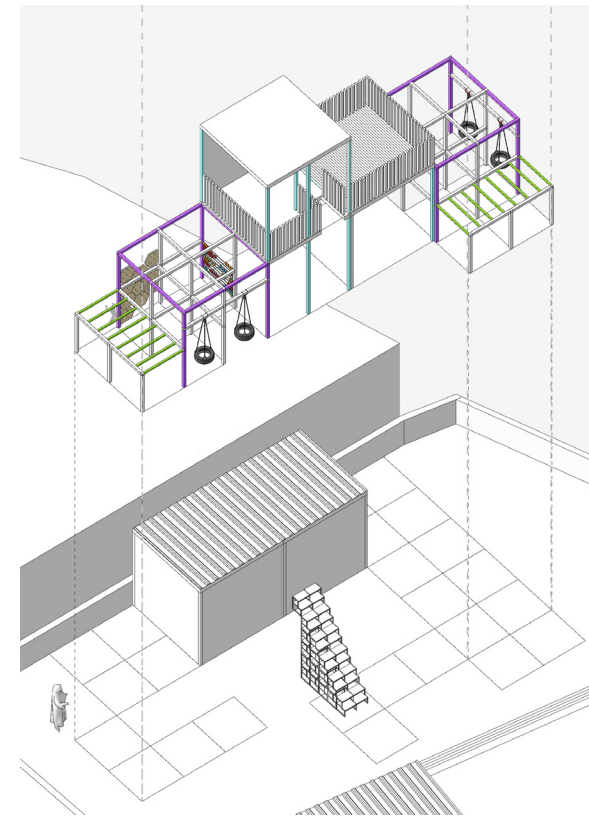


Fig.7.34 Kid's playground built using lumber and then painted.

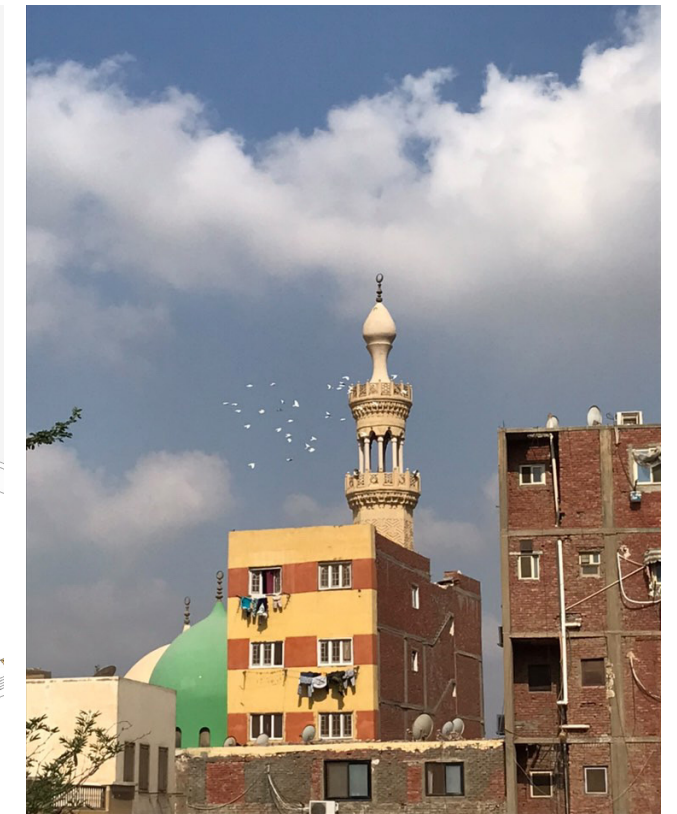


Fig.7.35 A mosque on a rooftop of a residential building. Photographed by Ahmad Yahia



Fig.7.36 Kids playing on the roof of their apartment building in the City of the Dead. Photographed by Ahmad Yahia



Fig.7.37 Kites in the sky amongst Pigeon Towers. Photographed by Hania Shehab

Pigeon Tower Builder/Carpenter - Interview 04

4. Carpenter who also owns a YouTube channel providing detailed videos on “How to build Pigeon Towers from A to Z”

I found this carpenter on YouTube, where I saw he made several videos on how to construct a pigeon tower from A to Z. He talked about dimensions of lumber to where he buys the wood from. He goes over the different components of the pigeon tower and its different stages of construction.

