

AMERICAN UNIVERSITY OF BEIRUT

URBAN AGRICULTURE AS A GREEN
INFRASTRUCTURE SYSTEM TO CATALYZE
POST-WAR RECOVERY IN THE CITY
OF HOMS, SYRIA

by
ZAIN ABDULLAH AL DROUBI

A thesis
submitted in partial fulfillment of the requirements
for the degree of Master of Urban Design
to the Department of Architecture and Urban Design
of the Faculty of Engineering and Architecture
at the American University of Beirut

Beirut, Lebanon
January, 2019

AMERICAN UNIVERSITY OF BEIRUT

URBAN AGRICULTURE AS A GREEN
INFRASTRUCTURE SYSTEM TO CATALYZE
POST-WAR RECOVERY IN THE CITY
OF HOMS, SYRIA

by
ZAIN ABDULLAH ALDROUBI

Approved by:

Dr. Yaser Abunnasr, Associate Professor
Department of Landscape Design and Ecosystem Management

Advisor

Dr. Mona Fawaz, Professor
Department of Architecture and Design

Member of Committee

Dr. Robert Saliba, Professor
Department of Architecture and Design

Member of Committee

Date of thesis defense: January 14, 2019

AMERICAN UNIVERSITY OF BEIRUT

THESIS, DISSERTATION, PROJECT RELEASE FORM

Student Name: AlDroubi Zain Abdullah
_____ _____ _____
Last First Middle

Master's Thesis
Dissertation

Master's Project

Doctoral

I authorize the American University of Beirut to: (a) reproduce hard or electronic copies of my thesis, dissertation, or project; (b) include such copies in the archives and digital repositories of the University; and (c) make freely available such copies to third parties for research or educational purposes.

I authorize the American University of Beirut, to: (a) reproduce hard or electronic copies of it; (b) include such copies in the archives and digital repositories of the University; and (c) make freely available such copies to third parties for research or educational purposes after: **One ---- year from the date of submission of my thesis, dissertation, or project.**
Two ---- years from the date of submission of my thesis, dissertation, or project.
Three --X-- years from the date of submission of my thesis, dissertation, or project.

Zain AlDroubi

6 February 2019

Signature

Date

ACKNOWLEDGMENTS

I would like to express my deep gratitude in developing this research to the contribution of many people; my family members, professors and friends who have helped me directly and indirectly to conduct this research. For their contribution either by providing information, in confronting ideas and in providing me with the support, encouragement and motivation.

My recognition and gratitude are addressed to my exceptional advisor Prof. Yaser Abunnasr who mentored my research proses from proposal to thesis. I would like to thank you for your sincere and continuous support in meticulously reviewing and advising the research methodology and process, so I would come up in the end with a solid and interesting product.

I would like to extend my gratitude to Prof. Mona Fawaz for reviewing my thesis research proposal and strategy, her constructive, rich discussion and advice were very helpful for my work.

My sincere thanks go to Prof. Robert Saliba who was the first to push me to tackle the urban agriculture concept in post-conflict recovery. I would like to thank you for your motivation and feedbacks when you reviewed my proposal.

A special thanks go to my exceptional family, my mother, my father, my sister and my brother. I would like to thank my mother Nada for always supporting and believing in me and always pushing me further to do the best; my dad Abdullah who always believed in me and was the best mentor through my studying years, he was the one who always pushed me to achieve more; to my sister Ola and her precious husband and kids who motivated me and offered me a working place during my frequent visits to Beirut; to my brother Souhil, for his continuous support, encouragement and help.

To my fiancé Mahmoud who believed in my strength and capacity to achieve more, I would like to thank you for your encouragement, support and more importantly for your love and patience during my stress days. I cannot wish for more

To my precious family in low, who were always there for me and encouraged me with their amazing words and love.

And finally, to all my amazing friends, for their continuous help and support.

AN ABSTRACT OF THE THESIS OF

Zain Abdullah Al Droubi for Master of Urban Design
Major: Urban Design

Title: Urban Agriculture as a Green Infrastructure System to Catalyze Post-War Recovery in the City of Homs, Syria

This thesis addresses the question of how urban agriculture can be a catalyst for post-war reconstruction in Syria. It is inspired by the important role that agriculture plays in Syrian society and economy. This role has been deteriorating over the past few decades due to urban development, and most recently due a raging conflict throughout Syria.

The conflict in Syria, which started in 2011 and still going, has left the city of Homs in destruction and severely damaged the agricultural system around the city that once was a major contributor to the social fabric and economic activity. This thesis proposes an intervention focused on the Baba Amr neighborhood since it was severely damaged and its location adjoining the agricultural fields in Homs.

The intervention investigates the potential of urban agriculture in reviving the economic and social fabric in the western peripheries of Baba Amr. I argue that urban agriculture can break the separation between the urban and rural fabric in the western part of the city through green wedges approach, and act as a catalyst for kickstarting the post-war reconstruction effort starting in the peripheries and late spreading throughout the city. More importantly, it proposes a newly constructed housing units where agriculture can play a supportive role for house hold finance.

This integration between the agricultural experience and the built-up area will suggest that an urban agriculture green infrastructural network can be the basis for an alternative approach to reconstruction. It provides a low-cost approach, congruent with the social-economic states of residents and as a social gathering space to revive pre-existing social relation in the neighborhood.

CONTENTS

ACKNOWLEDGEMENTS	v
ABSTRACT	vi
LIST OF ILLUSTRATIONS.....	xiii
LIST OF TABLES.....	xxi
PREAMBLE.....	xxiii

Chapter

I. INTRODUCTION.....	1
A. Introduction	1
B. Research question, hypothesis, and significance.....	3
II. LITERATURE REVIEW AND CASE STUDIES.....	7
A. Connecting the literature	7
1. Post-conflict recovery	8
a. Post-conflict recovery definition	8
b. Post-conflict recovery framework process.....	9
i. Periods suitability for intervention	10
ii. Conflict consequences	11
iii. Post-conflict recovery objectives	12
iv. Post-conflict recovery stakeholders	13
c. Challenges, opportunities in pots-conflict recovery.....	14
i. Challenges	14
ii. Opportunities	16

2. Urban agriculture in post-conflict recovery context	18
a. Urban agriculture and urban design	18
b. Urban agriculture in post-conflict recovery	19
c. Challenges, opportunities of urban agriculture in post- conflict context	20
i. Challenges	20
ii. Opportunities	21
3. Urban agriculture scope and typologies	22
a. Urban agriculture on land	24
i. Community gardens	24
ii. Commercial farming markets	28
b. Urban agriculture in educational facilities	28
c. Urban agriculture in streets	30
4. Green/ blue infrastructure for healthy urban living.....	30
a. Green infrastructure	31
b. Blue infrastructure	33
c. Green/ blue infrastructure approach; "Green wedges" or "Green fingers"	35
i. Definition	35
ii. Case studies	37
B. Thesis framework	40
 III. RESEARCH METHODOLOGY	 42
A. Thesis structure	42
B. Research methods	44
1. Case study profile: Pre-conflict analysis (Chapter IV)	44
a. Landscape context: the Orontes basin	44
b. City context: the city of Homs	45
c. Neighborhood context: Baba Amer neighborhood and Al Basateen area	46
2. Post- conflict analysis (Chapter V)	48
a. Landscape context: the Orontes basin	48
b. City context: the city of Homs	49
c. Neighborhood context: Baba Amer neighborhood and Al Basateen area	50
3. Reconstruction analysis (Chapter VI)	51
a. Announced projects by the government	52

b. UN-Habitat intervention	53
c. Urban agriculture practices during the conflict	53
d. Suitability for urban agriculture	53
i. City context: the city of Homs	53
ii. Neighborhood context: Baba Amer neighborhood	54
e. Land ownership and dispossess properties	55
 C. Limitations and challenges	 55
 IV. PRE-CONFLICT ANALYSIS	 57
 A. Landscape context: the Orontes basin	 57
1. Introduction	57
2. Population	59
3. Agriculture and irrigation water	61
4. Urbanization in the Orontes basin	64
 B. City context: the city of Homs	 66
1. Introduction	66
a. Location and demography	66
b. Social fabric	68
c. City expansion	69
d. Neighborhoods typology and urban fabric	76
e. Economic activities	79
2. Agriculture system in the city	81
a. Location of arable lands	81
b. Water infrastructure	84
c. Role of agriculture in the economy	88
d. Loss of agricultural lands	88
 C. Neighborhood context: Baba Amer neighborhood and Al Basateen area ..	 92
1. Baba Amer neighborhood	92
a. Location and demography	92
b. Historically	93
c. Properties and ownership	94
d. Economically	94
e. Land use and services	95
f. Building's typology	97
g. Blue/ green infrastructure	100
2. Agricultural hub: Al Basateen area	101

V. POST-CONFLICT ANALYSIS	107
A. Landscape context: the Orontes basin	107
1. Population displacement	108
2. Impact on agricultural activities	109
B. City context: the city of Homs	111
1. Brief introduction to the conflict	111
2. Social movement	112
3. Damage analysis	116
4. Urban functionality analysis	120
C. Neighborhood context: Baba Amer neighborhood and Al Basateen area..	125
1. Damage analysis	126
a. Baba Amer neighborhood	128
b. Al Basateen area	134
2. Population distribution	136
3. Military activities in Al Basateen area	138
VI. RECONSTRCUTION ANALYSIS	140
A. Announced projects by the government	140
1. Baba Amer reconstruction plan	143
B. UN-Habitat intervention	146
1. City context	146
2. Al Basateen area context	148
C. Urban agriculture practices during the conflict	151
D. Suitability for urban agriculture	153
1. City context	153
a. Vacant lands	155
b. Open green spaces	155
a. Commercial activities	158
b. Educational facilities	158

a. Streets	159
2. Neighborhood context: Baba Amer neighborhood	161
a. Vacant lands	162
b. Green spaces	166
c. Educational facilities	173
d. Streets	176
E. Returning process limiting factors	179
F. Land ownership and dispossess properties	180
VII. URBAN DESIGN STRATEGY AND INTERVENTION..	183
A. City context: the city of Homs	186
1. S.W.O.T analysis	186
2. Synthesis map	189
B. Neighborhood context: Baba Amer neighborhood and Al Basateen area ..	192
1. Design strategy, developing an urban agricultural network	195
2. Framework and strategy objectives	196
a. Establishing an urban agricultural network	199
b. Developing the damaged built-up area	200
c. Connecting the neighborhood with the productive valley	201
d. The green wedges approach	202
3. Baba Amer intervention and strategy implementation	207
a. Intervention conceptual layers	208
i. Recreational open spaces layer	208
ii. Urban recreational layer	211
iii. Green networks layer	212
b. Design typologies	217
i. Green corridors	218
ii. New constructed housing units	230
iii. Revived cultural areas	236
iv. Promoted social buildings: Schools as part of the urban agricultural network	236
v. Neighborhood agricultural spaces: Community gardens	238
VIII. CONCLUSION	248
A. Intervention timeline	248

B. Research findings, recovery, and healing scheme	254
C. Further studies and intervention limitations	257
BIBLIOGRAPHY	259

ILLUSTRATIONS

Figure		Page
1.	Connecting the literature.....	7
2.	Conceptual framework for post-conflict reconstruction period	17
3.	Urban agriculture impact on societies.....	22
4.	Scope of urban agriculture.....	23
5.	Transforming vacant lands into community gardens in Detroit.....	26
6.	The Magnuson Community Garden in Seattle.....	27
7.	Activities in Magnuson Community Garden in Seattle.....	27
8.	Educational farming in Eastdale Collegiate School in Canada.....	29
9.	Green infrastructure network components.....	32
10.	Green infrastructure approach at different scales.....	33
11.	Components of sustainable urban life.....	34
12.	Lanchester model for designing modern city using green wedges.....	36
13.	Greater London plan.....	37
14.	London green belt.....	38
15.	Fragmented open green spaces.....	39
16.	Open spaces before and after the implementation of the green wedges approach.....	40
17.	Intervention framework.....	41
18.	Thesis structure.....	43

19.	Overview of the Orontes basin.....	58
20.	River water usage distribution.....	59
21.	Population density in the basin.....	60
22.	Water bodies in the Orontes basin.....	61
23.	Agriculture land use map.....	64
24.	Homs' governorate location.....	67
25.	Social fabric distribution.....	68
26.	The old city of Homs.....	70
27.	City expansion outside the old city wall.....	71
28.	City neighborhoods.....	72
29.	Homs' master plan in 1989.....	73
30.	City of Homs prior to conflict.....	74
31.	Homs Dream project, city center.....	75
32.	Homs neighborhoods' typology.....	76
33.	The old city of Homs.....	76
34.	Mixed architectural fabric.....	77
35.	Middle and upper-class neighborhoods.....	77
36.	New Homs, Al Waer.....	78
37.	Architectural fabric in Homs.....	79
38.	Homs as the core of trading and transportation pass in Syria.....	80

39.	Al Basateen area.....	82
40.	Agriculture lands in Homs.....	83
41.	Irrigation infrastructure in Homs.....	87
42.	Loss of agriculture lands.....	91
43.	Location of Baba Amer.....	93
44.	Baba Amer land use.....	96
45.	Baba Amer sub-neighborhoods.....	97
46.	Building heights.....	98
47.	Overview of Baba Amer neighborhood prior to conflict.....	99
48.	New buildings in Baba Amer.....	99
49.	Green/Blue infrastructure.....	100
50.	Baba Amer irrigation canal.....	101
51.	Location of Al Basateen area.....	102
52.	Al Basateen social activities.....	103
53.	Al Dawar restaurant.....	104
54.	Al Kharab street.....	104
55.	Baba Amer hill.....	104
56.	Urbanization in Al Basateen area.....	106
57.	Population displacement in the basin.....	108
58.	Changes in crop production.....	109
59.	Conflict Timeline.....	112
60.	Displaced people from Homs neighborhoods.....	113
61.	Social movement between 2011 and 2014.....	114

62.	Social movement in 2017.....	114
63.	People returning to the old city neighborhoods.....	116
64.	Damage analysis in Homs.....	117
65.	Heavily damaged neighborhoods.....	118
66.	Partially damaged neighborhoods.....	118
67.	Indirectly affected neighborhoods.....	119
68.	Destruction in Homs commercial center.....	119
69.	Damage levels of public services.....	120
70.	Urban functionality in 2014.....	122
71.	Urban functionality in 2017.....	123
72.	Operating status of public services.....	124
73.	Neighborhoods' cleaning by the government and UN organizations.....	125
74.	Babe Amer neighborhood during the bombardment.....	126
75.	Conflict impact.....	127
76.	Buildings' damage level.....	129
77.	Completely destroyed buildings.....	130
78.	Pre-conflict figure ground.....	131
79.	Post-conflict figure ground.....	131
80.	High levels of damage.....	132
81.	Medium levels of damage.....	132

82.	Low levels of damage.....	132
83.	Intact buildings.....	133
84.	Affected commercial markets.....	133
85.	Dry agricultural lands in Al Basateen area.....	134
86.	Dry irrigation canal.....	135
87.	Damage in Al Basateen area.....	135
88.	Baba Amer population in 2017.....	136
89.	Small businesses in Baba Amer.....	137
90.	Military activities in Al Basaten area.....	138
91.	Announced projects by the government.....	141
92.	Overview of Baba Amer reconstruction plan.....	144
93.	Buildings' typology in Baba Amer reconstruction project.....	145
94.	Proposed intervention in 2016 for Homs' city.....	147
95.	Al Basateen area strategic plan by the UN-Habitat.....	150
96.	Open spaces in Al Waer neighborhood.....	152
97.	Urban agriculture activities during Al Waer siege.....	153
98.	Homs land use map.....	154
99.	Vacant lands layer.....	155
100.	Streets greenery.....	156
101.	Open green spaces layer.....	157

102.	Commercial activities layer.....	158
103.	Educational facilities layer.....	159
104.	Streets layer.....	159
105.	Overlapping suitable layers for urban agriculture.....	160
106.	Baba Amer vacant lands layer.....	162
107.	Types of vacant lands.....	163
108.	Green spaces layer.....	166
109.	Streets greenery layer.....	167
110.	Neighborhood's green spaces layer.....	169
111.	Public gardens layer.....	171
112.	Emerged green spaces layer.....	172
113.	Educational facilities layer.....	173
114.	Streets hierarchy layer.....	176
115.	Sections in Baba Amer streets.....	177
116.	Suitable layers for urban agricultural intervention.....	178
117.	Homs Synthesis map.....	191
118.	Illustration of the proposed intervention.....	193
119.	Intervention strategy.....	199
120.	Green wedges approach in Baba Amer neighborhood.....	204
121.	Green wedges approach in Homs city.....	205

122.	Strategic master plan.....	206
123.	Recreational open spaces layer.....	211
124.	Urban development layer.....	212
125.	Green network layer.....	214
126.	Conceptual master plan.....	215
127.	Master plan.....	216
128.	Detailed area.....	218
129.	Peripheral ecological corridor sections.....	221
130.	Peripheral ecological corridor components	223
131.	City scale peripheral attraction nodes.....	225
132.	Main green corridors sections.....	228
133.	Secondary green corridors section.....	230
134.	Diagram showing the transitional design of new development.....	232
135.	Section in the new developed area.....	235
136.	Schools design guidelines.....	237
137.	Schools location and nearby community gardens.....	238
138.	Proposed community gardens.....	239
139.	Community gardens.....	240
140.	3D illustrations.....	244
141.	Healing recovery scheme.....	249

142.	Baba Amer immediate healing system.....	250
143.	Homs city immediate healing system.....	252
144.	The Orontes basin immediate healing system.....	253

TABLES

Table	Page
1. Sources of pre-conflict analysis maps and tables for the landscape context.....	45
2. Sources of pre-conflict analysis maps and tables for the city context.....	46
3. Sources of pre-conflict analysis maps for the neighborhood context.....	47
4. Sources of post-conflict analysis maps for the landscape context.....	49
5. Sources of post-conflict analysis maps for the city context.....	50
6. Sources of post-conflict analysis maps for the neighborhood context.....	51
7. Sources of government projects map.....	52
8. Sources of suitable layers maps for the city context.....	54
9. Sources of suitable layers maps for the neighborhood context.....	54
10. Main irrigation schemes in the Orontes basin.....	62
11. Products grown in the basin in 2013.....	63
12. Irrigation schemes in Homs.....	84
13. Rainfall rate in Syrian cities.....	85
14. Agriculture production in Syria per governorate.....	89
15. Agriculture areas in Homs governorate.....	90
16. Urban functionality analysis criteria.....	121
17. Issues, priorities and recommendations by the UN.....	146
18. UN- Habitat guidelines for Al Basateen area.....	149
19. Vacant lands suitability analysis.....	165
20. Streets greenery suitability analysis.....	168

21.	Neighborhood's green spaces suitability analysis.....	169
22.	Public gardens suitability analysis.....	170
23.	Emerged green spaces suitability analysis.....	172
24.	Schools suitability analysis.....	175
25.	City of Homs S.W.O.T analysis.....	187
26.	Used analysis maps in the intervention.....	208
27.	Interventions and objectives of the peripheral ecological corridors.....	224
28.	Interventions and objectives of main green corridors.....	227
29.	Interventions and objectives of secondary green corridors.....	229
30.	Interventions and objectives of the new constructed housing units.....	231

PREAMBLE

The focus of this project is to look after the residents of Homs city especially in the aftermath of the civil war. It aims to understand the conflict and come up with a reconstruction plan and strategy for the city neighborhoods central to peoples' needs.

Homs, the third largest city in Syria, has become one of the most impacted cities by the conflict, since 2011, and shortly became known as the "capital of revolution" (BBC, 2015). During these years, the conflict between protesters and the regime army devastated the city; resulted in poor living conditions, buildings' destruction, unhealthy environment, displacement, as well as shortage in basic needs. Recently, despite the fact that residents have started to return to their neighborhoods, they are returning to neighborhoods that lack basic means of living and survival.

Although the government started planning for reconstruction, and conducted several projects in different areas, however, future plans of these projects are only focused on the urban context without taking into consideration the agricultural context or the social fabric of the inhabitants of the areas. Considering Baba Amer as the area of interest, I investigated the government's project proposed for the neighborhood and identified key areas that the proposal is missing. Keeping in mind the limited data that I was able to obtain, I concluded that the proposal is largely neglecting two key aspects that I seek to address in my post-war reconstruction period; mainly people and agriculture

Based on the former, my proposition in this thesis is to investigate the outcome of this severe conflict, and better understand the elements that could contribute towards faster reactivation of the returnees into their neighborhoods. To achieve these results, my aim in the thesis is to propose an alternative reconstruction plan for the Baba Amer

neighborhood emanating from people's needs. Therefore, my methodology was to adopt a bottom-up approach revolving around peoples' participation. This approach prompted me to start attempting to interview residents to better understand their needs and observations. However, interviewing residents quickly proved very difficult to conduct due to the security situation in Syria and fear of people to talk or share their ideas.

During the last year, I visited the city of Homs on different occasions, tried to meet with the municipality and government's people in order to gather data and reach some sort of collaboration with these agencies. My ability to do so was very limited, both were not willing to share much information, and whichever data they shared was blurred and significantly missing key elements.

These issues occurred regularly when I expressed my interest in studying Baba Amer neighborhood to different stakeholders, and the reasons are:

Firstly, the neighborhood presented a critical security zone during the conflict and no one in the government wanted me to tackle the issue of reconstructing Baba Amer neighborhood. Their main argument was that Baba Amer has already been subject to the reconstructing plan conducted by the government and they want me to work on different area.

Secondly, visiting the neighborhood had its obstacles as well due to the many military check points spread throughout the neighborhood. This limited my access as I was regularly denied access since I am not a resident of the neighborhood.

Thirdly, although people started to return and individual reconstructing projects can be witnessed through the area, people feared talking to strangers about their conditions. The conflict left residents insecure, fearing to bring up the political and security aspect, considering the crucial acts of the regime of not letting people to speak freely about these issues. Accordingly, interviewing people and conducting surveys was not only hard, but I believe was dangerous on both the interviewees and interviewer.

As a result of these obstacles, I ended up with a top-down approach that lacked the participation, observation and the perspective of residents. Yet, during my research I tried to find opportunities for aspects that are possible for intervention and can have an impact on people's needs. Although the outcome of this thesis might look as a comprehensive top-down approach, yet, I believe that the deliverables largely fulfill what I was able to observe as people's needs in the aftermath of the war. It will, hopefully, provide neighborhoods and residents with the basic means of living and survival, to recover after the severe destruction and devastation.

Although such a project will probably not have the opportunity to be implemented or even reviewed, yet, I think that I have provided an alternative and sensitive approach to the common trends of reconstruction, used to focus on the urban cores. I believe that it should be publicly accessible with the hope others may see the light.

CHAPTER I

INTRODUCTION

A. Introduction

The Orontes river is one of the prime rivers in Syria in terms of importance. It is considered as a shared water lifeline with its source in Lebanon (8%), trespassing northern Syrian territories (56%) and crossing into turkey's Antioch region (36%) before it ends in the Mediterranean Sea (Jaafar et al., 2015). Despite the river's low water level, its perennial water has created one of the most important landscapes in Syria, known as “the Orontes gardens” or the “Orontes Basin” (Al Dbiyat et al., 2015). Life in the Orontes basin is predominantly rural with extensive small settlements within the agricultural plains. Several major Urban centers have historically developed along the river such as Homs and Hama. Therefore, the river has always been considered as a key resource for both agricultural and industrial activities (Al Dbiyat et al., 2015).

The watershed basin covers an area of 295,000 hectares and plays an essential role in the Syrian production of crops, contributing up to 25% of the Syrian total agricultural production (Münger et al., 2014). This role, however, has been diminishing due to two main factors in recent years. The first is urban development, which has encroached into the Orontes valley, transforming it into one of the most populated areas in the country which resulted in major loss of arable land (Al Dbiyat, 2015). The other factor is more recent and caused by the ongoing Syrian civil war. The war has generated destruction, loss of livelihoods, pollution of agricultural lands and water and including displacement of communities within the valley.

This thesis will address this impact, and discuss possible recovery solutions with a focus on the city of Homs and the Orontes River section in the peripheries of the city. The Orontes valley within the area of Homs, also known as “Al Basateen Area” used to contribute around 40% of Homs' food consumption and was a major income source for around 12,000 households (UN-Habitat, 2014). Similar to the pressures witnessed in the overall Orontes basin, “Al Basateen” is affected by the same factors of urban development and the recent civil war. Urban Development and encroachment prior to the 2011 war caused major loss of agricultural lands, due to the construction of several primary vehicular arteries, residential villas as well as some recreational facilities. Post- 2011, the war has caused major urban damage and displacement affecting both the city and its peripheries in the valley.

Today, with the active cessation of hostilities in this area, Homs is slowly recovering from the aftermath of the war. However, the post-conflict reconstruction efforts are being addressed in the physical and urban context with little attention given to the Orontes valley and the surrounding arable plains. The question of agricultural lands, in this context, can be termed as urban agriculture, which can play a significant role in the reconstruction efforts.

Inspired by the value of the agricultural practices in Homs and its peripheries as a lifestyle and a place for social activities for Homsis people and by the analysis of the post-conflict reconstruction plans proposed by the government which are not justifying the social fabric and largely neglecting the role of agriculture in post-war reconstruction plans, the thesis will propose a comprehensive post-conflict urban development for the city of Homs that includes the Orontes valley and articulates an interconnected urban system or network that brings together the center and the periphery. The importance of

addressing the issue of reviving the agricultural fields in the periphery of Homs lies in the role it can play in the short-term and long-term recovery of sustainable livelihoods for residents and more importantly, its role as a potential push factor to encourage the displaced to return. Such a network will be built on the history of the Orontes valley as a stabilizing economic factor and re-conceptualizing it as a catalyst for a new economic cycle for the city as a whole.

This thesis will investigate the potential of urban agriculture in the peripheries of Homs as a catalyst to post-conflict urban reconstruction by taking Baba Amer as a case study prototype. Through this investigation, urban agriculture will be conceptualized as a dynamic urban green infrastructural system that will contribute and support the reconstruction efforts in Homs. Accordingly, my proposition for the context of Homs and other major cities along the Orontes is:

“To developing a healing system for post-war recovery emanating from the agricultural character”

B. Research question, hypothesis, and significance

Prior to the conflict, the development of Homs stretched along the Orontes valley, which became a natural edge bordering city's neighborhoods. The development plans in 1989, adopted by the city council, declared “Al Basateen” as a green reserve. Accordingly, the sprawl of Homs was planned to extend towards the western parts of the valley (Homs City council, 2007). However, some small interventions were constructed in the valley resulting in a gradual loss of agricultural lands due to the slow encroachment of development. This involved the construction of several primary vehicular arteries across the valley, residential villas as well as some recreational

facilities. In April 2003, an aerial survey of the orchards documented the informal construction in the area of unauthorized restaurants and other facilities, exceeding allowed construction area by the law as well as the use of environmentally-unfriendly construction materials (Ibrahim, 2006).

The recent events; the ongoing conflict in Syria, has affected the farming lands within the Orontes Valley. Six years of fighting between protesters and the regime army left peripheral neighborhoods, bordering the valley, in severe destruction, abandonment, and devastation. The conflict has heavily damaged the agricultural systems within the valley and, in turn, led to a reduction in its agricultural production. More importantly, the continuous bombardment with heavy weapons has left the soil and air polluted resulting in unsuitable living conditions.

The role of Baba Amer and Al Basateen Area as both producers and markets for the agricultural products has been interrupted during these years of conflict. The conflict heavily affected the farming system and the environment in these areas, making them unsuitable for crops' growth. More importantly, the location of Al-Basateen area between two battle zones (Al Waer and Baba Amer) has deemed the area insecure and completely abandoned (UN-Habitat, 2015). Currently, the farming infrastructure has been completely or partially damaged, this includes; irrigation networks, farming lands, warehouses, livestock as well as the destruction among farmers houses and properties (UN-Habitat, 2014)

Today, Homs is slowly recovering from the aftermath of the events, with hostilities subdued in this area. Post-conflict reconstruction efforts are tackling the physical and urban context with total disregard of the role agriculture can offer in the reconstruction and reviving process. While urban reconstruction and economic

development plans are underway in the urban core of Homs, a faster and much less effort can be focused on Al Basateen area and its surrounding neighborhoods to kickstart the return of the displaced by providing an economic base for them through an urban agricultural network across the city. Therefore, the research question that I seek to answer is:

“How can an urban agricultural green infrastructural network contribute to the post-war reconstruction initiatives in the city of Homs?”

To answer the research question, the thesis will take the section of Al Basateen area bordered by Baba Amer neighborhood as its focus area. Basically, the main purpose of this research is to emphasize on the role of urban agriculture within an urban design context to use as a green infrastructural network supporting the recovery process in the aftermath period and supporting sustaining livelihoods.

Urban agriculture will be used in proximity to urban centers as a catalyst to achieve a responsive and equitable urban reconstruction system that supports the recovery process. Contrary to current reconstruction efforts, the proposed approach builds on the history, socio-economic, landmarks, and urban fabric of the pre-conflict Homs.

The intervention aims to reactivate and make use of the lands and characters of Baba Amer by proposing a post-war reconstruction plan that seeks to integrate, enhance and expand the green infrastructure as a strategy to reconnect the city with its peripheries, reinvigorate its economy, revitalize its social life and restore the environment. Furthermore, the research will investigate the idea of reforming the city neighborhoods using the "Green wedges urbanism approach," which developed various models overtime to help create a new urban-rural relationship. The main focus of this

thesis is to open up the Orontes agricultural lands to be integrated within the city rather than being segregated by huge concrete buildings, transforming the valley, known for Homs people as the “city Lung”, into a trench separated from the city.

CHAPTER II

LITERATURE REVIEW AND CASE STUDIES

A. Connecting the literature

This thesis will adopt a post-conflict recovery framework based on using urban agriculture system as a catalyst for reviving livelihoods. Using green infrastructure as the urban design tool, this thesis will work on creating an urban agricultural infrastructure system that will provide the city of Homs and its neighborhoods with the underlying system for the reconstruction efforts [Figure 1].

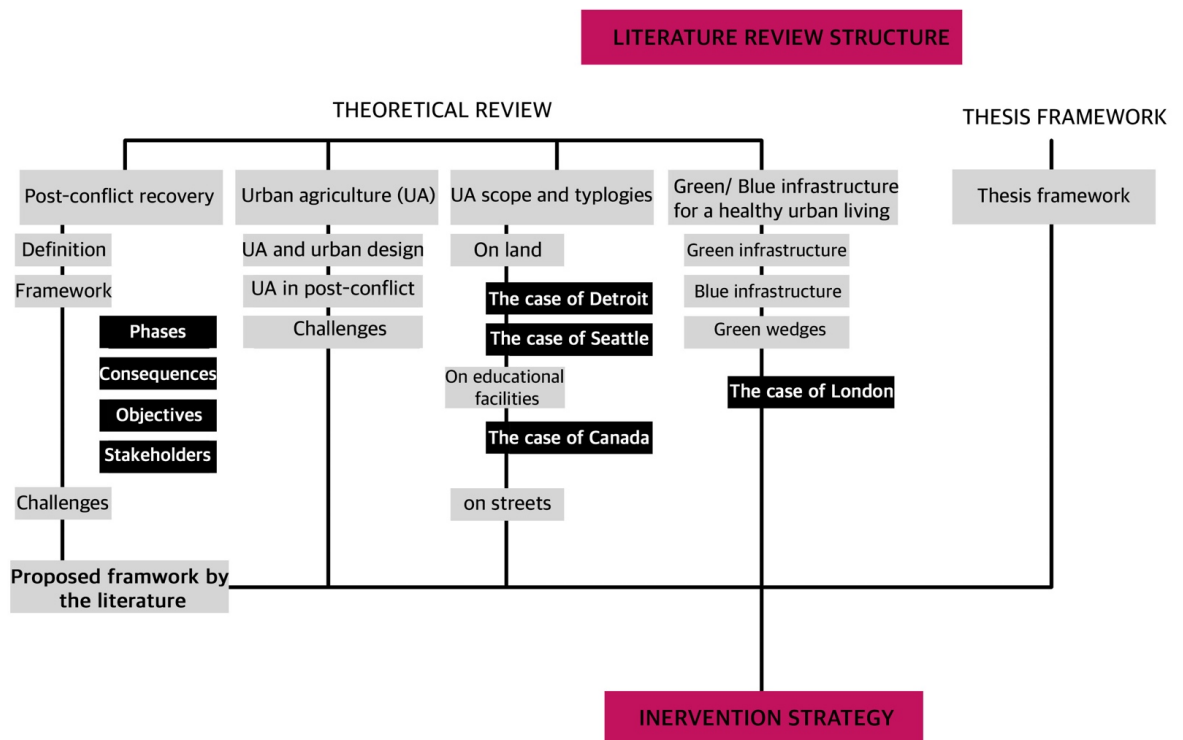


Figure 1: Connecting the literature.

1. Post-conflict recovery

a. Post-conflict recovery definition

Conflicts cause major damage to communities when they hit countries. They leave citizens and societies with blurred past, present and future. Accordingly, a solid act of reconstruction and recovery should be articulated in order to achieve a better outcome and results in the post-conflict period. In this period, communities are characterized with; the lack of peace, fragile communities, the prevalence of looting and theft and risk of conflict re-escalation (Sakalasuriya et al., 2018). The act of humanitarian assistance in the post-conflict period can be referred to by different terms and key tasks; recover, reconstruction, rehabilitation, restoration, resettlement, reforming, repatriation, reintegration.... etc (Fischer, 2004).

The various activities and tasks during post-conflict made it hard to have one specific definition, therefore, this period should be defined according to its objectives (Barkat and Zyck, 2009). These objectives are unified in all definitions and studies. They deal with different aspects that vary from; security, economic, social, gender, justice and politics. Accordingly, they can be summarized in; repairing the country, obtaining sustainable peace and empowering communities in order to sustain their livelihood in the post-conflict situation (Sakalasuriya et al., 2018).

Based on the former, this research adopted the definition by Barakat and Zyck in which post-conflict reconstruction involves “*reactivate economic and social development...[and] to create a peaceful environment that will prevent a relapse into violence*” (Barakat and Zyck, 2009, p.1071).

b. Post-conflict recovery framework process

Post-conflict reconstruction is a process that underlies different methods, tools, and disciplines. It involves a nexus of various researches related to peace, conflict, tradition, and reconstruction. More importantly, it tends to involve numerous numbers of participants from different disciplines such as; architecture, design, engineering, medicine, education, social justice, and socio-politics, to name a few (Barakat and Zyck, 2009). These participants, together, will offer a significant intervention in the post-conflict period. They will help in the; rehabilitation of government and infrastructure, development of the economic, social and educational sector, reassuring security, ceasing of conflict escalation, individuals and community's empowerment, refugees returning and settlement, and maintaining community's health (Barakat and Zyck, 2009).

Planning for post- conflict recovery is based on understanding the certain type of disaster in a specific locality. This is achieved by examining the local environment of the problem and investigating the conditions, issues and factors that will guide or affect the future reconstruction process in the affected area. Cities exposed to conflicts emerge with different and unique conditions that should be examined by each case. Consequently, the recovery should work on setting the priority, precedence, timing, appropriateness, and execution of reconstruction tasks which vary according to cases (El-Masri 1992).

Post- conflict recovery process should articulate and comprise different methods and manners in order to achieve the best recovery plan and framework for the recovery of affected countries. Accordingly, the process involves:

i. Periods suitability for intervention

Post-conflict recovery extends over a period of time that can be divided as follows: (1) during conflict, (2) the cessation of violent conflict, and the (3) return to normalization (CSIS and AUSA, 2002).

Arguments were raised to determine the best time to start intervening and reconstructing after conflicts. It is widely known that acting immediately after conflict ceasing can be sometimes hard and could fail in stating humanitarian needs.

Contradictory, this can go with the fact that delaying the reconstruction process will, as well, result in protracting the sustainable recovery process (Sakalasuriya et al., 2018).

Post-conflict reconstruction process should emphasize on various elements and needs which should be articulated in emerging societies from conflicts in order to pave the way for major development efforts. These elements involve; resettlement of refugees, maintaining security, food security, agricultural sector reactivation, provide residents with basic needs and aids, recover welfare facilities such as schools and healthcare, and provide subsistence economy (Fischer, 2004). These activities can be implemented over different periods of time. These phases of implementation can be summarized in;

- The initial phase; this period comes after violence ceasing. It involves immediate acts such as providing basic humanitarians aid, maintaining security (Anderlini and El Buhra, N.D) and absorbing the results of the conflict.
- The transitional phase; in this phase, small actions starts to kickstart the reconstruction process. It involves; reviving the economy, rehabilitation of physical and social infrastructure, reactivating the functional structure of government

institutions as well as reactivating of neighborhoods' welfares; schools and health institution (Anderlini and El Buhra, N.D).

- The last phase; this period defined by the time when societies reshape their normal life and reach a sustainable livelihood (Anderlini and El Buhra, N.D).

Concluded from the previous, the transitional process between these three phases involved important milestones to ensure sustaining peace (UNDP, 2008);

- suppression of violence and conflicts
- Fostering peace actions
- Supporting communities' reintegration
- Encouraging the displace and refugees to return
- Reconfiguring economic bases.

ii. Conflict consequences

Conflicts leave countries and their societies with an unbearable consequence such as (UNDP, 2008);

- Numerous loss of human lives due to deaths, flee, diseases.
- High levels of physical and infrastructural damage.
- Degradation in the economic capital due loss of employment and shuttered business.
- Government institutions weakness
- Deterioration of the social capital
- Emerge of subsistence activities such as agricultural and informal employment in order to help household finance.

- Deterioration in the environment condition; it becomes a target throughout the ongoing war (Sakalasuriya et al., 2018)

iii. Post-conflict recovery objectives

The third and most valuable layer in the post-conflict recovery process is to identify the main objectives of reconstruction plans. The process focuses on two main objectives: (1) support the transition of communities after fire ceasing to sustainable peace, and (2) support the social and economic development (The world bank, 1998).

After analyzing different studies and researches, post-conflict objectives vary according to specific cases and types of conflict. However, all objectives intersect together to achieve the recovery of four main aspects; the social, economic, environmental, and physical. These objectives can be implemented by integrated reconstruction assistance which consists of 7 key points. As part of this research, I will emphasize on the most relevant and related key points adopted by the World Bank, these key objectives are (The world bank, 1998):

- (1) Revive the economy by intervening in key economic productive sectors
- (2) Promote the role of government institutions as well as strengthening the civil society to play an effective role in the reconstruction.
- (3) Restore the physical infrastructure
- (4) Restore social infrastructure; such as health and education
- (5) Engaging those affected severely and displaced by the conflict, by subsistence agriculture and micro-enterprises.

iv. Post-conflict recovery stakeholders

Four main stakeholders are involved in the post conflict recovery process.

These stakeholders are;

1. Local Government; the government has a major role in the post-conflict reconstruction process. It should work on offering the bases that reshape communities through fostering the economic development, rehabilitation of social and physical infrastructure as well as preventing any further looping and conflicts. and achieving economic development (Sakalasuriya et al., 2018).
2. NGOs; the success of post-reconstruction efforts can be indicated by the role of NGOs offer resources. The role of NGOs in the post-conflict period involves; enhancing neighborhoods capacities for the rebuilding tasks, embracing societies behavior, reshaping the political norm, reconfiguring the economic capital and rehabilitating cultural and social aspects (Sakalasuriya et al., 2018).
3. Foreign donors; The absence of private investments during post-conflict recovery due to the instability of the economic and political situation, put much pressure on the government. This pressure entitled by the major need for foreign funding in order to start the reconstruction process (Sakalasuriya et al., 2018). According to post-conflict recovery studies, high levels of international assistance ensure the success of the recovery process, given the fact that many recovery plans and interventions failed due to lack of this foreign assistance, the case of many countries who suffered severe conflicts such as Congo and Afghanistan (Barakat and Zyck, 2009)

4. Local communities; after years of devastation and chaos, residents will have the motivation to participate in the reconstruction activities in their communities. Therefore, interventions should focus on the empowerment of those displaced and affected by the war to become 'productive forces' (Sakalasuriya et al., 2018). The normalization of communities cannot be achieved unless the majority of displaced are having the support to return and reoccupy their neighborhoods. The returning of refugees and displaces provides societies with a positive impact that spreads confidence, stability, and peace building manifestations (Fischer, 2004).

c. Challenges, opportunities in post-conflict recovery

i. Challenges

Although some countries might suffer from prior to conflict disadvantaged conditions, however, conflicts attack the underpinnings of the economy, undermine predictability and confidence in the future, and disrupt markets and distribution networks (The world bank, 1998). Furthermore, survivors of conflicts are faced with lack accessibility to their previous livelihoods and to basic services while maintaining high levels of resilience in order to readapt in the new environment (Sakalasuriya et al., 2018). These constraints also affect the future reconstruction of cities especially those experienced warfare lasting 10 years, which means entire generations may mature under conflict severe conditions (The world bank, 1998).

Other challenges facing affected countries by conflict are;

- Sustaining the foreign investments. Its worldwide fact that donors tend to avoid investing during the transitional period due to lack of stability

and security as well as the blurred future of these societies (Fischer, 2004).

- Empowering vulnerable groups and providing them with services that meets their needs while promoting the principles of social justice. Therefore, it is important to identify these groups in order to better determine their various needs and realities that differ from a group to another such as; women and men needs, roles and realities (Fischer, 2004).
- Maintain conflict ceasing; which can be agitated by severe poverty conditions, the ongoing religious and social hierarchy conflict and the absence of government control (Anderlini and El Buhra, N.D).
- Provide the basic amenities for people occupying neighborhoods without neglecting the numbers of returnees the city might witness. Given the hard-living conditions in conflicts affected neighborhoods, it is likable to witness some conflicts among existing people and returnees concerning livelihoods because it's wildly known that "*what the returnees need is exactly what the rest of the population is lacking*" (IRIN, 2005, p.5, as cited in Malual, 2008, p. 7).

Reconstruction of countries emerging from conflict represents one of the major challenges for development. The impact of conflict is always wide-ranging, spreading to affect all levels of the social hierarchy; individuals and communities to regions and countries (Wakkola, 2012). This impact includes; population displacement; damaged of services and buildings such as; schools, health facilities, housing, and other buildings, reduction in the production of the city in different sectors, reduced security; and an

increased proportion of people needing social assistance. These legacies overload societies emerging from conflicts with heavy pressure that weaken their ability to reach sustainable peacetime and normal life (The world bank, 1998).

ii. Opportunities

Early small reconstruction activities are of value to be initiated in cities emerging from conflicts. These small activities can be undertaken relatively quickly, with or without partnerships with concerned agencies such as United Nation Agencies and NGOs. If individuals started to generate their finance and enhance their self-esteem, this will reduce the pressure on foreign funding and will help strengthen the local economic base and promotes the role of local NGOs (Fischer, 2004). Furthermore, these small interventions and activities can work as a pilot activity to pave the way for more enhanced design and projects. These activities include; repair of vital infrastructure, small-scale and microenterprise schemes to promote employment and productivity as well as small-scale reconstruction and rehabilitation (The world bank, 1998).

More importantly, the use of local experience provides post-conflict reconstruction period with major opportunities to reform the city neighborhoods according to previous norms. The external intervention will not stimulate the preservation of cultural and traditional fabric, it might introduce a new living environment hard to be adapted. Therefore, the opportunity for indigenous knowledge will better serve the local and economic development (Sakalasuriya et al., 2018).

Based on the research conducted by Sakalasuriya et al. in 2018, the following conceptual framework addresses the consequences and interventions needed in the post-conflict reconstruction period [Figure 2] (Sakalasuriya et al., 2018).

The reconstruction of communities exposed to severe conflicts involves supporting the transition from conflict to peace by focusing on reviving the socioeconomic structure of these countries (The world bank, 1998). However, this widespread trends in post-conflict recovery which focuses on repairing the physical infrastructure is neglecting the role of the soft investment. As a result, this trend failed in recovering societies from traumas and chaos because they cannot articulate the social and cultural aspects of these communities (Sakalasuriya et al., 2018). Therefore, the adopted framework in such conflicts is more about enhancing conditions for functioning and the livability of societies during peacetime. Accordingly, the reconstruction process should follow this framework in order to reach sustainable results (The world ank,1998).

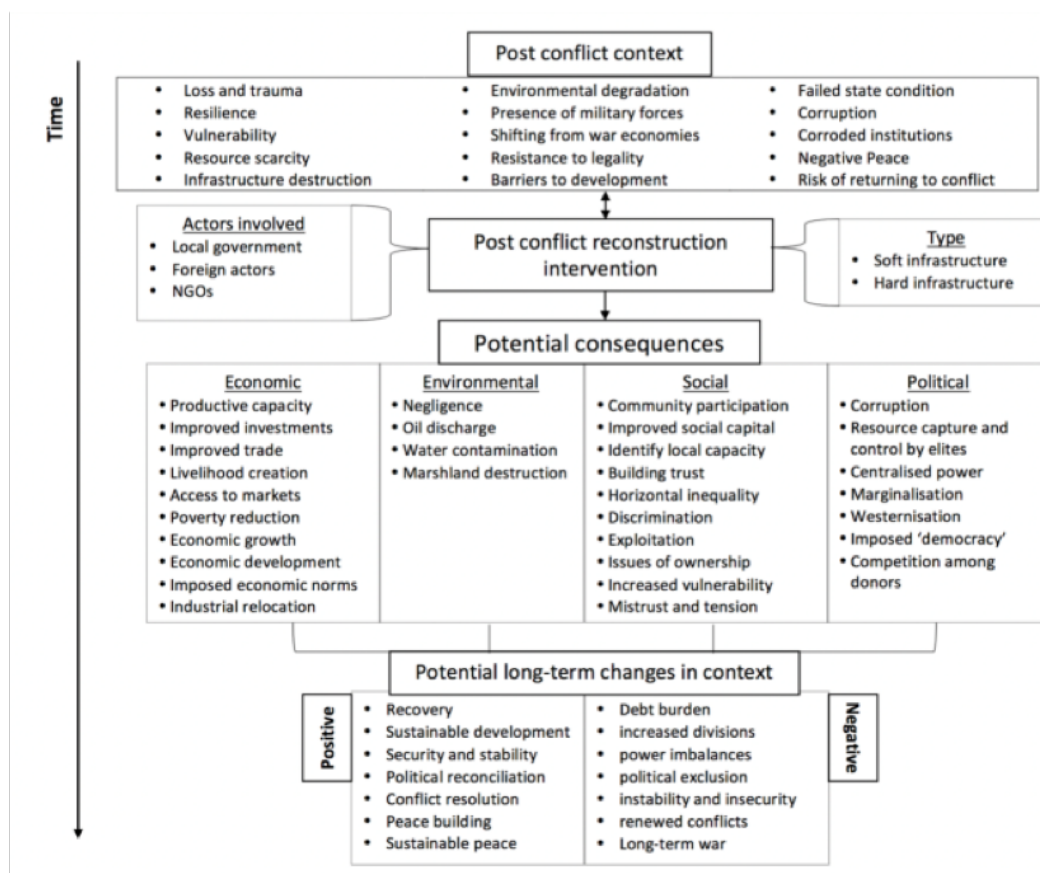


Figure 2: Conceptual framework for post-conflict reconstruction period (Source: Sakalasuriya et al., 2018).

This thesis will focus on how green infrastructural network of urban agriculture can contribute to the post-conflict recovery period in order to revive livability in affected communities and neighborhoods. This thesis aims to create an integrated network of urban agricultural activities that link the agriculture valley in the peripheries of Homs with its urban center by building on the following selected key assistance principles of post-conflict recovery framework; intervening in key economic productive sectors, strengthening the civil society, engaging displaced by subsistence agriculture and micro-enterprises and restoring the restore the social infrastructure; such as health and education.

2. Urban agriculture in post-conflict recovery context

a. Urban agriculture and urban design

With the enormous urban growth witnessed worldwide, a new type of agriculture was adopted, known as “Urban Agriculture” (De Bon et al., 2008). Researchers sought to believe that this concept holds the potential to ensure the economic needs of people (Lteif, 2010). However, despite its positive and significant effects on the urban environment, yet it was neglected in the literature and studies related to urban design and planning, considering the agricultural practices limited to rural areas and communities (Kim, n.d). Indeed, agriculture was more confined to rural life and never been used in the urban context. However, currently, the lifestyle of urban and rural areas, in developed countries, are becoming more integrated and we can witness more convergence between these two lifestyles` traditions (Annor-Frempong et al., 2012).

The concept of urban agriculture was developed in a way that emphasizes on the importance of the integration between the city and agriculture. It started as a tool to provide dwellers with food supply in order to maintain cities' food security (De Bon et al., 2008). It was first defined as the process of planting and producing food and crops among other products through cultivation and animal husbandry within or around cities (North American Urban Agriculture Committee, 2003).

Later on, the use of urban agriculture has developed to embrace other functions along with food supply. This includes; environmental, social as well as economic functions (De Bon et al., 2008). Accordingly, a new definition of urban agriculture was adopted by the Council of Agriculture, Science and Technology (CAST), which embraces all aspects of agricultural related activities and its effect on population benefits (North American Urban Agriculture Committee, 2003). Urban agriculture was defined as "*a complex system encompassing a spectrum of interests, from a traditional core of activities associated with the production, processing, marketing, distribution, and consumption, to a multiplicity of other benefits and services that are less widely acknowledged and documented. These include recreation and leisure; economic vitality and business entrepreneurship, individual health and well-being; community health and well-being; landscape beautification; and environmental restoration and remediation*" (North American Urban Agriculture Committee, 2003, p.3).

b. Urban agriculture in post-conflict recovery

Post-conflict situations depend extensively on economic growth and securing food. Accordingly, agriculture is considered one of the bases for economic and livelihoods sustainability (Annor-Frempong et al. 2012).

It has been indicated that agriculture can play a significant role in post-conflict development. According to statistics, the growth of GDP (Gross Domestic product) depending on agriculture activities is as twice as the growth of GDP depending on other sectors in sustaining livelihoods, especially for the poor (Annor-Frempong et al. 2012).

The concept of urban agriculture in post-conflicts has developed from a producer of food supplies during conflicts to contribute substantially to economic growth, social interaction and environment enhancement (Kanu et al. 2009, p.1). It can play an essential role in; cleansing and restoring the environment affected by the severe bombardment, ensuring individuals' and communities' health and nutrition as well as creating open spaces and greening the neighborhoods with beautiful spaces to help reigning the social coherence in affected areas (North American Urban Agriculture Committee, 2003). Accordingly, urban farming can become “one of the survival strategies” in post-conflict (Kanu et al., 2009, p.1).

c. Challenges, opportunities of urban agriculture in the post-conflict context

i. Challenges

Reconstructing agriculture, in general, and urban agriculture, in particular, in post-conflict can be faced by a number of challenges vary in terms of security, motivation and labor availability as well as access to resources. Added to theft and destruction among lands; (1) people lack access to land and other resources needed for cultivation, (2) clashes over land ownership, (3) loss of labor due to displacement as well as uncertainty and low motivation of residents, due to being exposed for fighting, destruction and killing for years (4) lack of housing availability, especially for displaced people (Annor-Frempong et al. 2012).

ii. Opportunities

Urban agriculture has become an effective tool to overcome cities' problems. It plays key roles in: (1) enhancing environment conditions; cleaning air and water, lowering summer temperatures, city greening and recycling waste water and trash, (2) producing food supply; which decreases the need for energy and costs needed for food transportations and refrigerating, (3) economic development; markets associated with urban agricultural lands provides opportunities for entrepreneurs and commercial farmers and (4) promoting individuals and community health; which can be achieved when dwellers win the control over their own food system (North American Urban Agriculture Committee, 2003) , (5) enhancing the social inclusion; by integrating different groups and disadvantaged people in urban agriculture (such immigrants, unemployed, elders, disabled) which promotes their participation in the social texture and provides them with better living conditions, and in turn, promotes the social coherence and in communities (Orsini et al., 2013), and (6) enhance neighborhood greenery and beautification as well as enhancing public safety (Ringebach et al., ND). These are mainly the essential factors to consider when designing cities and buildings (Kim, n.d).

In developing countries, agriculture has proved its success wildly. Its impact on the employment opportunities and survival strategies are still dominant and plays an essential role in upgrading livelihoods for millions of people (De Bon et al., 2008). More importantly, agriculture can make use of abandoned buildings and vacant lots that were once used for industrial or chemicals materials. Accordingly, agriculture can make valuable use of these spaces after restoring and cleaning these sites (Carter et al., N.D). Therefore, urban agriculture can be effective.

To conclude, urban agriculture proofed its effectiveness in reconstructing cities and livelihoods in the aftermath of severe conflicts. This can be largely implemented in the city of Homs city and its neighborhoods. The Impact of urban agriculture on employment opportunities and survival strategies are still dominant and plays an essential role in upgrading livelihoods for millions of people [Figure 3] (De Bon et al., 2008).

Social Impacts	Health Impacts	Economic Impacts
⇒ Creating Safe Places Reducing Blight	⇒ Food Access and Security	⇒ Job Creation, Training and Business Incubation
⇒ Access to Land	⇒ Increased Fruit and Vegetable Consumption	⇒ Market Expansion for Farmers
⇒ Community Development Building Social Capital	⇒ Food and Health Literacy	⇒ Economic Savings on Food
⇒ Education and Youth Development Opportunities	⇒ General Well-Being (Mental Health and Physical Activity)	⇒ Savings for Municipal Agencies
⇒ Cross-Generational and Cultural Integration		⇒ Increased Home Values

Figure 3: Urban agriculture impact on societies (*Source: Caruso, 2015*).

3. Urban agriculture scope and typologies

Agriculture can be branched into the urban community as green-belts or fingers. Simultaneously when its integrated with cities' landscape, agriculture can transform vacant lands into economically viable production sites (North American Urban Agriculture Committee, 2003).

Urban agriculture can be implemented in urban and peri-urban spaces and these projects can be private, publicly, or commercially owned (Santo et al., 2016). Urban agriculture can be manifest including different types: backyard gardens, community gardens, commercial farms (Carter et al., N.D), and vertical and indoor farms [Figure 4] (Santo et al., 2016). Backyard gardens involve planting household

lands or educational facilities or growing on rooftops and balconies. Community gardeners refer to cultivating a piece of land that is shared by several households. As for commercial farmers, this type of urban agriculture depends on commercial kitchens which can produce food products such as jams and animal products to be sold in farmers markets or restaurants (Carter et al., N.D).

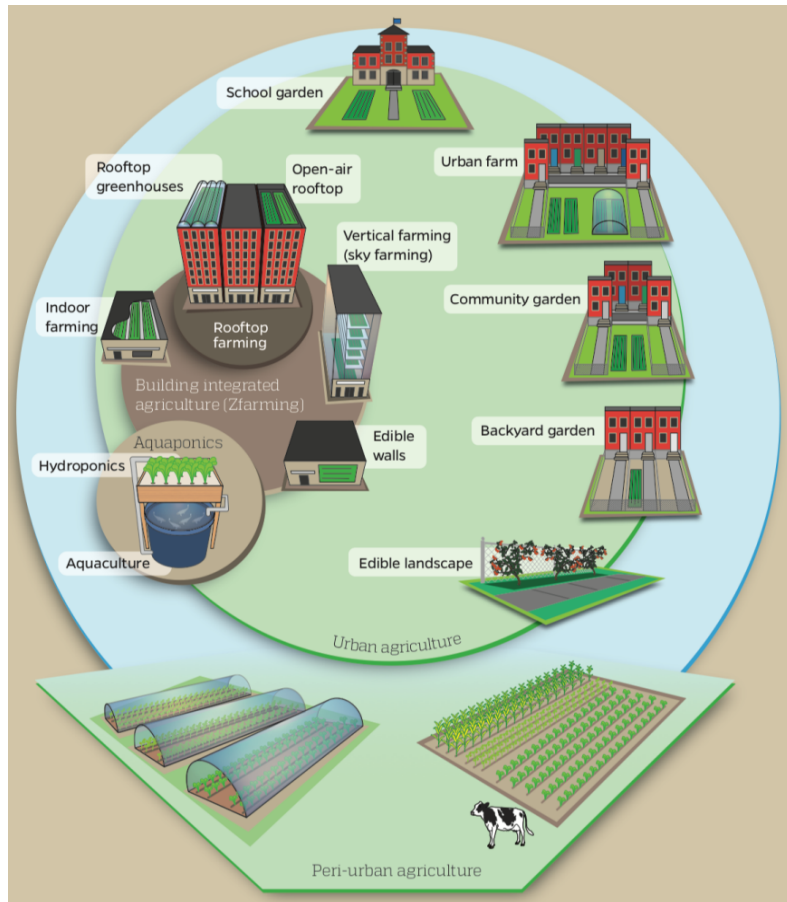


Figure 4: Scope of urban agriculture (Source: Santo et al., 2016).

As part of the thesis intervention, I will elaborate on three main surfaces that form a potential area for urban agricultural:

a. Urban agriculture on land

Growing food on available lands is the most common method to create urban agricultural activities which have regenerative effects on the inner-city. By transforming the land use, urban agriculture creates potentials to address multiple needs of communities. Usually, urban agriculture interventions make use of vacant plots and city public gardens to transform them into community gardens or urban commercial farms supported by markets and restaurants (Dagher, 2015).

i. Community gardens

Available vacant lands create the most conventional location for urban agriculture intervention (Ackerman, 2012), which includes all available lots which have no currently designated use (Carter et al., N.D). By far these lands transformed into gardens, surrounding areas becomes clean and environmentally enhanced, lands value increase and it brings more developments into the city (Carter et al., N.D).

Community gardens are one of the forms that allow to make a profit of unused vacant lands, to transform them into something more productive and beneficial in the city as well as providing the community with new programs and activities. These recreational zones represent a symbol of cultural preservation, city resilience, intergenerational interaction for community building as well as providing opportunities for youth to take initiatives and be part in the development (Meenar et al., 2012). More importantly, community gardens have a recognizable role in enhancing socialization, empowerment inhabitants and especially those disadvantaged people, socializing as well as enhancing technical knowledge. Consequently, residents who participate in commercial gardens activities, privilege from the consumption of healthy fruits and

vegetables, improving their interactional relationship, enjoy the recreation and relaxation of gardening outdoors feel more empowered as they improve the food security of the household and gain new knowledge and new lifestyle technical skills (Lovell, 2010).

The wide range of public or community green spaces can create a green tract that offers an opportunity to establishing urban agriculture as part of the green infrastructure network (Lovell, 2010). This type of urban agriculture activities has been conducted worldwide in different shapes and under various circumstances.

- The case of Detroit:

Detroit is considered one of the successful examples in which vacant lands were transformed into productive urban agricultural spaces. Around 140 acres of vacant lands were sold by Detroit's City Council to a participant who aims to start an urban agriculture project called; "land grab" [Figure 5]. The project extended over a number of phases: (1) cleansing phase and trash removal, (2) planting around 15,000 trees and agricultural plants for productive and commercial purposes. This project is paving the way of creating more and larger urban farms (Nettler, 2012).



Figure 5: Transforming vacant lands into community gardens in Detroit (*Source: <https://www.planetizen.com/node/59688>*).

- The case of Seattle: The Magnuson Community Garden:

This garden extends over an area of four-acre. It is located on Seattle's Sand [Figure 6]. The Magnuson garden was designed in a way that empowers and intersects with the communities' needs. It aims to promote the quality of urban life, foster social bonds by creating farming community spaces where people can enjoy learning the horticultural approach and interact with nature [Figure 7].

The design of the garden is multi-functional, it includes; an open recreational space for events and food festivities, playgrounds for children, orchards and local plants nursery (The Magnuson Community Garden, 2015).



Figure 6: The Magnuson Community Garden in Seattle (Source: <http://magnusongarden.org>).



Figure 7: Activities in Magnuson Community Garden in Seattle (Source: <http://magnusongarden.org/category/p-patch/>).

ii. Commercial farming markets

Community gardens intervention can also be designed in integration with urban commercial farms which provides a platform for agricultural products selling. These platforms can be also combined with restaurants and commercial kitchens that recreate fresh food products such as salsa and jams (Carter et al., N.D).

b. Urban agriculture in educational facilities

Another type of urban agricultural practices is to use educational facilities backyards and buildings, which provide an opportunity for creating productive spaces and engaging students in these agricultural activities. More importantly, these spaces extend beyond the production benefit, it is more about educational and cultural benefits, in which students gain knowledge in cooking, nutrition, science, environment and business management (Lovell, 2010).

- The case of Eastdale Collegiate School in Canada

This project transformed the Eastdale Collegiate school into a vibrant green rooftop with farming activities. The project turned the concrete rooftop of the school, extending over an area of 16,000 square foot into space with more than 450 farming beds for cultivating products such as fruits, herbs, and vegetables. Students and teachers planted the rooftop with various products and plants such as; “apple trees, blueberry bushes grape, vines, spinach, arugula, kale, mushroom, peppers, tomatoes, lettuce as well as squash [Figures 8] (Brown, 2013). The project supports the financial status of the school and secure food supply for local. More importantly, it benefits students

educationally and socially by teaching them the horticulture experience and engaging them with related community organizations (Brown, 2013).



(Source: Nasr et al., ND)



(Source: https://www.thestar.com/yourtoronto/education/2013/12/25/eastdale_collegiate_opens_its_roof_to_urban_agriculture.html)



(Source: <https://www.toronto.com/news-story/4164218-rooftop-garden-a-bountiful-experience-for-eastdale-ci/>)

Figure 8: Educational farming in Eastdale Collegiate School in Canada.

c. Urban agriculture in streets

Streets can also provide potential spaces for interventions, if not for agricultural activities, it can be used for green open spaces that will add on the green infrastructure networks in cities.

4. Green/ Blue infrastructure for healthy urban living

Nowadays, researches worldwide are emphasizing largely on creating a sustainable urban environment, where people can work, live and interact. More importantly, it encourages the healthy lifestyle of communities where interaction with nature is a necessity, not only a need. These clean healthy communities can be achieved by providing (Gehrels et al., 2016);

- Unpolluted environment
- Adequate green spaces

- Natural resource; water and nature
- Healthy housing environment
- Recreational and multi-functional spaces
- Social welfare; schools, commercial activities, sports, cultural and recreational activities.

These elements of healthy sustainable communities can be achieved by the implementation of interrelated green/ blue infrastructural network.

a. Green infrastructure

The term green infrastructure has become lately accompanying most of the approaches that involve land development as well as land conservation worldwide (Benedict & McMhon, 2006). It has been adopted by professionals from all disciplines working on the development and future growth management since the infrastructure is playing an essential role in this sector. According to Webster's Dictionary, the term infrastructure refers to; *"the substructure or underlying foundation on which the continuance and growth of a community or state depends"* (Benedict & McMhon, 2006, p.1).

There is no specific definition used for the term green infrastructure. According to the Environmental practice, green infrastructure represents a network of green areas and open spaces, accompanied with practices and technologies that help increase the quality of life in terms of ensuring clean air and water, upgrading environmental quality as well as benefiting the community and people socially and economically (Allen, L.W, 2012).

Basically, green infrastructure is an interconnected system which involves different types of natural and green open spaces which can take the form of hubs, links, and sites. This network green infrastructure can play a major role in sustaining air and water cleanness, preserving the ecosystem as well as providing benefits for sustaining livability [Figure 9] (Benedict & McMhon, 2006).

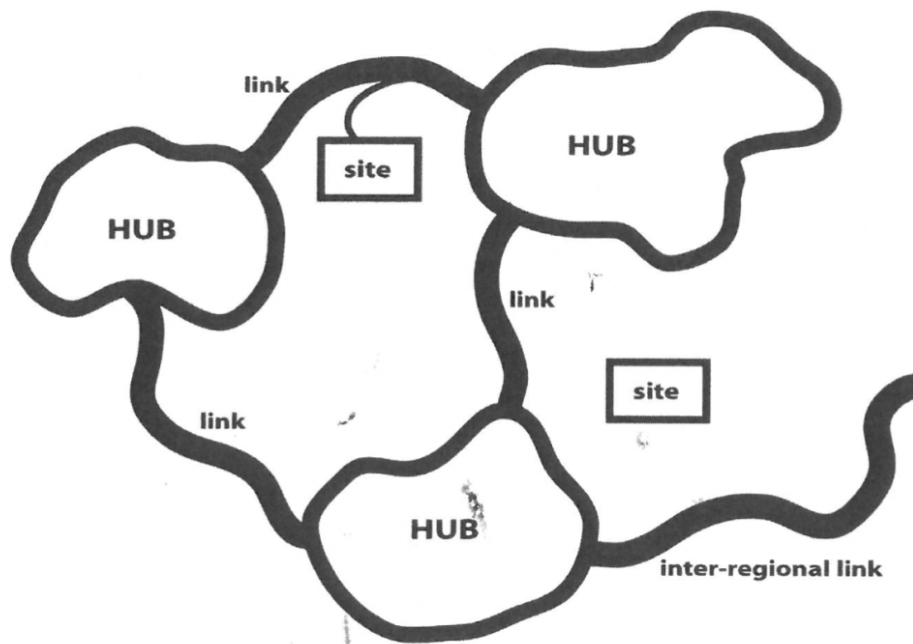


Figure 9: Green infrastructure network components (Source: Benedict & McMhon, 2006).

Networks of green infrastructure create the landscape needed to support the ecosystem. It works as a fundamental approach that supports maintaining human health in communities and supports human's wellbeing. Accordingly, an integrated system of green and gray infrastructure should be developed in harmony in order to achieve a healthy society [Figure 10] (Coutts, 2016).

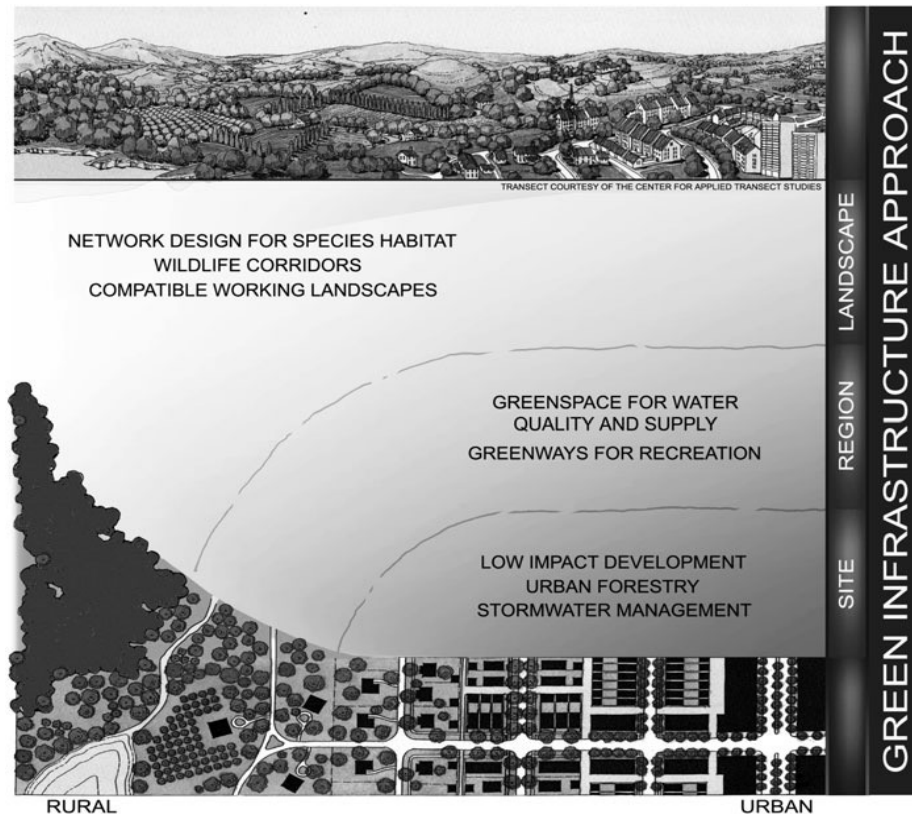


Figure 10: Green infrastructure approach at different scales (Source: Allen, L.W, 2012).

Consequently, green infrastructure is considered as a framework that guides future growth and development that focus on creating spaces where people can work, live, interact and enjoy the environment, taking into consideration preserving the lands and natural resources (Benedict & McMhon, 2006).

b. Blue infrastructure

Blue and green infrastructure networks are inseparable interrelated systems that help achieve the best living needs of societies. The blue infrastructure network is an approach that offers good water quality for societies and protects them from floods or droughts. The blue infrastructure in communities comes in the shape of river, ponds,

and streams. It plays an essential role in promoting community's human health through (Gehrels et al., 2016):

1. Exposing to water surfaces creates a healing system that improves the medical health of humans
2. Living a healthy lifestyle by the recreation of spaces for exercise and other physical activities
3. The beatification of landscape by the implementation of green and blue infrastructure contributes to mental health.

Based on the former, the following diagrams show the urban life components which contribute to the improvement of the urban living condition [Figure 11].

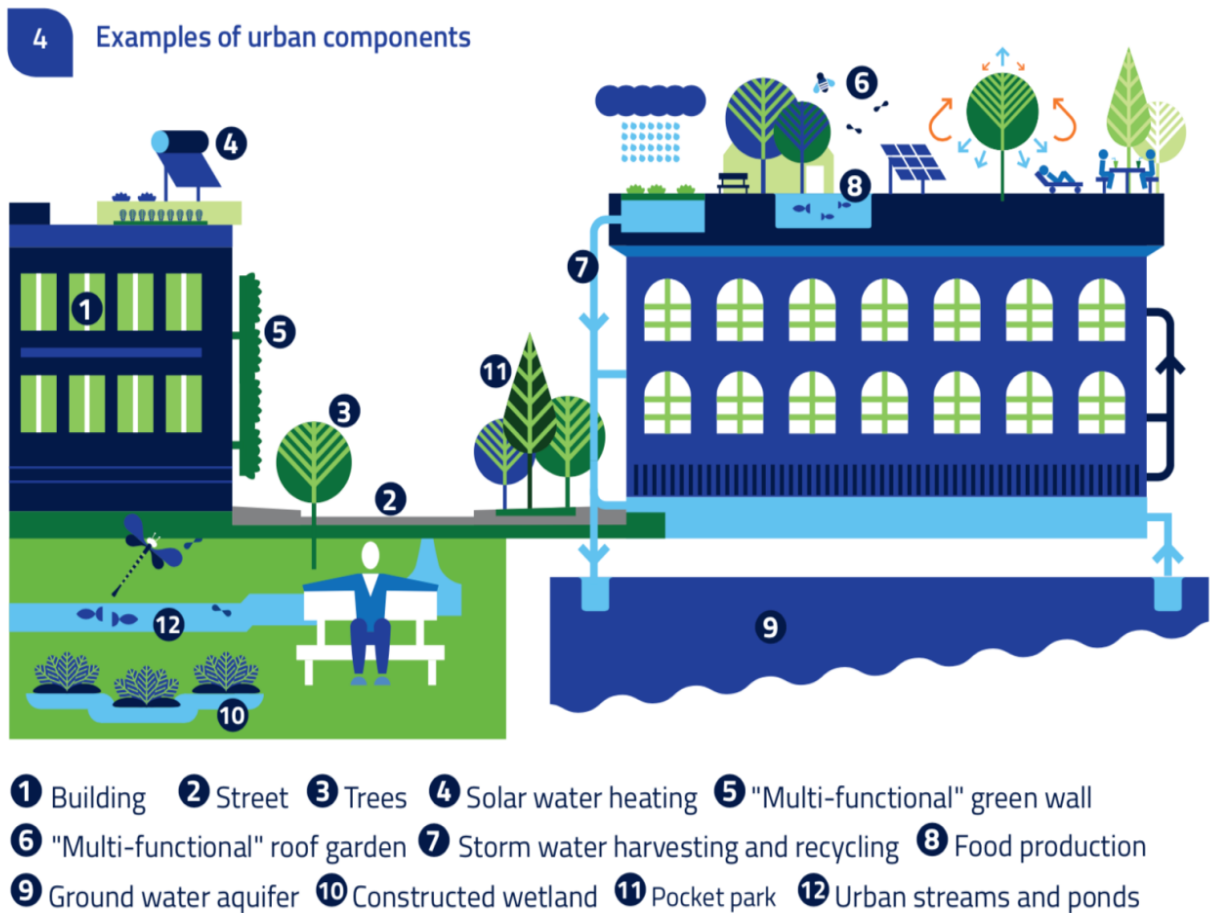


Figure 11: Components of sustainable urban life (Source: Maksimovic et al. 2017).

c. Green/blue infrastructure approach; “Green wedges” or “Green fingers”

i. Definition

Over time, green spaces inserted within the urban fabric became increasingly important. Consequently, planners and designers concerned with urban growth have developed the ideas of green wedges in order to provide modern cities with a large amount of greenery and open spaces (De Oliveira, 2017).

The Green wedges idea is a developed form of green belts concept which received a lot of criticism in the last years. Planners sought to believe that it limits cities' expansion and concentrates green spaces away from residents reach. Therefore, they developed the idea of radial expansion and green lands, to promote a green system that links the countryside with the urban centers. According to Henry Vaughan Lanchester's article, 'Park System for Great Cities', the concept of green belts should be abandoned and he paved the way for a more flexible alternative which is the radial parks; *“open spaces are not green islands accidentally disappear around the town, but systematically arranged, so as to procure open spaces and circulation of fresh air in all parts of the city”* [Figure 12] (De Oliveira, 2017, p. 33).

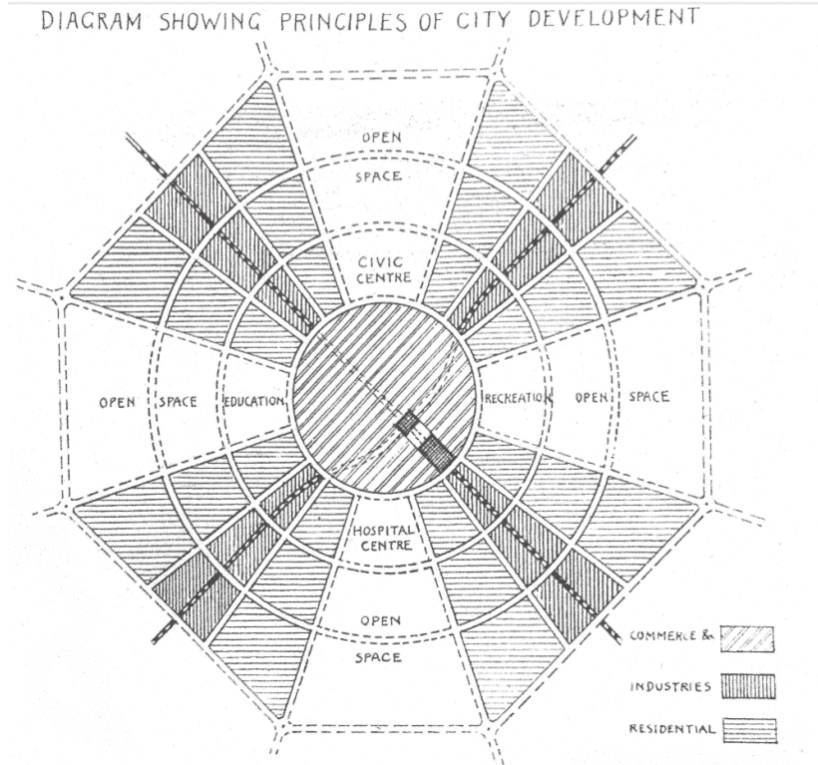


Figure 12: Lanchester model for designing a modern city using green wedges (*Source: De Oliveira, 2017*).

Green wedges comprise various elements that shape the urban ecological corridors. These elements are urban and peri-urban forests, wetland, agriculture land and parks (Kong, 2012). The role of these wedges extends beyond the preservation of natural resources and greenery (Kong, 2012). They can work as a tool for sustainable development in order to overcome pollution problems and the impact of climate change as well as creating healthier and more interrelated communities (De Oliveira, 2017). More importantly, it helps to embrace the urban growth and offer a rich environment with biodiversity and cultural and traditional aspects (Kong, 2012).

The green wedges idea was implemented differently worldwide. Its basic method was to contain the ability to create an open system of built-up areas and green spaces, in which greenery reaches the inner parts of the urban areas. This concept would

help largely addressing the issues of modern cities in terms of pollution and growth by helping the clean air circulating within cities from the countryside, make green open spaces reachable by residents and give them the potential to live within beautiful landscapes, providing the ability for flexible urban fabric expansion (De Oliveira, 2017), create recreational areas for outdoors activities and help residents to relax in a calm atmosphere in contrast to the buzzing urban life (Kong, 2012). Furthermore, green wedges can be implemented as both tracts of nature or agricultural lands arriving from the countryside that can add a strong potential for societies to grow their food supply (De Oliveira, 2017).

ii. Case studies

- Green wedges approach in post-conflict London

The metropolitan of London is located to the southern-east of England. It extends over an area of 1,572 km² with a population of approximately 7,753,600 inh by 2009 [Figure 13] (Kong, 2012).



Figure 13: Greater London plan (Source: Kong, 2012).

The urban sprawl in London drove planners to take responses to this urbanization. Accordingly, in 1945, planners took initiatives in implementing a green belt around the city of London in order to prevent any further urban growth [Figure 14] (De Oliveira, 2015). The most valuable impact of this green belt is giving residents of urban areas a chance to live nearby natural resources while preserving these lands for any human acts (Kong, 2012). However, this intervention resulted in the concentration of green activities in a ring shape around the city while maintaining fragmented open spaces [Figure 15] (De Oliveira, 2017).

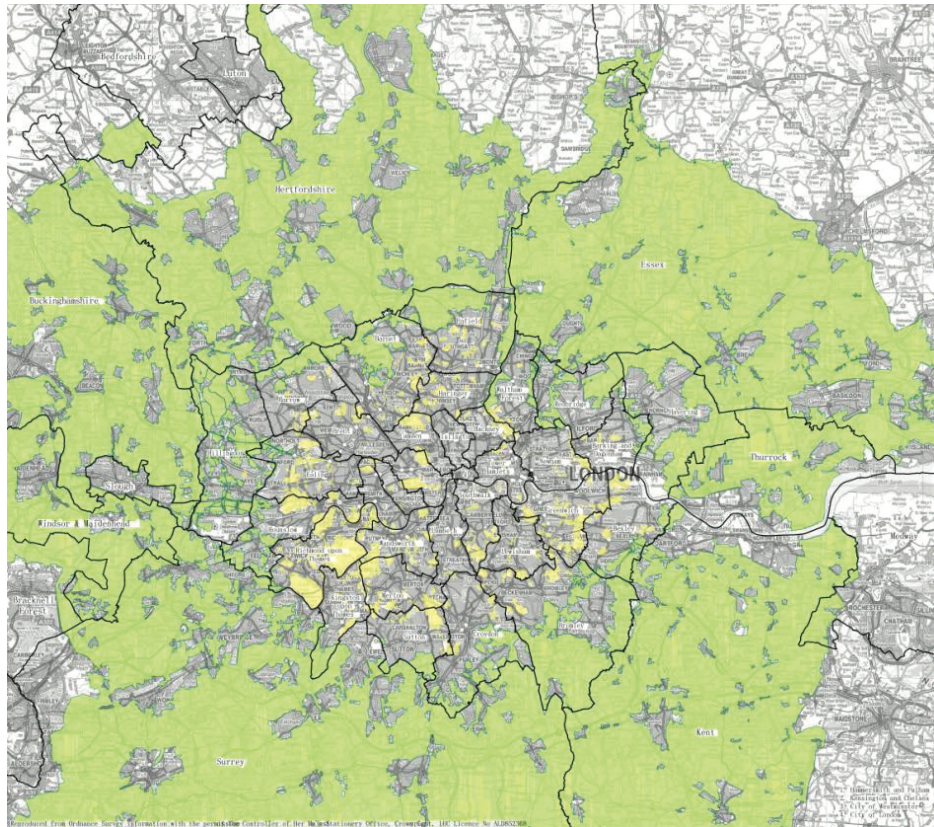


Figure 14: London Green belt (Source: Kong, 2012).



Figure 15: Fragmented open green spaces (Source: *Municipal dreams*, 2014).

The post-war period in London gave the chance to overcome these issues due to the increasing requests to re-design plans with the linking process between the town and countryside. Preserving the countryside and designing settlements that intersect both rural and urban life war at the core of reconstruction projects in the post-war period in London (De Oliveira, 2015). Therefore, green wedges approach considered the main tool to achieve these objectives. The concept of this approach involves creating green lines and corridors, free of any built-up fabric, to connect green spaces distributed from the heart of the city and towards the peripheries [Figure 16] (De Oliveira, 2015).

Therefore, green wedges approach considered the main tool to achieve these objectives. The concept of this approach involves creating green lines and corridors, free of any built-up fabric, to connect green spaces distributed from the heart of the city and towards the peripheries [Figure 16] (De Oliveira, 2015).



Figure 16: Open spaces before and after the implementation of the green wedges approach (Source: De Oliveira, 2017).

The importance of this approach articulated in its major role in overcoming urban problems such as congestion, unplanned urban growth, and overcrowding. More importantly, it has an essential role in maintaining public health and improving the environmental condition of London; by reducing pollution and enhancing the poor conditions of houses (De Oliveira, 2015). The case of post-war London provides a solid illustration of how green wedges approach can be articulated in post-conflict. By conceptualizing and reforming the green wedges approach to match the situation in Homs city, this approach can provide the catalyst for urban agricultural intervention in post-conflict Homs. The intervention will consider Al Basateen as the generator of this agricultural network and will connect the scattered green spaces through a network of green ecological corridors.

B. Thesis framework

Based on the former, the thesis will focus on creating a framework in the post-conflict period in Homs city to overcome the deterioration the city witnessed as a result

of the severe conflict. This will be achieved by creating a green infrastructural network of urban agricultural activities and open green spaces that contribute to the comprehensive recovery efforts in Homs. To do so, this thesis will allow the connection of the urban core with its peripheral agricultural lands in Al Basateen area, using the green wedges approach, in order to promote the social, health, economic and the environment in the impacted city [Figure 17].

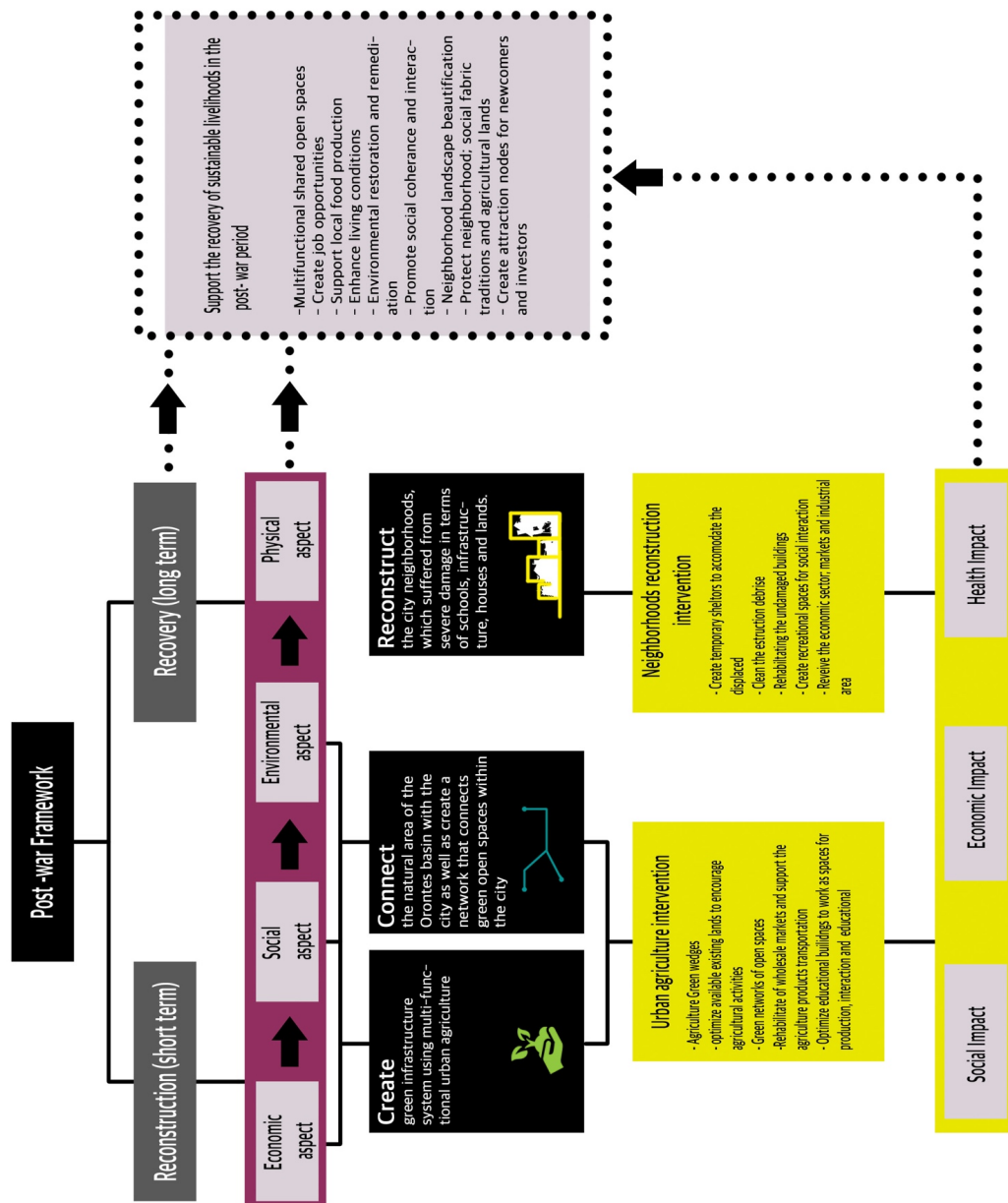


Figure 17: Intervention framework.

CHAPTER III

RESEARCH METHODOLOGY

A. Thesis structure

The methodology of this thesis aims to address the research question and objectives, by the transition from a wider scale of analysis of multiple variables to a specific unit of analysis and thus, from a general strategy to a focused design.

Consequently, the purpose of the thesis is to elaborate on three scales of inquiry:

- Landscape context: The Orontes basin (introduction to the wider scale)
- City context: The City of Homs (the general strategy)
- Neighborhood context: Baba Amer neighborhood and Al Basateen area (the focused design).

These will be addressed in proportion to two time periods determined by the severe Syrian conflict, which is considered a major turning point in the Syrian history. These two periods are; the pre-conflict period and the post- conflict period [Figure 18].

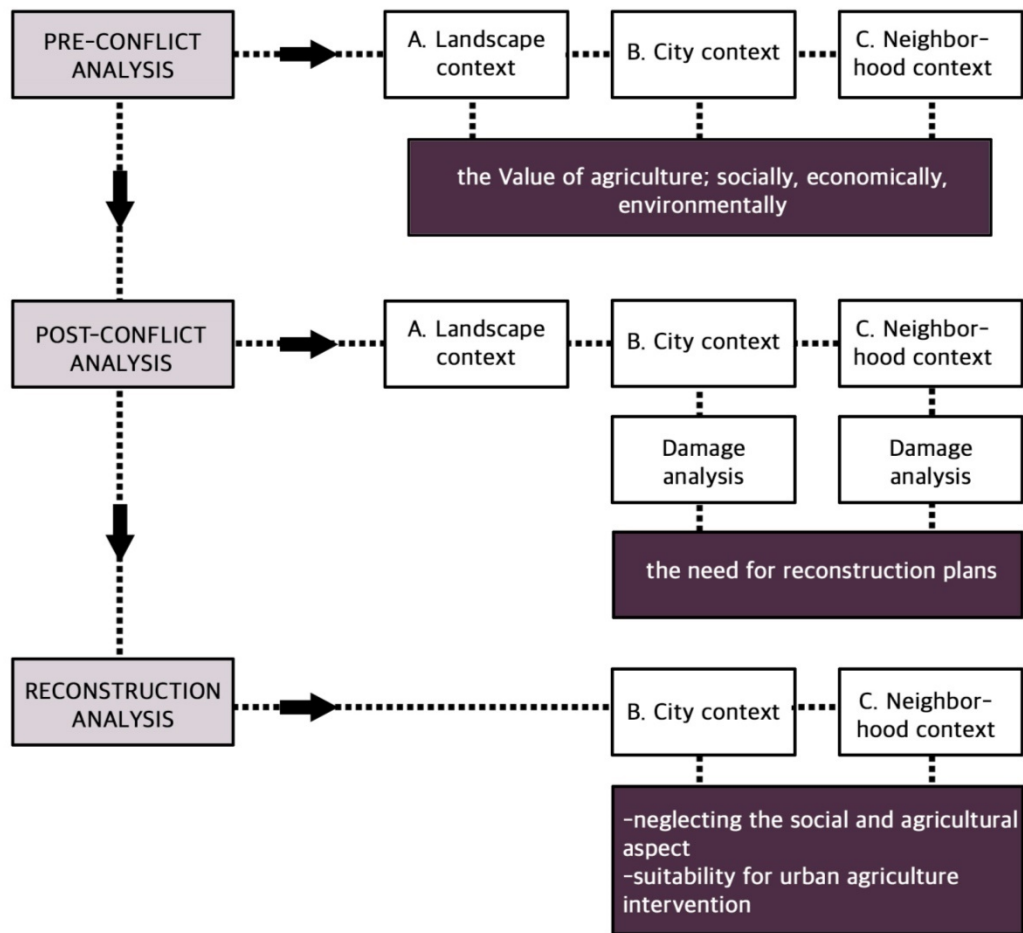


Figure 18: Thesis structure.

The research extended over a year of work, starting November 2017. Data collection was conducted according to four main steps; (1) archival documents and scholarly articles focusing on the historical context of the three contexts, prior to the conflict, including a detailed research on the agricultural practices and their values and impact on each context, (2) review of the literature post-conflict reconstruction process and the role urban agriculture and green infrastructure can play during the post-conflict reconstruction and recovery efforts, (3) collecting data through field observation, in order to assess the damage of the conflict as well as identifying urban agricultural

practices occurred as a sequence to the severe conflict, (4) meetings with Municipality engineers and governorate employee, and finally (5) analyzing researches and interventions conducted by the government and concerned United Nation organizations. Based on these methods, I was able to collect and prepare maps, charts, tables, and images that will provide a detailed conceptualization of the data and outcome expected from each chapter.

B. Research methods

1. Case Study profile: Pre-conflict analysis (chapter IV)

This section will elaborate on the historical urban fabric and the agricultural practices before the starting of the conflict. Based on the objectives of the research, I started by an introductory overview of the three scales of context which work in complementary to each other.

Data collected for this section depended largely on (1) the available archival documents (historical maps, population, photographs, construction law), (2) scholarly articles (3) personal knowledge and field visits to the city of Homs as well as personal contact with residents, Municipality engineers and governorate employee and members in neighborhoods' committees, and, more importantly, due to lack of more updated data, (4) various maps were prepared by adopting data from reports conducted by the UN-Habitat.

a. Landscape context: the Orontes basin

Based on the literature and the scholarly articles, I was able to articulate the importance of the Orontes basin in Syria and its contribution to the agricultural system

of the country, in terms of arable lands, agriculture production and water infrastructure [Table 1].

Figure	Source
Overview of the Orontes basin	(Jauber et al., 2015)
River water usage	Adopted from (FAO,2008)
Population	(Munger et al., 2014)
Water bodies in the basin	(UN-ESCWA and BGR, 2013)
Agriculture and land use	(Munger et al., 2014)
Tables	Source
Main irrigation schemes	(Munger et al., 2014)
Agricultural products in the basin	(Odemis et al., 2016)

Table 1: Sources of pre-conflict analysis maps and tables for the landscape context.

More importantly, by analyzing the historical context of the basin, I identified some major urbanization interventions that threatened the agricultural system in the Orontes basin.

b. City context: the city of Homs

This section will address the historical context of the city of Homs, in general, and the agricultural aspect in particular. Data collected for this part depended largely on the analysis of archival documents especially in terms of city expansion and agricultural production, personal knowledge and contact with university professors in the agriculture and civil engineering faculties at Al Baath University on Homs of the city as well as UN-Habitats maps and reports [Table 2]. Accordingly, I developed the following layers:

1.Introduction; location and demography, land use and services, social fabric, urban fabric, neighborhoods typologies as well as economic activities.

2.Agriculture practices in the city of Homs; its contribution to the economy of the city, the location of arable lands, water infrastructure and loss of agricultural lands due to the urban growth

	Figure	Source
1- Introduction	Social fabric	(the author)
	City expansion	(Homs' City council, 2007)
	Neighborhoods typology	(Al Sabouni, 2016)
	Location of Homs as a trading center	(Homs' City council, 2007)
2- Agriculture system in Homs	Location of arable lands	Adopted from (UN-Habitat, 2016)
	Irrigation water in Homs	(the author)
	Loss of agricultural lands	Adopted from (Habib,2005)
	Tables	Source
2- Agriculture system in Homs	Irrigation schemes	Adopted from (Central Bureau of statistics, 2018)
	Rainfall rate in Syrian cities	(Central Bureau of statistics, 2018)
	Agriculture production in Homs	Adopted from (Central Bureau of statistics, 2018)
	Agricultural lands in Homs governorate	Adopted from (Central Bureau of statistics, 2018)

Table 2: Sources of pre-conflict analysis maps and tables for the city context

c. Neighborhood context: Baba Amer neighborhood and Al Basateen area

The data in this part resembles the previous conducted for the city with a few more aspects. I intend to address Baba Amer and Al Basateen area within the city context;

1. the importance of Baba Amer in relation to the city, its land use, and services.
2. The value of Al Basateen area for Homs people as the location for social activities.
3. The contribution of Al Basateen to agricultural production and its role in the economy of Homs.

The data for this part was prepared by the analysis of UN-Habitat maps and reports as well as personal knowledge and site visits [Table 3].

	Figure	Source
Baba Amer	Land use and services	Adopted from (UN-Habitat, 2015)
	Neighborhood typology	Adopted from (UN-Habitat,2016)
	Building heights	Adopted from (UN-Habitat,2016)
Al Basateen area	Social activities	(the author)

Table 3: Sources of pre-conflict analysis maps for the neighborhood context

The outcome of the previous section will help illustrate the value of agriculture in the Orontes basin in general and the section of the basin located in the city of Homs, Al Basateen area. It will highlight the role of agriculture as a lifestyle for its residents that contribute to the economy of the city as well as food production. Furthermore, this section will address the impact of the urbanization process which led to a major loss of agricultural lands in the basin. Accordingly, this part will help to conceptualize my proposed post-conflict reconstruction intervention, based on reviving and protecting this value and develop it as a network integrated within the city context.

2. Post-conflict analysis (chapter V)

This section will include more recent data, underlining the severe impact of the Syrian conflict, which affected the country's social and physical fabric, economy as well as its agricultural system. Accordingly, in this chapter, I will provide an analysis of this impact by using maps, photographs, statistics, tables, and charts.

Data and maps developed in this section relied mainly on (1) UN- Habitat reports conducted for the city of Homs and Baba Amer neighborhood (maps, charts, photographs, and strategic interventions). This data was analyzed and re-developed in sequence to the outcome needed to elaborate on the research question and objectives, (2) direct field observation helped me to assess the extensive damage of the city and develop maps and photographs support this assessment, (3) personal contact with residents, municipality engineers, governorate employees, and (4) scholarly articles for the layer of the Orontes basin.

a. Landscape context: the Orontes basin

This section will demonstrate the impact of the Syrian conflict on the wider scale, the Orontes basin context in order to conceptualize the extensive impact that reached the underlying system of the economy, urban and agriculture in the basin, and down to the urban centers located within it. Data in this part depended mainly on scholarly articles that included various maps, showing the impact of the conflict on the population distribution as well as agricultural production [Table 4].

Figure	Source
Population displacement	(Munger et al., 2014)
Changes in agriculture and crop production	(Munger et al., 2014)

Table 4: Sources of post-conflict analysis maps for the Landscape context.

b. City context: the city of Homs

This context represents a more focused analysis that reflects the previous impact addressed in the Orontes basin. Based on the methodology of this section, I was able to (1) document the damage and functioning levels of the city after the ceasing fire by maps and photographs, and (2) understand the social movement of city residents by mapping their movement during two time periods; 2014 (the displacement wave) and 2017 (the returning wave). More importantly, in order to profile the returning process in the post-conflict period, it is of value to understand the constraints and pushing factors limiting the return to the city neighborhoods.

Data needed to produce the maps in this section was collected by using different methods according to the time of analysis. Basically, city maps and images that characterize the city status in recent years (2017) were prepared according to site visits, whereas the 2014 analysis were prepared according to UN-Habitat reports [Table 5].

Figure	Source
Social movement in 2014	Adopted from (UN-Habitat, 2014)
Social movement in 2017	(the author)
Urban damage analysis	Adopted from (UN-Habitat, 2014)
Public services damage level	Adopted from (UN-Habitat, 2016)
Urban functionality 2014	Adopted from (UN-Habitat, 2014)
Urban functionality 2017	(the author)
Public services operation status	Adopted from (UN-Habitat, 2016)

Table 5: Sources of post-conflict analysis maps for the city context.

c. Neighborhood context: Baba Amer neighborhood and Al Basateen area

This section will elaborate on a more detailed focused analysis. Baba Amer and Al Basateen area represent the impact of the conflict by addressing a more detailed analysis. The methodology used helped me, in terms of Baba Amer neighborhood, to:

1. Evaluate the damage in more focused scale, documented by maps and photographs.
2. Understand the security status of the neighborhood by mapping Military activities.
3. Analyze population distribution in the neighborhood to assess the returning process.

In terms of Al Basateen area:

1. Document the damage of the agricultural lands by maps
2. Analyze how Al Basateen area is used as a segregation tool during the conflict.

Maps and images in this section were mainly collected through site observation and visits as well as according to personal knowledge and contact with residents [Table 6].

	Figure	Source
Baba Amer	Urban damage analysis	Adopted from (UN-Habitat, 2015)
	Population	Adopted from (UN-Habitat, 2016)
Al Basateen area	Damage analysis	(the author)
	Military activities	(the author)

Table 6: Sources of post-conflict analysis maps for the neighborhood context.

3. Reconstruction analysis (chapter VI)

This section will mainly focus on the analysis of reconstruction potentials and opportunities in the city of Homs, in general, and Baba Amer neighborhood and Al Basateen area in particular. The outcome of this chapter will help to demonstrate the strengths, weaknesses, opportunities, and threatens of the city of Homs in order to come up with a synthesis map that highlights the potentials of Homs city in the post-reconstruction period. These potentials will guide the focused intervention design for the neighborhood of Baba Amer, which will work as a prototype that could be implemented in other city neighborhoods.

In order to define the priorities which should be at the core of this research intervention and design strategy, an analysis of different parties' interventions; the government and UN-Habitat, was conducted to understand the various perspectives of (1) how to intervene in the post-conflict recovery period, (2) what are the dimensions to emphasize on during the reconstruction process , and (3) the role these parties in the

post-conflict reconstruction efforts, whether it's strengthening the people or the opposite.

To elaborate on this, I developed maps and layers of analysis according to data collected through the following methods: (1) Site observation, (2) UN-Habitat reports, and (3) meetings with governorate employee and university professors in the agriculture and civil engineering faculties at Al Baath University in Homs.

a. Announced projects by the government

In order to define the priorities which should be at the core of this research intervention and design strategy, an analysis of the government was conducted to understand the various perspectives of; (1) to whom the government is designing, whether it is strengthening the local people or the opposite, and (2) which neighborhoods are worth preserving and which are not. Maps and images were collected and prepared for both the city scale context and the neighborhood context. The general illustrates the government efforts and interventions in the post-conflict period, whereas the images are mainly showing Baba Amer reconstruction project. This information was collected by a personal contact with government employee and engineers. However, due to the political situation and the fear of the city status, data in this section were limited to a few neighborhoods [Table 7].

Figure	Source
Announced projects by the government	(the author)

Table 7: Sources of government projects map

b. UN-Habitat intervention

Using the same previous concept and enquiry for this section, UN-Habitat reports were analyzed in order to conceptualize the following: (1) how to intervene in the post-conflict recovery period, (2) what are the dimensions to emphasize on during the reconstruction process, and (3) how to design and reconstruct the city and its neighborhoods in a way that supports residents' livability circumstances.

c. Urban agriculture practices during the conflict

During the conflict, the practice of urban agriculture occurred as a survival strategy during Al Waer severe siege. The location of these practices was mapped and photographed by direct field observation and personal contact with a professor at Al Ba'ath University, who is as all well resident of Al Waer neighborhood. Mapping these activities will elaborate on the concept of integrating agriculture practices in the revival strategy of the city of Homs.

d. Suitability for urban agriculture

i. City context: the city of Homs

In order to profile the potentials of the city of Homs to create an urban agricultural network, it is critical to map the suitable surfaces for such practices. These surfaces were mapped according to (1) Aerial imagery from Google earth, as well as (2) adapting data from UN-Habitat reports [Table 8]. All layers in this section listed in the following table were prepared according to UN-Habitat data except for the open spaces layer which as well were identified by tracing them from Google earth aerial imagery.

Figure	Source
Vacant lands	Adopted from (UN-Habitat, 2016)
Green open spaces	(the author)
Commercial activities	Adopted from (UN-Habitat, 2016)
Educational facilities	Adopted from (UN-Habitat, 2016)
Streets	Adopted from (UN-Habitat, 2016)

Table 8: Sources of suitable layers maps for the city context.

ii. Neighborhood context: Baba Amer neighborhood

The same objects and data collection used for the city scale were conducted for the neighborhood context, in addition to; (1) Field visit and observation, and (2) data from Homs' municipality [Table 9]. Same layers were mapped and identified in order to conceptualize a more detailed illustration of the suitability of spaces to be used for multi-functional urban agriculture spaces. For the agricultural and vacant lands layer, these spaces were identified according to aerial Google earth imagery, in order to check their previous land use and current situation (burned, abandoned...etc.)

Figure	Source
Vacant lands	(the author)
Green open spaces	Adopted from (UN-Habitat, 2016)
Educational facilities	(the author)
Street hierarchy	Adopted from (UN-Habitat, 2016)

Table 9: Sources of suitable layers maps for the neighborhood context

e. Land ownership and dispossess properties

Identifying the suitability of these potential areas, in term of ownership is essential, however, many municipality documents were burned and destroyed during the conflict, and as a result, identifying this information can't be conducted. However, based on online articles and meeting with government employees, I was able to define the dispossess property law which is considered of value when it is needed to reactivate abundant private areas for the public interest.

Based on the analysis in this chapter, I was able to (1) conceptualize a general and detailed vision of the extensive impact of the conflict and the reconstruction potential, (2) identify the objectives that should be achieved in the post-conflict period, (3) define priorities, (4) analyze the weaknesses and strength of proposed projects, which can largely guide my intervention, and finally (5) identify surfaces suitable for urban agricultural intervention.

Accordingly, I was able to develop a table of the S.W.O.T analysis (Strength, Weaknesses, Opportunities, and Threats) which was later transformed into a general synthesis map for the city context that illustrates the potentials and guidelines for the post-conflict reconstruction process, focusing on a green infrastructural network of urban agriculture activities as an intervention. Later on, this analysis will be transitioned into a more detailed and focused intervention for the neighborhood of Baba Amer and Al Basateen area.