I visited Koka’s Pigeon Tower in Manshiyat Nasser, and I was impressed by how tall the structure was. I had some questions about the construction process of Pigeon Towers in Cairo.

Yes, Koka is my dear friend, him and his brother. I have built their uncle’s pigeon tower.

Can you elaborate more on your work?

What makes my work stand out is the new carpentry skills that I acquired over the years of experience building many pigeon towers, it’s not like any other pigeon tower construction you would see on the streets. I am very accurate with my measurements and the tools I use. I build with the high-quality wood members, you will see my prices. I charge a bit more expensive than others.

I saw some pigeon towers are built with reclaimed wood. What about the average cost to build a pigeon tower?

Yes, some people can use reclaimed wood, but I like to buy the best in the market so that the pigeon tower can be durable. can go up to 6000 LE. Because of inflation, the minimum cost now to build a pigeon tower is 30,000 Egyptian pounds, but that depends on the height and area of the pigeon loft. “Thank god, lately I have improved a lot of things in the Pigeon Tower construction, that people have learned from me and used my methods of when they build their pigeon towers. Therefore, people will watch my YouTube videos to learn so they built their pigeon towers for a cheaper price. The price depends on the size of the loft size, so the 3x4m loft costs 15K, 4x4m costs 18K, the size of the loft can reach up to 8x8 or 10x10.

Could you talk to me about the steps of constructing the pigeon towers? What needs to be done first?

First thing, I go buy wood members from the nearest place to where the site is. Usually there are specialized wood shops where you can buy stamped wood, so you know their quality is good. The sizes that you can find are 1”x6”, 1” x 4” and 1”x5.” After buying the wood, I go to a wood shop to cut those members into my desired measurements, based on the size of the pigeon tower. Once I have all the

wood cut, I transport it to the roof where the construction process begins.

Then you start building the foundations of the tower or do you start with the pigeon loft first? And what are the components of the pigeon loft?

I start assembling the 4 sides of the pigeon loft first, and once I have all the four sides assembled, I put them to the side and start doing the foundations and raising the tower structure. I usually have some friends who help me build it. Also I always use a water leveling tool to have precise construction. Let me sketch for you how the loft typically looks like. This is a 10 x 10 overall loft, which includes the balcony space, which is typically 2m. The cabin is the area where you have that trapdoor which opens up so you go down and usually where the stairs start.

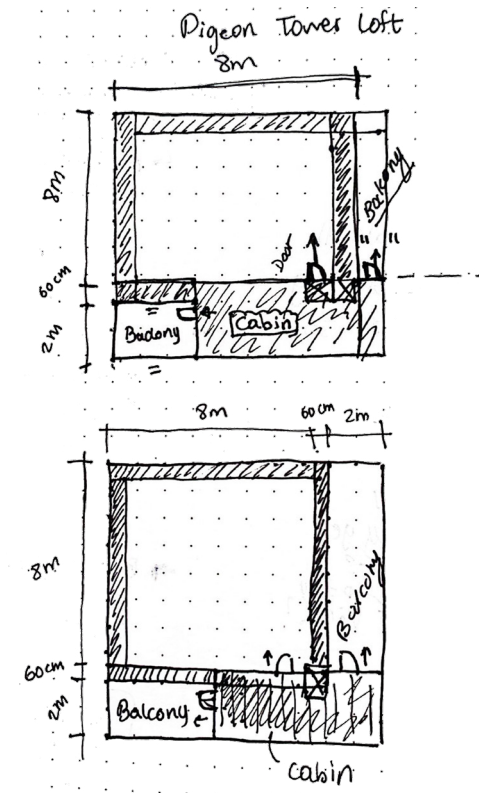


Fig.7.38 Sketch of a 10x10 Pigeon Tower loft.