C. Limitation and challenges

By the time this thesis was prepared, most of the neighborhoods in Homs were deemed secure, however, many challenges faced the research and data collection;

- Field visit observation:

Accessing to the neighborhood of Baba Amer was limited to residents who have property's ownership documents. Whereas for an outsider, I was stopped by every check point asking about the purpose of this visit and for detailed ID information as well as the car's license and type. Therefore, taking pictures and mapping the destruction according to the observation was as well challengeable. Nowadays, Baba Amer is open for residents to return, visit and start rehabilitating their houses, however, the fear of the security situation in the neighborhood and being exposed to such severe fighting and violence, make it difficult to conduct interviews and reach answers from these inhabitants.

- Governorate documents:

Baba Amer neighborhood is considered an icon in Homs revolution, accordingly, many governorate employees and municipality engineers tried to shift my intervention to other areas in the city arguing that the political situation in the area concerning the future of urban development and type of the inhabitant to occupy the neighborhood. Thus, I was not able to access the detail reconstruction plans prepared by the municipality for Baba Amer neighborhood, except for some limited photos.

- Proposed interventions:

Given the Syrian situation, dealing with the government and proposing projects for iconic revolution zones, such as Baba Amer) could be crucial and hard to be implemented.

CHAPTER IV

PRE-CONFLICT ANALYSIS

A. Landscape context: the Orontes basin

1. Introduction

The Orontes river, also known as the Assi River, is the only river in Western Asia to be considered as a perennial river with a total length of 610 km (Al Dbiyat & Geyer, 2015). It is a shared water lifeline between three riparian countries; Lebanon, Syria, and Turkey (UN-ESCWA and BGR, 2013). The river originates in Lebanon from the Karstic Labweh spring and flows to the north of the Lebanese lands (8%) before reaching Syria. With the highest length (59%), the river enters Syria from the north-east of Hermel and continue to cross through intensive agricultural areas in the plains of Homs, Hama and Al Ghab. Finally, it crosses the Turkish lands (36%) before ending in the Mediterranean Sea [Figure 19] (Jaafar et al., 2015).

Basically, the construction of human settlements and activities in the basin attributes to the availability of water resources. The first water infrastructure in the basin was found in the upper part, dating back to the Bronze Age (Jaubert et al., 2015).

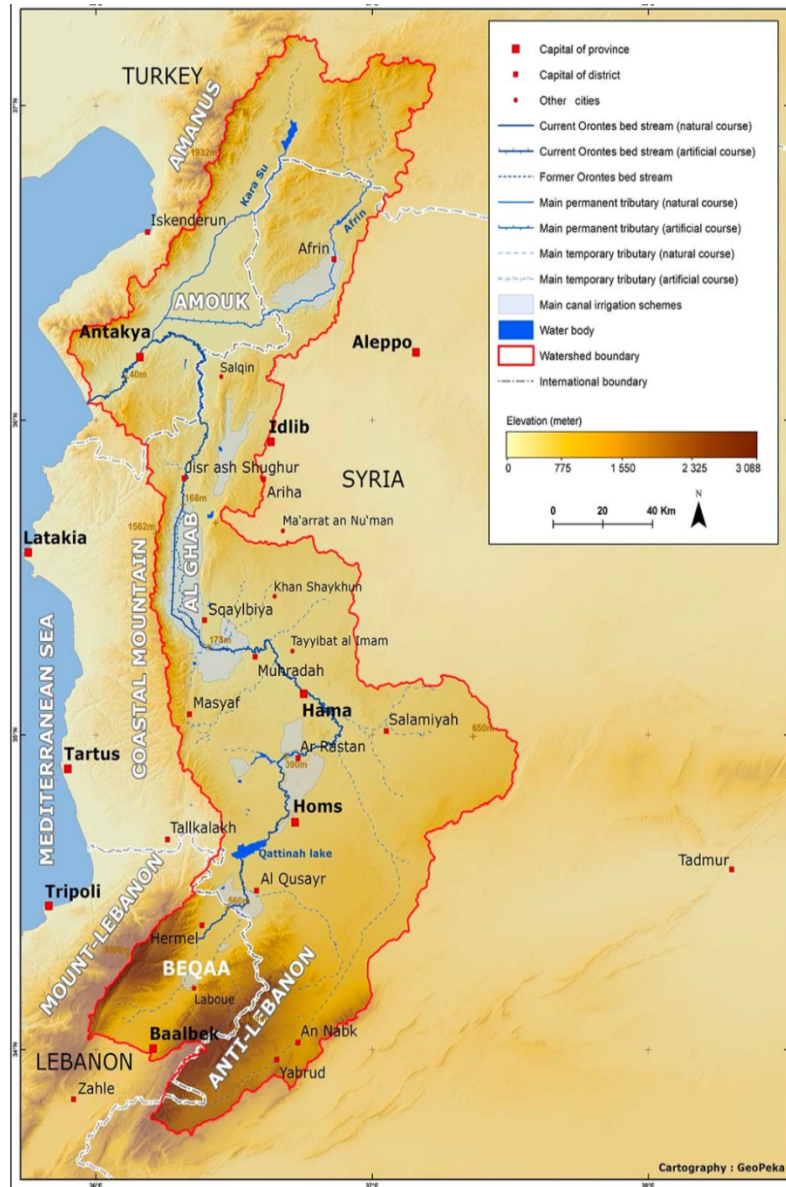


Figure 19: Overview of the Orontes basin (Source: Jaubert et al., 2015).

The Orontes basin allocates an extensive area of agricultural lands which contributes to the economy of the three riparian countries (FAO, 2008). Most of the water in the basin, especially the Su river, is used for agricultural purposes with little use oriented for industrial, domestic and lesser purposes [Figure 20]. Accordingly, the irrigated lands in the basin increased largely to reach nearly 300,000–350,000 ha

distributed according to the following percentages: approximately 58% in Syria, 36% in Turkey and 6% in Lebanon (FAO, 2008).

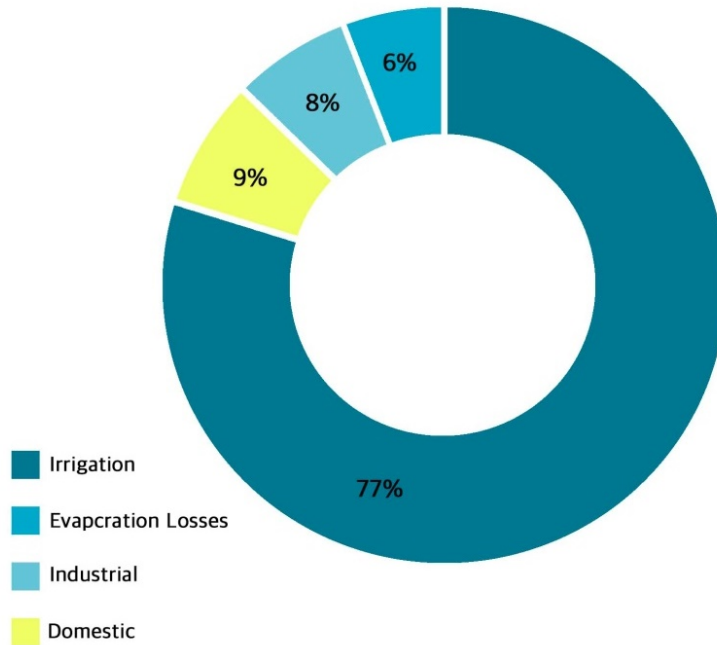


Figure 20: River water usage distribution (Source: adopted from UN-ESCWA and BGR, 2013).

2. Population

Various archaeological sites are located in the Orontes basin from the south to the north and have been occupied continuously from the day they have been established. These sites are; the city of Baalbek (Heliopolis) and the Neolithic site of Laboue in Lebanon, the cities of Kadesh (Tall Nabi Mindu), Emese (Homs), Qatna (Al Mashrafah), Arethusa (Ar Rastan), Epiphany (Hama), Nasriyah (city of the Bronze Age now abandoned), Larissa (Muhradah), Apamea (Qalaat al Mudiq) in Syria and Antoch (Antakya), in Turkey, capital of the Roman province of Syria (Al Dbiyat, 2015). It was estimated that the population in the Orontes basin reached close to 6 million inhabitants with the majority concentrated in the main two Syrian urban centers; Homs and Hama. The distribution of the population in the basin was estimated in

2011 as follows; 380,000 inh (6%) in Lebanon, 4.20 million inh (69%) in Syria and 1.48 million inh (24%) in Turkey (Al Dbiyat, 2015). These percentages decrease in mountains and arid zones where the population becomes less than 50 inh per km² [Figure 21] (Al Dbiyat, 2015).

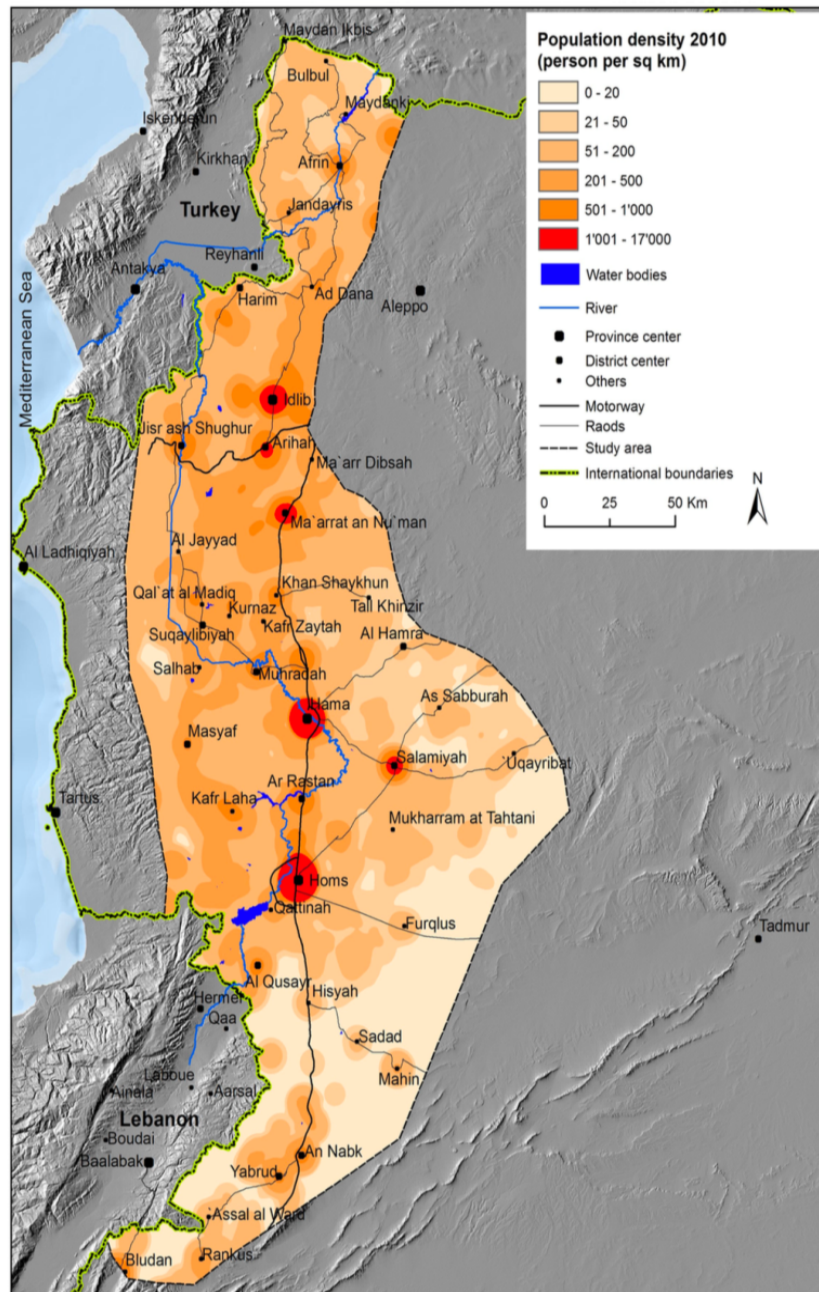


Figure 21: Population density in the basin (Source: Münger et al., 2014).

3. Agriculture and irrigation water

According to statistics, the Orontes basin used to provide almost a quarter of the agricultural production in Syria and is considered the third in the industrial sector. The availability and easy access to water resources in the basin drove various pilot projects, both agricultural and industrial, to take place in the basin. This resulted in an increase of the population density in the region [Figure 22] (Haj Asaad & Jaubert, 2014).

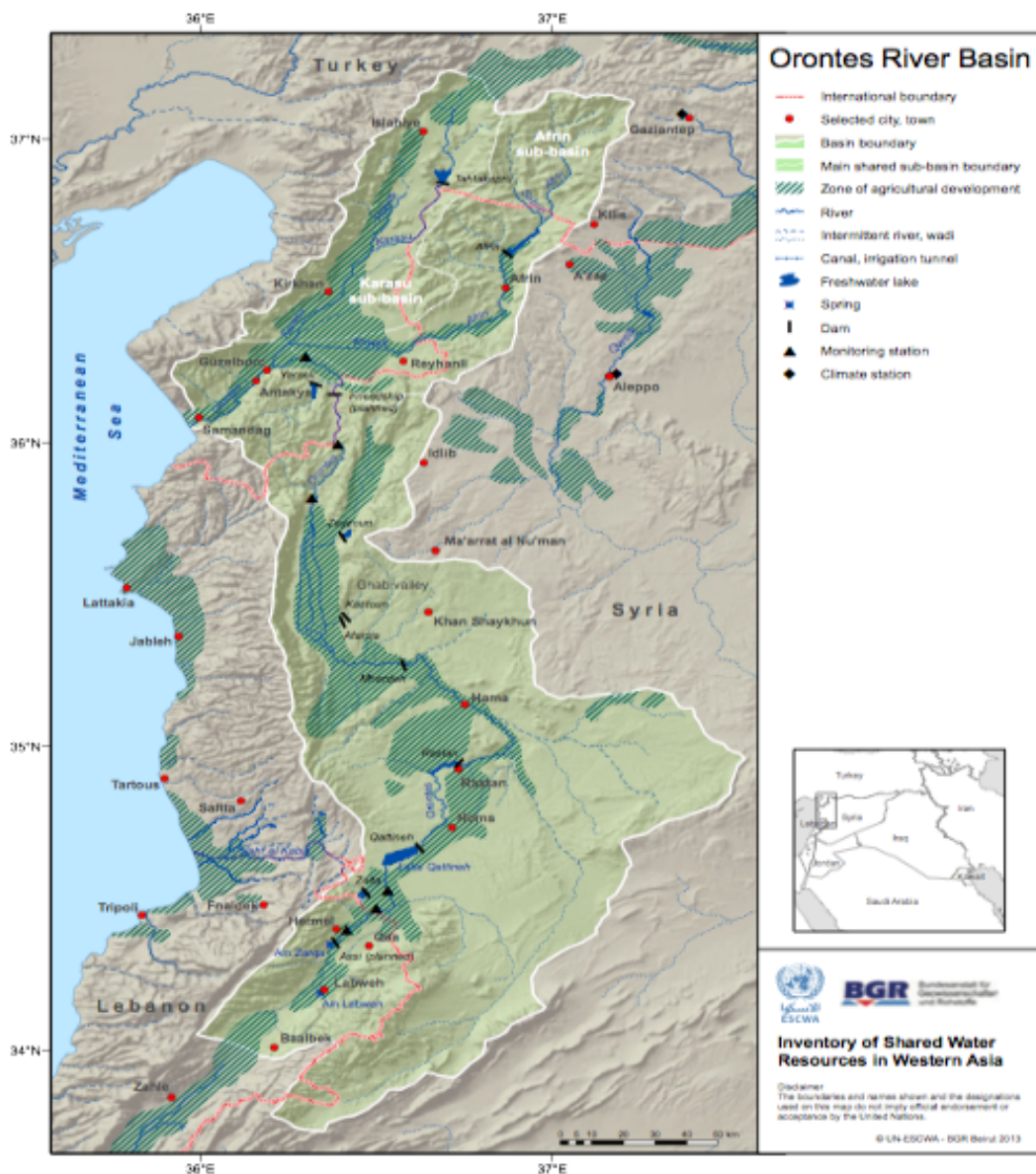


Figure 22: Water bodies in the Orontes basin (Source: UN-ESCWA and BGR, 2013).

Prior to the Syrian spring, the Orontes basin was the producer of 25% of the agricultural production in Syria. More than 50% of this production was cultivated in 295,000 hectares of irrigated lands by surface or ground-water resources (Haj Asaad & Jaubert, 2014). Around 134,590 hectares of these irrigated lands are subject to state-managed irrigation schemes distributed according to 6 areas as shown in the following table [Table 10] (Münger et al., 2014).

Irrigation schemes	Area (Hectares)	Main productions
Al Qusayr	6,800	Apricot trees, apple trees, vegetables
Homs - Hama	20,190	Wheat, sesame, vegetables
Al Hulah	2,200	Wheat, potatoes, vegetables
Al Asharinah & Al Ghab	65,568	Wheat, cotton, sugar beet, groundnuts, vegetables, sesame, potatoes, vegetables
Ar Ruj	15,500	Wheat, cotton, sugar beet, sesame, potatoes, vegetables
Afrin	24,900	Apricot trees, pomegranate, vegetables
Total	134,590	

Table 10: Main irrigation schemes in the Orontes basin (*Source: Münger et al., 2014*).

The Orontes basin exposes to the Mediterranean climate with warm and rainy winters and moistly arid summers. Mostly, the mean of temperature in the basin is around 18 Celsius degree and it receives around 67% of its rainfall during the winter. Furthermore, in 2012 and 2013, it was estimated that the mean of annual rainfall in the basin reached around 1032 mm and 625 mm respectively (Odemis et al., 2016).

The agricultural production in the basin is mainly; (1) field crops such as wheat, cotton, corn, potatoes, and chickpeas, (2) vegetables such as tomatoes, green peppers, cucumbers, carrots, and cabbages, and (3) fruits [Table 11] (Odemis et al., 2016). More importantly, the basin is considered one of the most important regions in

tree production in Syria with almost 47,100 hectares of orchards, olive groves in particular [Figure 23] (Münger et al., 2014).

Table 3 – Yields of field crops, fruits, and vegetables mostly grown in the basin in 2013					
Field Crops (1374961 da)		Fruits (843787 da)		Vegetables (329052 da)	
Name	Yield (ton)	Name	Yield (ton)	Name	Yield (ton)
Wheat	313000	Orange	302000	Tomato	158000
Cotton	203000	Tangerines	277000	Pepper	55000
Corn	214000	Olive	158000	Cucumber	58000
Potato	44000	Grape	72000	Carrot	60000
Chickpea	715	Lemon	38000	Cabbage	16000

Table 11: Products grown in the basin in 2013 (Source: Odemis et al., 2016).

Up till the 1970s, various agrarian reforms and centralized policies were issued and has benefited irrigated lands in the Orontes basin. As a result, irrigated lands extended to reach 290,000 hectares, equal to the irrigated area in the Euphrates basin (Jaubert et al., 2015). However, by the end of the 1970s, the Euphrates basin has received the priority for additional irrigation project, whereas the Orontes basis received less attention in the past four decades (Haj Asaad & Jaubert, 2014).

Throughout time, the Orontes basin in Syria was exposed to various factors that played a major role in decreasing the amount of its cultivated lands and, in turn, affecting its contribution to the total Syrian agricultural production, which is 25% (Haj Asaad & Jaubert, 2014).

The first factor is related to the extensive urban growth due to the increase in population density. The second factor affecting the basin lands is more recent, caused by the ongoing Syrian civil war which reached every Syrian city, affecting it directly and indirectly.

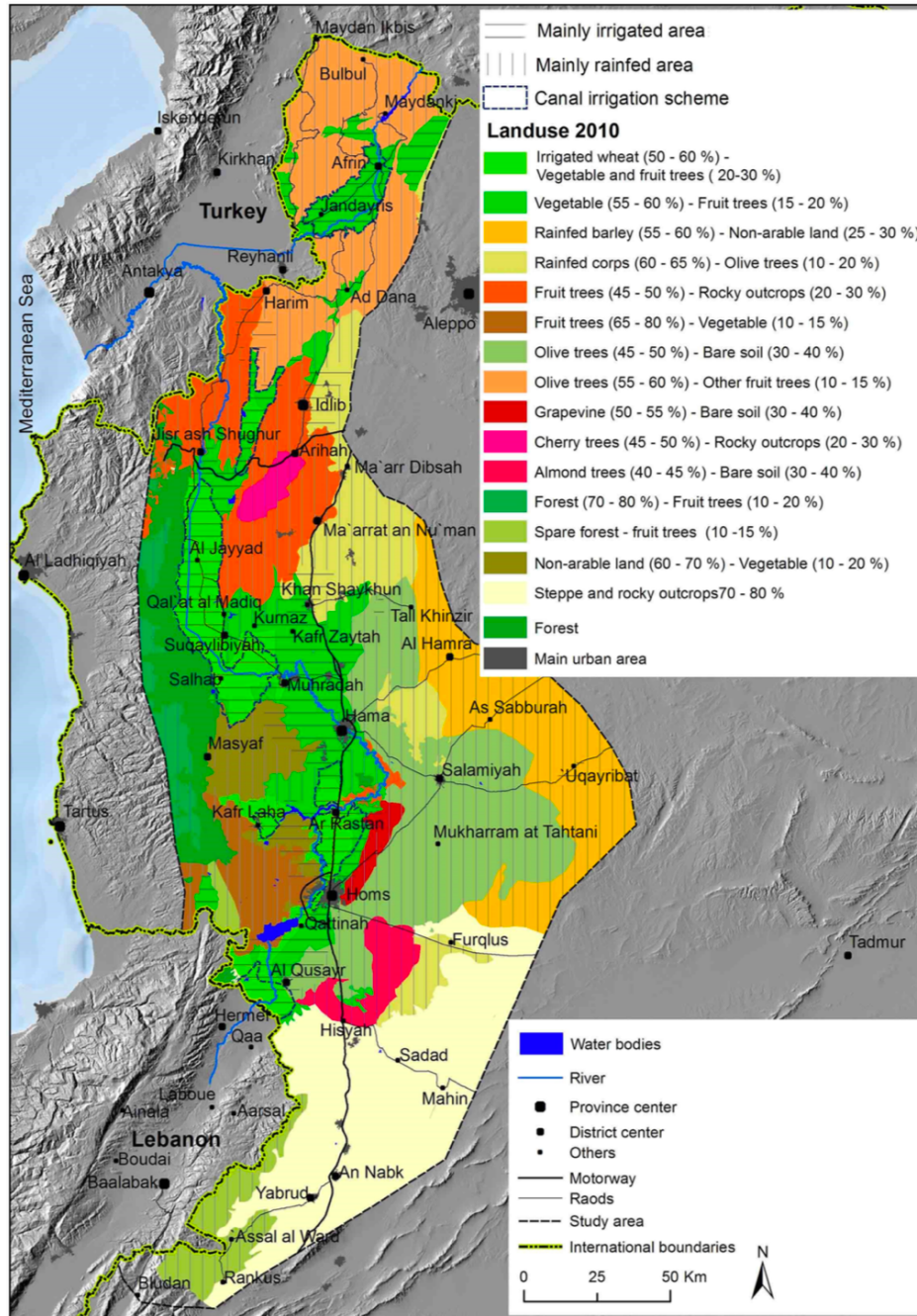


Figure 23: Agriculture land use map (Source: Münger et al., 2014).

4. Urbanization in the Orontes basin

Particularly since the 1950s, the Orontes Basin in Syria has gained its title as the most densely populated area in the country (Al Dbiyat, 2015). The increase in the

population rates was due to the numbers of migrants flowing the region seeking job opportunities, attracted by the massive agricultural and industrial projects such as Al Ghab irrigation scheme (Al Dbiyat, 2015). Consequently, the Orontes basin was subject to extensive urbanization rate leading to major loss of arable lands (Al Dbiyat, 2015). More importantly, the unregulated consumption of the water resources and the huge expansion of industrial and economic projects in the region led to a shortage in water tables, decrease in the amount of ground-water storage which, in turn, resulted in lowering groundwater tables (UN-ESCWA and BGR, 2013).

With the highest percentage of the population in Syria, the Orontes basin considered a prime region in both agriculture and industry, and the river is considered as a key water resource for both activities (Al Dbiyat et al., 2015). Life in the Orontes basin was rural in extensive small settlements within the agricultural plains until it witnessed a massive population growth. Several major urban centers have historically developed along the river, Homs and Hama which embrace around 700,000 and 350,000 inh respectively, as estimated in 2010 (Al Dbiyat et al., 2015). In addition to these two centers, the basin consists of many small and medium cities, a range of industrial activities and most importantly, an extensive stretch of agricultural lands (Jaubert et al., 2015). The Orontes basin became the first region in Syria to witness industrialization. The process started in Homs by the establishment of a sugar factory in 1948 and oil refinery in 1957 (Haj Asaad & Jaubert, 2014). In the 1970s and 1980s, the industrial sector grew and more projects were established in the region such as spinning mills and a large metallurgical complex in Hama as well as a fertilizer production factory near Qattinah Lake (Jaubert et al., 2015). Furthermore, in the 1990s, the private sector took a key role in the industrialization of the basin, particularly in chemical and

pharmaceutical plants. Accordingly, the Orontes Basin in Syria faced a strong population growth (Jaubert et al., 2015).

Homs is considered one of the major dense cities established in the Orontes basin. Accordingly, it will help me elaborate on the role of agriculture production within city context in order to illustrate on the value of agriculture for Homs people, in terms of food production, social activities as well as economic support.

B. City context: the city of Homs

1. Introduction

a. Location and demography

The Syrian city of Homs is located in the center of Syria, 166 km to the north of Damascus, the capital of Syria, along the river of Orontes (Kechichian, 2012). It shares borders with Lebanon and the Mediterranean Sea to the West, Iraq to the east and occupies the main route linking Syria's major cities; Hama, Aleppo, and Damascus among others [Figure 24] (Commins, 2014).

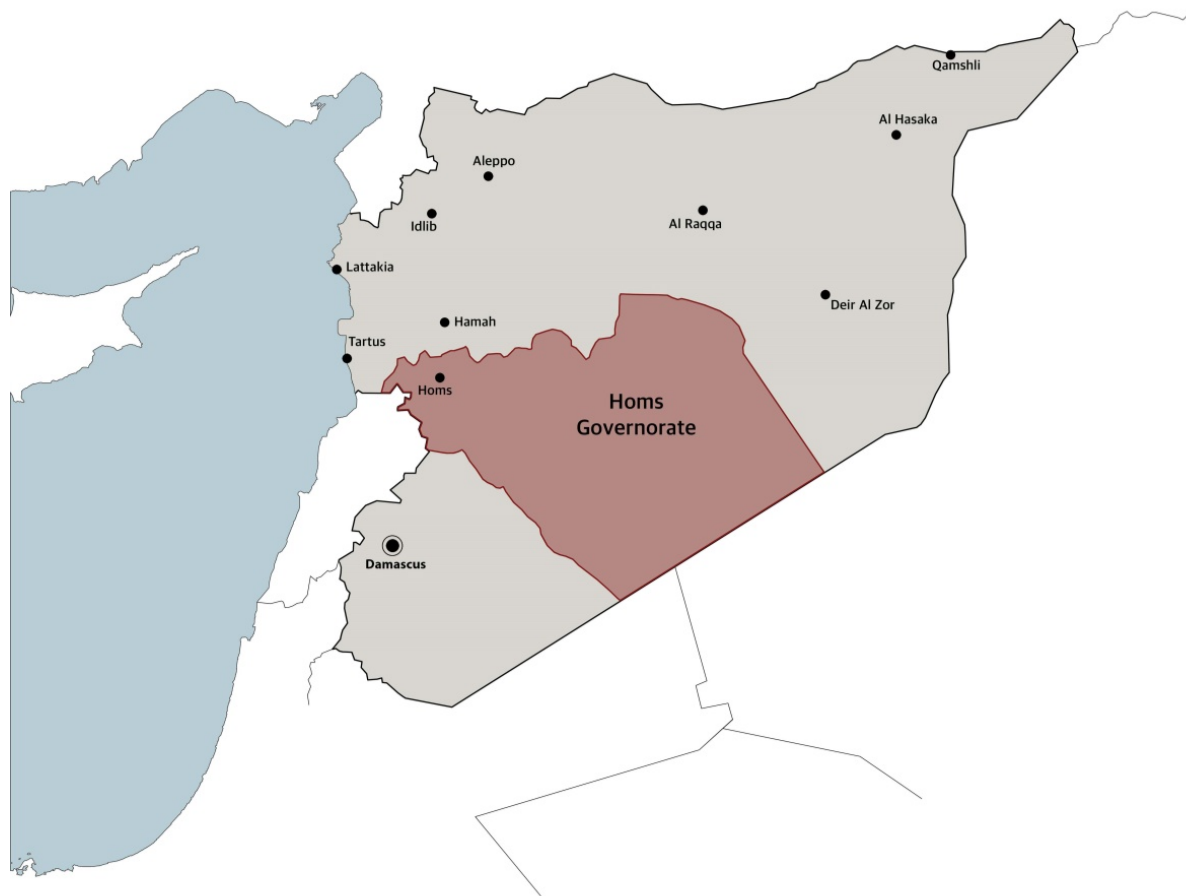


Figure 24: Homs' governorate location (*Source: the author*).

Homs is the largest governorate in the heart of Syria, with the city of Homs as its capital. It expands over an area of (42.226 km²) (GOPA& DERD, 2018). According to statistics, the population in Homs was around 60.000 inh in 1915 and has increased at an average rate of 4.4 % between 1960 and 1980 (Al-Dbiyat, 1999). Furthermore, as stated by the UNDP (United Nation Development Program), the population annual growth of the city, in the last 10 years was estimated at 2.36%, which equals to about 806.625 inh (UN-Habitat, 2014). By 2011, Homs became the third largest city in terms of population, estimated by 1, 803, 000 inh (UN-Habitat, 2014).

b. Social fabric

The disparities between Homs's rural and urban populations in terms of income, health, life expectancy, and social growth as well as Homs's strategic location, in the middle of Syria and the economic development of the city are considered major factors driving migrants from countryside areas to inhabit the city. This, as a result, changed the demographic structure and social fabric in the city (Homs' City Council, 2007).

Homs has always been known for its social solidarity and coherence. It is the city where people from different faiths, Christians and Muslims, among others tried to live in peace for years (The Syria Institute, 2017). Therefore, it was known as “*a diverse city*” (The Syria Institute, 2017, p.17); with a majority of Sunny Muslims occupying the eastern, western and northern areas, around 10% Christians occupied the old city, and around 25% were Alawite in the south-eastern areas [Figure 25] (BBC, 2015).

Sectarian distribution:

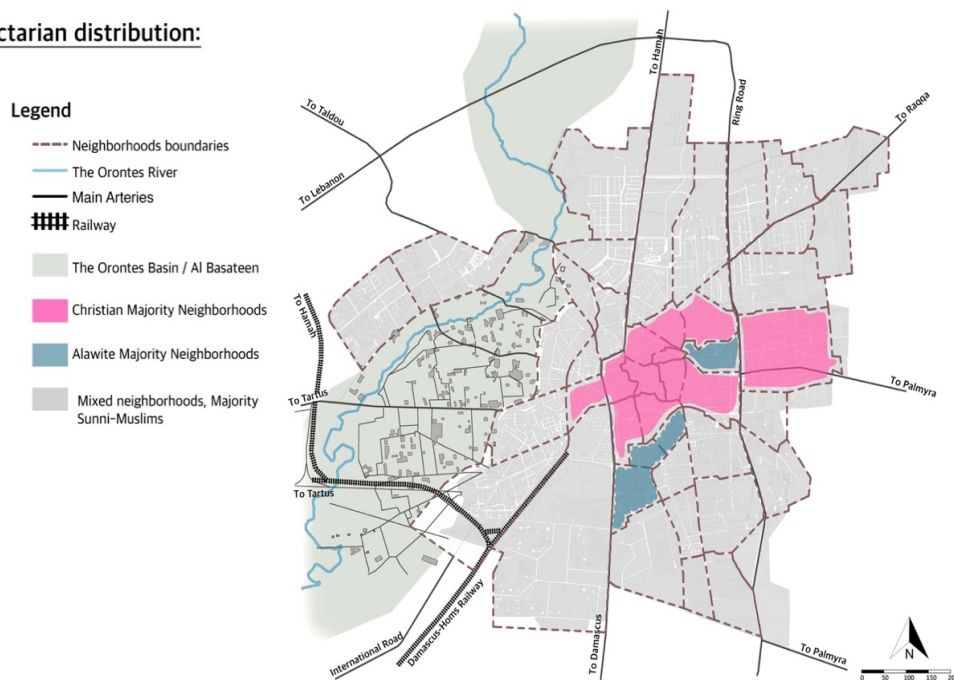


Figure 25: Social fabric distribution (Source: the author).

c. City expansion

Homs, or Hims in Arabic, is an ancient city dates back to the year 2300 B.C (Al-Dbiyat, 1999), occupying the site of ancient ruins of what was known as Emesa during the Roman period (The Editors of Encyclopædia Britannica, 2014). The city of Homs reflects the old history of Syria's millennia with Aleppo to the north and Damascus to the South (Van Rompay, 2012).

Emesa, which refers to the god sun, was ruled by a number of "priest-kings" through the domination of the Roman Empire. It played a massive role in spreading the Roman Empire. Shortly, "Christianity won the day" and Emesa became the origin city of Roman emperors that is inhabitant largely with Christians (Van Rompay, 2012). Later on, by the year 636, Homs was taken by the Arab Muslims Army led by the "famous general Khalid Ibn al-Walid" (BBC, 2015), whereas its large Christian inhabitants were eliminated during the rebellion of 855. In 1516, the city passed into the Ottoman hands where it remained for about 400 years (The Editors of Encyclopædia Britannica, 2014). The old city of Homs was the first area to be established and inhabited, in 1800, built around the citadel and spread over 120 *ha* (Homs' City Council, 2007). It consisted of a number of neighborhoods such as; Bab Tadmour, Bab Aldreab, in addition to Al-Hamidyeh quarter to the north, which was and still, in most, a huge settlement for Christian communities, close to the oldest church in the city [Figure 26] (Tai, 2014).

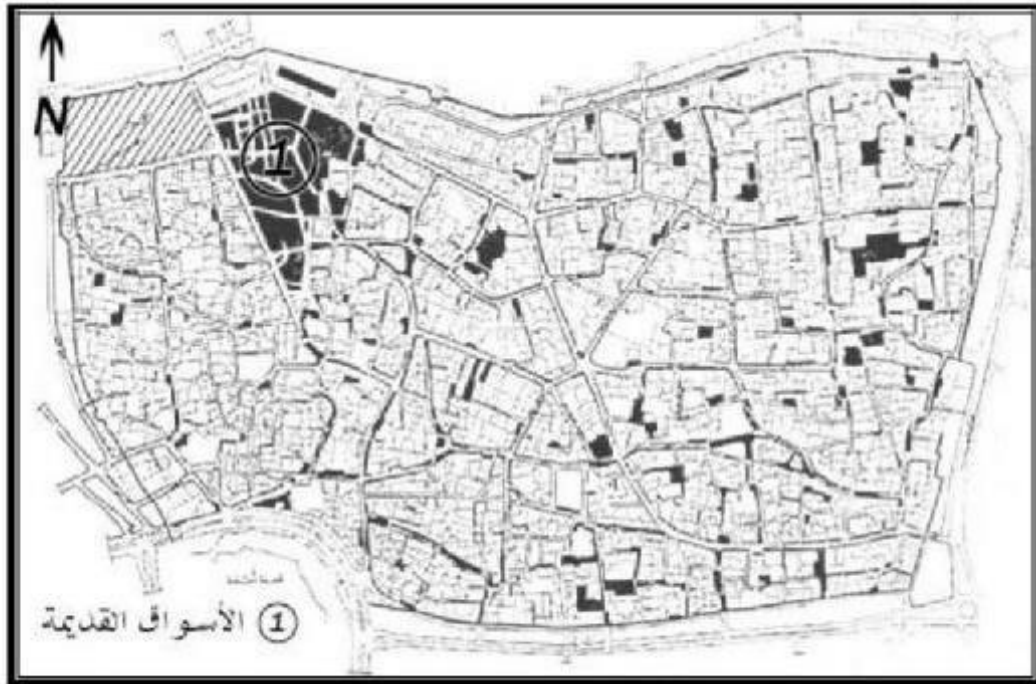


Figure 26: The old city of Homs (Source: Homs' City Council, 2007).

In 1946, the city of Homs won its important role as a trading center due to its significant central location, in the center of Syria, and its economic flourishing (Al-Dbiyat, 1999). Accordingly, the old city became overcrowded with population rising which reached around (100,000 *inh*) and needed a new master plan, paving the way for a massive expansion of the old city outside its wall circumference (Homs' City Council, 2007). The expansion involved the initiation of transportation lines, as in modern railways and roads, that links the city of Homs with other parts in Syria [Figure 27] (Reilly, 2017).

Homs evolved and expanded rapidly in the form of an oil stain, extending over an area of 4200 *ha* (Al-Dbiyat, 1999), however, it maintained its central design where the commercial and economic activities, the old and new clock squares occupies the central area of the city in form of an economical district (Al-Dbiyat, 1999)

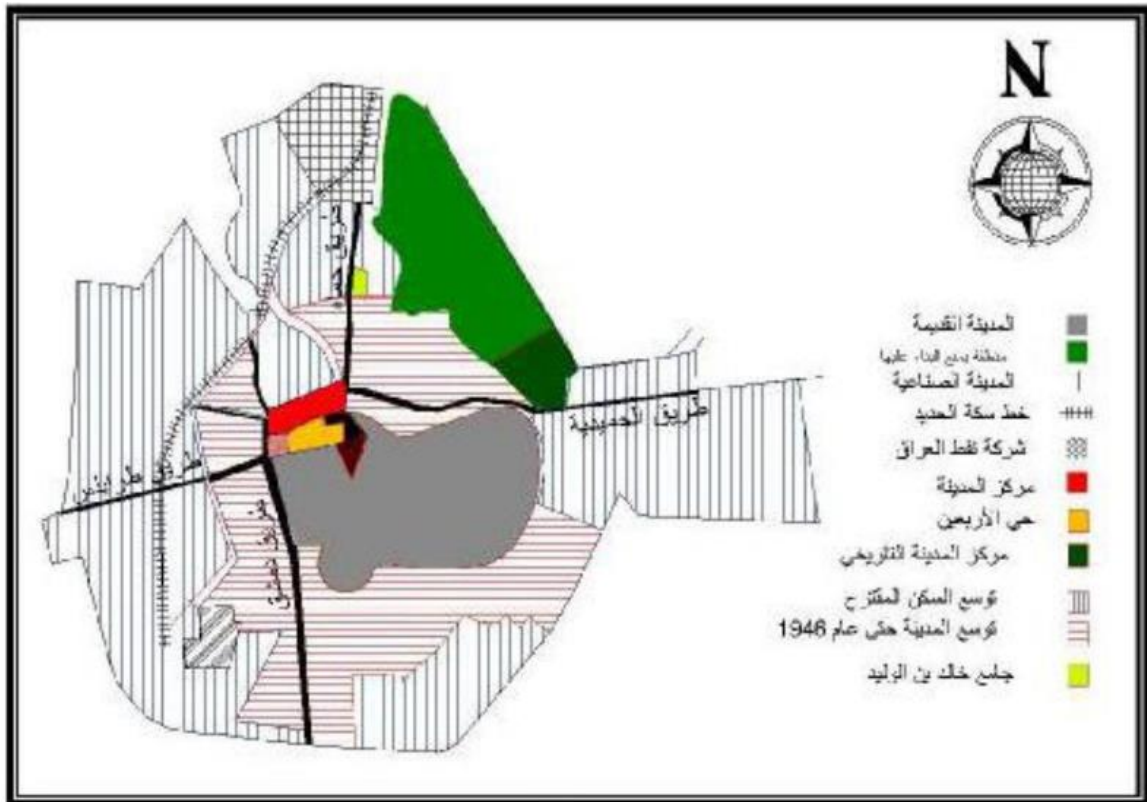


Figure 27: City expansion outside the old city wall (Source: Homs' City Council, 2007).

Later on, Homs has expanded largely outside the old city walls and became a hugely diverse community of around 36 neighborhoods (UN-Habitat, 2014). To the northern parts of the old city lies Al-Khalideh neighborhood which embraces the old city as a bracelet, to south lies the new modern neighborhoods such as Jub Al-Jandali, Bab Al-Sebaa, Al-Mrejeh, Al-Nozha, Ekrema, and Karm Al-Zayton and to west arise the fancy neighborhoods, Al-Kosour, Al-Gouta, Al-Inshaat, Al-Hamra and Al-tawzea Al-Ijbari [Figure 28] (Tai, 2014).

City neighborhoods

Legend

-  Neighborhoods boundaries
-  The Orontes River
-  Main Arteries
-  Railway
-  The Orontes Basin / Al Basateen
-  City neighborhoods



Figure 28: City neighborhoods (Source: the author).

In 1989, Homs' city council has requested a serial of development master plans for the city in order to overcome the infinite increase in population statistics in the coming years, till 2020. Accordingly, a new master plan was produced after years of research and study which divided the city into two areas [Figure 29] (Homs City Council, 2007):

- 1- The first zone: includes the current status of the city and its growth till 1995.
- 2- The second zone: includes the new development zones oil 2020.

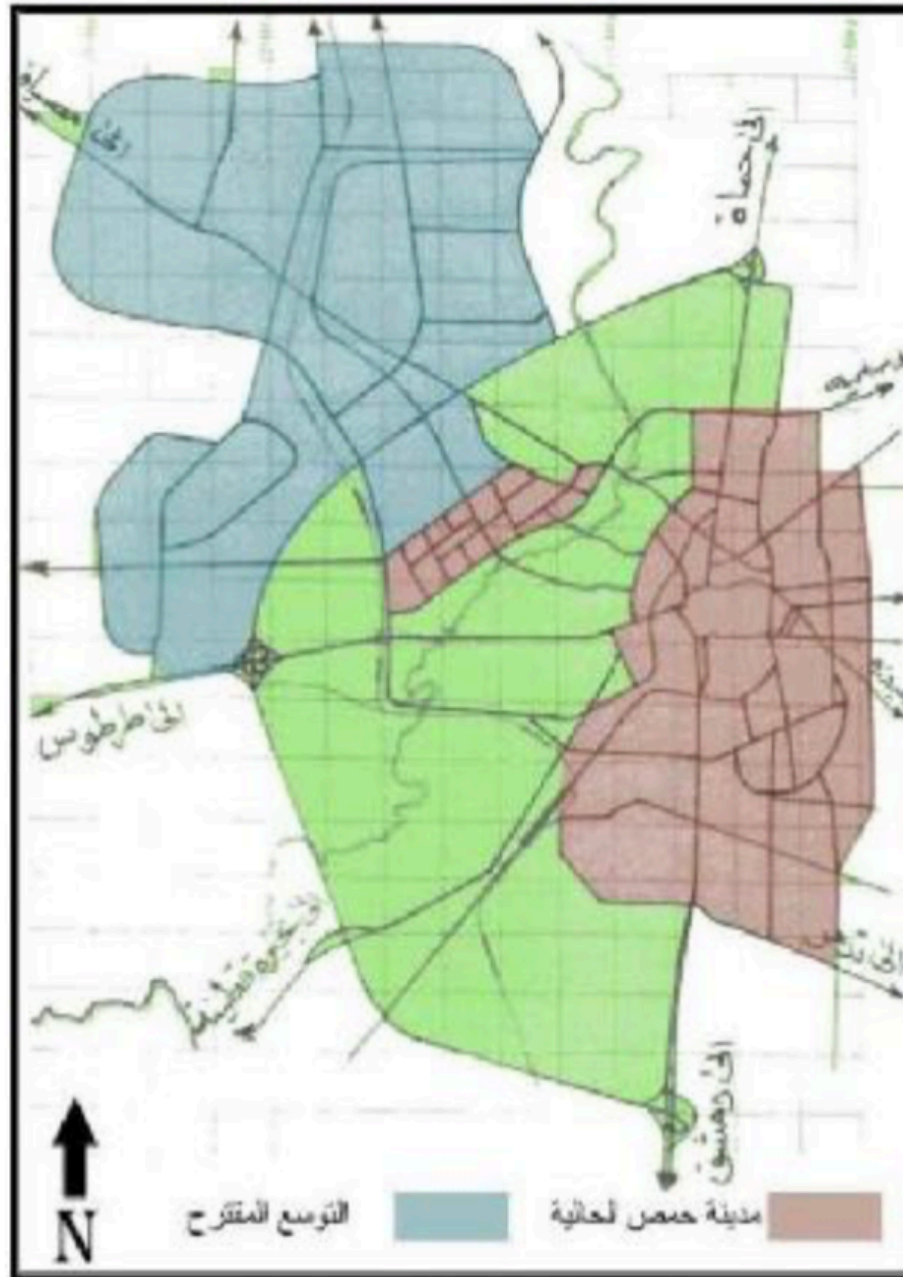


Figure 29: Homs' master plan in 1989 (Source: Homs' City Council, 2007).

By 2006, a new master-plan was proposed and piloted by the city council. This project focused on; (1) redeveloping the areas in terms of rehabilitating the heritage and historical buildings, (2) reorganizing the street networks, repairing the neighborhoods

fabric and public services and (3) reviving some of the heritage urban spaces that were demolished [Figure 30] (Homs city council, 2007).



Figure 30: City of Homs prior to conflict (*Source: UN-Habitat, 2014*).

Although these development projects were conducted as a tool to serve the city and its inhabitants, however, by the year 2010, these projects took new paths and trends leaving the city unappreciated (The Syria Institution, 2017). In 2009, a cooperation between local and foreign investors championed back then by the city-Mayor Iyad Ghazal, piloted a redevelopment initiative called "Homs Dream". The main concept of this project was to demolish the old neighborhoods and the center of the city and replace them with a new modern urban framework including commercial buildings, luxury residential towers that are unaffordable by local people [Figure 31] (The Syria Institution, 2017). Accordingly, "Homs Dream" has shortly transformed to become a city nightmare and a tool for displacement mobility, resisted by the city's inhabitants who were affected directly and indirectly with these pilot projects (The Syria Institution, 2017).

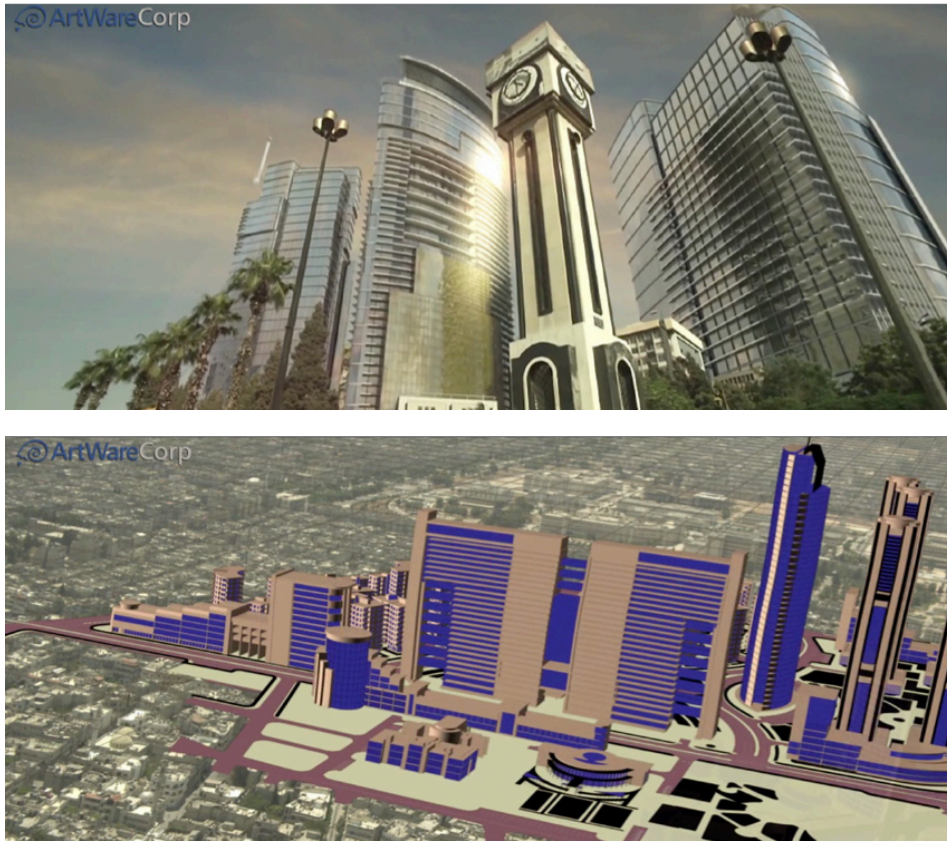


Figure 31: Homs Dream project, city center (*Source: The Syria Institution, 2017*).

Unfortunately, "Homs Dream" was more or less a medium paving the way for the sectarian conflict in the city of Homs. The project involved redevelopment plans of major parts of the city, avoiding interventions in any of the Alawite neighborhoods, introducing a new purpose of these development project, in which, they were seen as a tool *"to change the demographic makeup of Homs city"* (The Syria Institution, 2017, p.19).

d. Neighborhoods typology and urban fabric

Homs is more like a large village, composed of different neighborhoods with distinctive characters based on the social class, creed and economic power (Al-Sabouni, 2016). Accordingly, Homs can be divided into 5 main characteristic typologies [Figure 32]:

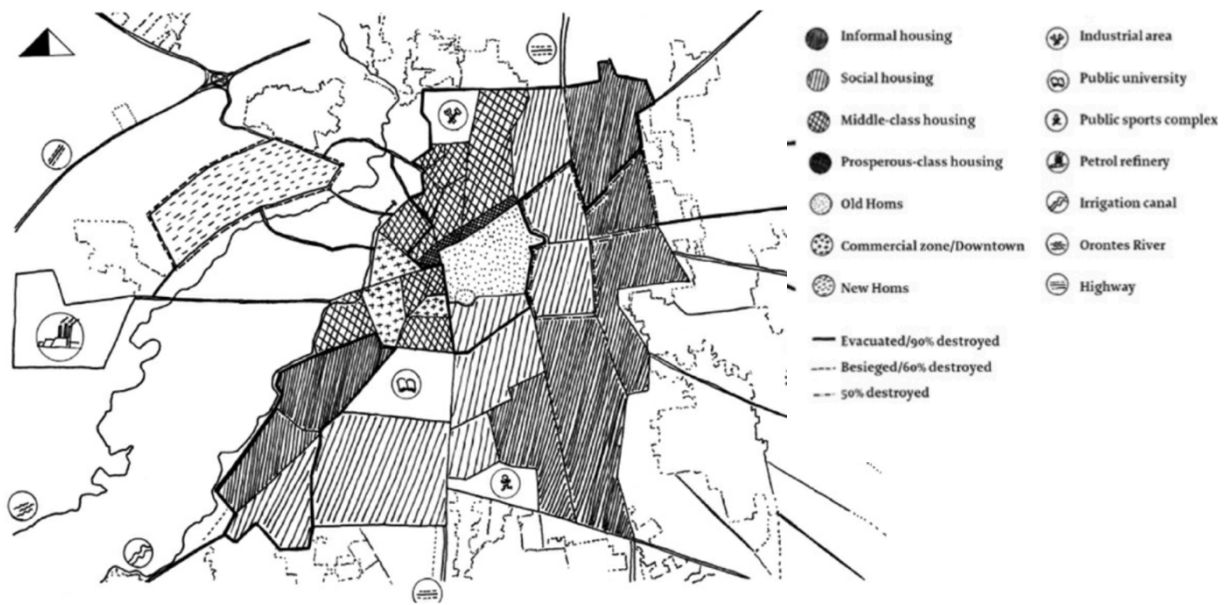


Figure 32: Homs neighborhoods' typology (Source: Al-Sabouni, 2016).