How about the structure itself like the trussing and how does it sit on the roof surface?

On the roof surface, I lay out a grid using lumber based on the size of the tower needed. For example, the 10 x 10 loft will sit on an 8x8 structure. (Fig.) The 8m is divided into 3 so it’s going to be 2.66m grid.(Fig) After the foundation is done, we then start erecting the trusses (Fig.) The height of each floor is 3m. We take half of the 2.66m grid and that’s where the truss will start. This process repeats every floor.

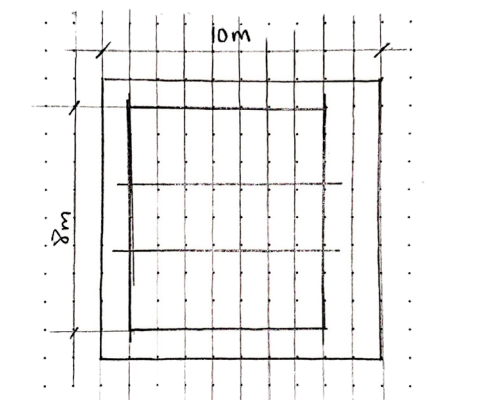


Fig.7.39 Structure of 10x10 Pigeon Tower

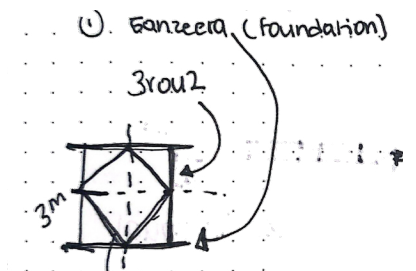


Fig.7.40 Sketch of bracing structure of 10x10 Pigeon Tower

Goudo Rooftop Owner - Interview 05

5. One of the brothers who helped transform their apartment building rooftop from a space of junk to a Ramadan gathering place

Thank you for and taking the time to talk about your family rooftop which got transformed into a gathering place during Ramadan. I wanted to know more about the story behind your rooftop.

Thank you for your interest. The story started in 2015. As owners of this apartment building, the family used to gather on the roof weekly or monthly, for example if we wanted to hang out on the roof, we find ourselves cleaning every time because the roof would be full of junk and unnecessary things. Instead of cleaning every time we wanted to enjoy the roof space, we decided to renovate it and make it a comfortable gathering space for our friends and family to enjoy.

I know the dusty weather also doesn't help maintaining rooftops. So what elements did you add to the roof to make it more comfortable and how did it evolve to being used for Ramadan every year?

Yes, so after cleaning the roof from rubbish, we added tiles to the roof floor so it's easier to clean. We started to add seating areas under this shading pergola that my father designed with wood, and we added some lights to make it more comfortable at night. Even the house next door started to do the same once they saw how beautiful the roof space can be.

One can only imagine if all the residents decided to do the same. It would be so interesting to see Cairo's rooftops full of life like that! Is it expensive to do something like that?

Our neighbors just started to do something similar to our roof, once they realized how beautiful the space can get. So we have made a good impact when we renovated our roof. It's not expensive to do what we did. We used the junk that was already on the roof, like tires and reclaimed wood and metal sheets.



Fig.7.41 Godo's rooftop in Ezbet El-Nakhl. Wooden Pergola. Photographed by Mohammad Godo



Fig.7.42 Godo's rooftop Ezbet El-Nakhl. Painted walls with Calligraphy and re-used tires as seats. Photographed by Mohammad Godo



Fig.7.43 Godo's rooftop in Ezbet El-Nakhl. Ramadan Tent and use of palm thatch. Photographed by Mohammad Godo

Dahab Hostel Rooftop Owner - Interview 06

6. A Rooftop Hostel in Downtown Cairo. The owners transformed the old rooftop laundry rooms to a hostel

I came across your hostel Online, and noticed that it's on one of Cairo's downtown historical buildings. So I wanted to know more about the history and story behind your hostel and how it came about?

Our hostel is built in one of the colonial downtown buildings, exactly like the Yacoubian building. It had laundry rooms and seller storage rooms built on the roof for chauffeurs and servants who used to work in the building under the aristocrats and wealthy Europeans/Egyptians pashas. Every apartment used to have a room on the roof, and the rooms were made to service those buildings. When those wealthy families who lived here left after the 1950 revolution, many of those roofs became empty. When we bought the roof of the hostel, I think the gatekeeper's son lived on the roof and it was used for storage for the residents.

What happened to the gatekeeper's son who lived there?

We offered him a job at the Hostel and he works here with us.

So you basically used those rooms for your hostel as "guest rooms"? Were you owners of the building or did you buy the roof from the owner? What's the story?

I think this building was owned by a French individual who lived here around the 1940s. After the 1952 revolution, they left. Around that time, an Egyptian individual bought it from them, which is I think is the great grandfather of the current owner. The idea of the hostel started in 1998, when my father, who was a surgeon, knew a friend who lived here and during the visit, he had this crazy idea to turn this roof into a hostel! After my father died, my brother managed the hostel, and when he traveled, I took over after him.

How many rooms can this rooftop hostel accommodate? How many people can it accommodate? How were you able to make it as inviting as possible?

Our hostel can accommodate 70 guests at full capacity in 40 rooms. We built extra rooms on top of the existing ones. You can see, the rooftop hostel has two storeys. We tried to make it as inviting as possible by adding plants, using vibrant colors, and incorporating shading elements using palm leaf thatch material.



Fig.7.44 Exterior View of Dahab Hostel Rooftop. Photographed by Hostel Owner

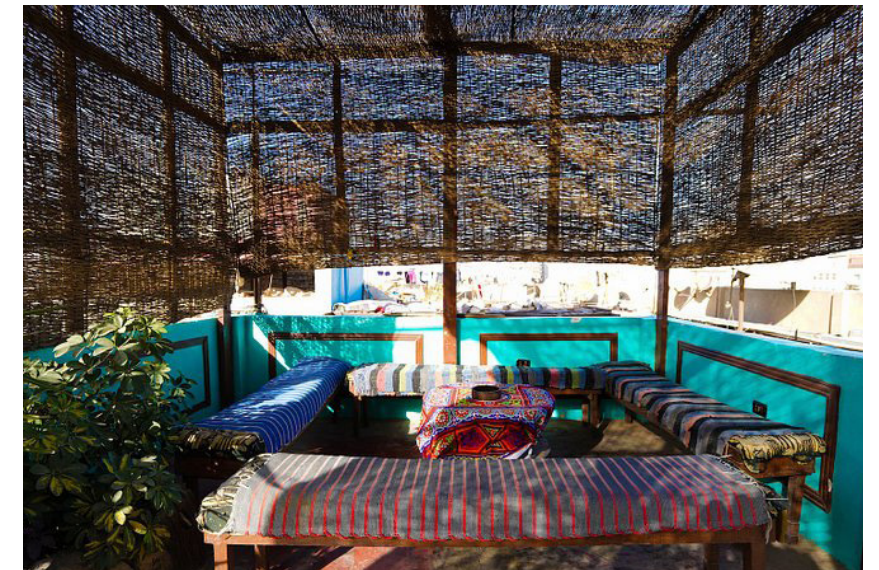


Fig.7.45 View of one of the seating areas on the rooftop of Dahab Hostel. Photographed by Hostel Owner



Fig.7.46 View of the second story of Dahab rooftop Hostel. Photographed by Hostel Owner

NGO in Manshiyat Nasser (The Garage City) - Interview 07

7. Interview with the Public Relations Officer & Head of the Glass Recycling Unit at the Association for the Protection of the Environment (A.P.E)

The purpose of this interview is to gain a deeper understanding of the prevailing socio-economic conditions within Garbage City, which stands as one of Cairo's largest informal settlements. To illuminate this perspective, I have engaged with an individual who both resides and works within an informal settlement. This approach aims to provide valuable insights into the utilization of rooftops for community development, particularly through the lens of someone actively involved in community development initiatives.