(1) The old city of Homs, which is considered as the core of the city and the place of its cultural heritage [Figure 33].



Figure 33: The old city of Homs (Source: Pinterest).

(2) The second characteristic is represented in the new city center which was developed as a mixed-use area as a continuation to the old city architectural fabric, such as of the old city tiled pitched roofs and narrow arched windows, however, not long after, this fabric mingled with modern architecture that has no architectural sense [Figure 34]



Figure 34: Mixed architectural fabric (*Source: Pinterest*).

(3) The residential neighborhoods, inhabited by middle- and upper-class residents. Buildings in this sector are ranging from modern “*to an anti-architectural nothingness*” [Figure 35] (Al-Sabouni, 2016).



Figure 35: Middle and upper-class neighborhoods (*Source: Pinterest*).

(4) The social housing neighborhoods; which represent a more developed type of slums, with concrete buildings and proper infrastructure.

(5) The new Homs, which represents the new of the city to the west of Al Basateen area. This area is mainly residential, with buildings ranging from two to 12 stories [Figure 36].



Figure 36: New Homs, Al Waer (*Source: the author*).

Over the years, Homs was the location of various civilizations as in; Greeks, Romans, and Ottomans turning the city into a museum of ancient treasures manifested in churches, old buildings, souks and mosques (Tai, 2014). These civilizations have introduced and shaped Homs' identity, culture, political religious and landscape (Azzouz, 2017). For instance; the Great Mosque of al-Nuri, which originally was a temple for Roman sun god El-Gabal, and later on became a church and then converted into a mosque, Umm el-Zinnar church which dates back to early Christian times, the minaret of Qa'ab el-Ahbar in Bab Drib and Al souk al maskouf as well as Khaled Ibn Al-Walid mosque (Tai, 2014).

The essential fabric of Homs' Architecture is mainly symbolized in Alblaq architecture, in which, buildings were constructed by rows of black and white bricks

created alternately, dating back to the Mamluk era, and accordingly, Homs is widely known as the "city of black and white stones" [Figure 37] (Azzouz, 2017).



Umm el-Zinnar church

Khalid bin Al Walid mosque

Figure 37: Architectural fabric in Homs (Source: Pinterest).

e. Economic activities

Homs government occupies a dominant central location in the heart of Syria, therefore it renowned its importance as the core of industrial and commercial activities in the country (UN-Habitat, 2014). However, the importance of Homs government is reinforced by its capital, Homs, which is situated on a trading path between Aleppo and Damascus. More importantly, Homs has always been considered the pass between the interior steppe areas to the east and Lebanon Mountains and the Mediterranean Sea to the west (Commins, 2014). Given the previous, Homs' economy was flourishing, depending on various sectors; Industry and manufacturing, agriculture, trades, and public services [Figure 38] (Commins, 2014).

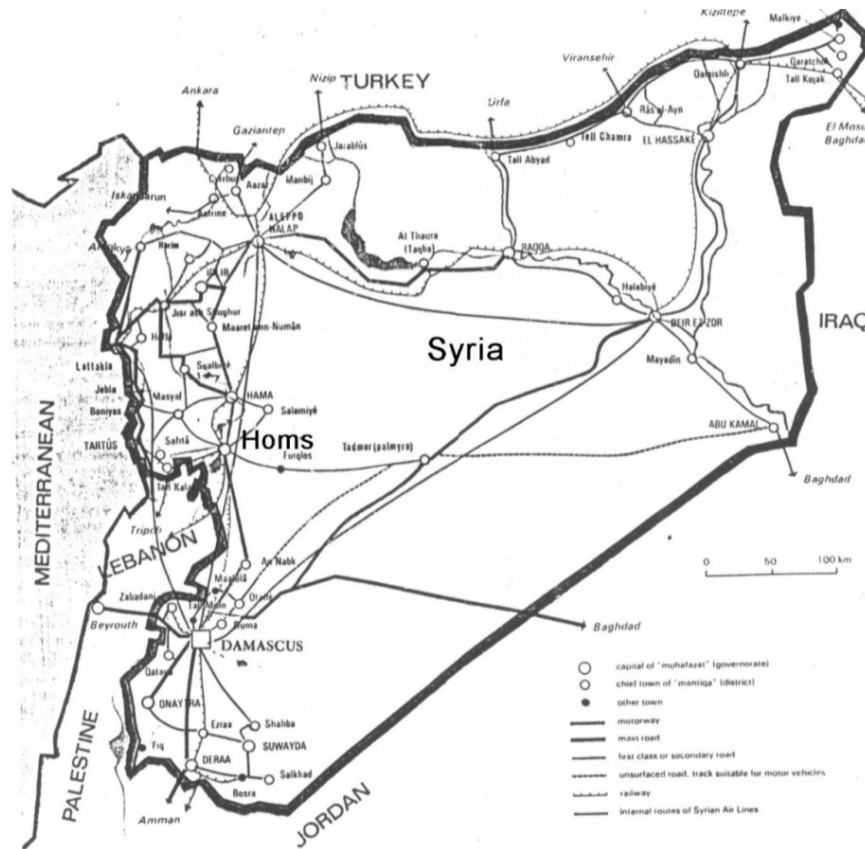


Figure 38: Homs as the core of trading and transportation pass in Syria (Source: *Homs' City Council, 2007*).

Industry: Homs witnessed an increase in its labor force from 20% to 30% between 1965-1990 (Commins, 2014). This increase considered as an indicator of Homs' significant part in the growth of Syria's economy. More importantly, many public industrial enterprises are located in and around the city including; a fertilizer manufacturer, phosphates mines near Palmyra, the country's largest oil refinery which was opened in 1959, a massive sugar factory, power plant and several growing private industrial sectors (Commins, 2014). Yet, the biggest industrial site in Homs is the Industrial City located in Hasia, which is a huge industrial cluster, extending over an area of around 2,500 hectares (Kassouha, 2014), located 35 km to the south of Homs city (UN-Habitat, 2014). This industrial city contributes to four main industrial sectors:

textiles, food, chemicals and engineering. It was designed to accommodate around 66,000 employees and workers with their families (Kassouha, 2014).

Services: The number of people working in the the public services within Homs has rapidly grown, mainly due to the movement of low-income farmers to the city searching for alternative work.

Additionally, Homs is roughly halfway between Aleppo and Damascus and close to the borders of Lebanon which turned it to an important node that connects Syria's different districts with surrounding countries by rail and roads networks. Moreover, in 1979, a new university campus, Al-Ba'ath University, built up in the southern suburbs (Commins, 2014).

2. Agriculture system in the city

a. Location of arable lands

Homs is located in a fairly flat area but on a volcanic hill, which contributes to its rich agriculture system by providing a rich fertile soil for cultivation. The city mushroomed from the old city which was previously surrounded by a green belt of orchards that grew around the Orontes river [Figure 39] (Al-Sabouni, 2016).



Figure 39: Al Basateen area (Source: <https://www.tripmondo.com/syria/homs-governorate/homs/hayy-al-wa-r-al-jadid/#images-35>).

However, later on, the city expansion overtook most of the agricultural lands around the city of Homs, except for Al Basateen area which still falls under the umbrella of natural preservation [Figure 40].

Agriculture lands within city boundaries



Figure 40: Agriculture lands in Homs (Source: adopted from UN-Habitat, 2016)

More importantly, according to its local agricultural production, the city became an agricultural market hub of various products such as; wheat, barley, lentils, cotton, sugar beets and vines (Commins, 2004).

b. Water infrastructure

The agriculture system in Homs relies largely on three irrigation schemes: (1) the Orontes river, (2) irrigation canal and government projects, (3) modern irrigation methods, and mostly (4) rainfall [Table 12] (Droubi, 2018).

	Irrigation by water resources			Irrigation by modern methods		Total irrigated areas
	Rivers and Springs	Dams and other government Projects	Wells	Sprinkling	Dropping	
2002	3500	32400	27200	7700	6800	77600
2004	6100	22400	28600	7700	6800	71600
2008	3000	27000	22000	7000	12000	71000
2009	3000	25700	22900	6500	12600	70700
2010	2700	27500	22700	6200	13300	72400
2016	2371	14570	20771	5623	14120	57455

Table 12: Irrigation schemes in Homs (*Source: adopted from Central Bureau of Statistics, 2018*).

The location of Homs governorate facing the gap to the Mediterranean Sea between the Syrian and Lebanese mountains helped it receive a high amount of moist air and rainfall, compared with other areas in Syria, ranging from (400-500) mm per year [Table 13] (Münger et al., 2014).

كمية الأمطار الهاطلة حسب المحطات المطرية خلال الفترة (٢٠١٦-٢٠٠٧)
Rainfall According to Rain Stations during (2007-2016)

Item	Rainfall :Mm/Season														المتوسط Average	البيان
	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	كمية المطر: مم/ موسم	(١) جدول				
Sweida	286.5	189	306	352.5	293	409	325	255	343	355	306.6	السويداء				
Salkhad	331	207	311.5	348	296	341.5	288	193	321	235.5	293	صلخد				
Shahba	262	171	268	251.5	271.5	247	300	217	307	307.5	255	شهبأ				
Dar'a	195.8	218.5	275	277	280.8	304	251.5	199	310.6	264	256.9	درعا				
Izra	265.5	226.5	301.3	301	338.5	285.5	316.5	223	290.5	228.5	283.1	إزرع				
Nawa	292.3	275.2	369.5	361.5	375	356	418.5	*	*	*	349.7	نوى				
Al-Sanamein	252	219	211.9	254.9	303.5	235	268	207	250	174.5	244.6	الصنمين				
Quneitra	624.5	484.5	590.5	681	772.5	696	811	320.5	468	486.5	605.4	القيطرة				
Nab'-Assakr	310.2	310.7	338.5	437.3	503.5	453	564	259	*	*	397	نبع الصخر				
Hadar	1000	871.3	690.7	1012.6	1122.5	1105	1276	516.5	902	770	944.1	حضر				
Damascus	201	202.7	178.4	206.8	284.6	168.8	200.8	182	247.9	114	208.1	دمشق				
Quteifeh	160	90.1	82	155.6	220.6	87.4	198.5	164.6	187.5	68.5	149.6	القطيفة				
AL-Nbek	163.4	69.4	70.6	108.3	144.8	49.6	97.9	147	144.7	83.7	110.6	النبك				
Qatana	200.3	153.9	168.1	278	304.9	173.5	197.5	150.5	357.5	157.9	220.5	قطنا				
AL-Zabadani	466.6	451.3	503.2	563.8	635.3	702.4	554.5	225.3	768	293.5	541.2	الزبداني				
Douma	180.4	120.9	172.8	177.2	267	151.3	228.6	82.1	196.9	87.2	175.2	دوما				
Meisaloon	308.3	263.7	240.2	282.7	330	300.1	328.7	213.7	308.1	242.8	286.2	ميسلون				
Homs	334.1	449.4	495.6	382.6	403.6	446.8	*	240.3	420.8	331.2	396.7	حمص				
Arida	1005	1000.5	1039	1013	1060	1074	*	*	1083	804	1039.2	العريضة				
AL-Makharram	352	230	294	236.5	210	287	293	203	286.5	255.5	265.8	المخرم				
AL-Qwseir	234.7	185.7	219.5	242.9	229.8	264	201.7	*	230	226.5	226	القصير				
Palmyra	130.1	53.6	87.9	118.1	76.1	70.7	116.7	152.8	99.1	*	100.6	تدمر				
Hama	341.8	284.7	308	283.8	334.8	463.1	422.6	221.5	377.4	248.3	337.5	حمأة				
Missiaf	1361	1363	1798	1502	1961	2467	2056	717	2037	1381	1695.8	مصيف				
AL-salamiyeh	276	260.7	261.7	231.5	245.6	353.8	319.1	220.6	316.1	216.2	276.1	السلمية				
Wadi Aleyoun	1100	1225	1372	1439	1745	1942	1820	684.2	1607	1035	1437.1	وادي العيون				
Souqeilabiyeh	390	462.7	519	440	564	690	691	214	553	348	502.6	سوقيلية				

* البيانات غير متوفرة لكامل الموسم .

Table 13: Rainfall rate in Syrian cities (Source: Central Bureau of Statistics, 2018).

Irrigation in Homs city depended largely on irrigation schemes fed by Qattaineh dam to the south of the city, which is considered to be one of the oldest dams that are still in functioning status. This dam was the source of water for two main water suppliers; (1) domestic use, and (2) irrigation of around 1,000 ha of lands. Later, during the French Mandate in 1936, the storage of the Qattinah dam was increased to fulfill the capacity of irrigating more than 2,000 *ha*, by 1940. This development involved initiating a 68 km of irrigation canal which was part of a larger network that consists of secondary, tertiary and quaternary canals. Between Homs and Hama, this canal has reached the capacity to irrigate around 20,200 *ha* during late 2000 divided as; 13, 000 in Homs area and about 7,200 in Hama. However, these numbers have declined during the last 15 years by around 15% (Jaubert et al., 2015).

Furthermore, during the late 2000s, the use of illegal wells has spread largely in the Orontes basin especially in the city of Homs which reached approximately 59% (Münger et al., 2014). The uncontrolled overuse of groundwater resources led to a sharp reduction in the springs flow feeding the water networks responsible for industrial, domestic and irrigation schemes supply. More importantly, water pollution has increased due to the sprawl of urban areas and industries towards the basin. This issue of water pollution was partially contained by water treatment solutions [Figure 41] (Münger et al., 2014).

Irrigation in Homs



Figure 41: Irrigation infrastructure in Homs (Source: the author).

c. Role of agriculture in the economy

The commercial and agricultural system in Homs city are integrated sectors that rely largely on each other. It is widely known that products consumed in the city markets originate from Homs' agricultural land, both in terms of food supply of fruit and vegetables as well as handcraft materials such as textile. Accordingly, it is important to map the locations of city markets and commercial areas in order to guide our intervention for the future of the city.

The agriculture lands in the surrounding of Homs are widely known for their production of grapes, which are used in the liqueur industry such as; arak, nectar wine and red wine (Kassouha, 2012).

The agricultural system in Homs was affected by many factors such as urbanization, climate change, and the overuse of water for irrigation, resulting in pressure on available water resources and loss of agricultural lands (Yaghi et al., 2016).

d. Loss of agricultural lands

Homs governorate is considered an important part of the Syrian extensive agricultural system, with a contribution to 7% of the total Syrian agricultural production [Table 14] (Central Bureau of Statistics, 2018).

	Crops and vegetables	Fruit Trees	Total
Homs	171253	351922	523175
Sweida	75519	158073	233592
Dar'a	340886	166698	507584
Qunitera	7414	16164	23578
Damascus	256034	272818	528852
Aleppo	980586	287506	1268092
Hama	428727	146982	575709
Al Ghab	272735	18726	291461
Idlib	249069	188699	437768
Tartus	207922	444940	652862
Lattakia	87720	1040362	564041
Al Raqqa	569950	22134	592084
Dair Al zour	185925	9166	195091
Al Hasaka	1590021	1613	1591634

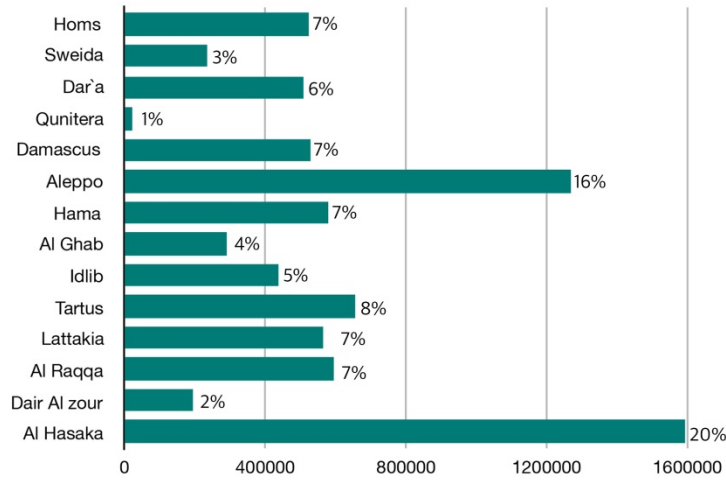


Table 14: Agriculture production in Syria per governorate (Source: Central Bureau of Statistics, 2018).

This system was interrupted by extensive urban sprawl during the last 30 years resulting in several waves of land transitions as well as putting pressure on water resources due to the increase in water usage for industrial, domestic and agricultural purposes (Yaghi et al., 2016). Several agricultural lands in Homs governorate, in general, and in the city of Homs in particular were subject to a reforming strategy in order to expand the residential, commercial and industrial services. This urban expansion led to a noticeable reduction in the percentage of agricultural lands in the governorate. For instance, in 2002 it was estimated that Homs

governorate consisted of 3,089,000 hectares of agricultural lands out of the governorate total area, which is around 4,092,201 hectares, whereas buildings and services consisted only 89000 hectares. With the construction of more buildings and facilities in the governorate, agricultural areas dropped in 2016 to reach around 3,087,595 hectares [Table 15] (Central Bureau of Statistics, 2018).

	Arable Lands			Non-arable Lands			Meadows and Pastures	Areas as in Forests	Total Agricultural areas
	Cultivated	Uncultivated	Fallow	Buildings and Facilities	Rivers and Lakes	Rocky & Sandy Lands			
2002	278,000	0	59,000	89,000	5,748	909,000	2,699,000	53,000	3,089,000
2004	295,000	0	47,000	90,000	5,748	906,000	2,692,000	55,000	3,089,000
2008	301,000	0	45,000	92,000	5,748	902000	2,689,000	57,000	3,092,000
2009	310,000	0	39,000	93,000	5,748	902000	2,685,000	57,000	3,091,000
2010	304,000	0	45,000	93,000	5,748	902000	2,685,000	57,000	3091000
2016	347,596	0	-	94,920	5,748	903574	2,683,165	57,198	3087959

Table 15: Agriculture areas in Homs governorate (*Source: adopted from Central Bureau of Statistics, 2018*).

In a similar context to Homs governorate, Homs city witnessed extensive urbanization and loss of agricultural lands over the years. Homs evolved and expanded rapidly in the form of an oil stain, taking over several agricultural lands, used to embrace the old city. In sequence to this city expansion and the construction of unplanned small facilities, both industrial or residential, Homs faced a high percentage of agricultural land loss [Figure 42] (Habib, 2005).

The major urbanization started in 1970, with the expansion of the city outside the walls and the construction of many villages. Accordingly, it was estimated that Homs city covered an area of around 775 ha, in addition to 76.20 hectares of villages around the city boundaries (Habib, 2005).

Loss of agricultural lands in 1970-1991-2017

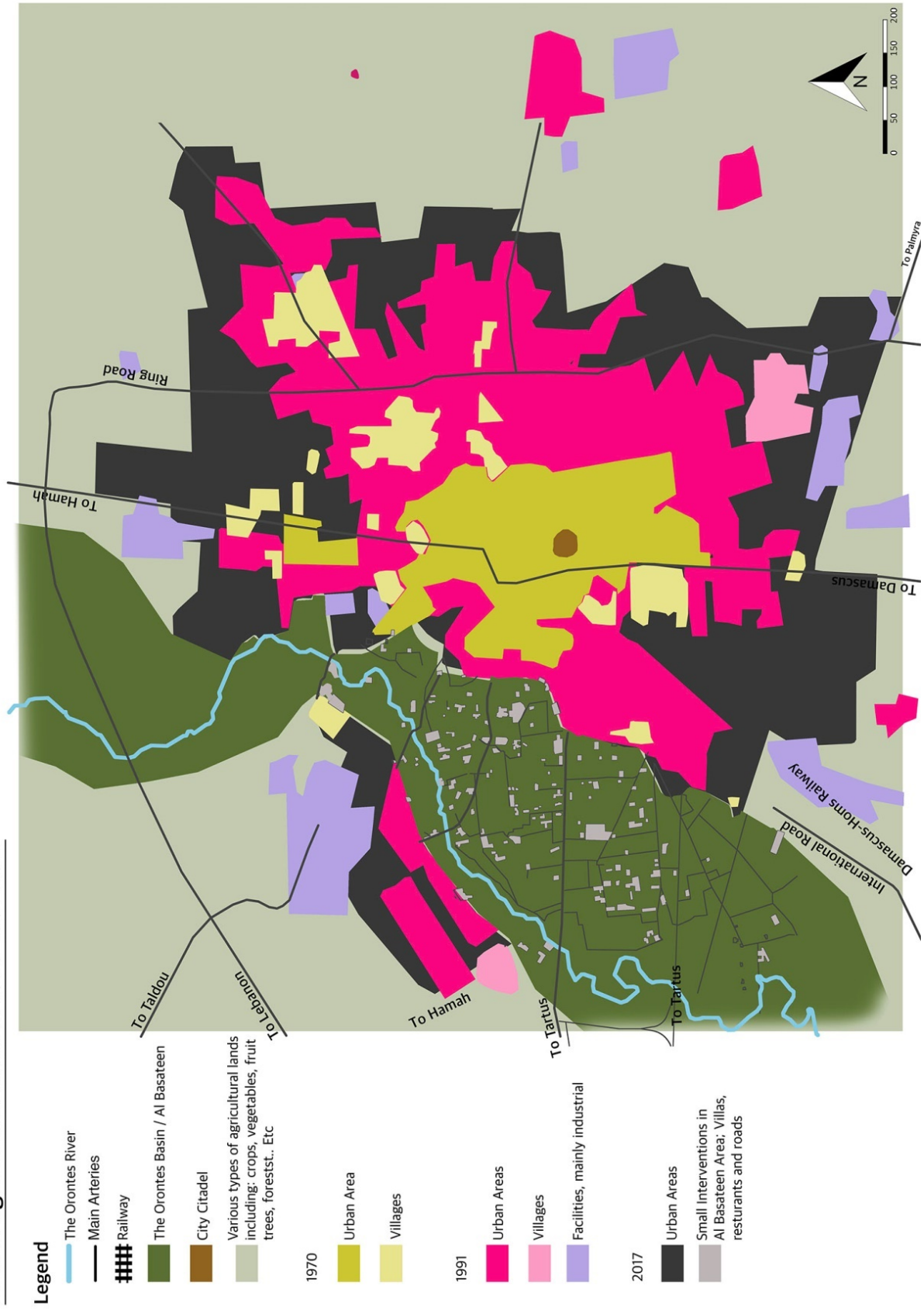


Figure 42: Loss of agriculture lands (Source: adopted from Habib, 2005).

By 1990, the urban area expanded to embrace surrounding villages. The total area of Homs urban area increased to reach around 2347.91 hectares, whereas the villages area dropped to around 48.40 hectares (Habib, 2005). Furthermore, this period also witnessed a flourishing in the industrial sector, resulting in the construction of many industrial facilities (Jaubert et al., 2015).

Later on, the population in Homs increased reaching around 800,000 (UN-Habitat, 2014) and the need for more residential areas was needed. Consequently, the urban area of Homs expanded to cover an area of almost 3318 hectares (Homs Municipality, 2017).

The expansion of the city mainly impacted the agricultural lands located to the North-Western and Southern peripheries of the old city, which were categorized as the most suitable lands for agriculture (Habib, 2005). In 1990, land allocated for agricultural activities dropped by 57,27 % and it will be exposed to more reduction over years due to the unplanned urban sprawl.

C. Neighborhood context: Baba Amer neighborhood and Al Basateen area

1. Baba Amer neighborhood

a. Location and demography

Baba Amer was one of the areas constructed by the urban growth in the 1990s and has lost its role as the land of agricultural production. Nowadays, it is considered the largest urban neighborhood in Homs in terms of population and area. The neighborhood started as small village branching from the Orontes valley to the western peripheries of the city [Figure 43] and shortly became a large area with around 243 *ha* (Homs Municipality, 2017)

Baba Amer neighborhood

Legend

- Neighborhood boundaries
- The Orontes river
- Main Arteries
- Train railways
- The Orontes basin/Al Basateen
- City neighborhoods
- Study area

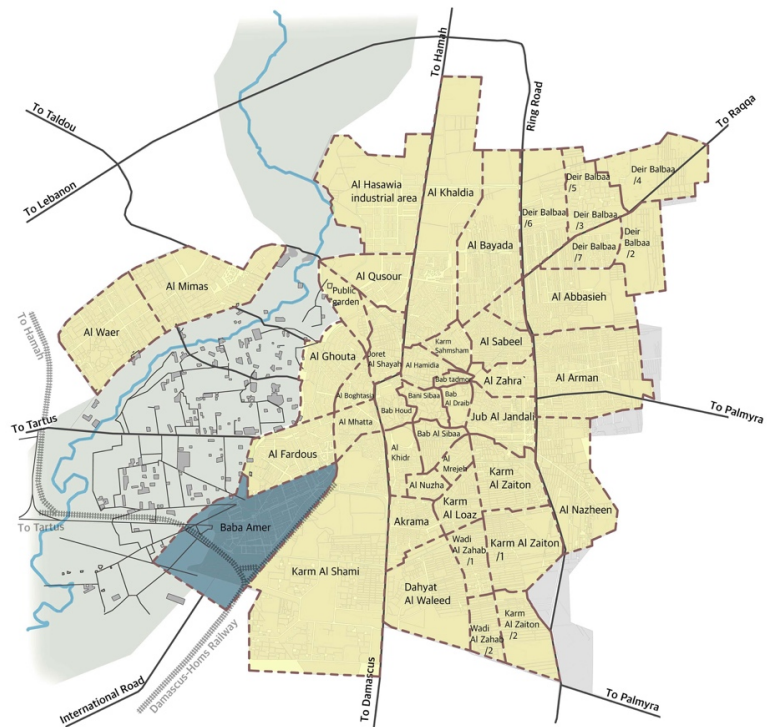


Figure 43: Location of Baba Amer (*Source: the author*).

The neighborhood started as an informal housing settlement with cheap rents. Thus, it became a destination attracting migrants from surrounding villages towards the burgeoning city, seeking job opportunities, affordable housing and the city life experience (Al-Sabouni, 2016). Accordingly, the population of the neighborhood increased to reach 34,077 inhabitants in 2010 (Homs Municipality, 2017).

b. Historically

Since the location of Baba Amer overlooks the Orontes valley and is close to the city center, the neighborhood was part of the maintained fortress that defended the old city of Homs. It represents Homs' "eighth gate", among the city's other seven gates. Researchers sought to believe that the neighborhood extends over a network ancient

Roman tunnels, which remains are still buried a few meters under the neighborhood (Al-Sabouni, 2015).

c. Properties and ownership

Before 1959s, lands of Baba Amer were owned by two feudal lords and farmers were only tenants who work the land with no access to its any rights (Al-Sabouni, 2016). However, later on, the government conducted a new "Expropriation Act", in which the slogan "The land belongs to the one who works it" was raised and the government took over most of Baba Amer's lands. The "Expropriation Act" included three parties; (1) the government; which was a medium between land-owners and tenant farmers, it has the right to sell or rent lands without owning them, (2) land owners, whose property is registered in their names, however, they are prevented from using the land, and finally (3) tenant farmers, who won the right to use the land they work in (Al-Sabouni, 2016).

d. Economically

The economy of Baba Amer neighborhood relied largely on irrigated lands which provided the city with its supply of fruits and vegetable products. However, with the city's urbanization, inhabitants started to abandon this lifestyle seeking different economic experiences. Accordingly, the neighborhood embraced a new market located to the west. This market started as a platform for the large agricultural plains of the Orontes Valley and shortly, expanded to include more businesses and industries (UN-Habitat, 2015).

i.e. Land use and services

ii.

Due to the high number of migrants occupied the neighborhood, urban areas mushroomed informally and took over most of the farming lands in Baba Amer (UN-Habitat, 2015). The neighborhood was in dismal conditions in terms of infrastructures and buildings and was classified as an under-served neighborhood (Al-Sabouni, 2016). However, by 2005, the city council addressed the issue of informality in Baba Amer, and shortly by 2008, lands were formalized and all properties in the neighborhood were declared formal. Furthermore, the government started upgrading the conditions of the roads as well as initiating important amenities such as schools, clinics, and markets (UN-Habitat, 2015). Later on, Baba Amer became a place of significant services and facilities in the city of Homs which added to its importance; Al Baath University, railway station, horse club and a public stadium [Figure 44] (Al-Sabouni, 2016).



Figure 44: Baba Amer land use (Source: adopted from Homs Municipality, 2017).

f. Building's typology

Baba Amer, the largest neighborhood in the city of Homs consists of 7 sub-neighborhoods which are classified as an informal area except for Al Tawzee Al Ijbari [Figure 45] (UN-Habitat, 2015).



Figure 45: Baba Amer sub-neighborhoods (Source: adopted from UN-Habitat, 2016).

According to the construction law in Homs, the majority of Baba Amer's buildings are mixed-use (سكن عشوائي حرف) with a maximum of 4 levels heights except for Al Tawzee Al Ijbari which is subject to different construction system, in which, buildings can reach up to 10 levels [Figure 46] (Homs Municipality, 2017).

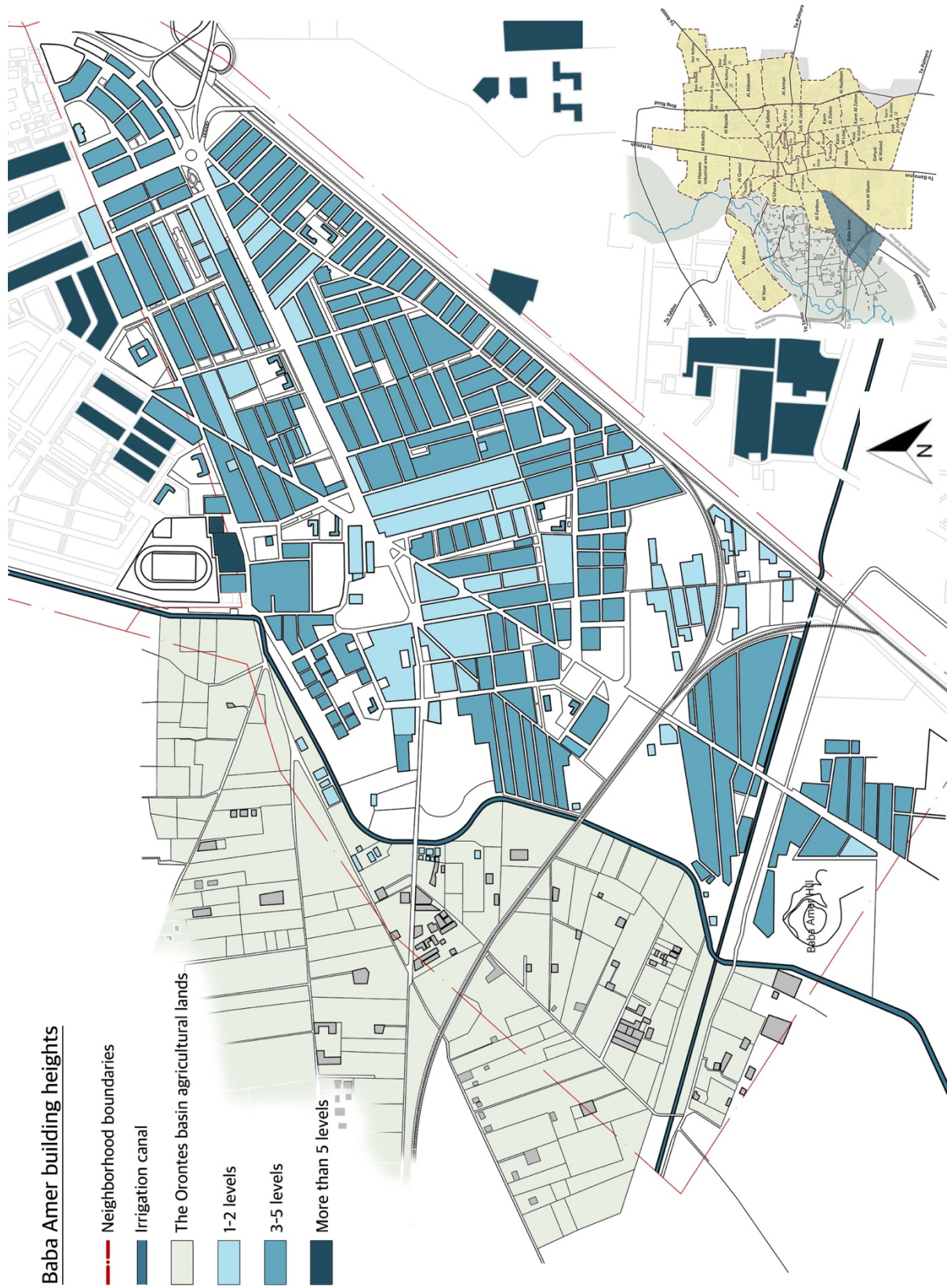


Figure 46: Building heights (Source: the author).

Before the crisis, a new law was issued called “law 26” to regulate the neighborhood of Baba Amer. Consequently, streets were upgraded, electricity and water were connected and became available for all houses, however, buildings condition remained neglected [Figure 47] (Homs Municipality, 2017).



Figure 47: Overview of Baba Amer neighborhood prior to conflict (*Source: <https://www.tripmondo.com/syria/homs-governorate/homs/baba-amru/>*)

Later on, and before the crisis, major renovation work was done in the neighborhood, upgraded the buildings typology, paving the way for new constructions to take place in the neighborhood [Figure 48].



Figure 48: New buildings in Baba Amer (*Source: the author*).

g. Blue/green infrastructure

Baba Amer neighborhood is known for its rich natural resources both as blue and green infrastructure. The neighborhood is bordered to the east by a huge agricultural land located around the Orontes river which, as mentioned previously, plays a major role in fruits and vegetable production in the city [Figure 49]. More importantly, the river with its two canals that borders the neighborhood to the east and south provides a solid tool for irrigation and transformation of Baba Amer lands into valuable fertile lands [Figure 50].



Figure 49: Green/Blue infrastructure (Source: the author).



Figure 50: Baba Amer irrigation canal (*Source: the author*).

2. Agricultural hub: Al Basateen area

Previously, Baba Amer orchards, which stretches from the fertile lands of the Orontes valley, plays a significant role in Homs' agricultural production. These orchards were once producing around 60% (Al-Sabouni, 2016) of the city's supply of fruits and vegetables among many other products such as; corn, millet, cotton, and wheat (The Editors of Encyclopedia Britannica, 2014). On the other hand, Al Basateen area, located to the west of Baba Amer neighborhood produces of around 40% of Homs' food consumption and around 12,000 families depended on it as the main source of income (UN-Habitat, 2014). Close to this site, a huge market known as "Souk Al Bahesh" was initiated as a place for the products coming from the agricultural areas in Baba Amer as well as "Al-Basateen" area [Figure 51] (Haroon, 2017).

Al Basateen area location

Legend

-  Neighborhoods boundaries
-  The Orontes River
-  Irrigation Canal
-  Main Arteries
-  Railway
-  The Orontes Basin / Al Basateen

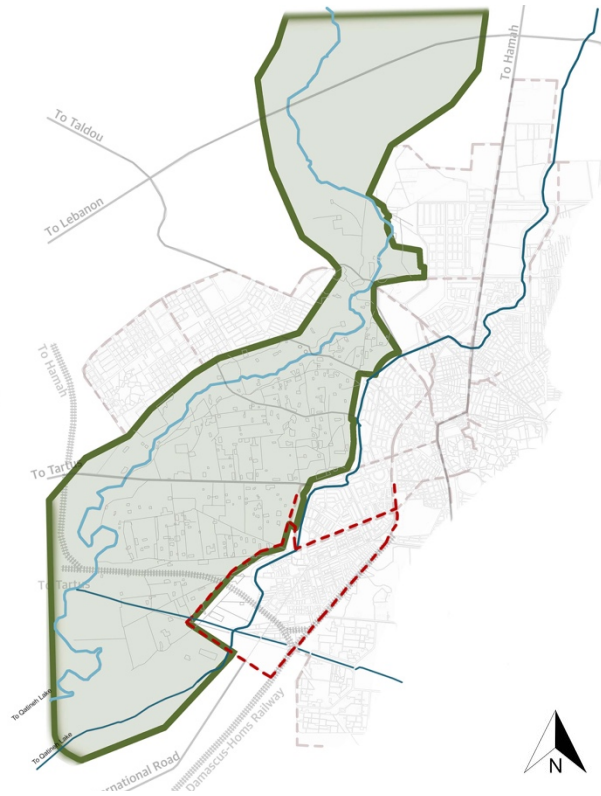


Figure 51: Location of Al Basateen area close to Baba Amer (Source: the author).

This agricultural land, known as "Homs lung", was considered the only large green space in the city of Homs. It used to be a destination for all Homs people for leisure, entertainment, and promenade. The green area allocated various spaces and infrastructures for different social activities [Figure 52]. These activities have created recreational areas for activities available for all social classes such as; restaurants and wedding halls that overlooks the Orontes basin which such as Al Dawar restaurant [Figure 53], Al Kharab street, which used to be a destination for all social classes in the city of Homs for [Figure 54], and the green hill, located in Baba Amer, which was a destination for the fresh air and promenade [Figure 55]

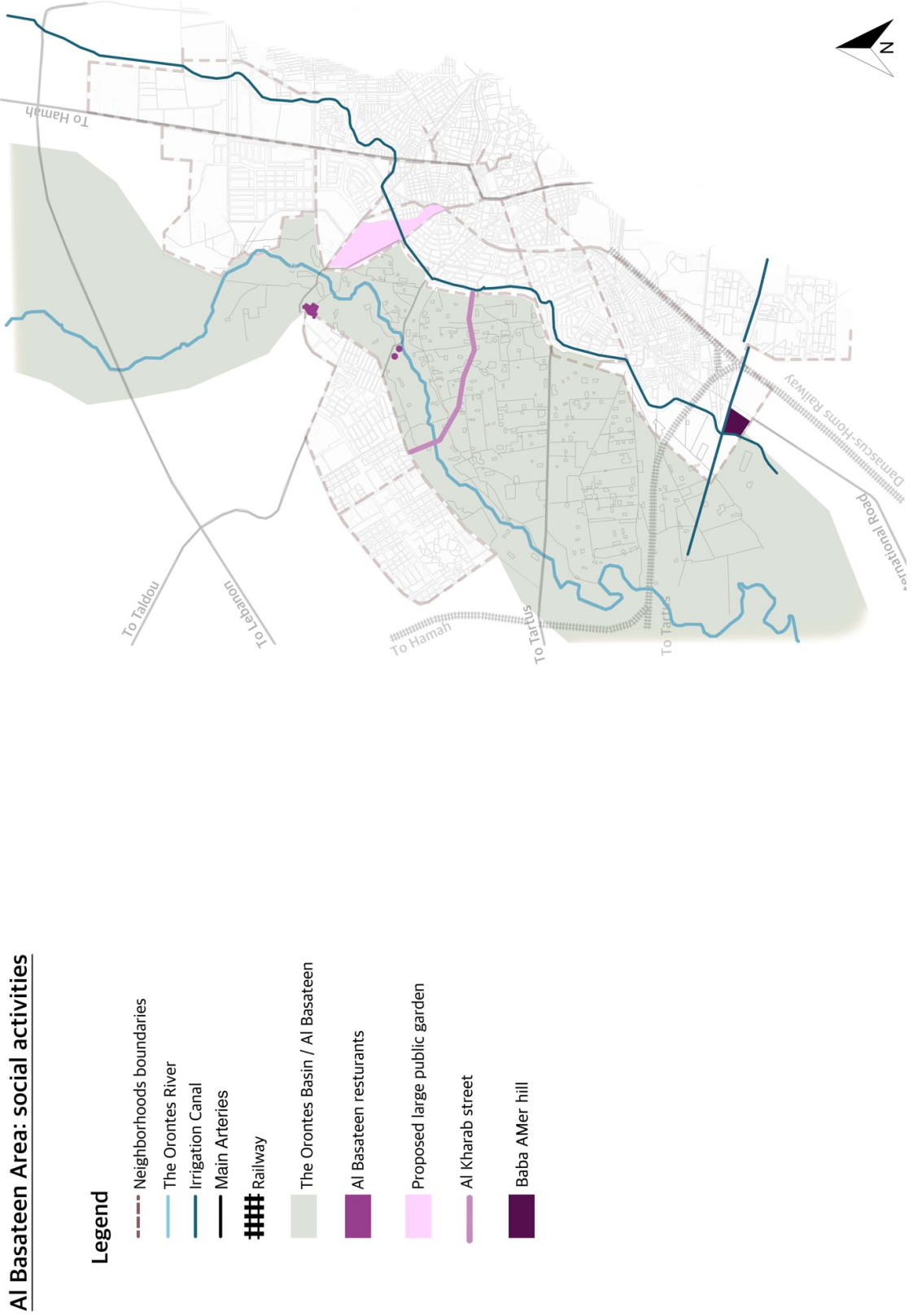




Figure 53: Al Dawar restaurant (Source: <https://www.tripmondo.com/syria/homs-governorate/homs/madinat-al-mulahi/>)



Figure 54: Al Kharab street (Source: http://www.wikiwand.com/ar/الوعر_حمص)



Figure 55: Baba Amer hill (Source: the author)

Baba Amer's orchards, as well as Al-Basateen area, started to shrink gradually with Homs' urban sprawl towards the west. The huge flow of migrants towards Baba Amer drove owners of irrigated lands to sell properties and transform them into residential and industrial buildings. This transitional land-use resulted in minimizing the size of agricultural lands in the region and, in turn, reducing the agricultural production in the city (Haroon, 2017).

In 1996, an authorized building control law was conducted for "Al Basateen" area, in which, dwellers in properties with more than 5000 m² area were allowed to construct around 100 m² for only residential purposes. However, in April 2003, an aerial survey of the orchards documented the informal construction of unauthorized restaurants and other facilities, the exceeding on the allowed construction area by the law as well as the use of environmentally-unfriendly materials (Ibrahim, 2006).

More Importantly, the informal use of irrigated lands has played a role in reducing the size of the agricultural areas. Although the valley was preserved as a protected zone, yet small housing projects and vehicle arteries were initiated paving the way for a later urban expansion dominating the agricultural lands [Figure 56]. This process of slow urbanization and loss of agricultural land may continue after the cessation of hostilities and accordingly, measures need to be taken to ensure the protection and vital roles of these lands.



Figure 56: Urbanization in Al Basateen area (Source: <https://www.tripmondo.com/syria/homs-governorate/homs/hayy-al-wa-r-al-jadid/>).

In later years, the unplanned urbanization became a secondary factor in the reduction of agricultural lands in the city of Homs. A more recent factor started in 2011, resulted in the destruction of the agricultural system in Homs city, especially in Baba Amer orchards and Al Basateen area.

Understanding the historical context of agricultural value in Homs city will help set a post-conflict recovery plan that adopts the urban approach. Therefore, it is important to review them as well as articulate the severe damage attacked the city's infrastructure, economic, agriculture, services, and social fabric, in order to conceptualize an integrated approach for the city and its neighborhoods to overcome the problems occurred by the conflict.

CHAPTER V

POST-CONFLICT ANALYSIS

The intervention of this thesis aims to frame an understanding of the conflict's impact on the city of Homs and its neighborhoods in order to find the best solutions in the post-conflict recovery process. It basically tackles the role of agriculture in pre and post-conflict conditions to conceptualize this sector as a surviving tool to retrieve the lost life of destructive areas and help to reshape their present and future. Accordingly, this chapter will analyze the different layers affected by the severe conflict to guide the intervention.

A. Landscape context: the Orontes basin

The Orontes Basin in Syria represents a crucial zone in the Syrian history during its all periods; pre-conflict, during the ongoing conflict and even during the aftermath transition period due to its strategic nature (Haj Asaad & Shamaly, 2016). This due to; (1) the diversity of the population in the basin that happened by migration waves, (2) the location of the basin bordering both Turkey and Lebanon, (3) its connection to major highways such as Damascus- Aleppo road and with other coastal areas, and more importantly, and (4) the fact that it is a location of major agricultural and water resources (Münger et al., 2014). These factors were key roles in transforming the area into a battleground between various parties to impose their control during the recent Syrian spring. Nowadays, after six years of crisis, the Orontes basin comprises a

number of major affected rural and urban areas such as; Homs, Al Rastan and Qusayer (Münger et al., 2014).

1. Population displacement

Due to the conflict, the Orontes basin in Syria faced a massive departure of its dense population attacked by the heavy fighting and bombardment. In 2014, more than 70% (1.6 million) of the 4.20 million inh of the Basin have been internally or externally displaced, especially towards Turkey and Lebanon [Figure 57] (Münger et al., 2014).

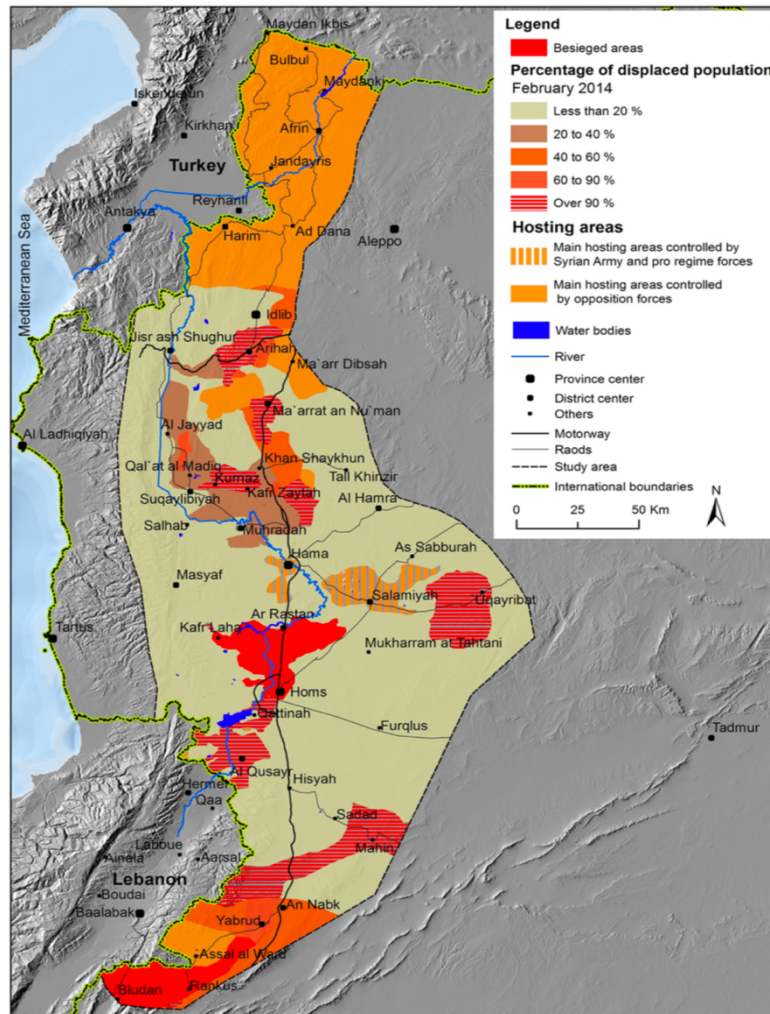


Figure 57: Population displacement in the basin (Source: Münger et al., 2014).

2. Impact on agricultural activities

The ongoing bombardment attacked the agricultural and water system in the basin. Accordingly, agricultural production was interrupted, leading to a huge reduction in crop supply by 70% [Figure 58] (Münger et al., 2014).

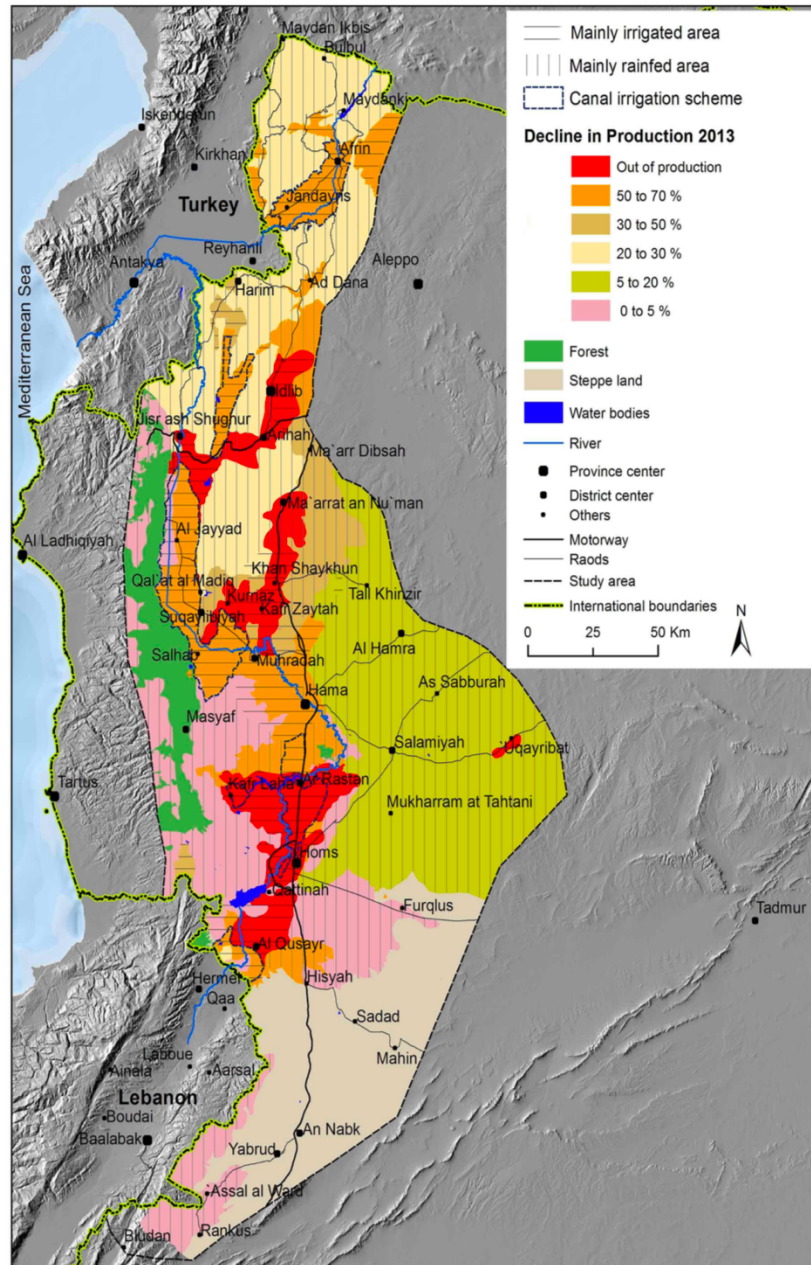


Figure 58: Changes in crop production (Source: Münger et al., 2014).

Furthermore, in provinces of Idlib, Homs and Hama, more than 15% of orchards surfaces in the basin have been burned deliberately or accidentally or have been cut for firewood by the combatants. More importantly, appropriate to 40% of these surfaces has become inaccessible especially in Al Qusayr, ArRastan and Al Nayrab (Haj Asaad & Shamaly, 2016).

As mentioned previously, the Orontes Basin comprises 6 major irrigation schemes which used to contribute to more than half of the agricultural production. However, these schemes have been affected by the interruption of water supply channels and plugging wells feeding these schemes. Furthermore, a major part of the water infrastructure in the basin was fully or partially damaged due to the continuous bombing and fighting as well as the passing of heavy vehicles (Haj Asaad & Shamaly, 2016). According to statistics, it was estimated in 2013 that around 2,620 out of 6,342 of agricultural wells were destroyed resulting in drought and became unsuitable for cultivation (Haj Asaad & Shamaly, 2016).

This thesis will address the impact of the conflict and urbanization occurred in the basin by taking the case of the city of Homs and the Orontes Basin section located in the peripheries of the city which is known as “Al Basateen”. The thesis will look into a comprehensive post-conflict urban development by taking into consideration the agricultural lands located in Al Basateen to create an interconnected urban system or network that brings together the center and the periphery. Accordingly, the thesis will move to take the case of Baba Amer district as one of the adjacent neighborhoods to Al Basateen and due to the huge impact, it witnessed during the fighting

B. City context: the city of Homs

In order to understand the city's needs in the post-conflict period, a review of the conflict's impact and destruction was conducted; social analysis, physical damage analysis, urban functionality analysis... etc. Between 2014, the peak of the Syrian conflict, and the end of the conflict in 2016, the assessment of reconstruction and functioning has changed. Accordingly, this section, in some cases, will conduct a comparison of the city development and improvement between 2014 and 2017. These data were conducted based on the methods described previously, in chapter III.

1. Brief introduction to the conflict

On 18 December 2011, Homs, the third largest city in Syria, became one of the most impacted cities by the conflict and shortly became known as the "capital of revolution" (BBC, 2015). The conflict was affecting the city gradually, exposing its residents to vicious types of violence, displacement, siege and massacre. By 2016, the population of Homs has dropped largely from 800,000 inh to around 200,000 inh and every neighborhood has been directly or indirectly affected (The Syria Institution, 2017). During these 6 years, the conflict between protesters and the regime army turned into a severe crisis driving Homs to the edge of collapse and to an endless cycle of problems among its environment and spaces. The conflict in the city has damaged heavily its physical fabric, agricultural and economic system as well as its social fabric and coherence, forcing inhabitants to remain in dismal circumstances of poverty and displacement or to flee to safer areas inside or outside the city [Figure 59].

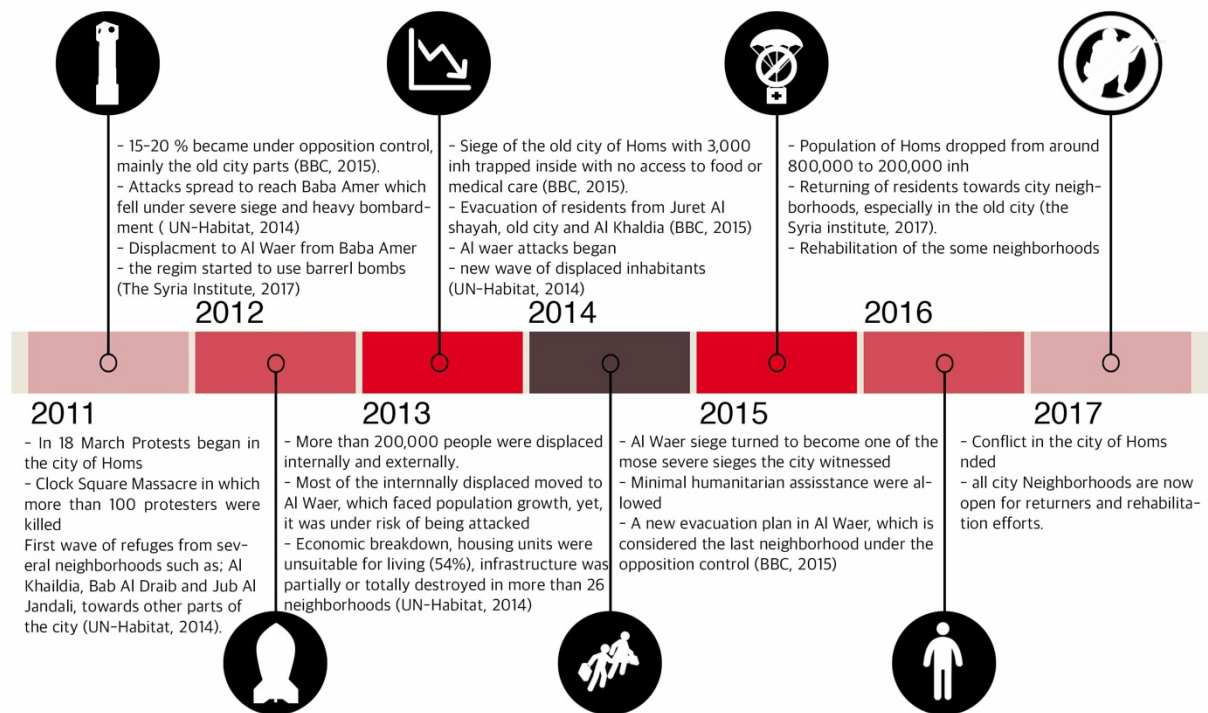


Figure 59: Conflict Timeline (Source: the author).

However, in 2017, the conflict between protesters and the regime army reached its end, and residents started to return to their neighborhoods, willing to reoccupy their houses and shops (The Syria Institution, 2017). The ruins of the city illustrate the huge losses the city has witnessed in terms of; housing, infrastructure, services, economy, and most importantly, the social fabric and urban identity.

2. Social movement

The conflict resulted in high levels of destruction, turning half of the city neighborhoods into vacant lands with no sign of human existence. Shortly, in 2012, after one year of conflict, most of the neighborhoods were of unrest, resulting in various waves of displacement, internally or externally [Figure 60] (The Syria Institution, 2017)



(Source: <https://www.middleeastmonitor.com/20170603-syrian-opposition-warns-of-demographic-change-in-homs-and-hama/>)



(Source: the Syria institute, 2017)

Figure 60: Displaced people from Homs neighborhoods.

Displacement in Homs happened mainly during the conflicts' peaking years, between 2011 and 2014 [Figure 61] resulting in high waves of refugees. Consequently, Homs' population drained in the city to reach approximately 400,000 inh in 2013 (UN-Habitat, 2014). However, social movement direction has changed between 2016 and 2017, when the conflict reached its end. Many neighborhoods witnessed waves of returnee; such as the old city, Baba Amer, Joret Al Shayah in 2016 and Al Waer in 2017 [Figure 62].

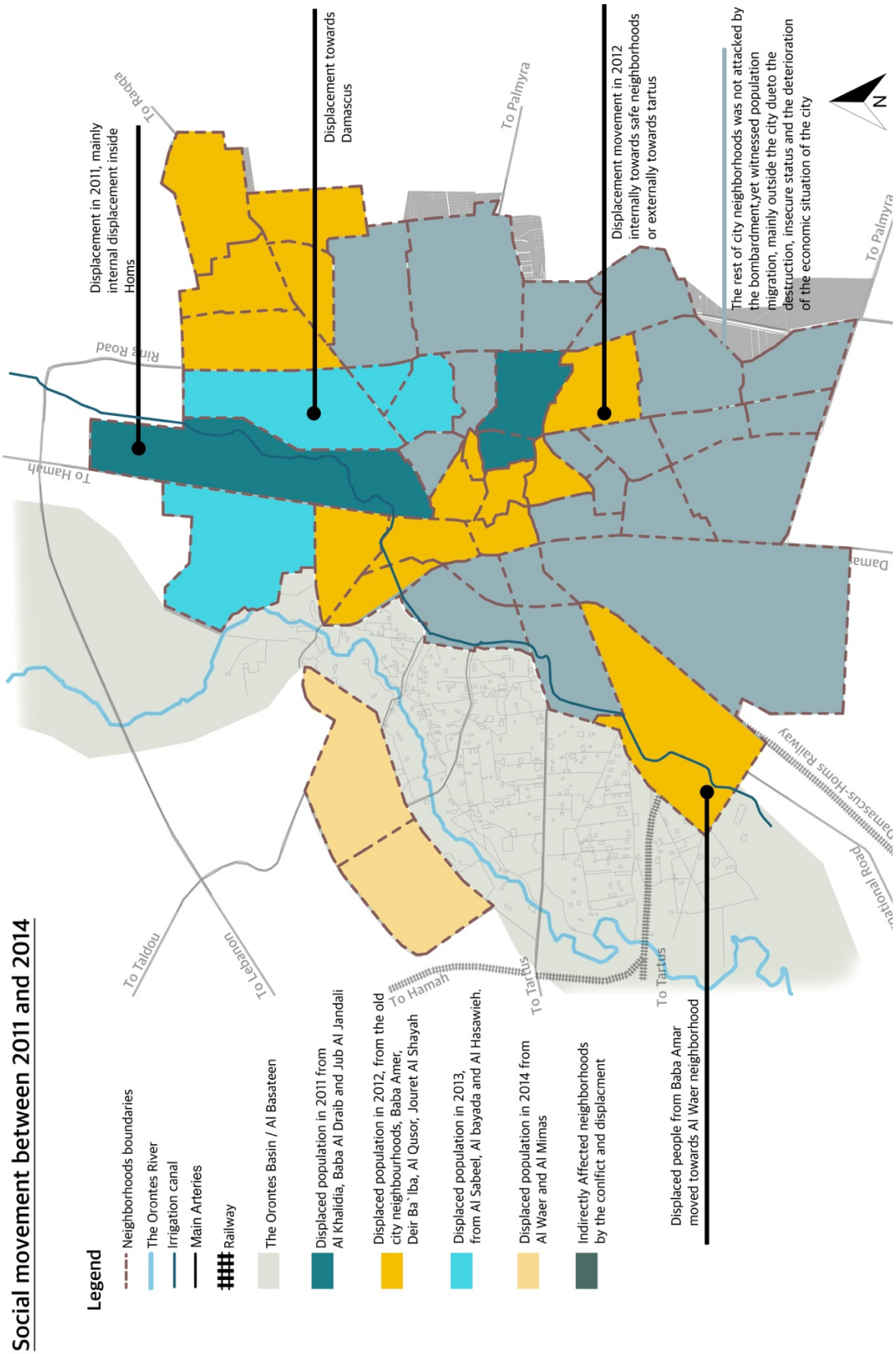


Figure 61: Social movement between 2011 and 2014 (Source: adopted from UN-Habitat, 2014)

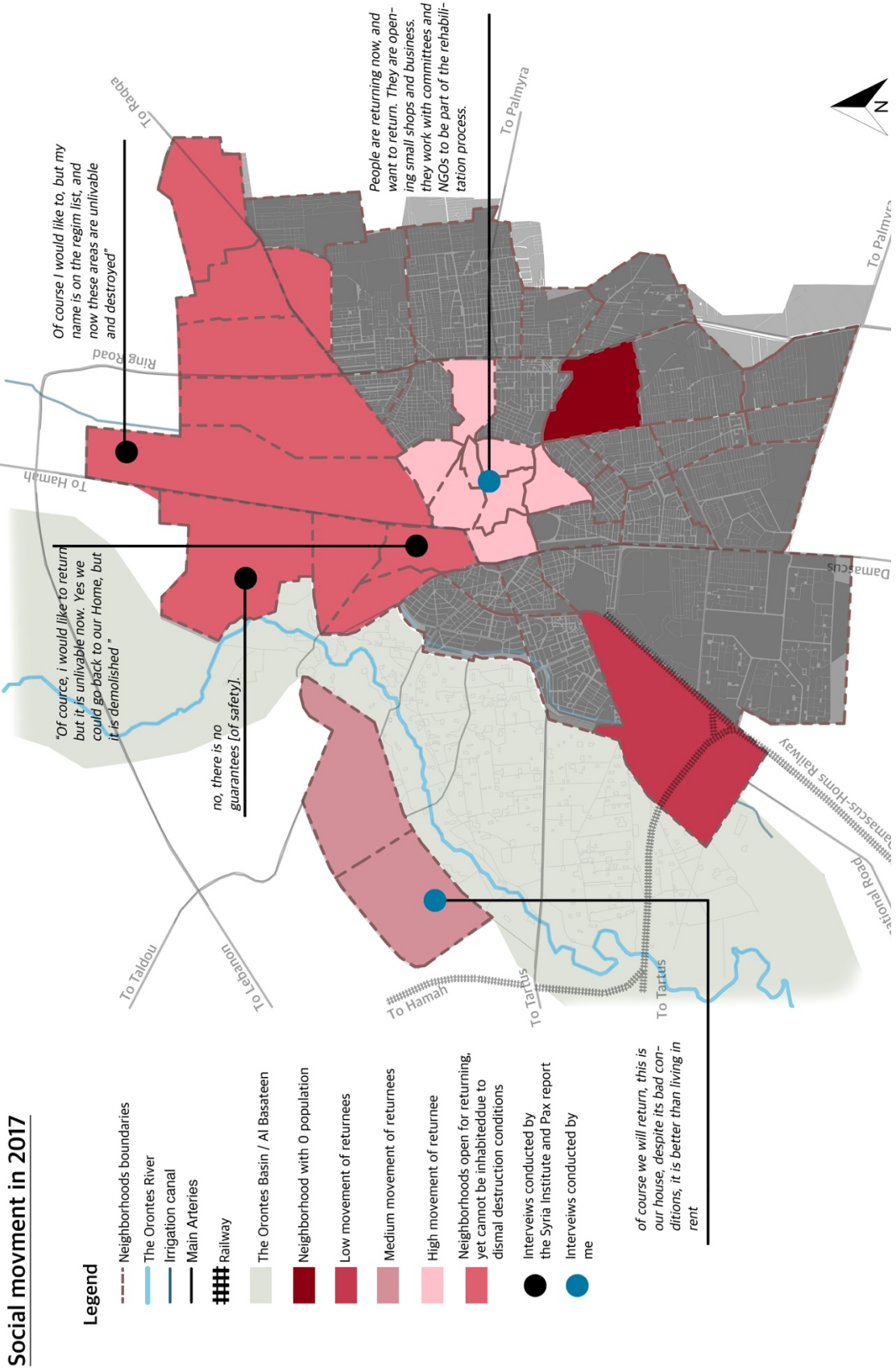


Figure 62: Social movement in 2017 (Source: the author).

Despite the heavy destruction in the city, returnees took individual initiatives of light rehabilitation in various neighborhoods in order to revive their communities and restore the livable environment [Figure 63].



Figure 63: People returning to the old city neighborhoods (Source: <https://www.thenational.ae/world/syrian-rebels-cut-off-water-supply-to-both-halves-of-aleppo-1.243612>).

3. Damage analysis

The heavy bombardment in Homs neighborhoods attacked its social fabric as well as its physical context, resulting in partial or complete destruction among the majority of the city neighborhoods [Figure 64].

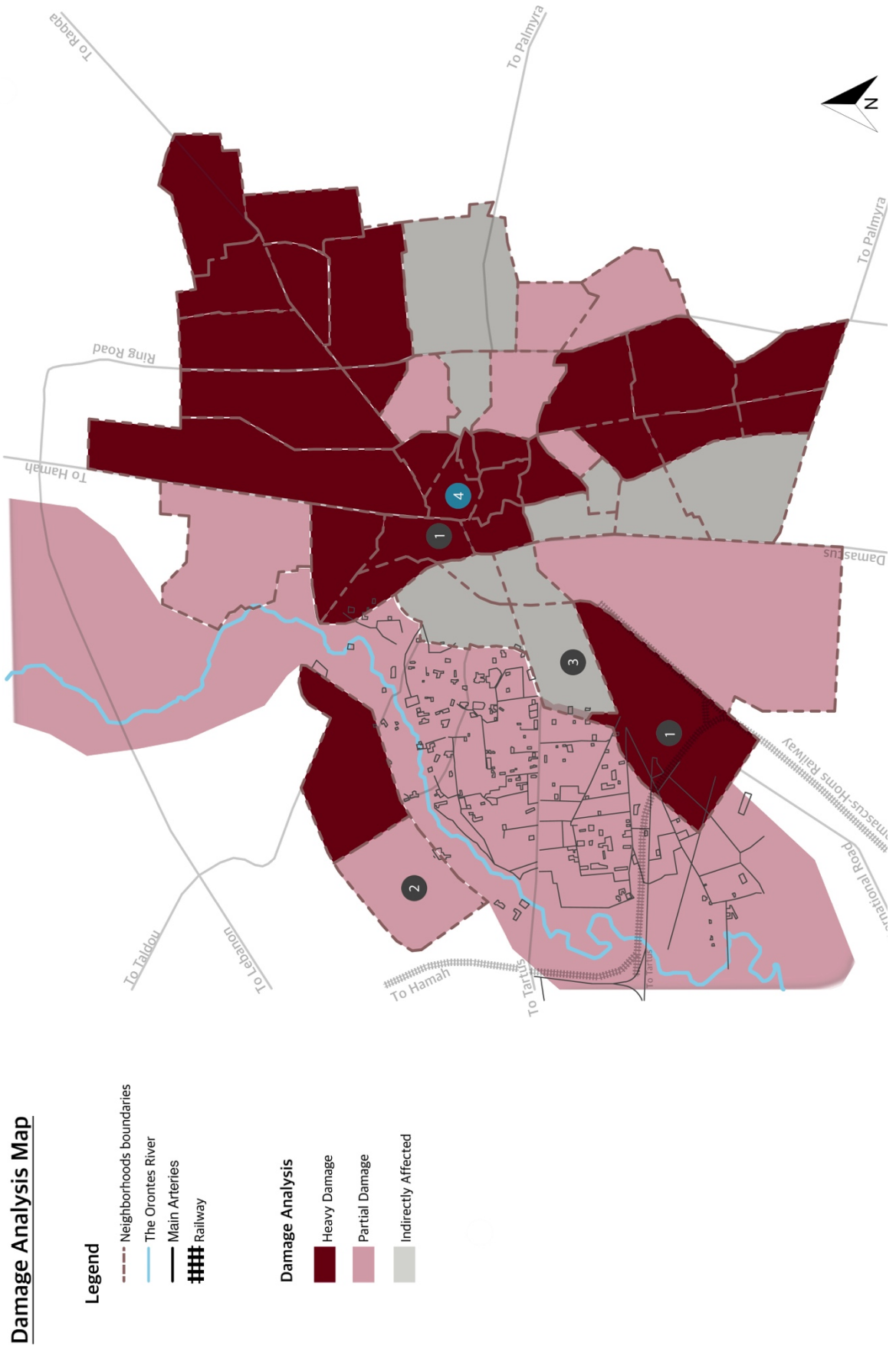


Figure: 64: Damage analysis in Homs (Source: the author).

The mapping of the damaged physical context conducted according to three levels;

(1) Heavy damage; in which, neighborhoods are fully damaged with no potential for restoration [Figure 65].



Figure 65: Heavily damaged neighborhoods (*Source: the author*).

(2) Partial damage; buildings can be restored [Figure 66]



Figure 66: Partially damaged neighborhoods (*Source: the author*).

(3) Indirectly affected, by the unplanned increase in population or by being at the border of attacked neighborhoods [Figure 67].

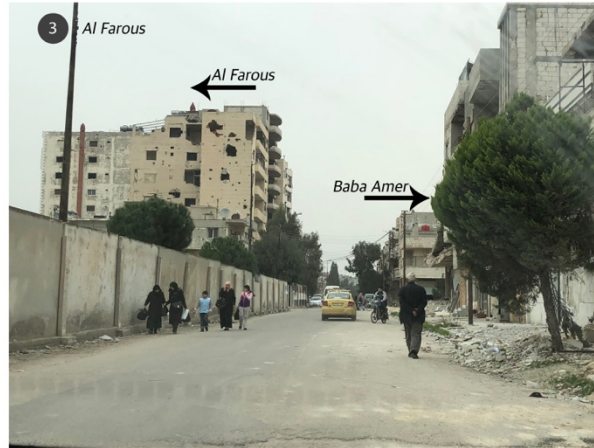


Figure 67: Indirectly affected neighborhoods (*Source: the author*).

Approximately, 96,700 residential units are no longer suitable for inhabitants which cover approximately 54% of housing stock in the city of Homs (UN-Habitat, 2014). In addition to residential units, the bombardment reached also the commercial and industrial centers, medical and educational sectors as well as its infrastructure [Figure 68].



Figure 68: Destruction in Homs commercial center (*Source: <https://blog.ted.com/a-ted-talk-from-a-war-zone/>*)

Regardless the extensive destruction in Homs city, around 75% of its public facilities are not fully damaged, and in good shape for operating, mainly concentrated in unaffected neighborhoods [Figure 69] (UN-habitat, 2016).

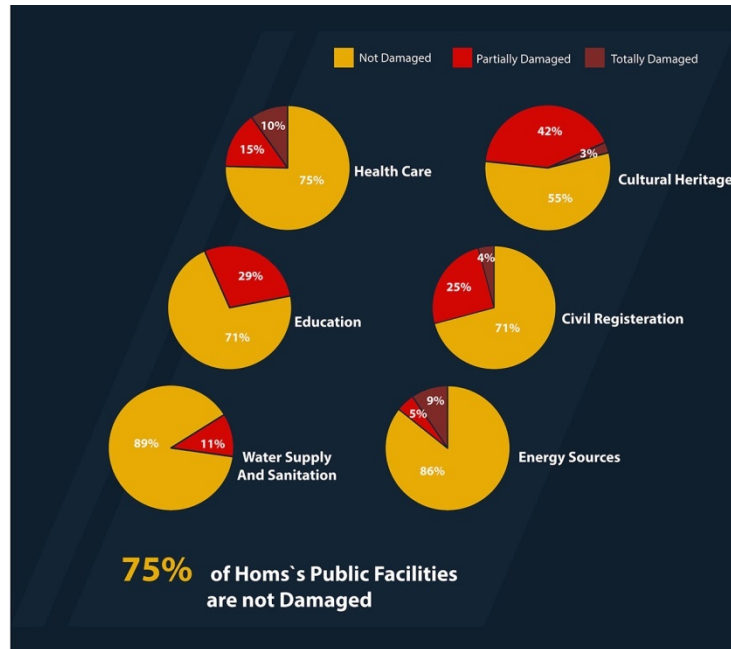


Figure 69: Damage levels of public services (Source: UN-Habitat, 2016).

The extensive level of the city destruction considered a major push factor, discouraging residents from returning to their neighborhoods. The neighborhood assessment addressed in the mapping will help us articulate the reconstruction interventions needed for the city of Homs in the post-conflict recovery period.

4. Urban functionality analysis

Another key element should be articulated in order to come up with a full reconstruction vision for the city of Homs, which is the functional status of the city neighborhoods and public facilities. This analysis conducted will compare the functioning status during two periods of time; 2014, the peaking of the conflict,

(conducted by the UN-Habitat) and 2017, the end of the conflict (according to my observation).

The criteria used in urban functionality analysis is based mainly on UN-Habitat methods, which involve assessment of; Housing facilities, basic infrastructure (electricity and water), basic services, market and commercial activities [Table 16] (UN-Habitat, 2014).

	Not Functional	Partially Functional	Affected Functionality
Housing facilities	Most houses are either damaged or structurally hazardous	Total damages limited to certain blocks, others are still habitable	Minor to no damages
Basic infrastructure	Not operational	Partially operational for some areas/sectors	Affected due to strain on infrastructure and services due to increased IDP population
Basic services	No services	Limited services	Available services
Markets	Not functioning	Partially functional	Functioning. New markets established

Table 16: Urban functionality analysis criteria (Source: UN-Habitat, 2014)

Based on the former, in 2014, it was estimated that around 58% of Homs city is not functional. This is due to the deterioration of the private and public sector economy, the destruction of basic services, infrastructure and facilities as well as the abandonment of neighborhoods, all these factors contribute to the not functional status of Homs City [Figure 70] (UN-Habitat, 2014). In 2017, and with the conflict reaching its end. The

urban functionality status changed in different parts of the city. Neighborhoods and markets were not functioning in 2014 fully or partially functioning in 2017 [Figure 71].

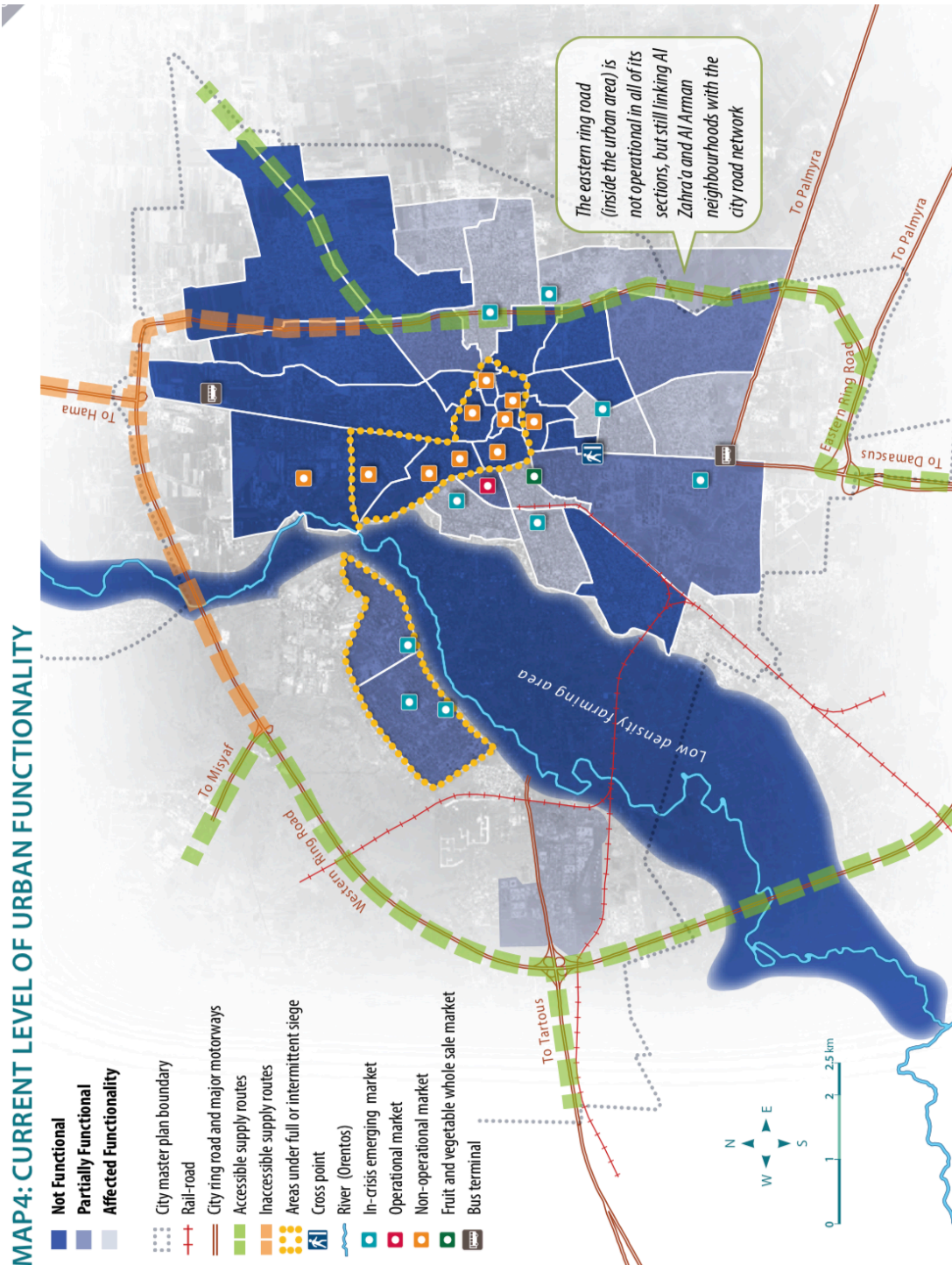


Figure 70: Urban functionality in 2014 (Source: UN-habitat, 2014)

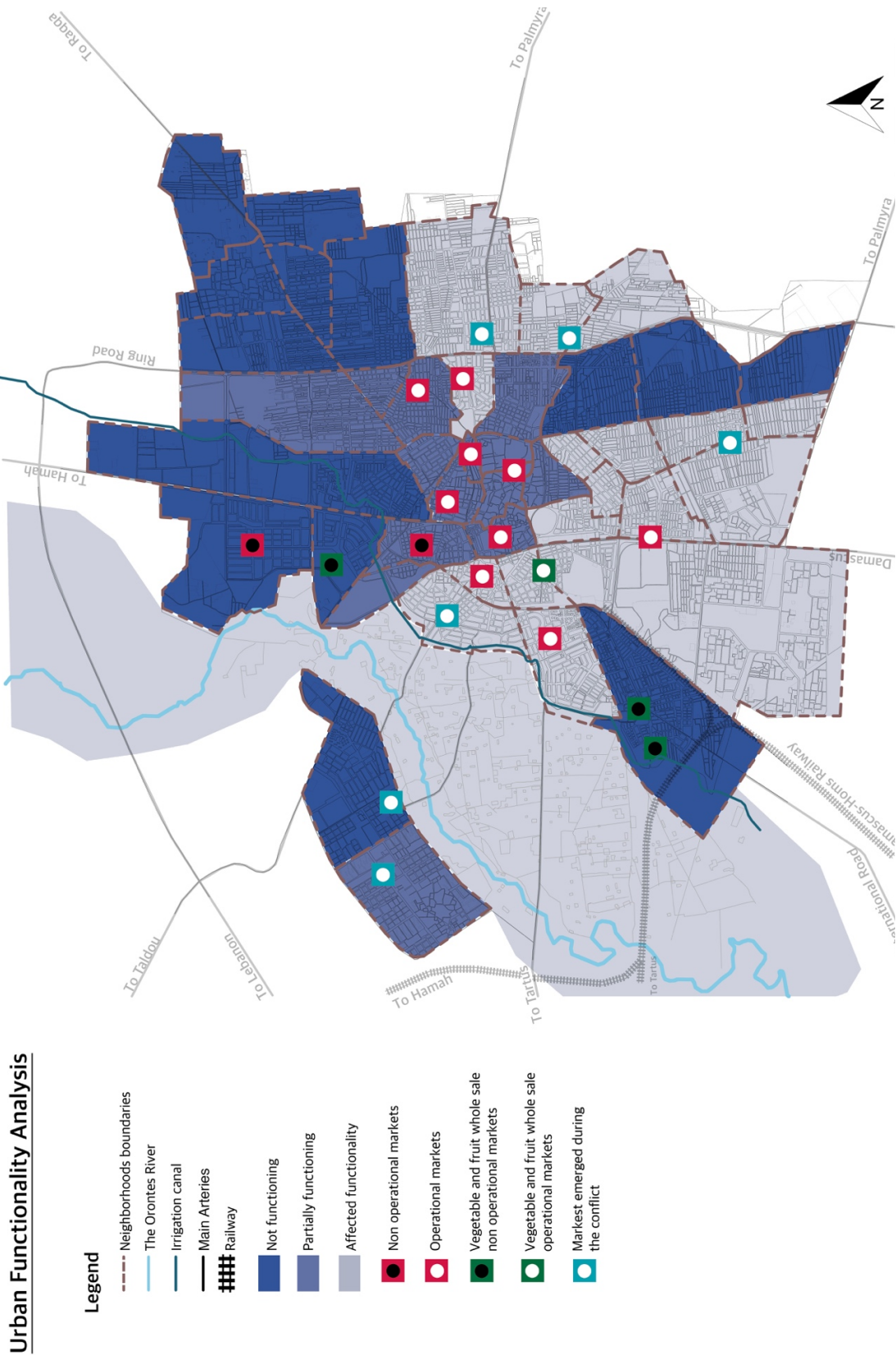


Figure 71: Urban functionality in 2017 (Source: the author).

Furthermore, in terms of public services, by 2016, around 74% of the city services was estimated to be operating. This is due to many interventions implemented by the government or residents [Figure 72]. For instance, many civil registration buildings in damaged areas were relocated to a safer and more accessible area until the rehabilitation of the old buildings is over (UN-habitat, 2016).

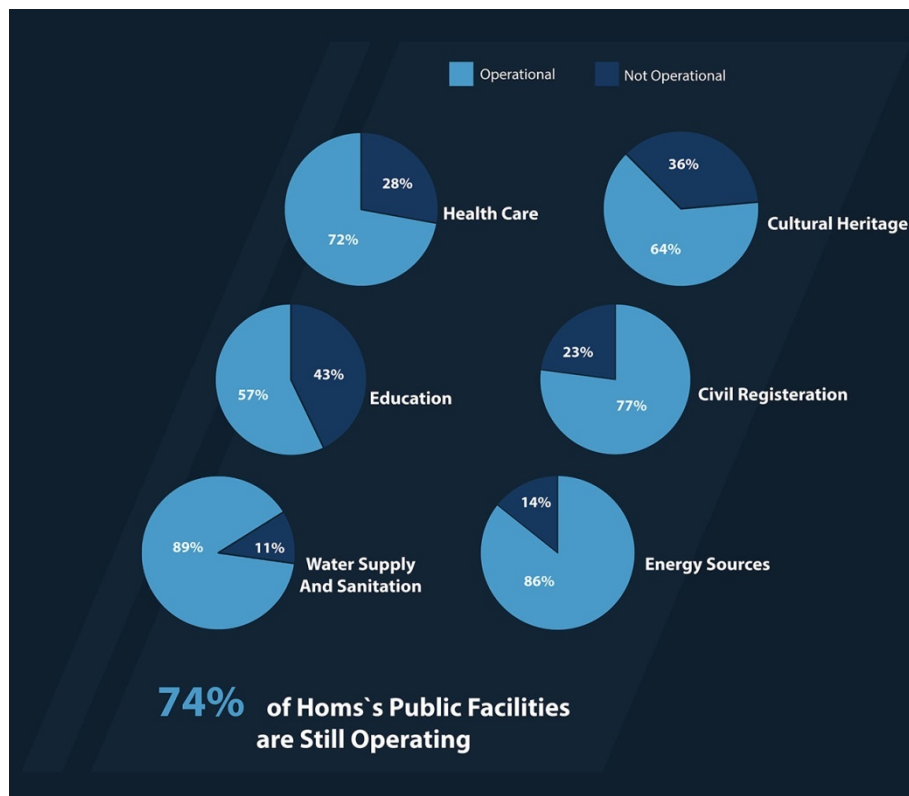


Figure 72: Operating status of public services (Source: UN-Habitat, 2016).

The improvement of living conditions and the re-functionality of damaged neighborhoods was as a result of many conducted activities and initiatives taken by individual residents, neighborhood committees, NGOs, international organizations as well as the Government [Figure 73].



(Source: *the Syria institute*, 2017)



(Source: UN-Habitat, 2014)

Figure 73: Neighborhoods' cleaning by the government and UN organization

Given the previous, living conditions in Homs were dismal even in neighborhoods not directly attacked. The fear of insecure status, deterioration of the economic situation, destroyed surrounding, unhealthy environment, lack of basic services such as health care, education, water and electricity as well as the changes in the social fabric of the city, due to migration from rural areas towards the city, prevented the returning process, or in some cases, slow it down. Accordingly, this thesis will propose to design a general intervention for Homs and for one of its affected neighborhoods.

C. Neighborhood context: Baba Amer Neighborhood and Al Basateen area

The study will focus on Baba Amer neighborhood, considering it a major destructive area. However, this neighborhood comprises a lot of potential and opportunities in the post-conflict period especially with efforts directed towards urban agricultural dynamics.

1. Damage analysis

By 2012, Baba Amer neighborhood and its orchards were the first to witness the starting of the severe conflict among Homs' neighborhoods. The conflict, which started as a peaceful practice by protesters after Friday prayers, soon turned into an armed conflict, turning the neighborhood of Baba Amer into a bloody battleground (Al-Sabouni, 2016). The continuous attacks towards Baba Amer put the area under siege, restrict the movement of residents and limit the access to daily life basic needs [Figure 74] (Human Right Watch, 2012).

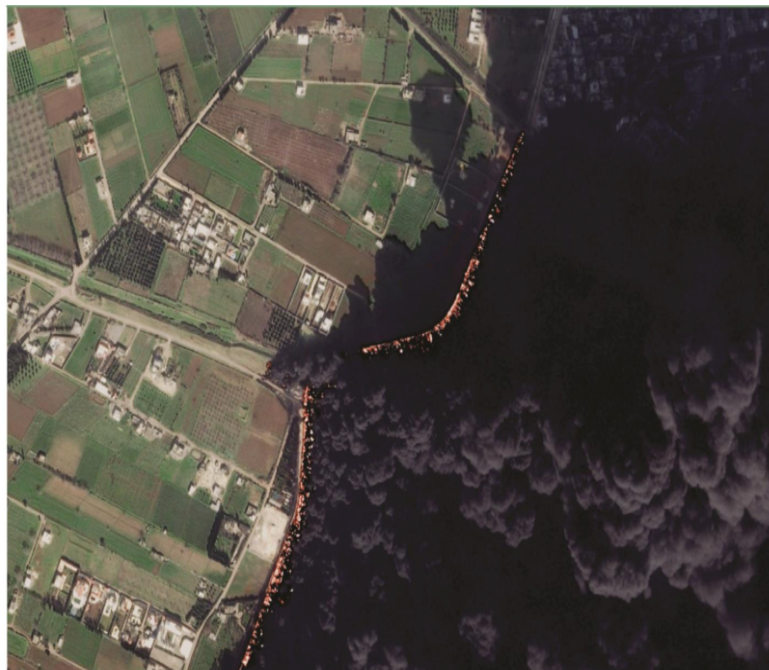


Figure 74: Babe Amer neighborhood during the bombardment (*Source: UN-Habitat, 2015*).

By 2012, the neighborhood and the surrounding Al Basateen area turned into a ghost town without any indicators of human life existence [Figure 75] (UN-Habitat, 2015).



Figure 75: Conflict impact (Source: the author).

a. Baba Amer neighborhood

As estimated by the Human Right Watch report, the bombardment resulted in more than 950 craters in various parts of the neighborhood; roads, agricultural lands as well as buildings. More importantly, about 640 buildings were mapped as damaged. These estimations indicate the severe destruction caused by the fall of enormous number of mortar shells and artillery that attacked the neighborhood during the conflict [Figure 76] (Human Right Watch, 2012).

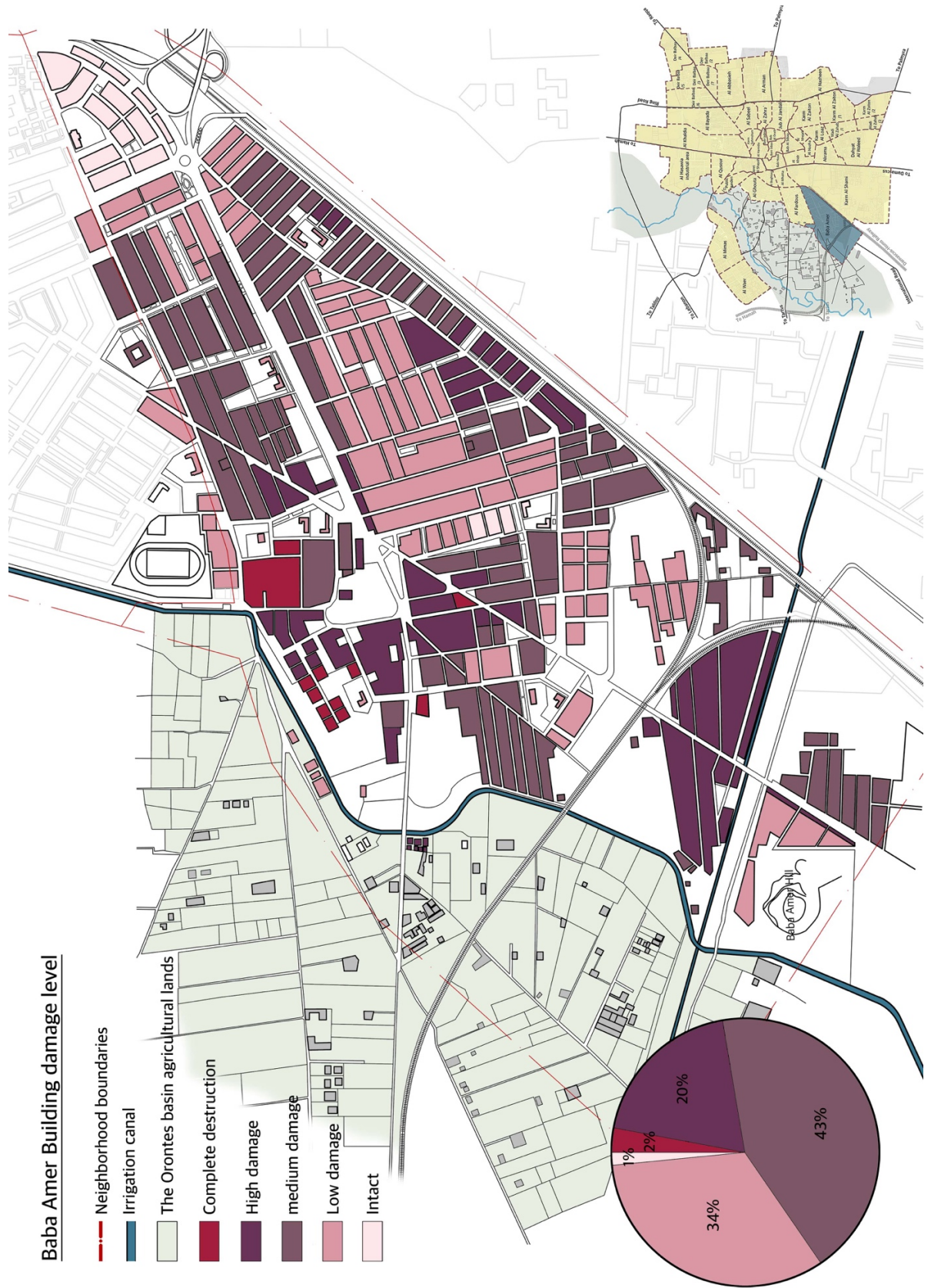


Figure 76: Buildings' damage level (Source: the author).

By 2016, every single residence or facility were completely or partially damaged and the neighborhood lacked any human existence. The destruction mainly affected the housing sector, leaving the neighborhood with piles of concrete and more than half of the built-up area in need for a full restoration and rehabilitation. According to observation, levels of destruction range from;

1. Complete destruction [Figure 77]; mainly located to the peripheries of Baba Amer at the frontline line between rebels and the regime forces.



Figure 77: Completely destroyed buildings (*Source: the author*).

This percentage of destroyed buildings, (around 2%) resulted in a reduction of the built-up area in Baba Amer from 42% in 2011, which was subject to raise by the future urbanization [Figure 78], to become around 39% in 2018 [Figure 79].

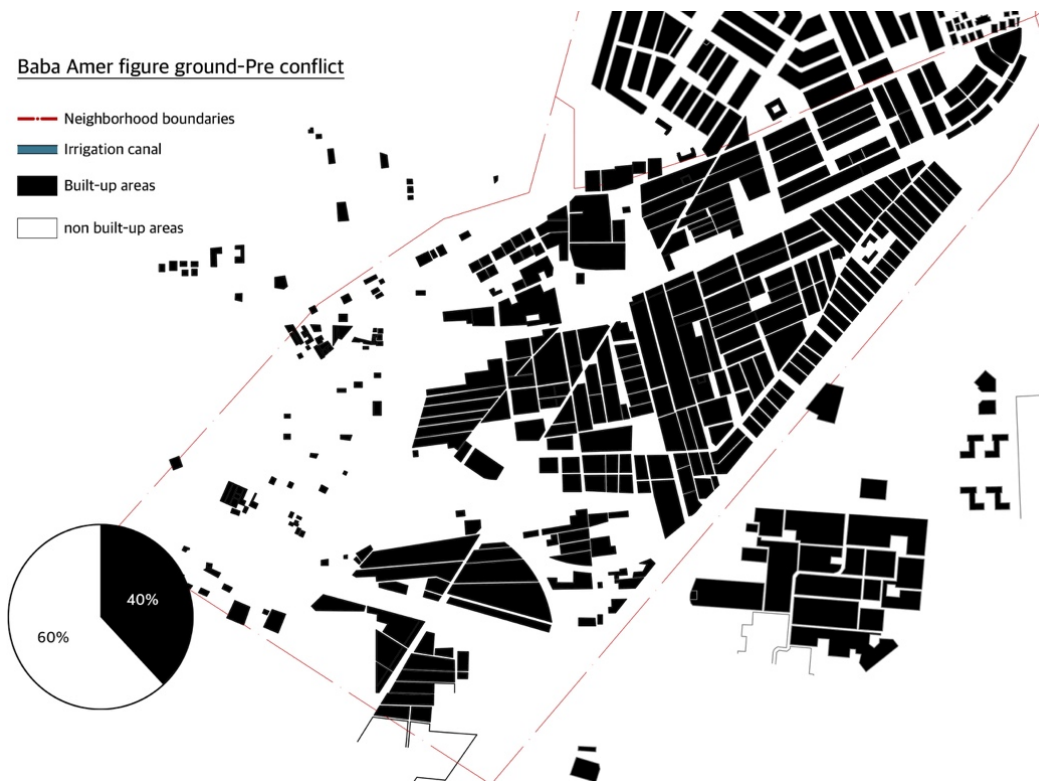


Figure 78: Pre-conflict figure-ground (*Source: the author*)

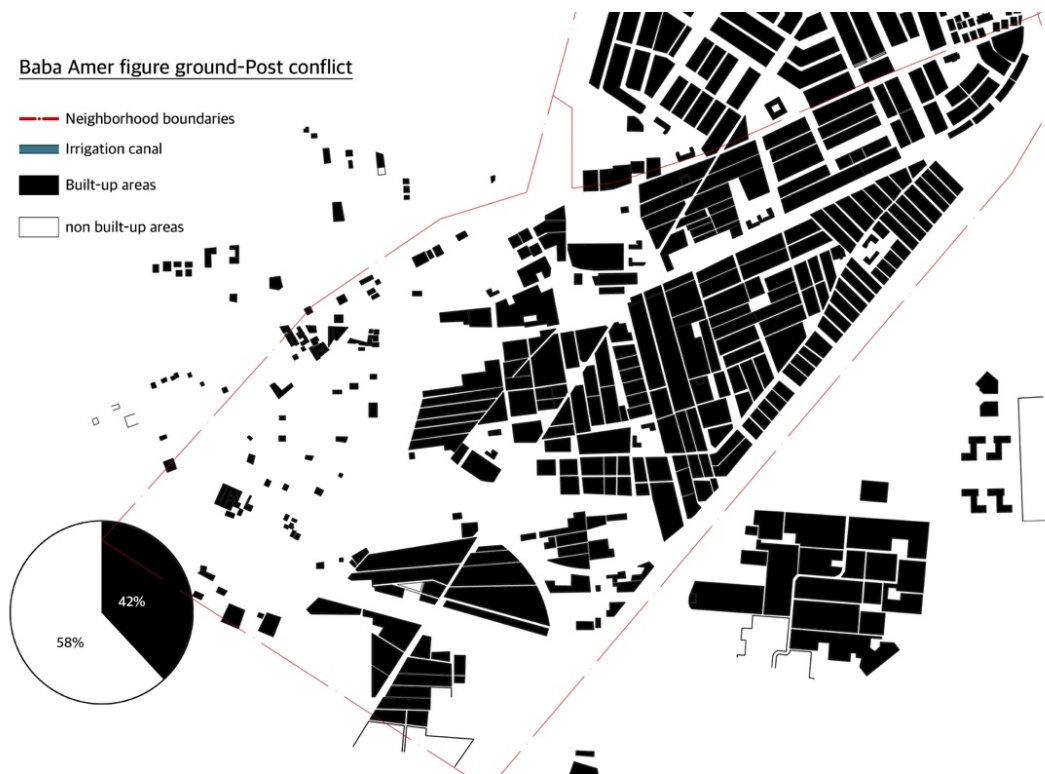


Figure 79: Post- conflict figure-ground (*Source: the author*).

2. High damaged buildings; around 20% of the built-up area [Figure 80].



Figure 80: High levels of damage (*Source: the author*)

3. Medium damage buildings; 43% [Figure 81]



Figure 81: Medium levels of damage (*Source: the author*)

4. Low damaged buildings; 34% [Figure 82]



Figure 82: Low levels of damage (*Source: the author*)

5. Intact: Compared to the destruction, a very few buildings can be mapped as intact [Figure 83].



Figure 83: Intact buildings (*Source: the author*)

More importantly, the neighborhood markets, used to be a selling platform for the agricultural products cultivated in the basin, were as well affected by the bombardment [Figure 84]



Figure 84: Affected commercial markets (*Source: the author*).

Based on the former, Baba Amer neighborhood assessment illustrate the need for a whole reconstruction plan that tackles the various affected sectors. The fighting left Baba Amer neighborhood in deteriorated conditions and emptiness for years, which turned it into a ghost town. Not until recently, the population of the neighborhood

started to return and take initiatives in the rehabilitation of their houses, to become viable and meet the basic accommodation services.

b. Al Basateen area

By analyzing the aerial photos available of Al Basateen area, we can't but notice the extensive damage of the agricultural system by the bombardment as well as drought [Figure 85].



Figure 85: Dry agricultural lands in Al Basateen area (*Source: the author*).

During the severe war, the water system which used to feed the irrigation canals in the city from Qatineh lake was closed by the concerned admiration, leaving the agricultural land suffering from high levels of drought [Figure 86].

On the other hand, various agricultural lands as well as trees, were intentionally or accidentally burned or were cut for collecting firewood for heating proposes [Figure 87].



Figure 86: Dry irrigation canal (Source: the author)

Al Basateen Area: Damage a

Legend

- Neighborhoods boundaries
- The Orontes River
- Irrigation Canal
- Main Arteries
- Railway
- The Orontes Basin / Al Basateen
- Impacted agricultural lands
- Burned agricultural lands
- Impacted social activities:
- Destroyed restaurants
- ✕ inaccessible streets

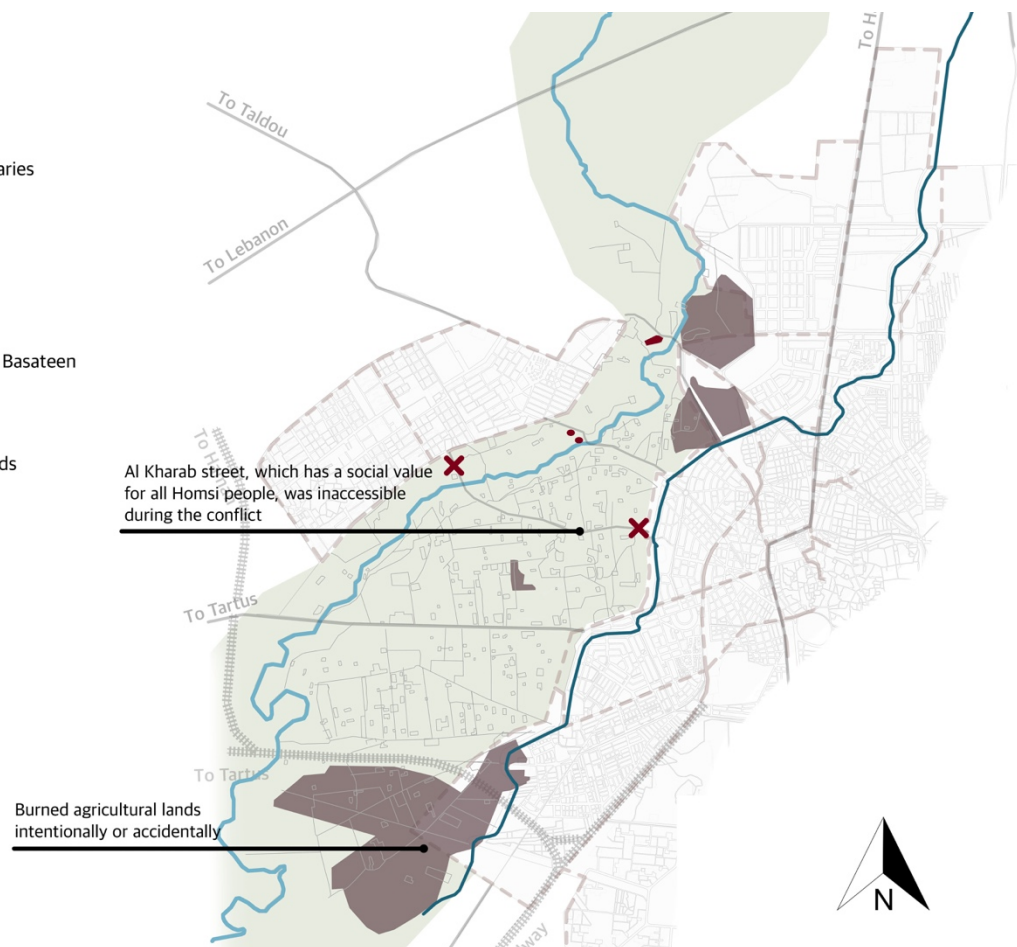


Figure 87: Damage in Al Basateen area (Source: the author)

2. Population distribution

During the war, it was estimated that around 50% of Baba Amer's population is internally displaced (IDP) towards nearby neighborhoods such as Karm Al Shami, Al Fadrous and Al Wear (UN-Habitat, 2015). Furthermore, in 2015, and after years of displacement and severe siege, residents of Baba Amer were allowed to start returning to their neighborhood. However, by 2017, the last population estimation conducted by the UN-Habitat announced that only 1600 inhabitants (UN-Habitat, 2017) out of the original 34,077 inh (Homs municipality, 2017) have returned. This represents only 3% of the total neighborhood population [Figure 88)] (UN-Habitat, 2017).