I want to start to first ask you to introduce your position at the APE and what motivates you to work there?

I'm the public relations officer and the head of the glass recycling unit at A.P.E. I was responsible for the manual embroidery and drawing department at the Society for the Protection of the Environment from Pollution in the Garbage Collectors neighborhood in Manshiyat Nasser. I have been working for 30 years in the association and have lived in the garbage collectors' neighborhood since I was a child.

You told me that you live in Manshiyat Nasser. From your experience all these years, what are the social and economic problems of the current residents of Manshiyat Nasser? Are there any issues associated with garbage piles in the streets? And how does the association combat these issues?

Illiteracy levels are high and there is a serious shortfall of public facilities here, which we try to provide in the association. Yes the residents, especially women and children handle the garbage sorting without gloves and basic safety equipment. Most women and children get lung and skin diseases from sorting garbage. There are high levels of hepatitis A and B, with an average life expectancy of 55 years old.

Although the recycling business here is profitable, but it's only profitable for some people, especially men who own these businesses. Therefore, we try to focus on women and children to improve health, provide income generating activities,

Can you elaborate more about the services/programs provided by the association to the Manshiyat Nasser neighborhood?

The association started its recycling projects in 1984, the composting project from leftovers, fertilizers, and paper recycling. Recycling fabrics in the rest of the factories to make carpets, patchwork, and recycling glass. The association serves all segments of society, all groups, and all ages, without discrimination in religion, race, color, or gender. The association serves in various service fields. A club for children and literacy for women is a study for school students. We offer multiple health projects that serve all the neighborhoods, and we have a team of female health visitors. We have a soccer field across from us where children come to play. The goal is to improve people's lives from all perspectives, health, social life, education, and cultural.

How would you explain the use of buildings for garbage sorting and recycling? I've seen areas where the buildings and the roofs are used for this activity

The nature of the work of the residents of the garbage collector's neighborhood differs from other neighborhoods in terms of the use of houses and roofs. The garbage is sorted on the ground floor. Inside the animals that are raised that eat the leftovers of the food often use all the surfaces to put the solid materials of plastic and other materials for storage until they are sold. They are lifted to the surface by means of electric winches. And then people here would be living on the upper floors between the ground and the roofs.

During my visit last winter, I noticed that the residents also utilize the rooftops for pigeon towers. Do you perceive the rooftops in Manshiyat Nasser being utilized for community development activities as well?

Yes, I've seen daycares operate on the roofs as it provides a safer and cleaner environment for the kids. It is a really good idea, however there have been accidents where pigeon towers collapse because of wind. In the association, we even tried to grow vegetables on the roof, but to be honest with you it can get really expensive especially for residents to do this on their own. It does need some sort of funding. But, in Cairo now, people use the roofs for different social and income generating activities.

I know that the Monastery of Simon Al-Kharaz is of great importance to the Manshiyat Nasser region and to the association. Can you explain to me the impact of the presence of the Monastery in Manshiyat Nasser?

The presence of the Monastery of St. Simon Al-Kharaz in Manshiyat Nasser is of great importance, as it is a beautiful outlet for the people in Manshiyat Nasser. It is a wonderful place for the people in the neighborhood, where prayers are held, as well as outings, a cafeteria, places to sit, daily excursions, a football field and games for children. We also get a lot of volunteers and donations from the church service.



Fig.7.47 Thank you Card given to all interview participants.