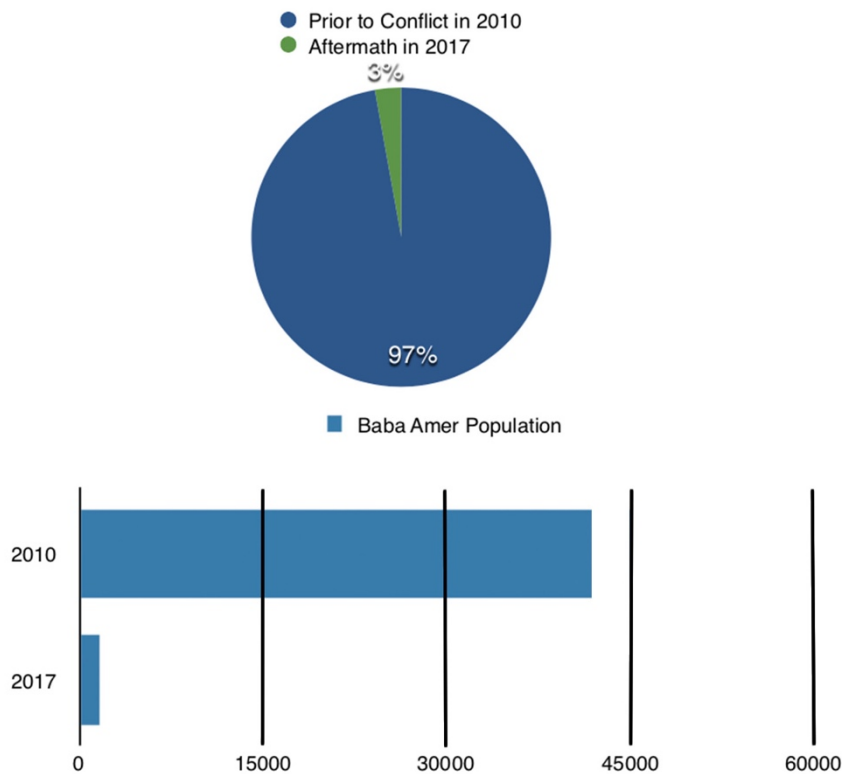


Figure 88: Baba Amer population in 2017 (Source: adopted from Homs municipality, 2017)

While the possibility of returning is now available, the movement remains very slow. This can be attributed to the fact that many of the displaced are in far areas or in neighboring countries and probably also due to security status and the absence of economic incentives to return. The existence of Baba Amer population is concentrated in areas bordering Al Fardous neighborhood and Karm Al Shami, yet it starts to fade gradually towards the center and the peripheries of the neighborhood, near Al Basateen. However, despite the dismal conditions of the neighborhood, many small shops and businesses are starting to take place in the neighborhood as a sign of returning and people's will to rebuild their neighborhood [Figure 89].



Figure 89: Small businesses in Baba Amer (*Source: the author*)

People are allowed to return to their houses, but with required property documents. The returning process requires; submitting the property ownership documents as well as a request called “returning Request (طلب عودة)” to the police station which will be transformed automatically to the Municipality for checking. Later, the documents will be sent to the military checkpoint who are responsible for the entry to the neighborhood (Military checkpoint, 2017).

3. Military activities in Al Basateen area:

During the war severe events, especially Al Waer neighborhood siege, Al Basateen used to work as a segregation tool, separating the eastern parts of the city from its western parts. The military regime used to flood the lost parts of Al Basateen with water from Al Orontes river to prevent rebels from moving towards the city [Figure 90] (Raslan, 2018).

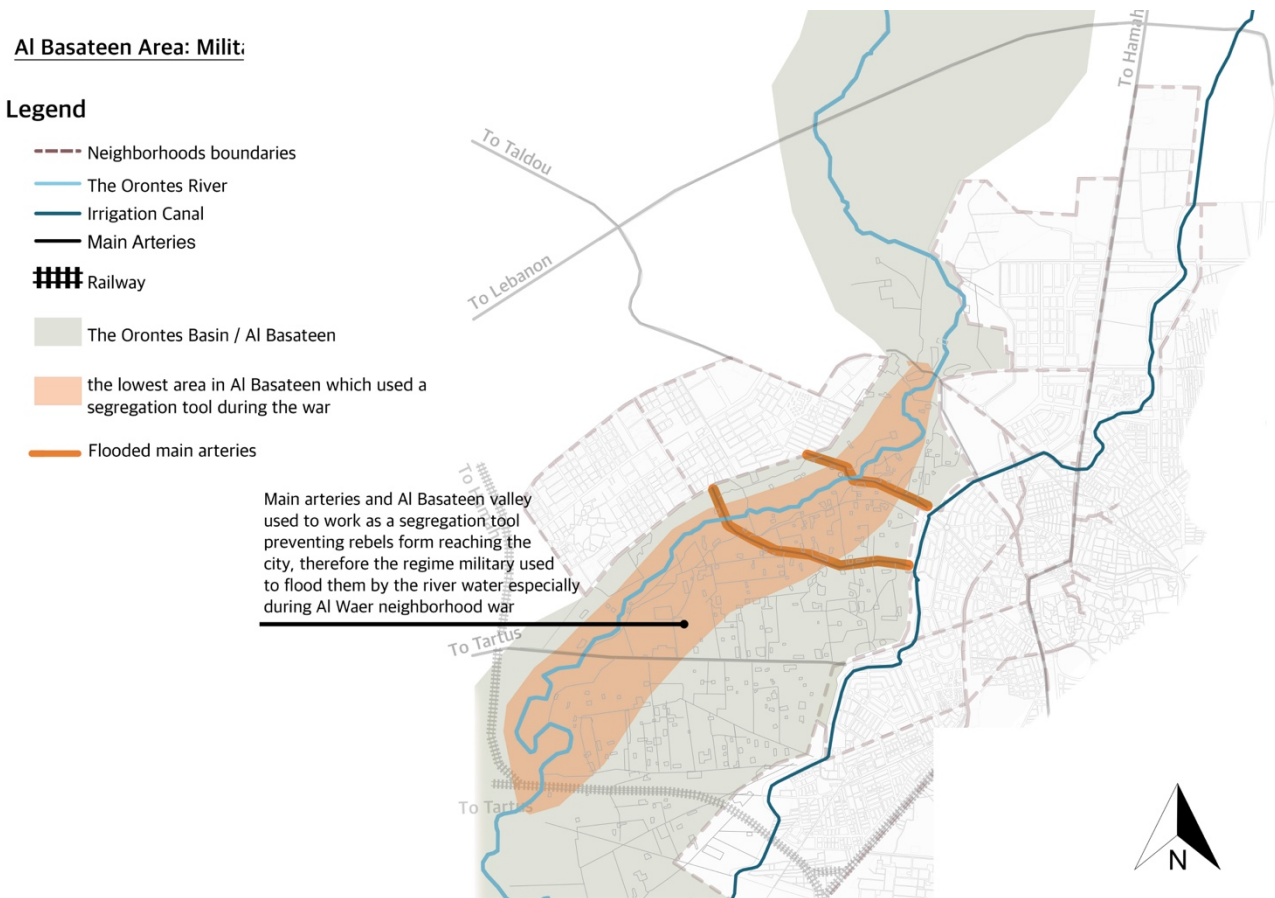


Figure 90: Military activities in Al Basaten area (Source: the author).

Based on the former, Baba Amer and Al Basateen area were extensively damaged by the severe war which affected them on different levels: socially, physically as well as economically. The agricultural system in Al Basateen was heavily impacted

by the bombardment, leading to a shortage in the agricultural production consumed by the city markets and increase the number of unemployed.

The purpose of the thesis is to convert the usage of Al Basateen area, previously utilized as a segregation tool during the conflict, into a connection tool that links the western and eastern parts of the city. More importantly, it will provide that core of the urban agriculture network proposed for the reconstruction efforts in the city of Homs in general and Baba Amer neighborhood in particular.

CHAPTER VI

RECONSTRUCTION ANALYSIS

Supporting livelihoods reconstruction in post-conflict period relies largely on both individual and collective innovations. Accordingly, it is a collective work that requires efforts from all residents, organizations as well as authorities (Annor-Frempong et al., 2012).

In this chapter, I will provide an analysis of the reconstruction efforts and projects conducted for the city context and neighborhood context. More importantly, it will analyze the possible location for urban agriculture intervention and map the existing urban agricultural practices in the city of Homs. These reconstruction interventions might constitute a base for my design by analyzing their concepts and priorities. This will help to conceptualize a strategic plan for the city in the post-conflict reconstruction period, and later a master plan for Baba Amer neighborhood.

A. Announced projects by the government

Homs government started to conduct several studies and initiatives to start the reconstruction process in the post-conflict period. However, due to security issues, mapping announced projects were limited to some neighborhoods without the others [Figure 91].

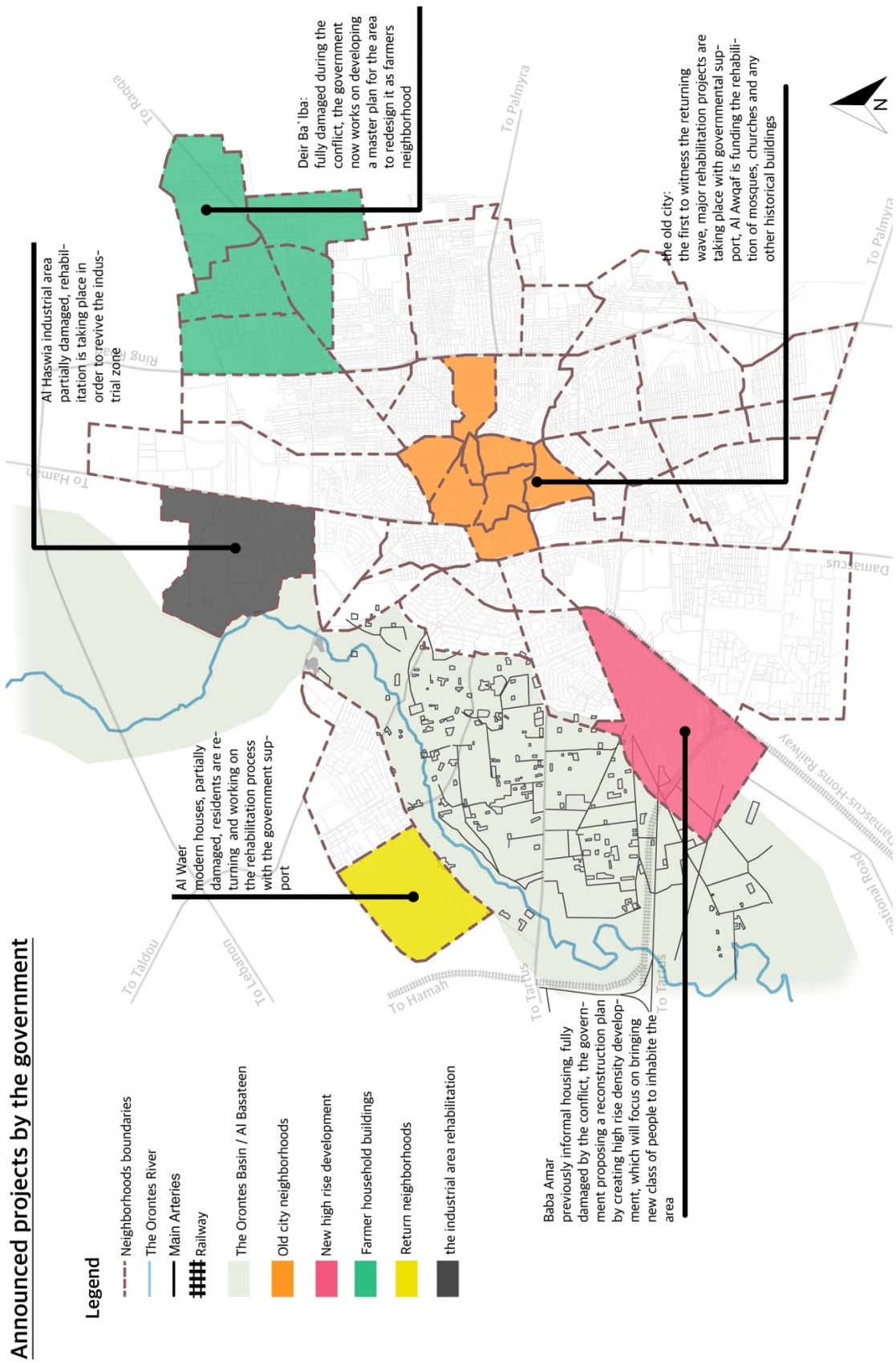


Figure 91: Announced projects by the government (Source: the author).

Homs reconstruction efforts by the government involve two main policies:

- (1) Freeze the reconstruction process of fully damaged areas such as Al Khalidia, Deir Ba`lba, Joret Al Shayah, and
 - (2) Rehabilitate less affected area in order to promote the returning process by rehabilitating basic infrastructure and debris cleaning)
- (UN-Habitat, 2016)

The government projects worked according to different strategies; (1) bringing back the inhabitants of destroyed neighborhoods and supporting the rehabilitation process, as well as in some cases (2) creating new development that invites a new class of people rather than supporting returning of original inhabitants.

The un-stabilized economic factors in Homs city required interventions by the government in order to overcome the physical and social deterioration. Consequently, the municipality works on securing the money needed for the rehabilitation process in various way such as raising the rents of shops and tourism buildings located on public lands. For instance, Al Safir hotel, prior to the crisis, used to pay around 450,000 SL as land rental fees, whereas currently, the municipality raised the rental to reach around 250,000,000 SL (Haroon, 2018).

On the other hand, the rehabilitation of the old city in Homs was a result of a successful joint cooperation between the private sector, residents and neighborhood committees, Al Awqaf ministries and the General- Directorate of Antiquities and museums. The focus of this cooperation is to raise needed funding in order to rehabilitate the mosques, churches and other historical buildings.

In conclusion, today, with the active cessation of hostilities in this area, Homs is slowly recovering from the aftermath of the war. However, the reconstruction of

Homs neighborhoods created an additional barrier preventing displaced from returning and reoccupy their neighborhoods. Although the government secured residents' property ownership (Baalbaki, 2017), yet the new development intended to change the social fabric of these destroyed neighborhoods by transforming their social hierarchy from low to high-income class. Furthermore, in some scenarios, the new development was conducted to invite foreigners supporting the regime to occupy zones in the city of Homs.

More importantly, post-conflict reconstruction efforts are being addressed in the physical and urban context with little attention given to the Orontes valley and the surrounding arable plains. The question of agricultural lands, in this context, can be termed as urban agriculture, which can play a significant role in the reconstruction efforts.

1. Baba Amer reconstruction plan

The reconstruction projects in Homs and Syria were designed according to the government's allocated budget for intervention. More importantly, and after the fire ceasing in Homs, the government started allowing neighboring countries, who did not participate in the war against Syria to start investing in the new proposed projects for the reconstruction (Haj Omar, 2017). However, knowing the parties involved in the reconstruction plans for Homs city of Baba Amer neighborhood was impossible due to some security situation and the lack of government permits regarding these projects.

Baba Amer's new project represents the best example of these projects, their priorities, and strategies. It was the first project to be studied, designed and to be

implemented. The project adopts the second strategy of reconstruction strategies by the government, which transformed entirely the physical, architectural and social fabric of the neighborhood.

The project was designed to accommodate around 60,000 inhabitants, which is almost double of its population before the conflict. Applying the reconstruction plan of Baba Amer is planned to take place within a maximum of five years [Figure 92].



Figure 92: Overview of Baba Amer reconstruction plan (Source: Baalbaki, 2017).

Baba Amer new development is more likely to create an additional barrier that prevents locals from returning. It was conducted as a top-down approach rather than being designed to support the locals. Consequently, the project works towards;

- Creating a concrete wall of tall buildings that separate the city from Al Basateen area
- Changing the social hierarchy from low to high-income class, which means a new class of people rather than its original inhabitants.

- Changing the buildings' typology of Baba Amer, by the construction of tall building that reach up to 12 stories, whereas previously used to be only 3-4 stories
- Creating an extremely dense neighborhood which can accommodate up to around 60,000 inhabitants, whereas the previous population was approximately 30,000 inhabitants [Figure 93].



Figure 93: Buildings typology in Baba Amer reconstruction project (Source: Baalbaki, 2018)

However, despite all the previous constraints of the proposed government project for Baba Amer, it is worth mentioning that the expansion did protect Al Basateen area located to the West and limited the expansion only towards the southern parts of Homs. Furthermore, it tends to create a new center of the city which might provide some job opportunities, however, the question here is "who it will attract", since the majority of Baba Amer residents are refugees in other countries and with security issue preventing them from returning.

B. UN-Habitat intervention

1. City context

As part of the United Nation efforts during the conflict and in the aftermath period, various strategies and intervention were proposed as guidelines for the future reconstruction of the city of Homs.

These interventions followed a criteria developed by the UN since the start of the conflict. It involves determining the problems and priorities for each affected neighborhood on different levels [Figure 94]; livelihoods conditions, accommodation, protection, water and food supply, basic needs, humanitarian assistance and welfare sectors [Table 17].

CITY LEVEL		
Livelihoods	<p>1. Loss of technical and professional capacities: through mass exodus of city professionals, including private sector, medical professionals, engineers and teachers.</p> <p>2. Loss of all productive sources of income: the remaining population is either depending on public employments, or occupying marginal retail jobs in emerging street markets.</p>	<p>1. Identifying the preferred displacement destinations of professionals, assessing their intentions to return or to reside abroad. Engagement of doctors, engineers, water and sanitation technicians, teachers and other professionals remaining in Homs in the rehabilitation works to mitigate against further "brain-drain". Organizing trainings through humanitarian interventions and involving the city professionals and technicians in the implementation.</p> <p>2. Plan for quick impact projects, including the rehabilitation of key markets in the city to support the economic revival of the affected areas. Specific rehabilitation projects should target the wholesale market, Al Hasawia light industries area, and the city urban farming area.</p>
Protection	<p>1. Lack of information available to the IDPs: IDPs are not informed properly about the conditions in their areas of origins, and thus may plan future investments in hosting areas inside and outside Syria. Lack of information on housing and property rights in relatively stable areas and on future plans for rehabilitation is a hindrance to ending displacement.</p> <p>2. Land, tenure and property issues: lost ownership deeds, secondary occupation, unlawful and forced evacuation of houses are among many types of rights violations, undermining population return and stability in the city. Complicated tenure and ownership issues in the traditional markets will make revival of these urban areas challenging.</p>	<p>1. The development of information sharing mechanisms with IDPs and refugees is an essential approach. IDPs and refugees have a range of questions on housing, property and rehabilitation process which can be reviewed and analyzed, and responses developed and shared back with them.</p> <p>2. Promotion of international law and practice governing post conflict property rights' protection. Immediate steps recommended:</p> <ul style="list-style-type: none"> - Revision of current Governorate plans for "reconstruction" in the Old City and compensation programmes, and ensure adequate consideration to property rights' protection. - Improve local authorities awareness on property rights' protection, and promote inclusive planning practices. - Communicate information on housing and property rights with the IDPs and the refugees. - Provide dispute resolution mechanism which can provide an objective platform for affected population.
Water supply	<p>Scarcity of water is not frequent in Homs city, but lack of fuel and electricity supplies necessary to operate pumping systems is decreasing supply hours. Vulnerable IDPs and residents who have not been displaced are most at risk groups.</p>	<p>Ensure that local water departments are technically prepared for the challenges of the coming summer season (including those stemming from the geographic changes in demand in IDPs hosting neighbourhoods, and ensure that the rehabilitation of damaged water system and water quality control are prioritized.</p>
Health care	<p>The city health care infrastructure has been severely impacted, as most city facilities (including hospitals and clinics) were in Joret Al Shayah and Al Boghtasia. However, both neighbourhoods are currently non-functional. The damage to health service will mostly impact vulnerable groups including children, the elderly, pregnant and lactating women, and will discourage IDPs to return.</p>	<p>Prioritize the rehabilitation of the "Public National Hospital". Programme incentives to local professionals willing to rehabilitate their damaged private hospitals. Provide mobile and temporary emergency units in the locations where population return is expected (Baba Amr and the Old City in specific), or where there is an absence of any type of health care service even before the crisis (Al Khalidia, Al Bayada, Deir Ba'alba).</p>

Table 17: Issues, priorities, and recommendations by the UN (Source: UN-Habitat, 2014)



Proposed Priority Interventions

A	Indirectly Affected Community	<ul style="list-style-type: none"> Waste collection and removal of informal dumps Housing and shops rehabilitation Agents of solidarity: parks renovation, youth clubs, social events Cash transfers to vulnerable families Vocational training related to local needs
B	Severely damaged or reserved for reconstruction, no population, return prohibited (Check Map 2)	<ul style="list-style-type: none"> Debris management Support urban planning agenda to increase economic efficiency, mitigate social impacts, respond to HLP (housing, land and property) issues Assess the impact of potential protracted displacement of the original population of these areas, 1) on the hosting communities, 2) on consequently needed durable solutions, and 3) on the urban economy
C	Hosting intra-city IDPs	<ul style="list-style-type: none"> Engage with IDPs to assess return requirements to neighbourhoods of origin Food vouchers to vulnerable families Support displaced light industries to return to Area H
D	High potential return	<ul style="list-style-type: none"> Neighbourhood recovery approaches, spurring from the current nuclei or corridors of resettling: debris removal, schools, clinics, networks, housing and shops rehabilitation, streets lighting... etc Fresh food vouchers and cash transfers to vulnerable families Vocational training related to local needs Small and medium enterprises – infra rehab., asset replacement, grants
E	Current return	<ul style="list-style-type: none"> Neighbourhood recovery approaches responding to diverse needs: debris removal, schools, clinics, networks, housing and shops rehab, streets lighting Street rehab, mainly on essential urban corridors Cultural events, parks rehabilitation, heritage rehab.

Figure 94: Proposed intervention in 2016 for Homs' city *Source: UN-Habitat, 2016)*

Based on the previous, the UN-Habitat provides an integrated network of concepts, recommendations and guidelines for the future reconstruction of Homs city. The essence of these recommendations, lies in making city residents and their need the main focus. consequently, it focuses on enhancing neighborhoods conditions, providing shelters for the displaced, promoting livability by supporting small business and creating recreational spaces to revive the social coherence, ensuring food security for all, rehabilitation of infrastructure and buildings as well as reviving commercial, industrial and cultural sectors. More importantly, the intervention priorities reviving the agricultural areas in Al Basateen, by providing a detailed strategic master plan for the agricultural valley.

2. Al Basateen area context

The agricultural valley in the city of Homs was as well part of the reconstruction interventions proposed by the UN-Habitat [Figure 95]. The guidelines focused on reviving the agricultural valley, considering it as an important agricultural pole that can secure food supplies and job opportunities. In order to do so, the UN-Habitat focused on; rehabilitating the water networks needed for irrigation, rehabilitate farmers houses, provide farmers with the tools and materials needed for agriculture, rehabilitating the livestock sector by providing livestock health services and barns, supporting agriculture transportation to areas of consumption as well as creating nearby storage areas for the products [Table 18] (UN-Habitat, 2016).

Immediate/ Short-term priorities

Priority area

1,800 ha of irrigated agricultural land

Agricultural Infrastructure and services

- Rehab. Irrigation network
- Wells rehabilitation, sustainable solutions for water pumping (PV, Bio-energy)
- Land decontamination, river/ canal rehabilitation
- Composting to support agriculture
- Houses and barns rehabilitation
- Milk storage/ refrigeration
- Livestock health services
- Asset transfer (livestock, tools...)
- Seeds distribution to farmers (to support nutrition security/ diversification)
- Crop storage rehabilitation
- Vegetable boxes distribution
- Vocational training, skills development

Transport and Markets

- Agricultural streets and paths rehabilitation
- Support to small transport businesses
- Central wholesale market rehabilitation

Table 18: UN-Habitat guidelines for Al Basateen area (*Source: UN-Habitat, 2016*)

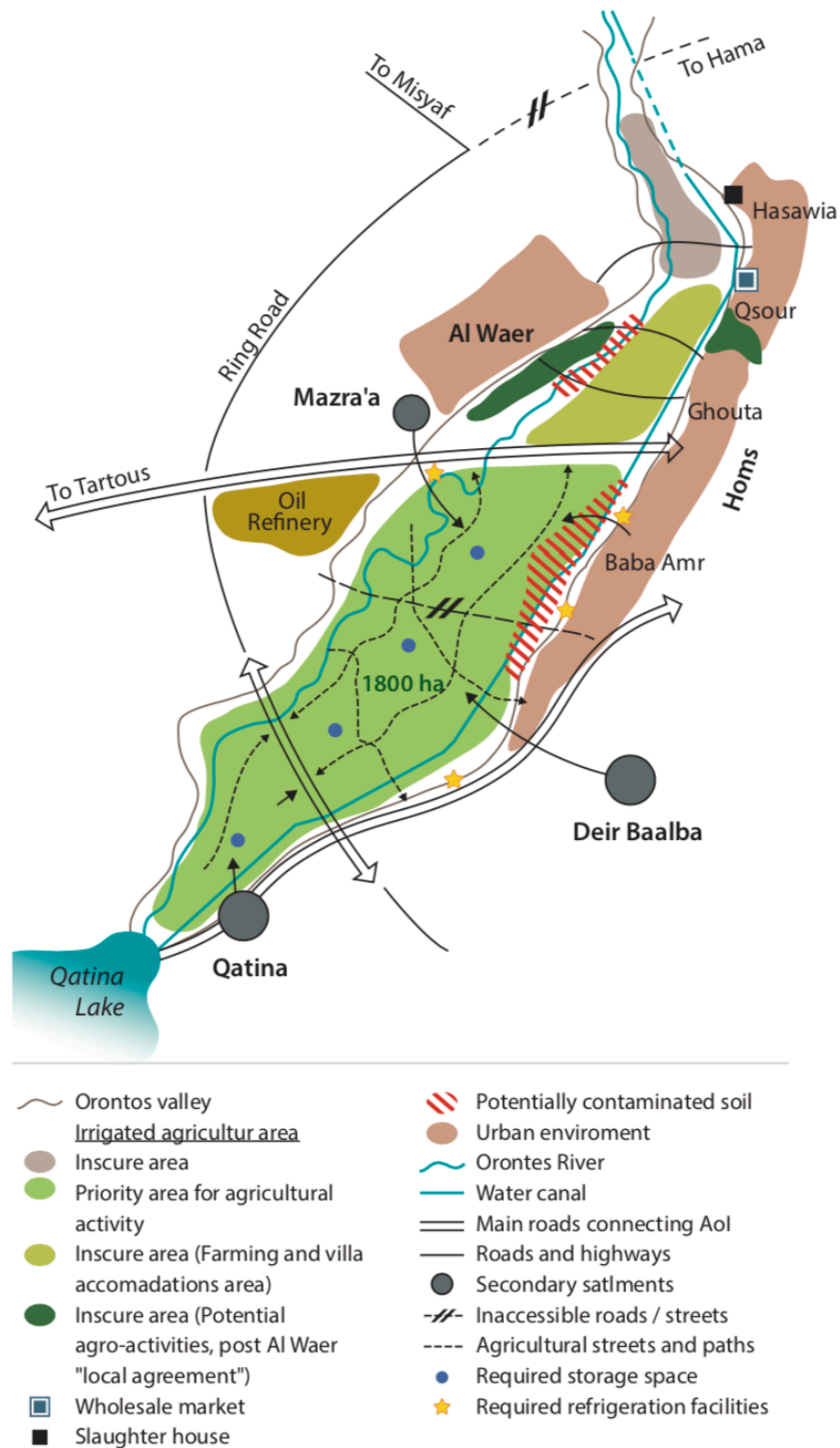


Figure 95: Al Basateen area strategic plan by the UN-Habitat (Source: UN-Habitat, 2016)

In sum, the initiatives taken by the UN-Habitat is more likely to support the outcome expected in this research. The focus of this thesis will be oriented to support locals in both periods; the short-term returning period and the long-term recovery period, by intervening in sectors and aspects that are of value for the residents of Baba Amer neighborhood.

C. Urban agriculture practices during the conflict

In 2013, Al Wear neighborhood, located to the western peripheries of Al Basateen area, shaped a safety point for many displaced people seeking refuge from the heavy bombardment. Accordingly, Al Wear neighborhood was occupied by around 32,700 IDPs in addition to its previous population of 20,272 inh. However, the neighborhood was at risk of being attacked (Un-Habitat, 2017).

After months of relative relief, and by 2015, the war in Al Waer neighborhood started again, exposing its residents and internally displaced people to one of the hardest and severe sieges. With minimal humanitarian assistance and the lacking of basic needs and food supply, living condition in the neighborhood was dismal (the Syria institute, 2017).

During the siege period, the agricultural practice inside the neighborhood helped people to break the vortex of hunger, food shortage and poverty caused by this siege. Accordingly, people transformed available green spaces, rooftops, and buildings gardens into urban agricultural activities, in order to secure their daily needs of food supply and daily income (Sebaai, 2017) [Figure 96].



Figure 96: Open spaces in Al Waer neighborhood (*Source: the author*).

Displaced people, mainly from Baba Amer neighborhood and the orchards, flee from their attacked neighborhood to Al Waer, in sequence to this movement, many green and vacant lands were optimized for urban agricultural activities, in order to overcome food shortage. Many public gardens were fenced to be cultivated and prepared for livestock. Even houses were transformed in the shape of poultry cottage [Figure 97] (Sebaai, 2017).

Products in these cultivated areas were mainly vegetables, fruits, wheat, and cotton. The process of cultivating open spaces in Al Waer neighborhood was supported by the local committee in the neighborhood, which worked on providing agricultural supplies such as pesticides, seeds, and seedlings. Consequently, the area of cultivated lands in Al Waer reached by 2015 was more than 20 hectares (enabbaladi, 2016).



Figure 97: Urban agriculture activities during Al Waer siege (*Source: the author*)

D. Suitability for urban agriculture

1. City context

Land use distribution in Homs city can provide a significant platform for urban agricultural intervention [Figure 98]. In order to come up with a strategic master plan for the city of Homs in the post-conflict recovery period, a review of suitable surfaces and lands will be addressed in this section.

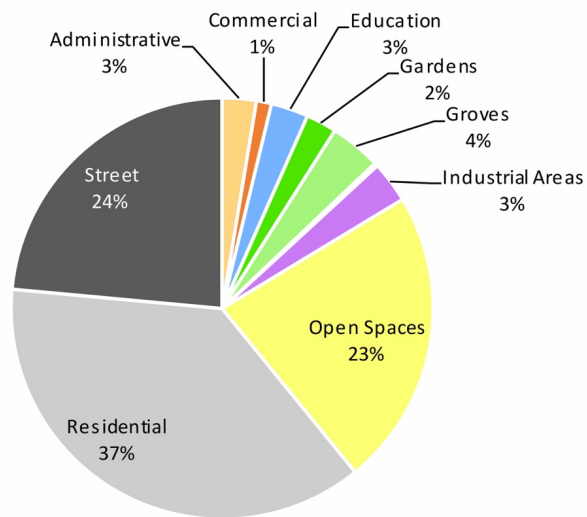
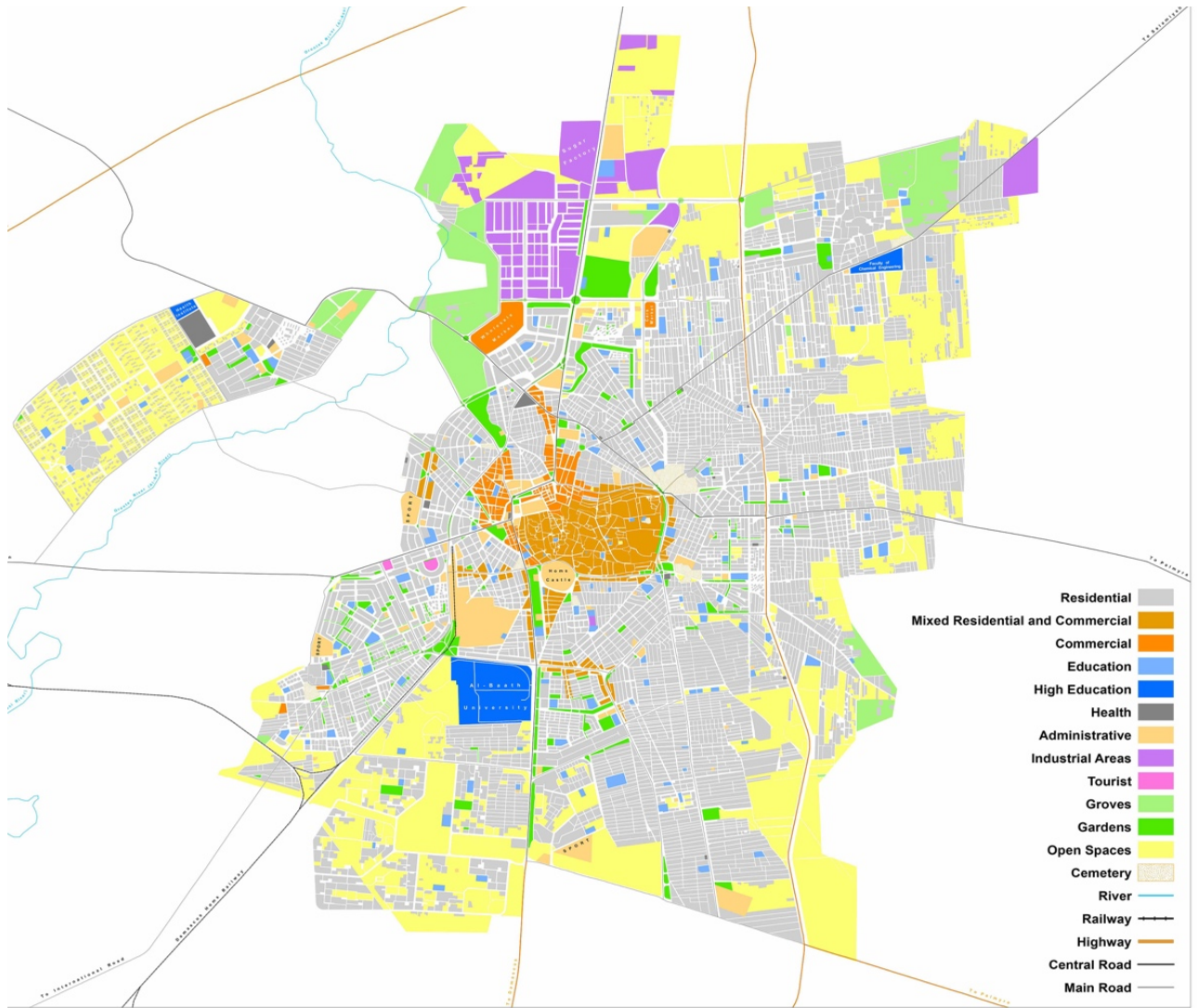


Figure 98: Homs land use map (Source: UN-Habitat, 2016).

a. Vacant lands

Vacant lands are those empty lots with no designated use. With an extensive percentage of vacant lands in Homs city 23% [Figure 99], these lands form a great opportunity to be conserved and recreated as multifunctional lands for urban agricultural purposes (UN-Habitat, 2017). These lands have the potential to be transformed into community and commercial gardens giving its location and approximate to the agricultural lands at the peripheries of Homs.

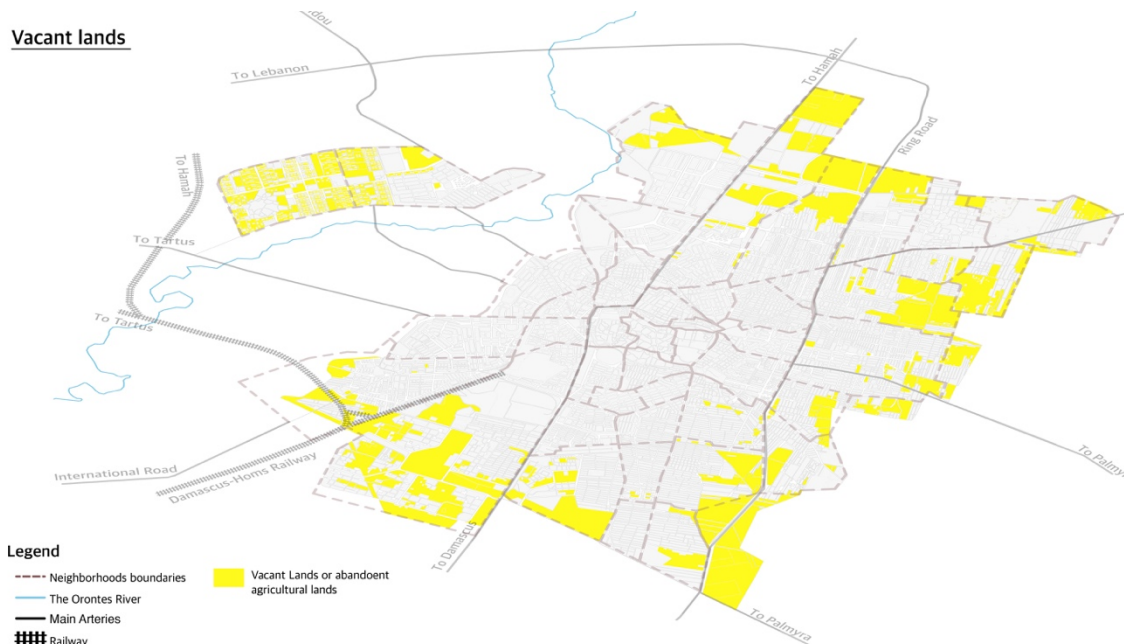


Figure 99: Vacant lands layer (Source: adopted from UN-Habitat, 2016).

b. Open green spaces

In order to produce a green infrastructural network in the city of Homs for sustainable development, it is important to identify the existing open and green spaces, to provide the base for the design intervention. Homs' landscape consists of many street trees and greenery, which can shape the green corridors network [Figure 100]. However, with a very low percentage of green spaces in Homs, only 2% (UN-Habitat, 2017), more green

areas should be planned and recreated in order to increase this percentage and to enhance the landscape and environment of the city [Figure 101].



Figure 100: Streets greenery (*Source: Pinterest*)

Open Spaces

Legend

- - - Neighborhoods boundaries
- The Orontes River
- Main Arteries
- ||||| Railway
- The Orontes Basin
- Groves / Farming lands within the built up area
- Public green spaces as in public gardens
- Emerging urban agricultural activities during siege
- City citadel

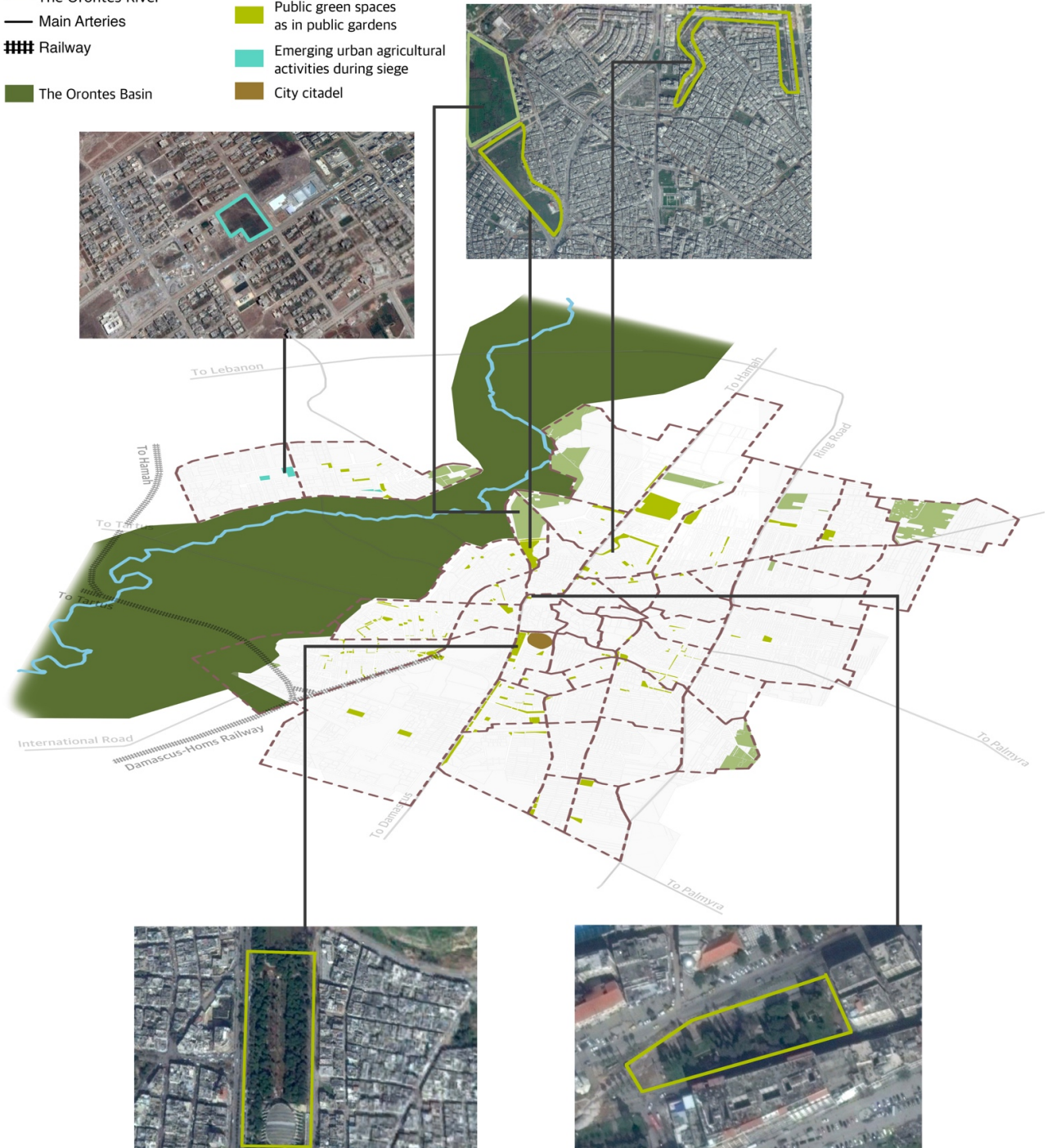


Figure 101: Open green spaces layer (Source: adopted from UN-Habitata, 2016)

c. Commercial activities

The commercial and agricultural system in Homs city are two integrated sectors that rely largely on each other. It is widely known that products consumed in the city markets originate from Al Basateen agricultural lands, both in terms of food supply of fruit and vegetables as well as handcraft materials such as textile. Accordingly, it is important to map the locations of city markets and commercial areas in order to guide our intervention for the future of the city [Figure 102].

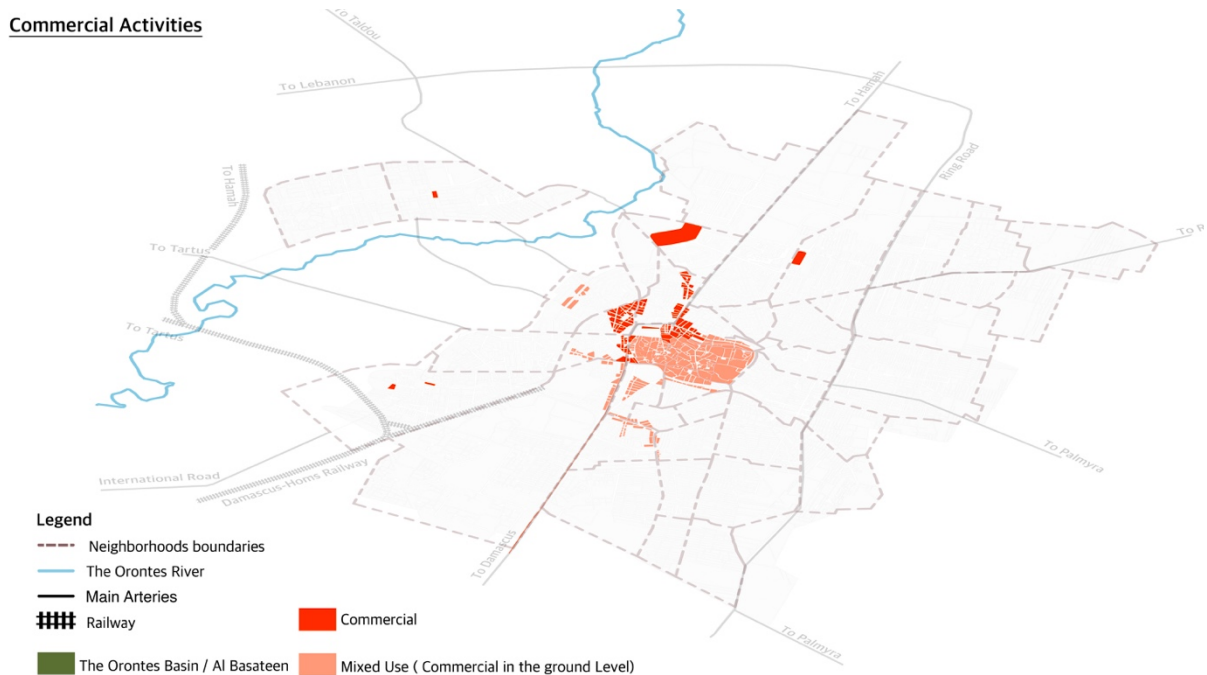


Figure 102: Commercial activities layer (Source: adopted from UN-Habitat, 2016)

d. Educational facilities

Schools and universities can work also as potentials to be optimized for urban agricultural activities. Homs allocates around 3% of its total area for educational facilities. This percentage can be optimized to reform places for urban agricultural activities which can be used for production, laboratory and educational purposes or recreational spaces for promoting community coherence [Figure 103].

Educational facilities

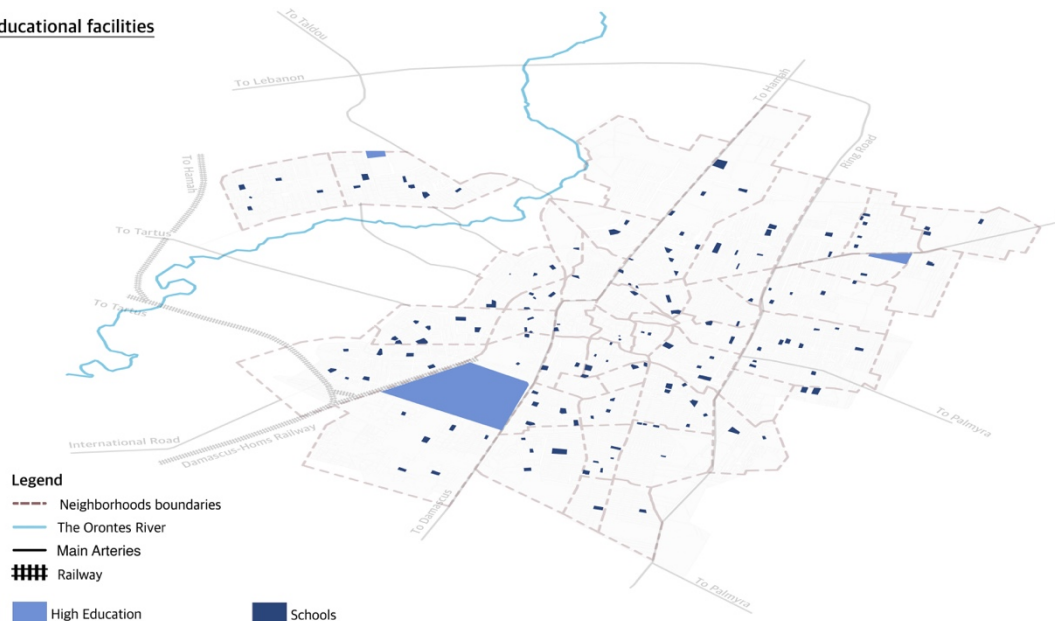


Figure 103: Educational facilities layer (Source: adopted from UN-Habitat, 2016).

e. Streets

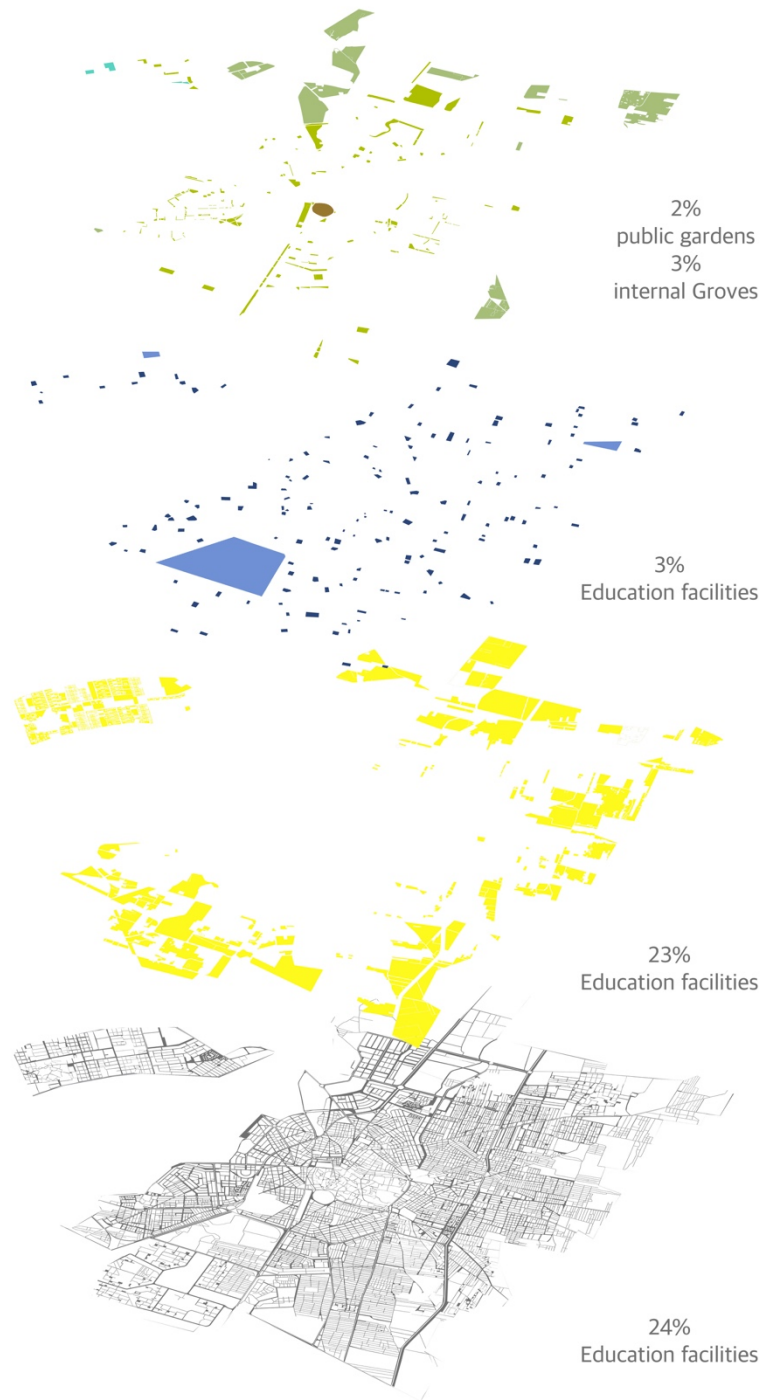
Streets contribute to 24% of Homs total areas, which can be optimized in the shape of green corridors linking the different agricultural commercial activities [Figure 104].

Streets



Figure 104: Streets layer (Source: adopted from UN-Habitat, 2016)

By overlapping the previous analyzed suitable layers for urban agricultural activities, we can notice that more than 56% of total Homs area can be optimized as new opportunities for urban agricultural activities [Figure 105].



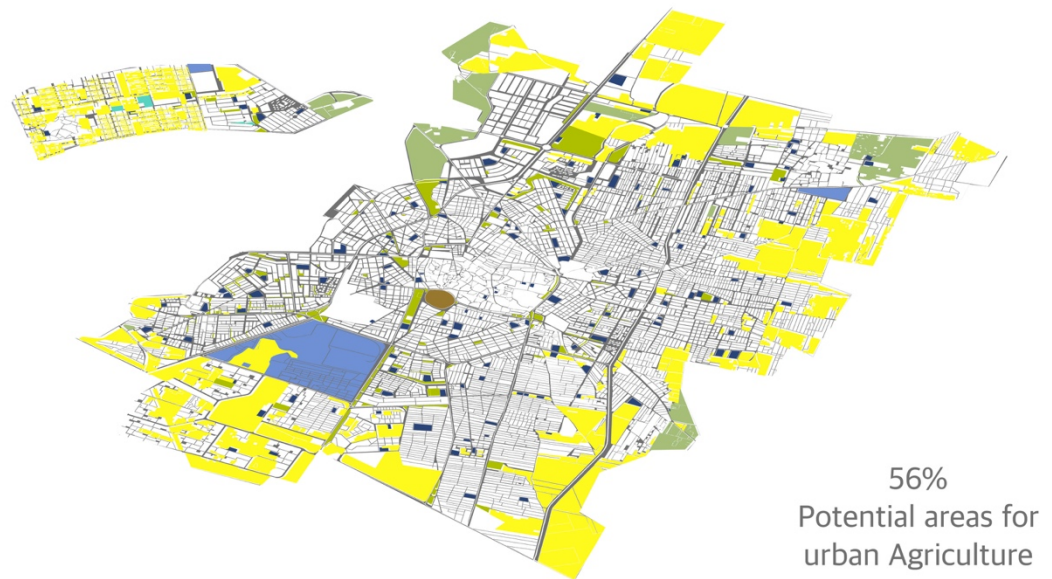


Figure 105: Overlapping suitable layers for urban agriculture (*Source: the author*).

2. Neighborhood context: Baba Amer neighborhood

Baba Amer resembles the city of Homs in its great potential for post-war reconstruction efforts. It has significant characters and layers that make it a great potential for urban agricultural intervention. In addition to its location adjoining Al Basateen area, Baba Amer previously consisted of Baba Amer Orchards which started to shrink gradually with the urbanization of the city. Consequently, it has a great percentage of fertile vacant lands and abandoned agricultural lands within the built-up area as well as the availability of irrigation water given the flow of the irrigation canals at the borders of the neighborhood.

More importantly, it is sought to believe that in post-conflict period, restoring and cleansing the environment, creating micro-enterprises and reviving the social infrastructure such as schools' markets and health care building in addition to providing living spaces can work together as a solid tool to push displaced return despite the

extensive destruction (The world bank, 1998). Accordingly, this section will focus on mapping these layers to be part of the reconstruction efforts, to be used for both urban agriculture and post-conflict reconstruction interventions.

a. Vacant lands

Baba Amer creates a significant opportunity for urban agricultural activities given its location and the historical context of the neighborhood, which affirms that the neighborhood was constructed at the expense of the agricultural orchards [Figure 106].

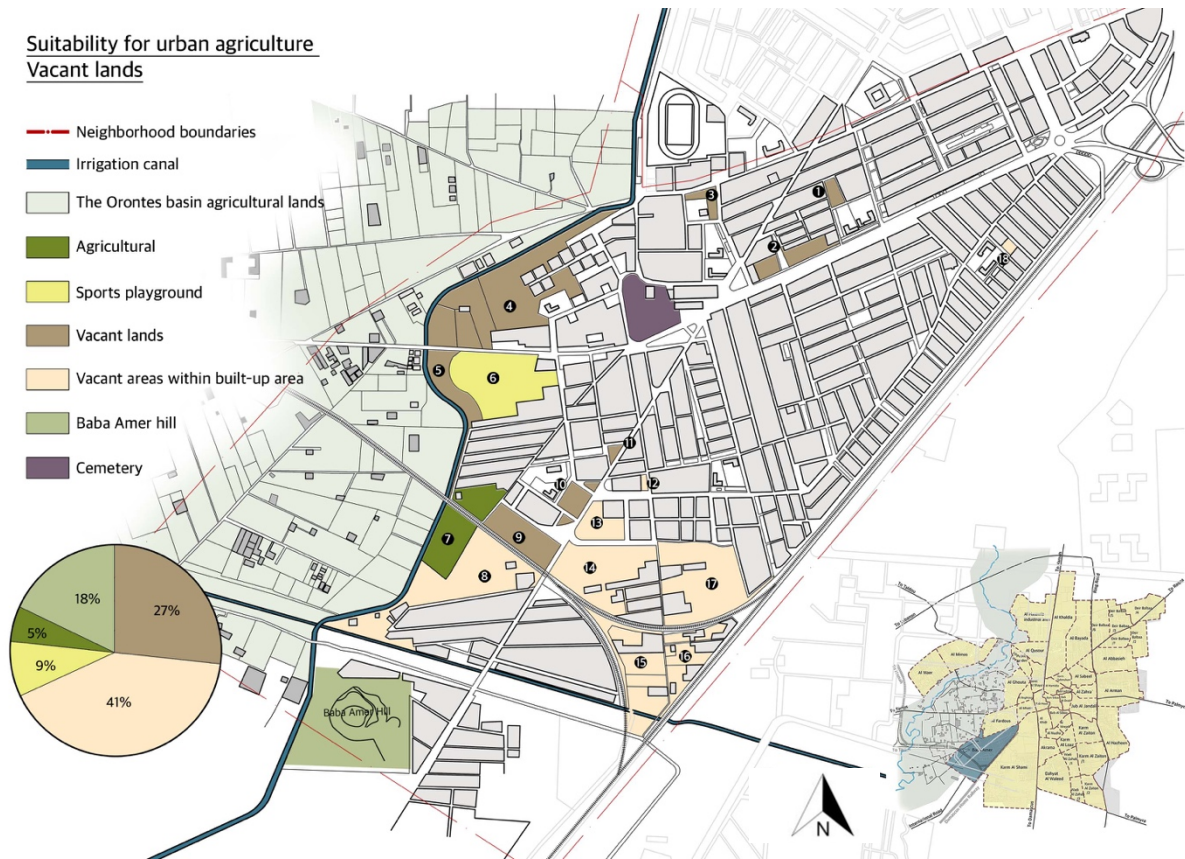


Figure 106: Baba Amer vacant lands layer (Source: the author)

The neighborhood accommodates around 15% of vacant lands that differ in the way they were used prior to the conflict. Currently, despite the neighborhood's urban expansion, Baba Amer is still in direct contact with many lands that are still preserved for agricultural production [107].



Figure 107: Types of vacant lands (*Source: the author*).

According to pre-conflict land uses, vacant lands were classified as the following:

- Agricultural lands: around 5% of the neighborhood area.
- Sports playgrounds: 9% of the area.

- Vacant lands: empty spaces within the neighborhood, which forms around 27% of the neighborhood area. These lands provide a suitable area for urban agricultural activities.

- vacant lands within the built-up area: forms the largest area of the neighborhood with almost 41%. These empty spaces within buildings provide spaces for urban agricultural based development.

- Baba Amer hill: 18% of the neighborhood area. The hill was previously used as a promenade space away from the city traffic and pollution, as well as a space to overlook the green agricultural valley.

These vacant lands were analyzed and mapped in order to understand the potential opportunity provided by every land within the future of reconstruction, based on size and location [Table 19].

	Location/ Pre use	Area	Suitability	Potential use
1	Empty space within medium damage buildings	2422	Possible	Part of the green corridor activities
2	Empty space on the main street	8241	Possible	Part of the green corridor activities
3	Empty space near the neighborhood health center	3246	Possible	Can be used as a healing green space
4	Empty space at the peripheries of the neighborhood that was planned to become a residential area	61095.5	Possible	Can be part of both the green corridor as well as spaces for new housing development
5	Empty space at the peripheries of the neighborhood	11234	Possible	Part of the green corridor
6	Sport playgrounds located on the main street	34522	Possible	Revive the sport playgrounds as well as using it as part of the green corridor activities
7	Agricultural area	22130	Possible	Community garden
8	Empty space within high damage buildings	49891	Possible	Part of new housing development based on Urban agriculture
9	Empty space on main street and near the train rail	15297	Possible	Part of the green corridor
10	Empty space on main street	6149	Possible	Part of the green corridor
11	Empty space on main street	1108	Possible	Part of the green corridor
12	Empty space within low damage buildings	702	Possible	Green space
13	Empty space within low damage buildings	9008	Possible	Part of new housing development based on Urban agriculture
14	Empty space within low damage buildings	29313	Possible	Part of new housing development based on Urban agriculture
15	Empty space within medium damage buildings	28149	Possible	Part of new housing development based on Urban agriculture
16	Empty space within medium damage buildings	12663.5	Possible	Part of new housing development based on Urban agriculture
17	Empty space within low damage buildings	36754.5	Possible	Part of new housing development based on Urban agriculture
18	Empty space within medium damage buildings	1011.5	Possible	Community garden

332937

Table 19: Vacant lands suitability analysis.

Although the conflict has led to the abandonment and burning of these lands, however, they can still be restored and re-function for agriculture. More importantly, given the huge destruction of the neighborhood’s buildings, these vacant lands can be transformed into temporary shelters to accommodate the returnees.

b. Green spaces

In addition to Al Basateen area, which is the core for the agricultural activities, mapping the existing green spaces is essential to guide the creation of the green network along the neighborhood of Baba Amer [Figure 108].



Figure 108: Green spaces layer (Source: the author).

The neighborhood is considered poor in terms of greenery and public spaces which only form around 3% of the total area. The informal buildings' typology in the neighborhood has limited the possibility of creating green open spaces within the neighborhood. Despite this, I was able to identify 5 types of green spaces in the neighborhood in order to understand their potential use in the post-conflict development:

- Street greenery: forms around 17% of the total neighborhood [Figure 109]. Considering their width which ranges between 5-11 m, these areas can hardly provide spaces for planting or accommodating any agricultural activities. Accordingly, these areas could mainly be used as shading or sometime as fruits trees [Table 20].

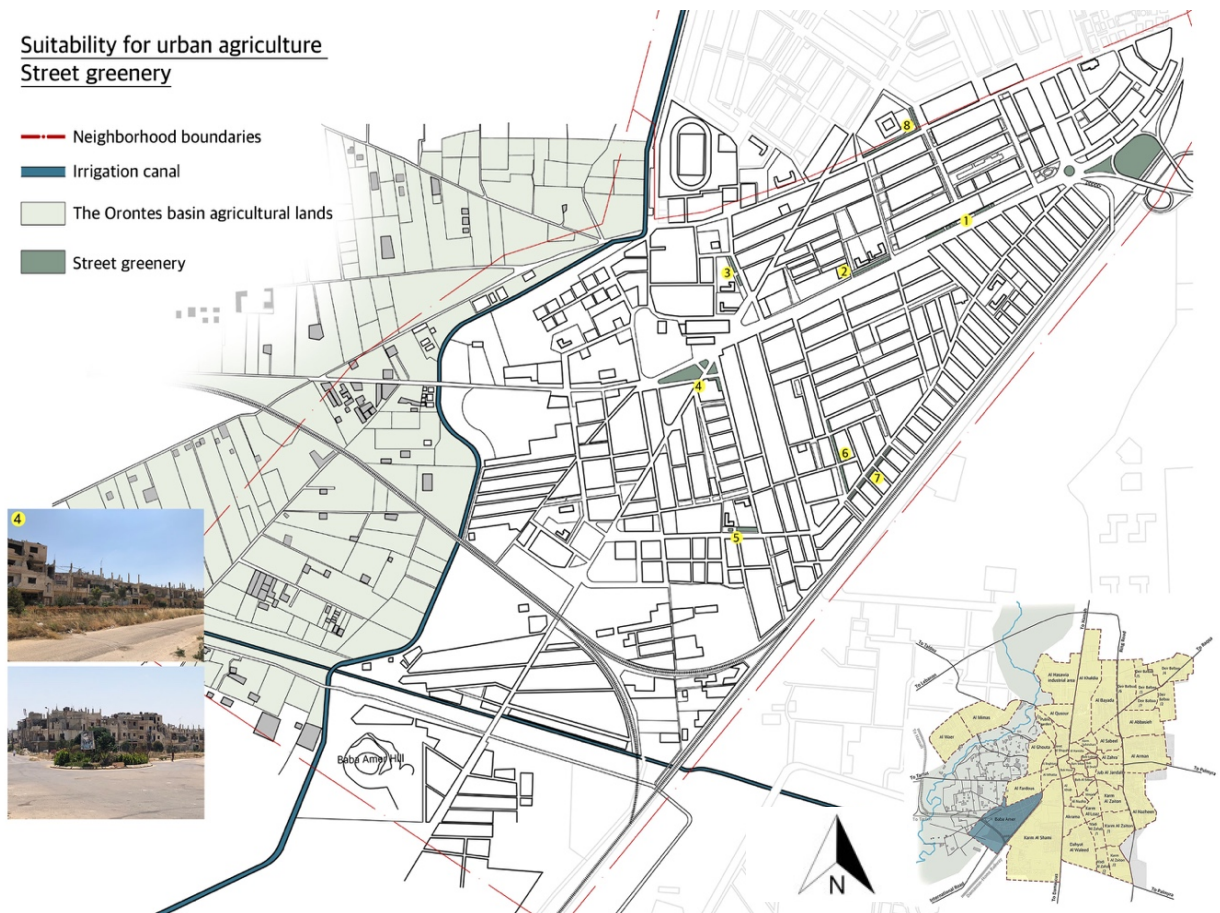


Figure 109: Streets greenery layer (Source: the author).

Street Greenery	Location	Type	Area	Width	Suitability	Potential use
1	-	Sidewalk trees	1097	7.5	Non	Shading trees
2	Near mosque and school	Sidewalk trees	2149	10.5	Non	Shading trees
3	Near schools	Sidewalk trees	540	7.5	Non	Shading trees
4	Near markets	Roads` node	3982	-	Possible	Urban agricultural activities: community garden or garden
5	Near schools	Sidewalk trees	689	10.5	Non	Shading trees
6	-	Sidewalk trees	1287	7	Non	Shading trees
7	-	Sidewalk trees	750	5	Non	Shading trees
8	Near schools	Sidewalk trees	1257	7	Non	Shading trees
			11751			

Table 20: Streets greenery suitability analysis

- Neighborhood green spaces: the largest part of the neighborhood, forms around 50% of the neighborhood's greenery. These spaces are mainly fenced green areas with no functions or usage [Figure 110]. This type of green spaces was part of the newly developed neighborhoods in Homs like Al Waer, and have been created in the newly developed parts of Baba Amer. Taking into consideration their location and size, these areas can provide a suitable space for community gardens, commercial farms as well as any urban agricultural activity in the neighborhood [Table 21]. More importantly, some of these areas should be transformed into public garden given the limited number of gardens.



Figure 110: Neighborhood's green spaces layer (Source: the author).

Neighborhood green spaces	Location	Type	Area	Dimension	Suitability	Potential use
1	On main street	Neighborhood green spaces	410		Non	Green spaces
2	On Secondary street	Neighborhood green spaces	1249.5	19*11	Non	For Neighborhood community garden
	On Secondary street			9*25	Non	Green spaces
	On Secondary street			9*27	Non	
	On Secondary street			7*28	Non	
	Within buildings			12.5*30	Possible	For Neighborhood community garden
3	On tertiary street	Neighborhood green spaces	6042	6*31	Non	Green spaces
	On tertiary street			6*40	Non	
	On tertiary street			6*30	Non	
	On tertiary street			6*23	Non	
	On tertiary street			6*36	Non	
	Within buildings			10*151	Possible	For Neighborhood community garden
	On Secondary street			17*41	Possible	
	On Secondary street			18*29	Possible	
	On Secondary street			19*67	Possible	
	On Secondary street			15*32	Possible	
On Secondary street	14*34	Possible				
4	Near schools	Neighborhood green spaces	2067	9*77	Non	Green spaces
	Within buildings			-	Possible	For Neighborhood community garden
5	On Secondary street near Al basateen are	Neighborhood green spaces	1008	26*39	Possible	For Neighborhood community garden
6	Within medium damage buildings	Neighborhood green spaces	2952	20*42	Possible	For Semi private neighborhood community garden
				21*23	Possible	
				23*23	Possible	
				27*40	Possible	

Table 21: Neighborhood's green spaces suitability analysis.

7	Within buildings	Neighborhood green spaces	2896	19*77	Possible	For Neighborhood community garden
	Within buildings			102*9	Non	Green spaces
	On main street			-	Non	
8	Within buildings	Neighborhood green spaces	3560	-	Possible	For Neighborhood community garden
				11*70	Non	Green spaces
				11*19	Non	
				9*38	Non	
				11*38	Non	
9	On Secondary street	Neighborhood green spaces	2072	183*11	Non	Green spaces
10	Within buildings	Neighborhood green spaces	439	11*38	Non	Green spaces
11	Within buildings	Neighborhood green spaces	2560	12.5*68	Possible	For Neighborhood community garden
				16*72	Possible	Green spaces
				7*67	Non	
12	Within buildings on tertiary streets	Neighborhood green spaces	8184	15*69	Non	Green spaces
				9*57	Non	
				9*30	Non	
				9*36	Non	
				57*32	Possible	For Neighborhood community garden
				15	Possible	
	9*144			Possible		
	10*21			Possible	Part of educational urban agricultural activities	
	10*27					
	10*29					
				33439.5		

- Public gardens: the neighborhood has only 3 public gardens that need rehabilitation and enhancement [Figure 111]. Furthermore, more gardens should be designed in order to fulfill the neighborhood need [Table 22].

Public Gardens	Location	Type	Area	Dimension	Suitability	Potential use
1	Between residential buildings	Public garden	913	20*41	Possible	Remain as a public garden
2	On main street	Public garden	1878	-	Possible	Remain as a public garden
3	Between residential buildings	Public garden	5317	29*190	Possible	Can be used as both public garden and as a community garden
4	On main street	Public garden	1543	-	Possible	Can be used as both public garden and as a community garden
				9651		

Table 22: Public gardens suitability analysis

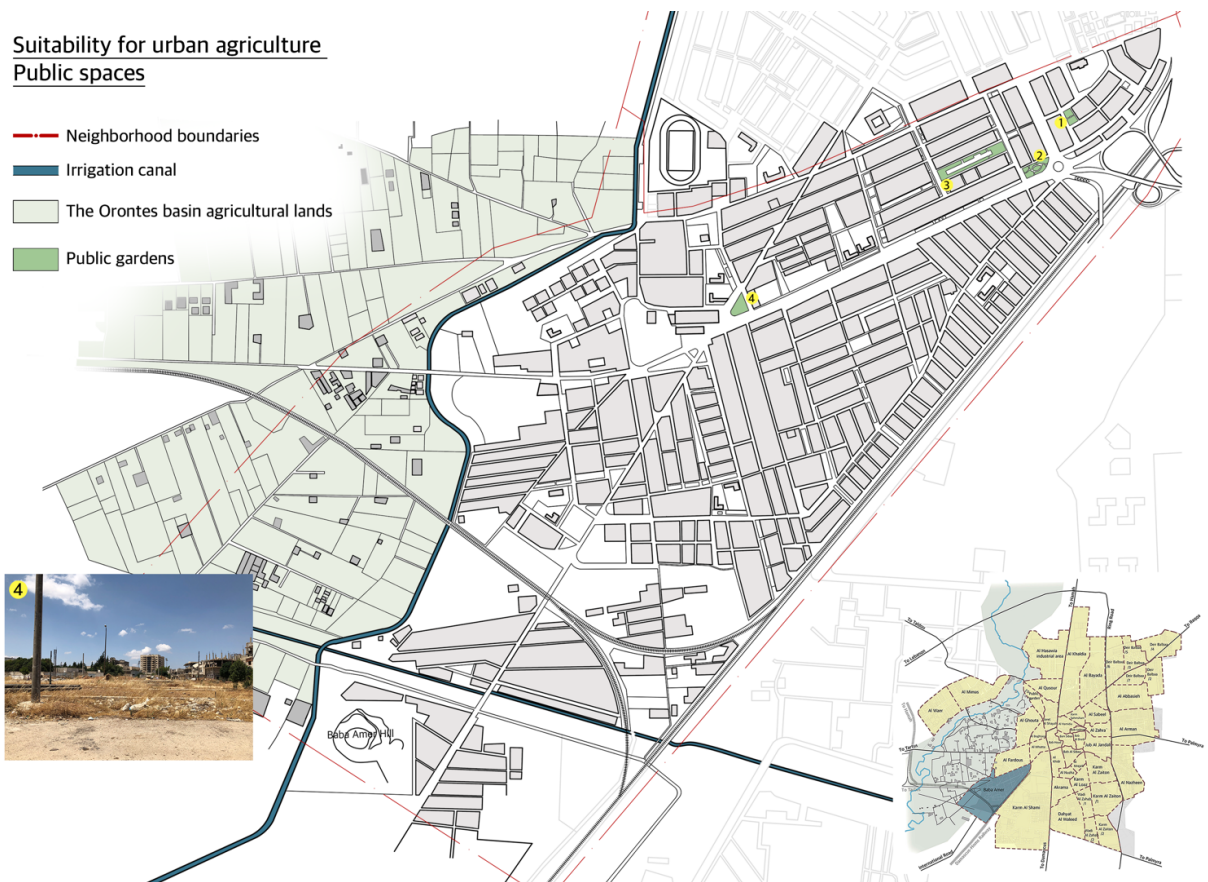


Figure 111: Public gardens layer (*Source; the author*).

- Emerged green spaces: forms around 16% of the neighborhood [Figure 112). These areas started by the abandonment of streets and empty plots between buildings. Many residents, during the neighborhood siege, transformed part of the streets into gardens in order to grow and plant some agricultural products to secure their daily needs of food. By the analysis of their location and their previous function, these areas provide suitable spaces as part of the newly developed mater plan of Baba Amer [Table 23].

Suitability for urban agriculture
Emerged green spaces

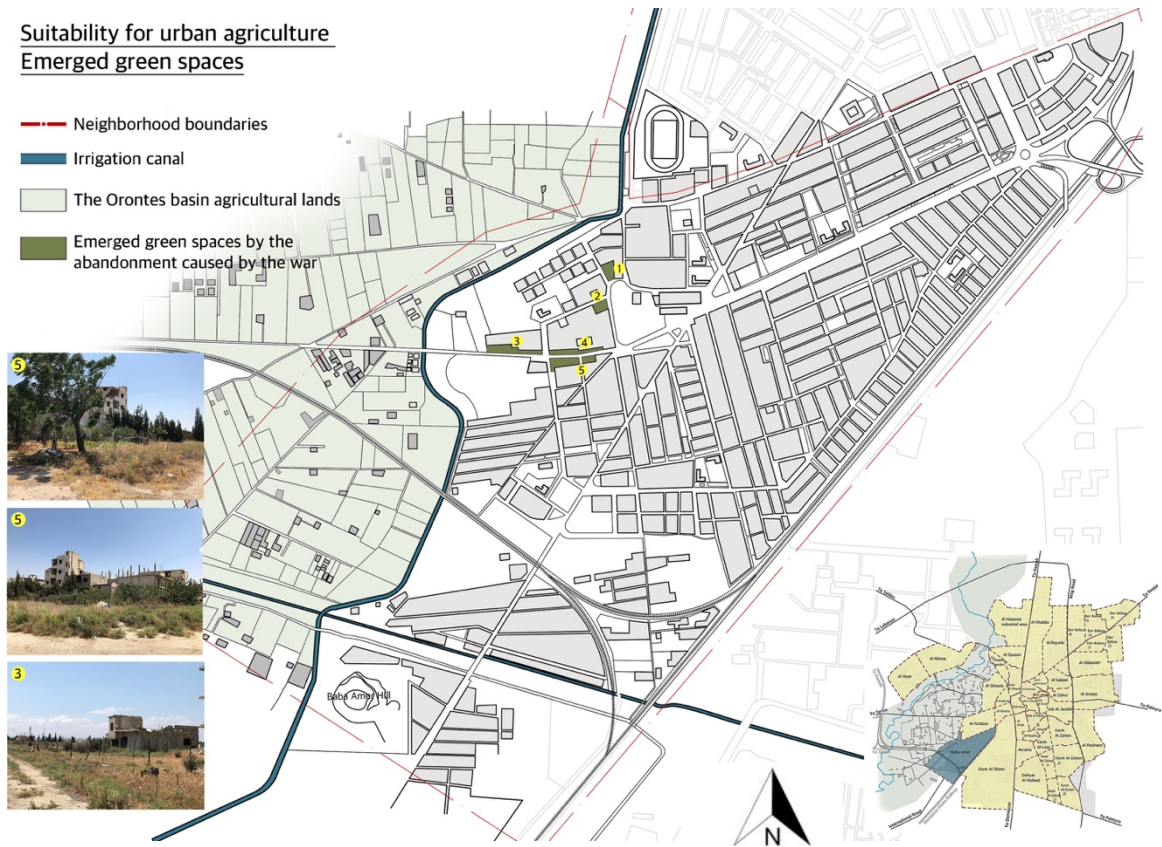


Figure 112: Emerged green spaces layer (Source: the author).

Emerged green spaces	Location	pre use	Area	-	Suitability	
1	Within high damage buildings	Empty space	1370		Possible	Part of the new development that is based on urban agriculture
2	Within high damage buildings	Empty space	1095		Possible	Part of the new development that is based on urban agriculture
3	Within medium damage buildings	Part of the main street	2621		Possible	Part of the green corridor revival which could be part of the green corridor activities
4	Within medium damage buildings	Part of the main street	1752.5		Possible	After widening the main streets it could be part of the green corridor activities
5	Within medium damage buildings	Part of the main street	3814		Possible	After widening the main streets it could be part of the green corridor activities
			10652.5			

Table 23: Emerged green spaces suitability analysis.

c. Educational facilities

Schools and other educational facilities work as the core for the revival of neighborhoods in terms of social infrastructure. They can work as places for education as well as business transaction. Accordingly, it is important to map the educational buildings as an important location for design intervention on both levels, urban agriculture and neighborhoods reconstruction [Figure 113].

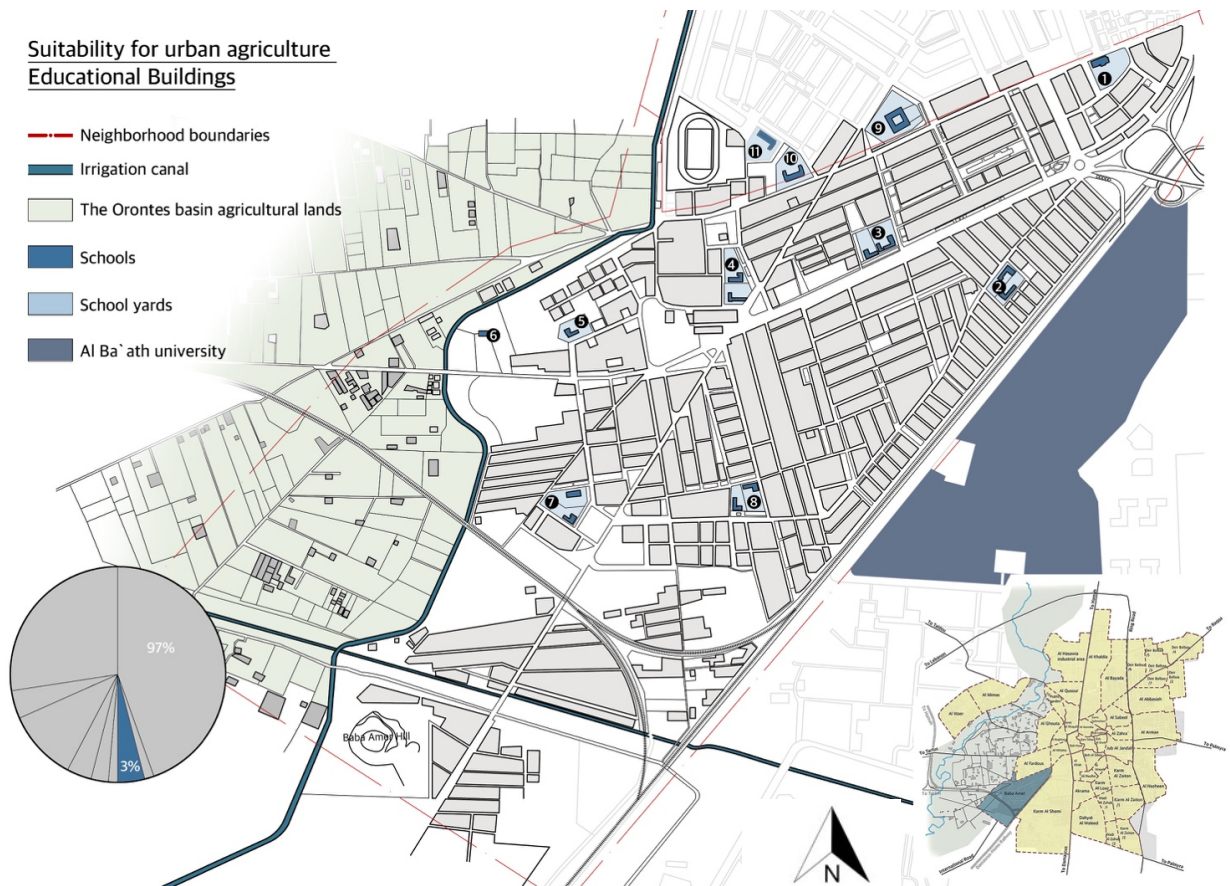


Figure 113: Educational facilities layer (Source: the author).

Schools in Baba Amer neighborhood are partially damaged and some of them are intact. Accordingly, they represent an opportunity for light rehabilitation before being re-functioned. During the conflict, some of these schools were used as accommodations for around 15 displaced families from Palmyra and Idlib. These

families occupied two schools in Baba Amer and the other schools were places for small businesses during the returning period of residents such as food kitchens and workshops (UN-Habitat, 2016), consequently, people should be provided with alternative spaces in order to empty these facilities.

Furthermore, schools' typology, in Homs in general and Baba Amer in particular, is characterized by the extensive yards and open areas within their plots, which are equivalent to approximately 59373.5-meter square [Table 24]. Based on the previous, mapping the educational facilities could contribute to the reconstruction efforts in the neighborhood, given their potential to be optimized for multiple agricultural activities such as production, laboratory and educational purposes or recreational spaces for promoting community coherence.

Number	Name	Built up area	Total block area	Empty school yard	Condition	Picture
1	Al Nawras kindergarten	822	7223	6400	Intact	
2	Fahed Al Saad School	642	5884	4696	Low damage	
	Omar Mokhtar school	546				
3	Bahethet Al Badya School	467	7569	6371	Low damage	
		731				
4	Al Yarobieh School	566	7631	6587	Low damage	
	Abu Tamam Al Ta'alel school	478				
5	-	407	3543	3136	Low damage	
6	-	234	-	-	Low damage	
7	-	460	7908	6926.5	Low damage	
		521.5				
8	Hassan Ibn Thabt School	451.5	5904	4936	Intact	
		516.5				
9	-	1958	11725	9767	Intact	
10	A`isha school	998	6968	5970	Intact	
11	Al Jawlan school	878	5462	4584	Intact	

Table 24: Schools suitability analysis.

d. Streets

Baba Amer streets create a significant platform for green infrastructural networks. With the "26 law", initiated in 2008, Baba Amer neighborhood was reorganized according to the construction system of Homs city. Accordingly, many streets were widened and re-designed according to standards [Figure 114]. In addition to being used as a green network, streets can work as visual corridors that open the neighborhood towards al Basateen area.

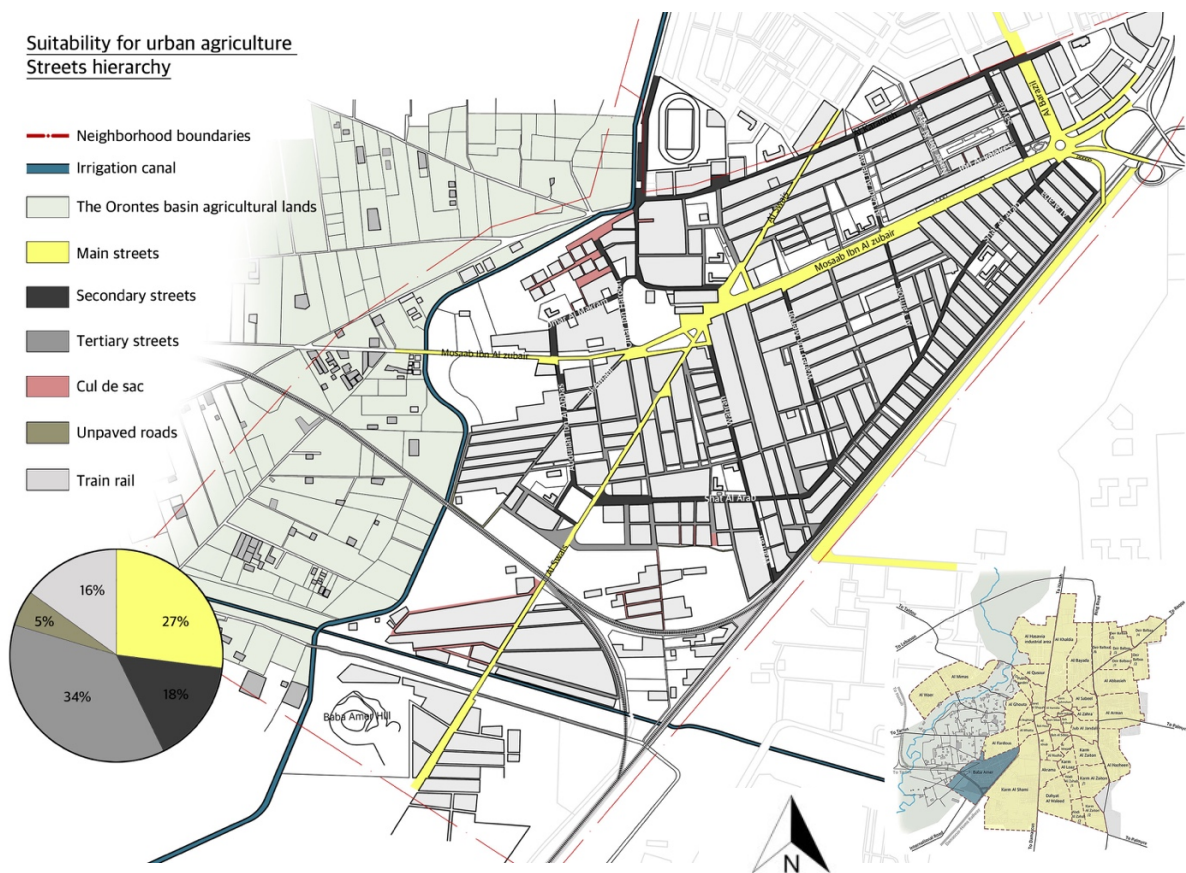
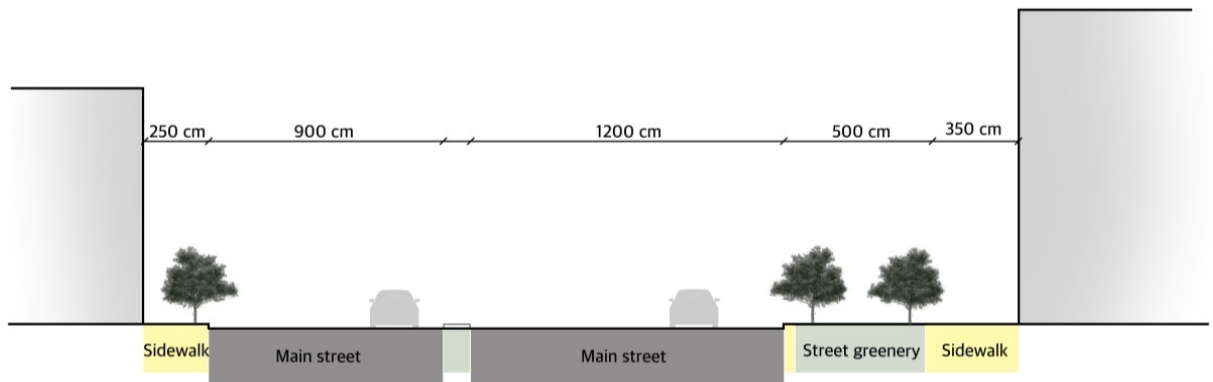


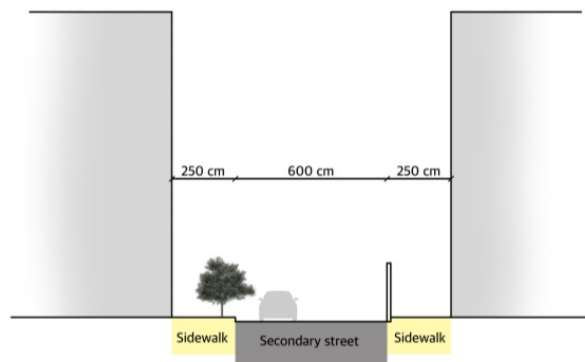
Figure 114: Streets hierarchy layer (Source: the author).

After analyzing the different types of streets in Baba Amer; (Main streets 27%, secondary streets 18% as well as tertiary streets 34%). We find that main and secondary streets can be used for the implementation of green/ blue infrastructural systems which

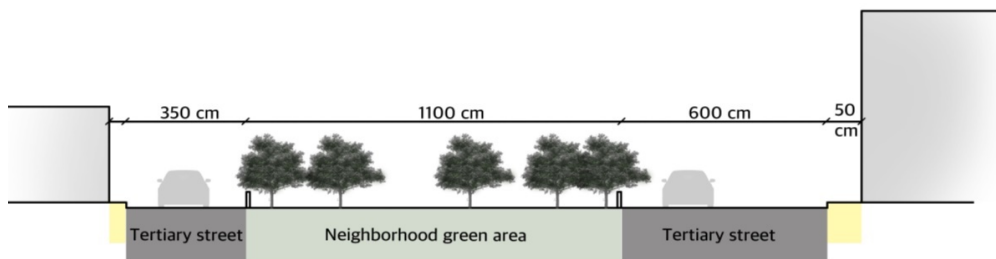
are proposed to take place as part of the reconstruction process. Given their width and the location which link different green areas and functions these streets can be transformed into green corridors especially for those linking the inner parts of the neighborhood with Al Basateen area such as Mosaab Ibn Al Zubair [Figure 115].



1. Main street section



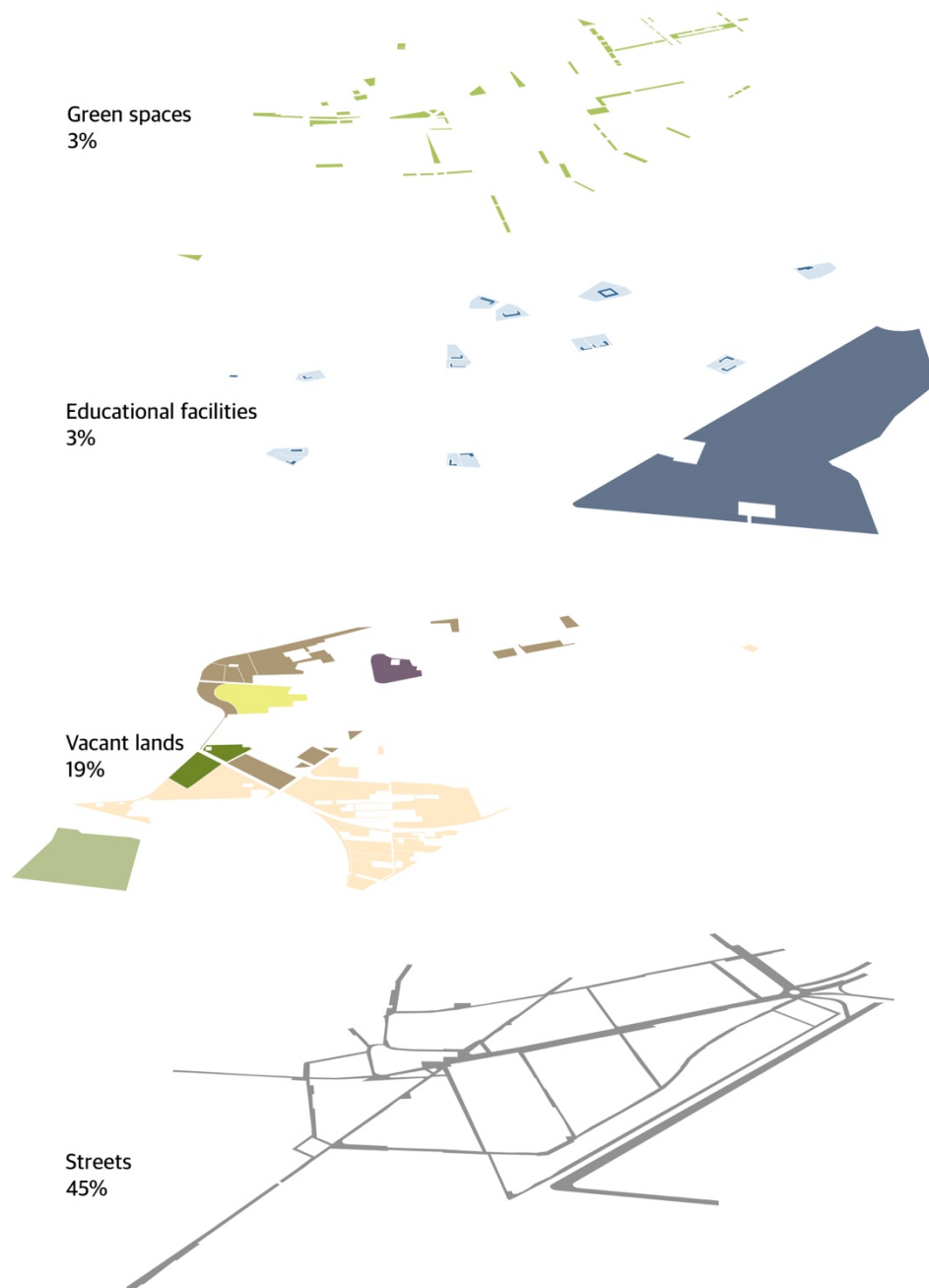
2. Secondary street section



3. Tertiary street section

Figure 115: Sections in Baba Amer streets.

Based on the former, Baba Amer consists of many potential areas for post-reconstruction intervention [Figure 116]. By overlapping the previously analyzed layers, we can easily conclude that the post-reconstruction efforts in Baba Amer will focus on restoring the social infrastructure of the neighborhood, creating a multifunctional land that encourages urban agricultural activities as well as protecting the un-urbanized orchards.



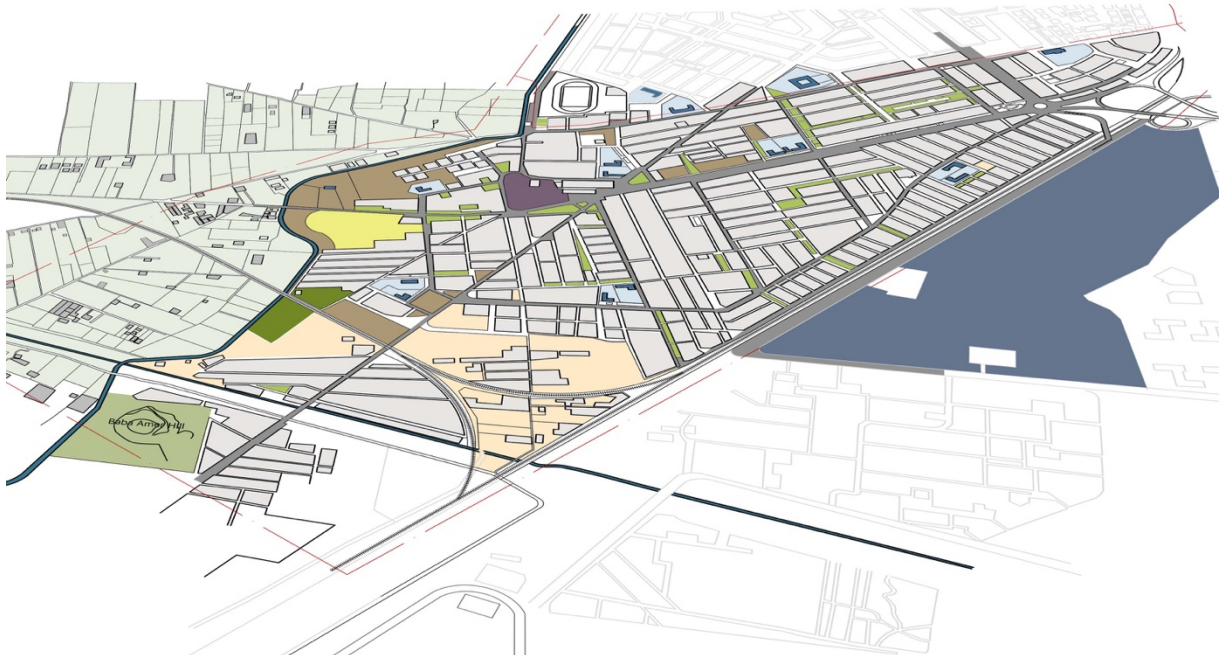


Figure 116: Suitable layers for urban agricultural intervention (*Source: the author*).

E. Returning process limiting factors

It is important to understand the residents' perspective regarding the future of the city. More importantly, it is essential in the post-conflict reconstruction period to understand what are the push factors, encouraging returnees, and the pull factors, discouraging them from returning to their city.

Due to security issues, I was not able to conduct surveys during my site observation, therefore, I will be using stories based on interviews conducted by the Syria Institute and Pax, in addition to personal contact with residents in Homs.

Although the end of the conflict drove many Homs residents to return to the city despite the extensive destruction, yet many other pushing factors are preventing and discouraging people from taking the risk of return, these factors are (the Syria Institute, 2017);

- Physical Destruction; reached city infrastructure, properties
- Looting of houses; in terms of personal belongings as well as buildings materials
- Detention and political view; threat of being on the regime list and threat of sectarian violence
- Destruction of property documents owned by the municipality and loss of personal property documents.
- Documents falsification; in several cases, owners returned to find their houses sold or rented by falsified ownership documents.
- Empty houses were occupied by displaced people or the regime military and supporters

Most of the previous factors can't be addressed in post-conflict reconstruction intervention, proposed in this thesis. Therefore, different scenarios should be conceptualized to be able to intervene and take initiatives in the reconstruction process.

F. Land ownership and dispossess properties

To be able to intervene in these lands, it is important to understand lands ownership and the laws related to property dispossess.

Indicating ownership of the suitable vacant and green plots for intervention was difficult due to lack of access to some city administrative buildings as well as security status.

However, if lands and properties are owned by the private sector, they can be subject to property dispossession law, issued by the Syrian constitution, in which, privately owned land can be taken for the public benefit projects.

This is clearly mentioned in a series of legislation, the last one was the law 20 issued on 24/8/1983. In this case, a fair compensation should be paid to the owner. This dispossession cannot be final unless a presidential decree is published in the official journal and clarifying why this action is taken (Mohamad, 2013).

The projects of public benefit are;

- Irrigation and dams projects
- Oil, gas, electricity, mineral resources and industrial zones projects,
- Projects for security and defense
- Projects related to planning development
- All the projects of public sectors.

It is also authorized for public administration responsible of habitat sector to dispossess lands for preparing an urban development plan in selected areas to be distributed later on for habitat buildings (Mohamad, 2013).

The first precondition for dispossessing is to clarify the public benefit (type of benefit), to have a clear pre-design and an evaluation of the cost. After the publication of the presidential decree, the land subject of this action will be marked in the real estate paper of the land. For compensation the administration establishes a committee of three persons (no one of them should have any relationship with the owners for evaluating the price of the dispossessed lands. This price should take into consideration, the actual value of the land and the cost of building on it (Mohamad, 2013).

For agriculture lands, the price is evaluated based on the value of annual agriculture productivity but not exceeding 10 times this value. If the land is cultivated, the evaluation should take into consideration the value of the land and trees (Mohamad, 2013). Accordingly, available empty plots in the city of Homs can be optimized for public benefits projects, in terms of green gardens, recreational spaces, community gardens.... etc.

CHAPTER VII

URBAN DESIGN STRATEGY AND INTERVENTION

This thesis proposes a strategy for the post-conflict reconstruction period in the city of Homs that is inspired by the agricultural practices adopted by the city inhabitants over the years. Based on the previous analysis, five key elements that guided this intervention were concluded:

- (1) The value of agricultural practices for Homs people which is considered as a lifestyle inherited by generations.
- (2) The social value of Al Basateen area, which allocated various activities such as restaurants and party halls and considering it the only huge public space in the city that people go to for promenading (Al Kharab street).
- (3) The reconstruction plans proposed by the government for most of the city neighborhoods are not justifying the social fabric of the city and largely neglecting the role of agriculture.
- (4) The city of Homs creates a suitable platform for post-reconstruction efforts driven by urban agriculture practices.

More importantly, the main element among this is;

- (5) Post-reconstruction efforts are being addressed in the long-term context (Physical and urban reconstruction) whereas the need for immediate factors that encourages people to return to their neighborhoods such as

food security and micro-enterprises to support their livelihoods are being neglected.

Accordingly, this thesis proposes to start the reconstruction efforts by taking initiatives to kickstart the recovery process by using an urban agricultural based approach which proved its success in the post-conflict reconstruction period with its effective impact on the social, economic, environmental.

Urban agriculture can contribute to the post-reconstruction of the city of Homs by being conceptualized as a dynamic urban green/blue infrastructural network. This proposition will be addressed in the city of Homs context as a prototype for later development in other major cities along the Orontes.

Considering the unsettled political status for the inhabitants of Homs city and the fact that most of the displaced are avoiding or prohibited from returning due to major political issues, this thesis will assume the support of the municipality and will eliminate the political aspect which might work as a barrier for the returning process of locals, which are key actors in the proposed intervention for the post-reconstruction strategies proposed in this thesis. Consequently, the post-conflict reconstruction intervention within the city context and its neighborhoods can be summarized in 3 main interrelated strategies:

1. Create; a green infrastructural system using multi-functional urban agriculture spaces
2. Connect; the natural area of Al Basateen to the city and as well, connecting the different urban agriculture actives and open spaces within the city
3. Reconstruct and rehabilitate; the city neighborhoods in terms of schools, health care, infrastructure and houses

These strategies have effective impact on both level short term reconstruction and long-term recovery which, more importantly, will have an underlying impact that supports largely the future growth of the city and the sustainable livelihood in terms of;

- Multi-functional open spaces
- Creating job opportunities
- Supporting local food production
- Enhancing living conditions
- Environmental restoration and remediation
- Promote social coherence and interaction
- City and neighborhoods landscape beautification
- Protect the city social fabric, traditions and agricultural lands
- Create pilot projects and attraction nodes for investors and visitors.

Based on the severe impact, the war had on the city of Homs, in both its urban center and peripheral agricultural lands, and driven by the reconstruction analysis, layers, variables, and principles analyzed in the previous chapter, this thesis will provide a general post-conflict reconstruction strategy for the city of Homs, by the focus on the role of Al Basateen area as the core for the post-conflict reconstruction interventions.

While urban reconstruction and economic development plans are underway in the urban core of Homs, a faster and much less effort can be focused on Al Basateen area and its surrounding neighborhoods to kickstart the return of the displaced by providing an economic base for them through an urban agricultural network across the city.

The general strategy will be transformed into a more focused intervention in Baba Amer neighborhood context, which will elaborate more in-depth on how an intervention based on the three defined strategies; reconstruction, creating, and connecting will contribute to the post-conflict reconstruction initiatives in the neighborhood, and later in the city context

A. City context: the city of Homs

1. S.W.O.T analysis

Based on the previously analyzed layers, damage and functionality analysis, returning movement, reconstruction and rehabilitation efforts by the government and the suitability for urban agriculture activities, I developed an analysis of the strength, weaknesses, opportunities, and threats in the city of Homs (S.W.O.T) that will address the potential recommendations and guidelines for the post-war reconstruction initiatives [Table 25].

	Strengths	Weaknesses	Opportunities	Threats
Environmental	Location of Al Basateen bordering many neighborhoods in Homs	Affected environment by the bombardment	Al Basateen area can work as the core for the green corridors network	
	Suitability for urban agricultural intervention	Burned and destroyed trees	Potential for the penetrating of water surfaces through the city	
	The location of the Orontes river passing the city		Streets can be converted into green corridors	
	The availability of street greenery and neighborhood green areas		The peripheral edge represents a peripheral ecological corridor	
Livelihoods and social welfare	Returning movement towards the neighborhoods	Shortage of accommodation units	Light damage of social services makes it easier to reactive them	The unsettled status of neighborhood dwellers, between displaced and newcomers
	Many neighborhoods started to function again	Impacted social fabric resulted in blurring the social identity of the city	Neighborhood can create recreation spaces	Land ownership issues; lost documents
	Residents will to reoccupy their neighborhood		The greenery will enhance the living condition	The issue of IDP who are refusing to evacuate their new settlements
	The strong bond between Homs people			Complicated properties issue; ownership, tenure, displaced dominant theft and looting
				The unsettled political status

Table 25: City of Homs S.W.O.T analysis.

	Strengths	Weaknesses	Opportunities	Threats
Economic	Availability of economic infrastructure; markets, industrial area and agricultural lands	Lack of Job opportunities	Potential of major economic poles; The commercial city center	Lack of manpower
	The wide experience of Homs people in industrial and agricultural activities	Lack of funding and investments	Potential of industrial poles; Al Hasawia	
			Potential for agricultural poles; Al Basateen area	
			Potential for culture touristic poles, the old city	
Physical	The heavy damage to the buildings and physical infrastructure;	Potential of the corporation between the different parties involved in the reconstruction	Major parts of the neighborhoods can be reoccupied after high rehabilitation of buildings	Lack of manpower
	Government and UN are taking initiatives to start the reconstruction process		The city occupies major vacant lands that can provide spaces for temporary shelters	
Agriculture	Value of agriculture practice in Homs	Affected agricultural lands by the conflict	Empty vacant lands can be optimized as urban agricultural areas	
	Fertility of lands	Dry water canals	Potential for the implementation of green wedges approach	
	Availability of water resources			

2. Synthesis map

Post-conflict reconstruction period is as complicated and rough as the on-going conflict period. Although people are returning, however, they have no clear understanding of the circumstances they left behind. Furthermore, given the slow recovery of the neighborhoods, they might lack access to food, basic life needs, housing and belongings, education and healthcare. Dealing with such impact is tricky due to the extensive impact on the social fabric which was mainly attacked by the conflict in Homs city. So, the question in the post-reconstruction period is mainly centralized in what are the main factors to start tackling in order to overcome such impact. Accordingly, I proposed a general strategy and guidelines for the city of Homs, which will work as a tool encouraging people to return and occupy their neighborhoods.

Based on the previous analysis, and as part of the reconstruction process, the main focus of the strategy is to create a green infrastructural network of open spaces and urban agricultural activities to upgrade neighborhoods and create livelihoods where people can work, live and interact together in an integrated urban/natural environment [Figure 117]. Consequently, the city of Homs provides various opportunities that can support the post-reconstruction framework, that can be summarized in the following:

- (1) The value of agriculture in the city of Homs and its location in the fertile Orontes basin make it of value to concentrate on the agricultural lifestyle of Homs people as a strategy to revive sustainable livelihoods in the post-conflict reconstruction period. More importantly, the availability of water resources, the Orontes river and the irrigation canals, can support the restoration of the agriculture system in the city.

- (2) The city consists of around 56% of suitable open spaces for urban agriculture intervention; underused vacant lands, streets, building' yards, and rooftops and, most importantly, abandoned arable lands. These layers create an opportunity for urban agricultural activities. They can be utilized as community gardens, large parks, farming markets, productive pockets...etc.
- (3) Potential economic poles such as the industrial area and the old city, which can be revived in order to enhance livability and enable displaced to return by creating job opportunities and ensuring the funding needed for the rehabilitation process.
- (4) Al Basateen area can contribute to food security by providing the supply needed of fruits, vegetables and other products needed for manufacturing.
- (5) Potential cultural and heritage poles; especially in the old city and the old citadel which overlooks the city of Homs.
- (6) Reviving Al Basateen area will contribute as well to the social aspect in the city given its value for Homs people.
- (7) Given the location of the natural Al Basateen area adjoining most of the city neighborhoods, it can be identified as the core of the green wedges approach which will link the city with its rural peripheries.

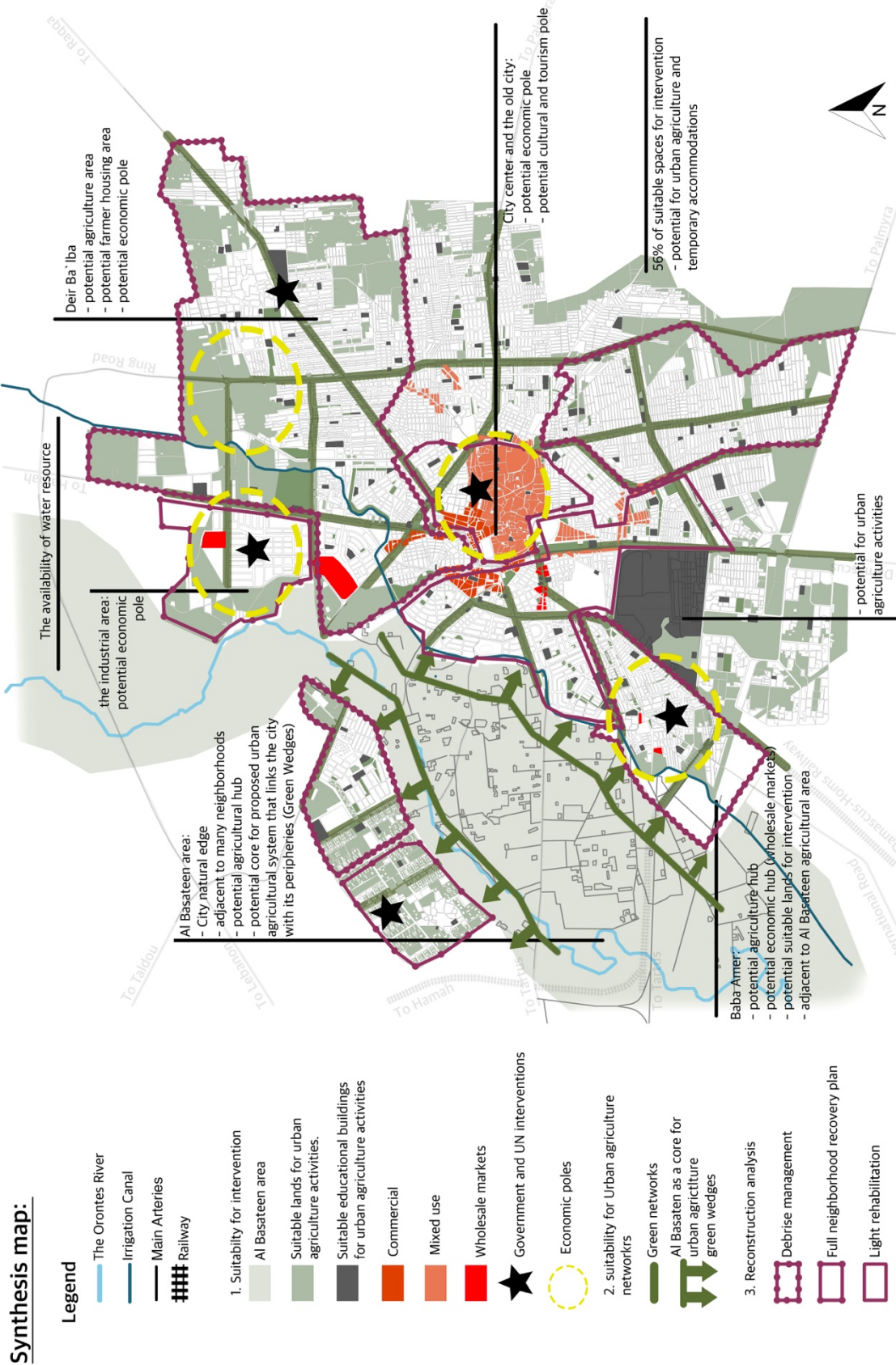


Figure 117: Homs Synthesis map.

B. Neighborhood context: Baba Amer neighborhood and Al Basateen area

In this chapter, I propose a post-conflict reconstruction intervention for Baba Amer neighborhood inspired from the important features characterizing the neighborhood as well as peoples' needs in the post-conflict reconstruction period such as; food security, clean environment, places to live and interact as well as employment opportunities. How urban agriculture can work as a catalyst for post-war reconstruction efforts? How can agricultural lifestyle and experience to be integrated within the built-up area?

Based on the previous synthesis map of Homs city and the different layers analyzed for the neighborhood, Baba Amer in the aftermath is lacking an extensive level of livability conditions to encourage people to return. The extensive damage and the lack of food and economic aspects are creating barriers slowing and discouraging displaced residents from reoccupying the neighborhood and taking active efforts in the reconstruction and revival process. Thus, the neighborhood offers an opportunity to generate a green infrastructural network of urban agricultural activities which will work as the dynamic underlying system to support the returnees, residents and displaced. This network will utilize Al Basateen area as the source of the agrarian activities. More importantly, the urbanization expansion towards Al Basateen area will be reversed to increase the domination of the agricultural areas towards the city and not vice versa [Figure 118].

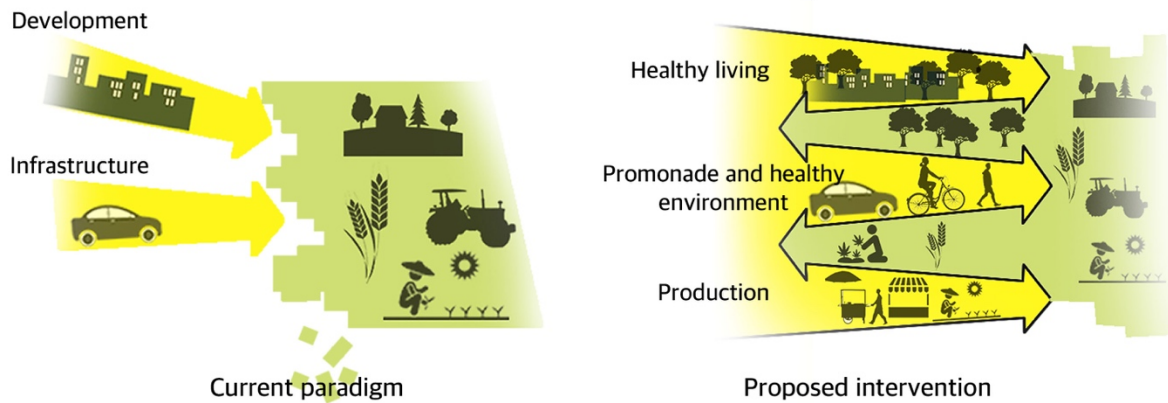


Figure 118: Illustration of the proposed intervention.

The importance of Baba Amer in the post-conflict context can be summarized in the following:

- (1) Green wedges urbanism approach: the location of Baba Amer neighborhood adjoining Al Bastaeen area and in acceptable distance from the city center, makes the neighborhood a potential platform to implement the green wedges approach from the agricultural valley to Baba Amer and towards the city.
- (2) New Economic pole: Baba Amer contains two major wholesale markets that are considered as an absorbent for the products coming from Al Basateen area. More importantly, the neighborhood can provide a potential hub for urban agriculture practices, given the experience of its residents as well as the availability of suitable lands for these activities.
- (3) Rehabilitation and shelters potentials: despite the huge destruction in the neighborhood, many housing units could be feasibly rehabilitated and re

occupied, also the neighborhood consists of many vacant lands that as well could work as a place for temporary sheltering.

- (4) Reconstruction efforts: the neighborhood as well used to allocate many furniture workshops and construction workers which can contribute to the reconstruction sector.
- (5) Prohibit the unrealistic planning: Baba Amer reconstruction plan elaborated by the government will not justify the physical and social fabric of the damaged neighborhood which will, in turn, affect the government credibility in the reconstruction process, whereas a much local centralization approach will help in regaining confidence and stability in the government.

The agrarian experience of the community in Baba Amer was tightly integrated into the everyday lifestyle of the population, prior to the conflict, and was considered a source of livelihood for the population of informal livelihoods in the peripheries and Al Basateen area. Therefore, the intervention aims to reactivate and make use of previously analyzed suitable layers and characters of Baba Amer by proposing a post-war reconstruction plan that seeks to integrate, enhance and expand the green infrastructure as a strategy to reconnect the city with its peripheries, reinvigorate its economy, revitalize its social life and restoring the environment in the post-conflict reconstruction period.

Assuming the supporting role of the government for the proposed intervention, bringing up such projects is about a corporation where everyone can participate in the

reconstruction efforts. Similar to many damaged areas in Syria that are subject to post-conflict reconstruction, Baba Amer's proposed master plan can be conducted through a partnership established between landlords, private companies and the government.

1. Design strategy, developing an urban agricultural network

Envisioning the urban agricultural network as the dominant tool for neighborhoods' reconstruction in the post-conflict period; revitalizing its economy, rehabilitating the city's social fabric and reviving its previous lifestyle; all these can be supported by the proposed agricultural green infrastructure strategy which I will be elaborating on in this chapter.

The strategy aims to reconstruct the damaged neighborhood by the severe war through integrating an urban agricultural system into the daily practices as well as connecting the neighborhood with the core of this productive scheme, Al Basateen. It aims to design new housing units around an agricultural system to work as a tool to support housing finance and enhances living conditions by providing a sustainable livable atmosphere that stimulates the returning process. In other words, urban agriculture and green infrastructure should be central to the reconstruction of damaged neighborhoods in the post-reconstruction period of the city of Homs.

This framework is supported by the location of Al Basateen area adjoining different neighborhoods in the city of Homs, such as Baba Amer, as well as the widely known agricultural lifestyle which is embedded in the daily practices of the city's residents; farming the land and the production of fresh products.

More importantly, the framework focuses on breaking the edge between Al Basateen and the neighborhood of Baba Amer while taking into consideration protecting the agricultural lands from the growing expansion of urban areas towards this valley. This framework can be implemented through different planning and design strategies inspired by the different analyzed layers of land use, green areas and the damaged neighborhood's fabric; social and physical.

The defined strategies and scenarios offered in this thesis offer a framework and design prototypes that can be implemented in the neighborhood of Baba Amer and as well can work as a model to guide other ongoing reconstructing projects for the affected neighborhoods in Homs.

The proposed intervention in this thesis creates a series of cultural, economic, leisure and spatial areas that form the green /blue infrastructural network. It gives the displaced community a great pushing factor to return to their residences and to readjust in the damaged environment of their neighborhood. Given the features that characterize the neighborhood of Baba Amer, this intervention is driven by the local agricultural resource of the neighborhood; the fertile lands and the availability of irrigation water; as well as construction and farming experiences characterizing Baba Amer dwellers.

2. Framework and strategy objectives

The first objective of the post-conflict intervention in Baba Amer neighborhood is to empower the residents and the displaced in their community as well as create a spatial livable environment where people can live, work and interact; while stimulating the previous socio-cultural assets of the neighborhood.

The second objective is to better protect the agricultural productive valley surrounding the neighborhood from further urbanized areas and to integrate the agricultural experience as a network of urban agricultural activities. This network will accordingly enhance and develop the neighborhood's daily social, economic and ecological practices and infrastructure.

- Economic infrastructure:

The urban agricultural network in Baba Amer's post-reconstruction plan offers an economic base that can play a major role in the post-conflict period. Reinvigorating the economic sector in Baba Amer while depending on the agrarian system, which previously played an effective role in the economy of Homs, will help in pushing the reconstruction work to start taking place in some areas of the neighborhood, as a start, and then spread to reach the whole neighborhood and then to the city. The urban agricultural economic infrastructure will create new opportunities in terms of employment and investing and convert the neighborhood into a major commercial hub. These elements will stimulate the desire of residents, displaced and newcomers to reoccupy the neighborhood through help supporting local food production and household finance.

- Social infrastructure:

This objective is more related to the social and physical component of the community. It aims to revive damaged built-up areas; housing units, schools mosques, and streets by developing new typologies that integrate the agricultural experience within the neighborhood. This will create a social consistent community based on the interaction between its different members.

- Ecological infrastructure:

This dimension deploys the urban agricultural network as a catalyst for recreational and environmental purposes, especially after the bombardment impact on the environment. Expanding the green and agricultural context into the neighborhood will help improving the affected climate, cleansing and restoring the environment, ensuring individuals' and communities' health and nutrition, enhancing environment conditions; cleaning air and water, lowering summer temperatures, city greening and recycling wastewater and trash (North American Urban Agriculture Committee, 2003). In addition to these environmental benefits, increasing the cultivated landscape within the built-up area will offer educational productive and recreational spaces to foster the social coherence of the community and promote its interaction with the natural environment and revive the traditional productive agrarian lifestyle.

Based on the three objectives of the research, the neighborhood proposed intervention basically focuses on three interrelated strategies that can be implemented synchronously or sequentially, these strategies are [Figure 119]:

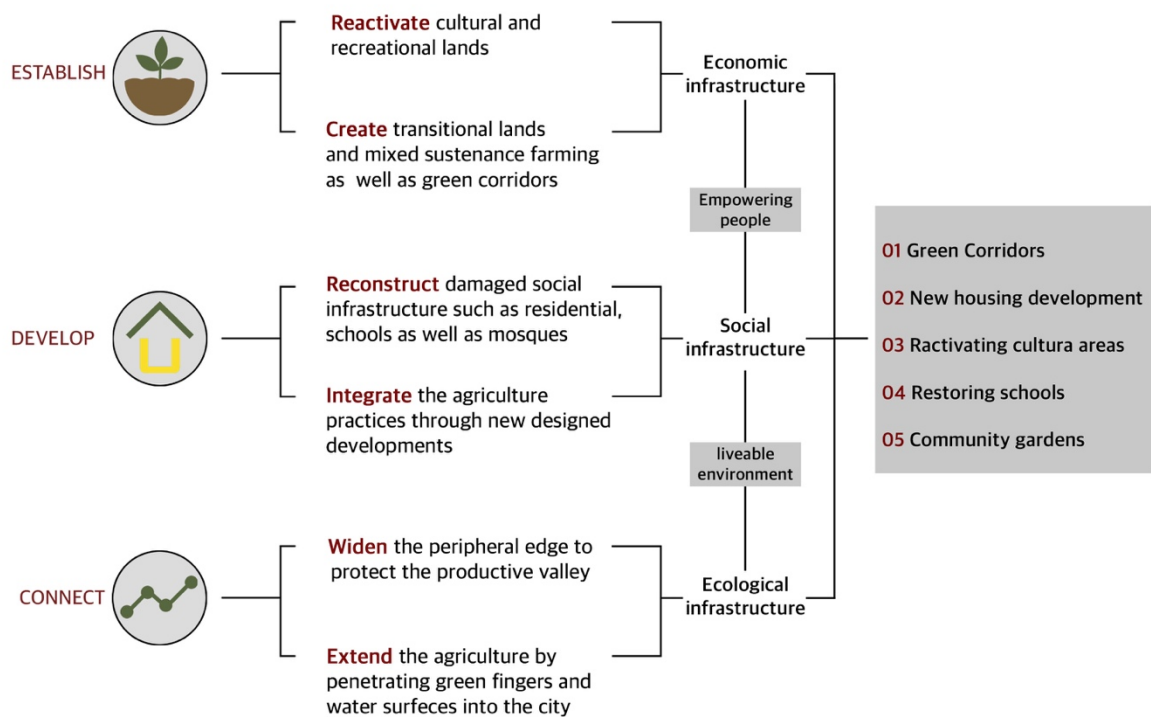


Figure 119: Intervention strategy.

a. Establishing an urban agricultural network

Since the agricultural sector is better to be the main driver of the reconstruction efforts in the aftermath period, Baba Amer's land provides a suitable place for urban agricultural activities around the neighborhood. This strategy offers a dynamic agricultural platform and network that revolves around farming practices as well as the establishment of agricultural related activities; public farming areas, farming markets, farming restaurants and cafes, wholesale markets and farming kitchens.

- The first tool to achieve the establishment of an urban agricultural network is to reactivate previously used recreational areas and public spaces affected by the war. According to the analysis of public spaces conducted in chapter VI, the inner vacant lands and open spaces can be optimized and re-used as productive agricultural pockets;

community gardens or can be maintained as an open green space serving the neighborhood. This can be determined according to the analysis of each open and vacant spaces, done previously.

- The second tool is to create transitional lands and recreational farming areas. These areas mainly located at the peripheries of the neighborhood, adjoining Al Basateen area. The tool offers a multi-functional area that transit the agricultural activities of Al Basateen towards Baba Amer, making these farming areas accessible to the public. The purpose of this is to create a sustenance farming area that; reinforce the connections between the producer and consumer, supports household finance, invite visitors seeking the agricultural experience and the fresh cultivated products as well as leisure and promenade.

In Baba Amer, this strategy offers a variety of programs and services that form the newly proposed economic infrastructure and creates the opportunities needed in the aftermath reconstruction period.

b. Developing the damaged built-up area

The damaged social infrastructure of Baba Amer neighborhood created a major obstacle for the displaced. Around 22% of the built-up area is completely or highly damaged and became unsuitable to be inhabited; residences, schools, mosques as well as streets. Through restoring the damaged infrastructure and developing new housing units, the strategy involves restoring the social built-up area while integrating the farming practice as a daily lifestyle within the reconstructed environment. This will use the neighborhood's assets of fertile soil, vacant lands, undamaged buildings, schools as

well as the agricultural experience as a tool to sustain the householders' finance and create a catalyst of urban agricultural activities.

First, the newly developed housing units will accommodate private agrarian lands so residents could run a small private business by consuming or selling the planted and produced products. This strategy is regarded as a successful economic base for dwellers' income generating as well as secure their daily needs for food consumption.

Second, these areas will integrate the farming practice into the city and introduce visitors and non-farmers to this tradition.

Third, some abandoned undamaged buildings could be restored and used as temporary shelter until the reconstruction work in the neighborhood is over.

And Finally, social buildings such as schools and mosques can play a major role in the period of reconstruction. They as well can provide a suitable space for cultivation which will support the community economically, socially, educationally as well as productively. Schools can provide an education platform for students to introduce the agricultural tradition. This strategy tackles all infrastructural objectives of the intervention. It creates a successful income generator tool for residents and displaced, revives the social coherent in the community of Baba Amer, which was dominant prior to the conflict, and, more importantly, play a major role in supporting the ecological green infrastructural network.

c. Connecting the neighborhood with the productive valley

The most valuable intervention presented in this research is the link created between the Baba Amer and its agricultural peripheries; Al Basateen, which is an

essential part of all the previous analyzed strategies. It is about creating a network of green public corridors which connect the fragmented open spaces system in the neighborhood together with Al Basateen areas, and, later on, with the city. This strategy adopts tools that protect the agricultural valley from the ongoing urbanization process to veer it from facing the same fate of Baba Amer, which was previously part of the agricultural valley; Baba Amer orchards.

The peripheral intervention emphasizes on activating the neighborhood's edge as a green ecological corridor while protecting and introducing the agricultural activities towards the neighborhood. First, the intervention aims to widen the peripheral edge as a transitional multifunctional land that embraces the urbanization process away from the agricultural lands. In other words, it is like creating a green belt along Al Basateen area to mark the transitional area between Baba Amer and Al Basateen area and break the separation between the urban and rural lifestyle.

d. The green wedges approach

The intervention of this research is concentrated around the green wedges approach which is considered an essential tool for penetrating the greenery into the urban areas. These wedges are tracts of nature or agricultural lands arriving from the countryside that can add a strong potential for societies economically, socially and ecologically (De Oliveira, 2017). The concept of green wedges introduces a new prototype for modern urbanization where new built-up areas are designed along with green fingers that reach the inner parts of neighborhoods. This approach helps the clean air to reach from the agricultural areas, makes green open spaces reachable by residents

and give them the potential to live within a beautiful productive landscape as well as providing the ability for flexible urban fabric expansion (De Oliveira, 2017).

Protecting the agricultural peripheral lands can be so tricky especially with the uncontrolled planning and the vast urban growth. However, the city of Homs and its neighborhoods won the opportunity to overcome this issue and redesign its spaces by highlighting the idea of protecting natural areas. In such cases, the green wedges approach proved its success in both non-conflict and post-conflict recovery status. It redesigns cities by achieving communication and coherence between the city and the natural area surrounding it.

Consequently, by using Al Basateen area as the generator of the green wedges, I propose the following green infrastructural network that mainly links the urban fabric with the agricultural lands through fingers, sites and green networks that generate a whole integral system [Figure 120]. This system is consisted of:

- The Hub: natural area of Al Basateen
- Large- and small-scale sites: mainly Urban agricultural sites; both peripheral and central, which will allocate various types of urban agricultural activities; community gardens...etc.
- The link; that connects the previous elements together; such as streets greenery

Green wedges approach

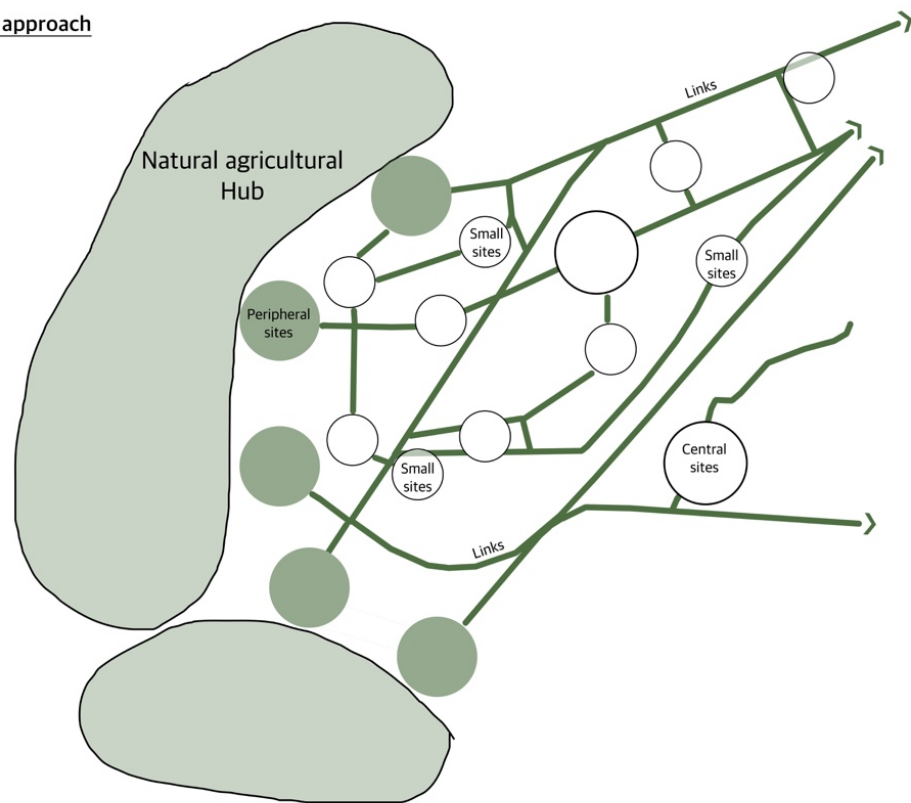


Figure 120: Green wedges approach in Baba Amer neighborhood.

By applying this approach, Al Basateen area will start to penetrate gradually into the neighborhood of Baba Amer through the green belt. Combining the green belt and wedges approach will result in protecting the agricultural lands from the urban sprawl and from car emission.

This network is part of a larger context of potential green wedges approach in the city of Homs. This network was generated by adopting the same components used in Baba Amer neighborhood and by the analyzed existing and potential urban agriculture and green spaces in the city of Homs [Figure 121].

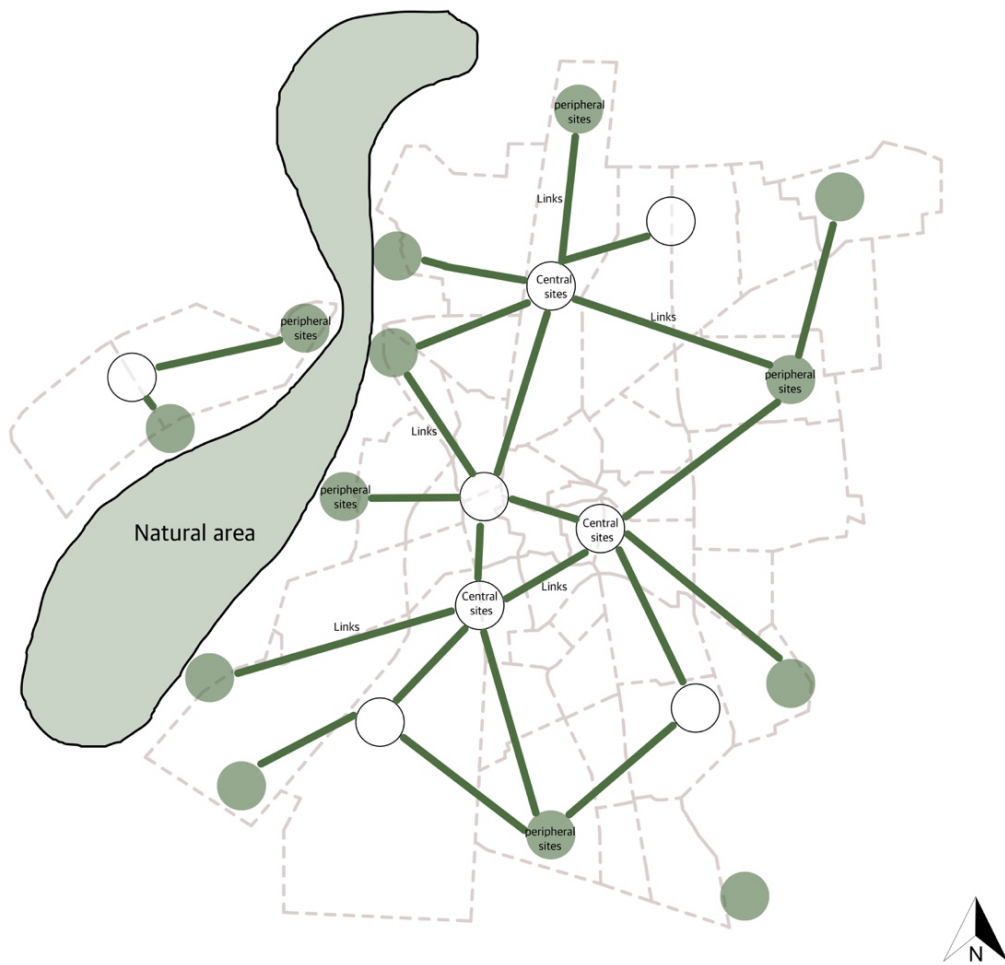


Figure 121: Green wedges approach in Homs city

By combining these strategies, the research aims to create a healing and recovery system for the neighborhood of Baba Amer through the creation of the green infrastructural network. This system will help the neighborhood to kickstart and recover slowly after the dense years of bombardment and destruction they witnessed. By implementing the previously analyzed layers of Baba Amer and the three strategies explained previously, I came up with a strategic master plan of the neighborhood [Figure 122].

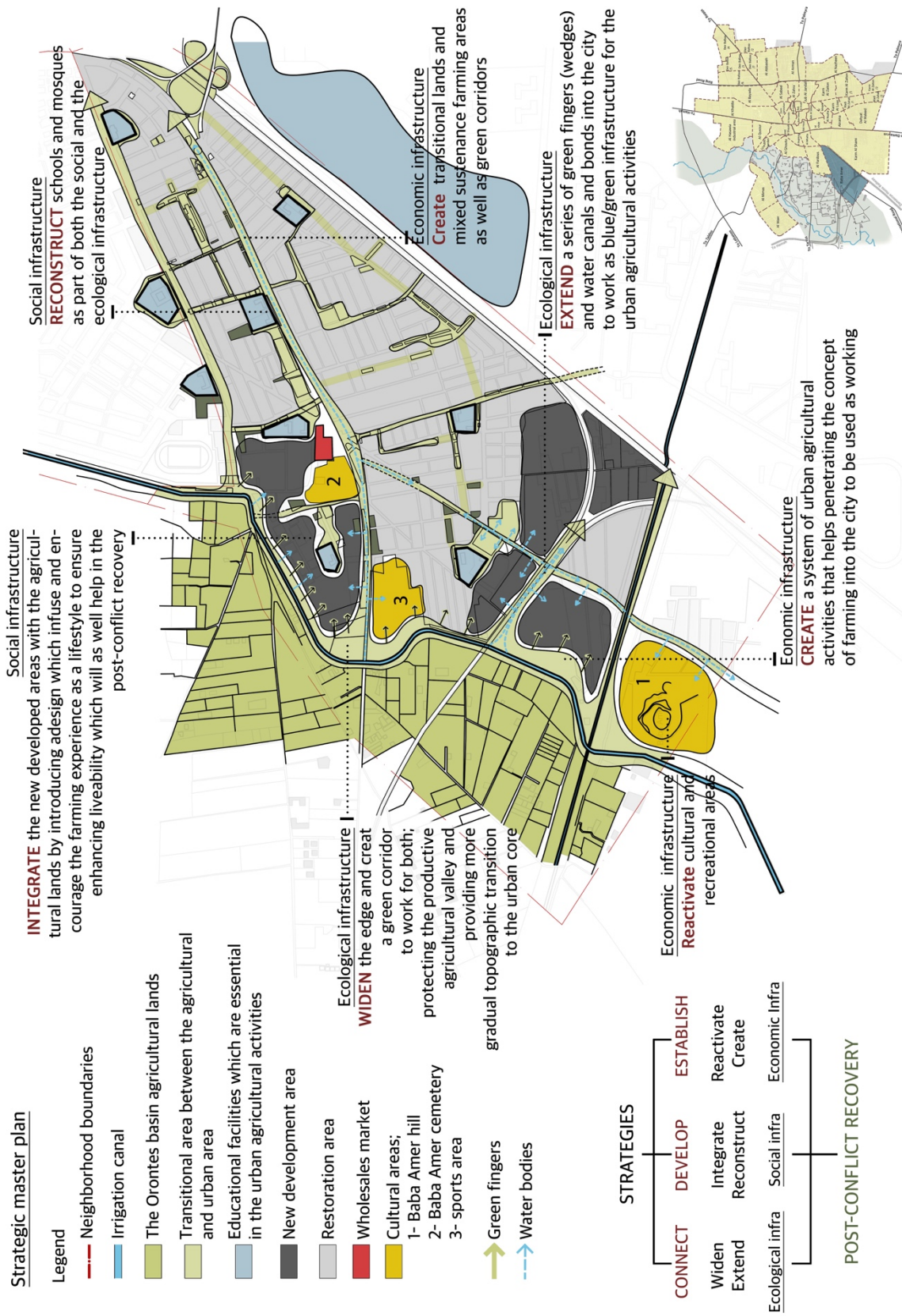


Figure 122: Strategic master plan

3. Baba Amer intervention and strategy implementation

In order to implement the previously defined strategies, the intervention of Baba Amer will be concentrated on rehabilitating the peripheries of the neighborhood where it intersects with Al Basateen area, considering Al Basateen an essential part of the post-post-conflict reconstruction process of Baba Amer neighborhood. The process of activating the agricultural edge of Baba Amer neighborhood and introducing the green infrastructural network into the neighborhood can be achieved through a series of multi-functional layers and prototypes that can be utilized as catalyst for the main objectives of the research; reviving Baba Amer as a sustainable livelihood in the post-conflict reconstruction period which, in turn, provides;

- multifunctional shared open spaces for leisure and promenade
- job opportunities
- production of local food to achieve food sufficiency
- Enhancing living conditions
- Restoring and remediating of the suffered polluted environment from the

heavy bombardment

- Generating energy
- Promoting social coherence and interaction
- Protecting the agricultural valley of the Homs city

Giving returnees investors and residents helping factors to find the will to reoccupy their affected neighborhood.

a. Intervention conceptual layers

The Master plan can be divided into three main layers that help to illustrate the process used in the intervention for Baba Amer neighborhood in the reconstruction period, it will combine the tools used to achieve the strategies and objectives defined in advance. These layers are; Recreational open spaces layer, urban housing development and the connecting layer. Each of these layers will elaborate on analyzed layers defined in the last chapters IV, V and VI [Table 26].

Intervention layer	Used maps	Chapter
Recreational open spaces layer	Land use	Chapter IV: Pre-conflict analysis
	Educational facilities	Chapter VI: Reconstruction analysis
	Green spaces	Chapter VI: Reconstruction analysis
	Vacant lands	Chapter VI: Reconstruction analysis
Urban housing development	Damage analysis	Chapter V: post-conflict analysis
	Vacant lands	Chapter VI: Reconstruction analysis
	Land use	Chapter IV: Pre-conflict analysis
	Buildings heights	Chapter IV: Pre-conflict analysis
Connecting layer	Green spaces	Chapter VI: Reconstruction analysis
	Vacant lands	Chapter VI: Reconstruction analysis
	Blue/ green infrastructure	Chapter IV: Pre-conflict analysis
	Streets hierarchy	Chapter IV: Pre-conflict analysis

Table 26: Used analysis maps in the intervention.

i. Recreational open spaces layer

This layer depends largely on the previous analysis of open spaces and pre-conflict land use. It aims to reconstruct, redesign and reactivate the neighborhood's

spaces and functions in order to create a vibrant green Multi-functional space; agricultural, educational, social, leisure and economical [Figure 123]. Therefore, this layer consists of the following implementations:

- Reconstruct social buildings such as schools and mosques, and use their yards and rooftops as farming gardens for educational and interaction purposes. This type of open space transformation is essential in the post-conflict reconstruction due to their central role in the social gathering. The yards of schools can be optimized and transformed into an educational and laboratory spaces for students during weekdays to introduce farming experience and local food producing process into their life. On the other hand, they can be open to the public on weekends as recreational, social and productive areas under the supervision of the concerned authorities.
- Create nodes that help in reinvigorating the cultural, social and economic aspects in the neighborhood, which are considered as major pushing factors for the displaced and neighborhood's dwellers. These nodes can be divided into; major and minor recreational nodes;
 - Major two nodes: located at the western peripheries of the Baba Amer to work together with the ecological green corridor into breaking the edge that separates the agricultural lands from the urban areas. The design of these two nodes focuses on preserving and reviving the cultural areas and creating a major economic, agricultural, social and cultural bases in Baba Amer. These nodes are; the sports node; which allocates the neighborhood's sport fields and sport center in addition to recreational spaces for other unplanned activities, and the second is the promenading node; which revives Baba Amer hill, previously known as the largest and only public

space in the city where people used to go seeking the fresh air and the great view overlooking Al Basateen area.

In addition to the cultural importance of these nodes, they will accumulate different agricultural related activities such as; public farming areas, community gardens, farming markets and kitchens, seating areas, bikes paths and other social and economic related activities such as recreational boulevards and seating decks.

- Minor nodes: These nodes are located within the neighborhood near residential areas. These minor nodes can provide spaces for small selling business. They can offer a space to install kiosks and food carts where urban farmers can sell their products.

This layer uses the analysis conducted for the green open spaces; in which green spaces were categorized according to their area, location and dimension in order to determine the best use of it. Accordingly, the layer offers to optimize these open green spaces to be utilized as pocket gardens, neighborhood parks or street greenery.

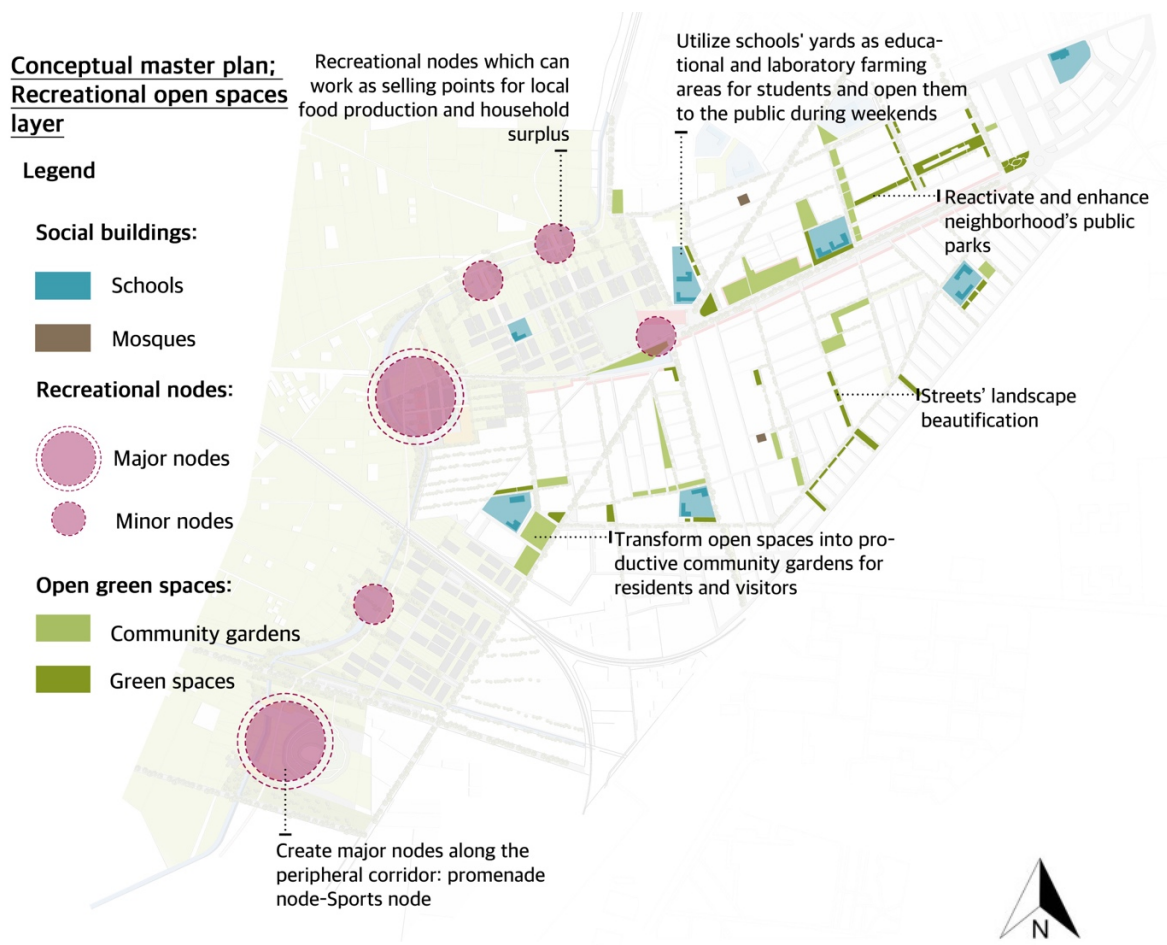


Figure 123: Recreational open spaces layer

ii. Urban recreational layer

This intervention concludes the damage analysis layer and the vacant lands layer in order to mark the best places for the implementation of new housing units. It aims to clean the debris of completely or highly damaged buildings to develop new housing units to accommodate the displaced and those who lost their house. Furthermore, it will utilize massive vacant lands within the neighborhood to be transformed and as well into new housing units [Figure 124]. These units will be designed according to a new pattern where accommodation intersect with the urban

farming concept in order to support household finance. This pattern will be explained further in later section.



Figure 124: Urban development layer

iii. Green networks layer

This layer of intervention is conceptualized according to three different types of connections [Figure 125];

- The first type is the motion or circulation layer; which deals with pedestrian and vehicular paths in order to achieve the best circulation in the neighborhood. Firstly, it aims to create a pedestrian/ bicycles path along the western edge of the neighborhood to create a promenade corridor for residents and visitors. This corridor work as a connector that links the peripheral major and minor nodes together with other parts of

the neighborhood. More importantly, it creates a link between the peripheral existing buildings and the newly reconstructed ones. Furthermore, the intervention aims to provide continuous sidewalks around the neighborhood with seating areas and beautiful landscape in order to offer an enjoyable walking experience for the residents and visitors.

On the other hand, the intervention works on enhancing vehicular streets conditions by widening the streets when needed and adding street greener for beautification purposes. More importantly the design aims to transform tertiary streets, located within ultimate residence areas into the pedestrian-friendly streets with speed limiting materials and more walkable surfaces.

- The second type is the green network layer; which can be considered as the urban green network that circulates the neighborhood. The intervention deals with the gray infrastructure beyond its usual known character, as spaces for cars and vehicular movements. It transforms the gray infrastructure into a vibrant network of green corridors that link various productive and effective environmental, economic, cultural and social areas. In other words, this network will work as the main connector that links different fragmented social spaces; community gardens, public parks, schools, mosques and streets markets together with the peripheral ecological corridor and attraction nodes. This network will be addressed in parallel to the circulation layer which provides a space of motion of different speeds that are used in the neighborhood; cars, buses, cyclists, food carts and pedestrian.

- The third type of connections in Baba Amer neighborhood is the green wedges network; This intervention focuses mainly on creating the agricultural and green connection between Al Basateen area and the urban fabric of the

neighborhood. It aims to penetrate the agricultural lands between the newly designed housing units in the shape

- The last type of the connection layer is the green belt approach; which connects the neighborhood with the productive valley, Al Basateen. This approach aims to mark the peripheral edge of Baba Amer neighborhood in order to create a transitional land between the two fabrics; the urban and rural. This transitional layer offers protection of Al basateen area from further urban development that started to expand towards the agricultural lands prior to the conflict. However, this belt will be overlapped with the green fingers approach in order to maintain the agricultural connection towards the urban areas

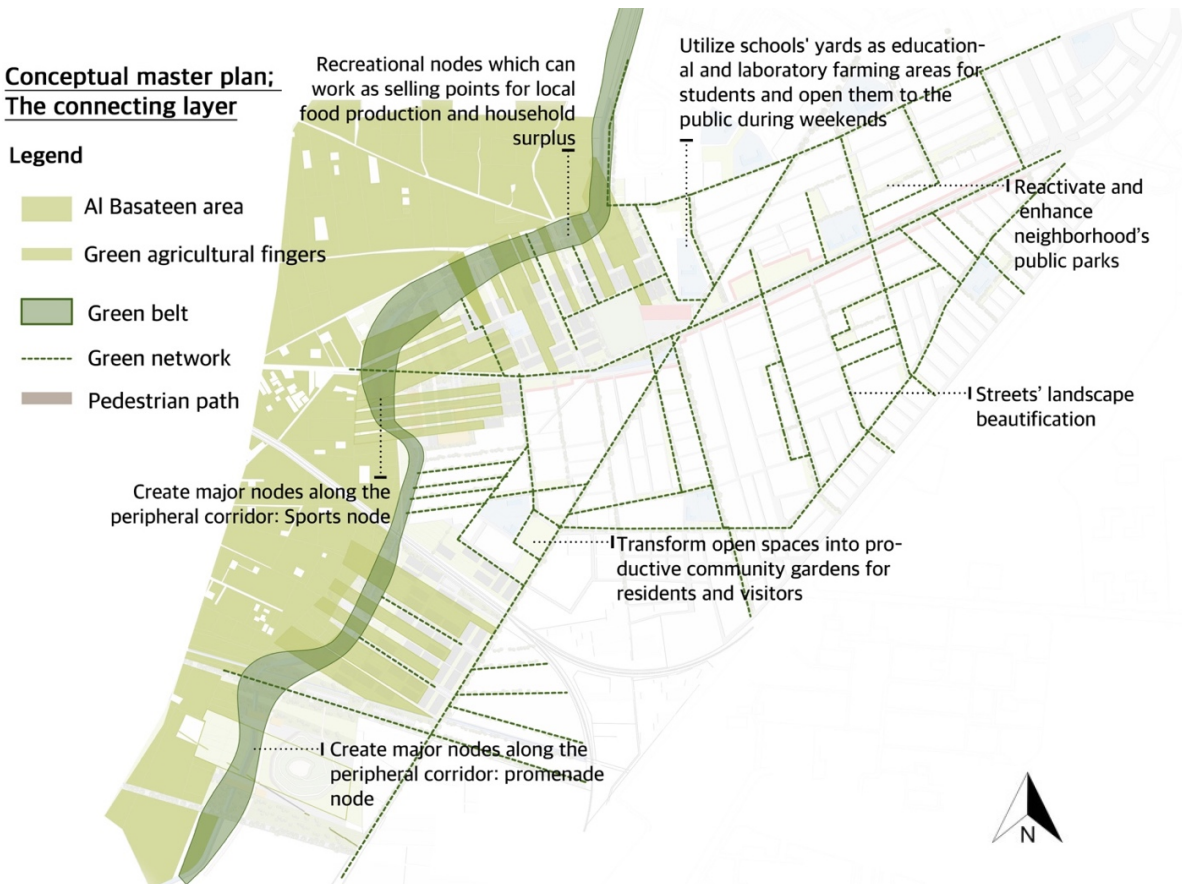


Figure 125: Green network layer

By overlapping the previous concepts and intervention [Figure 126], I propose the following intervention for the peripheral part of Baba Amer neighborhood based on the conceptual master plan [Figure 127].

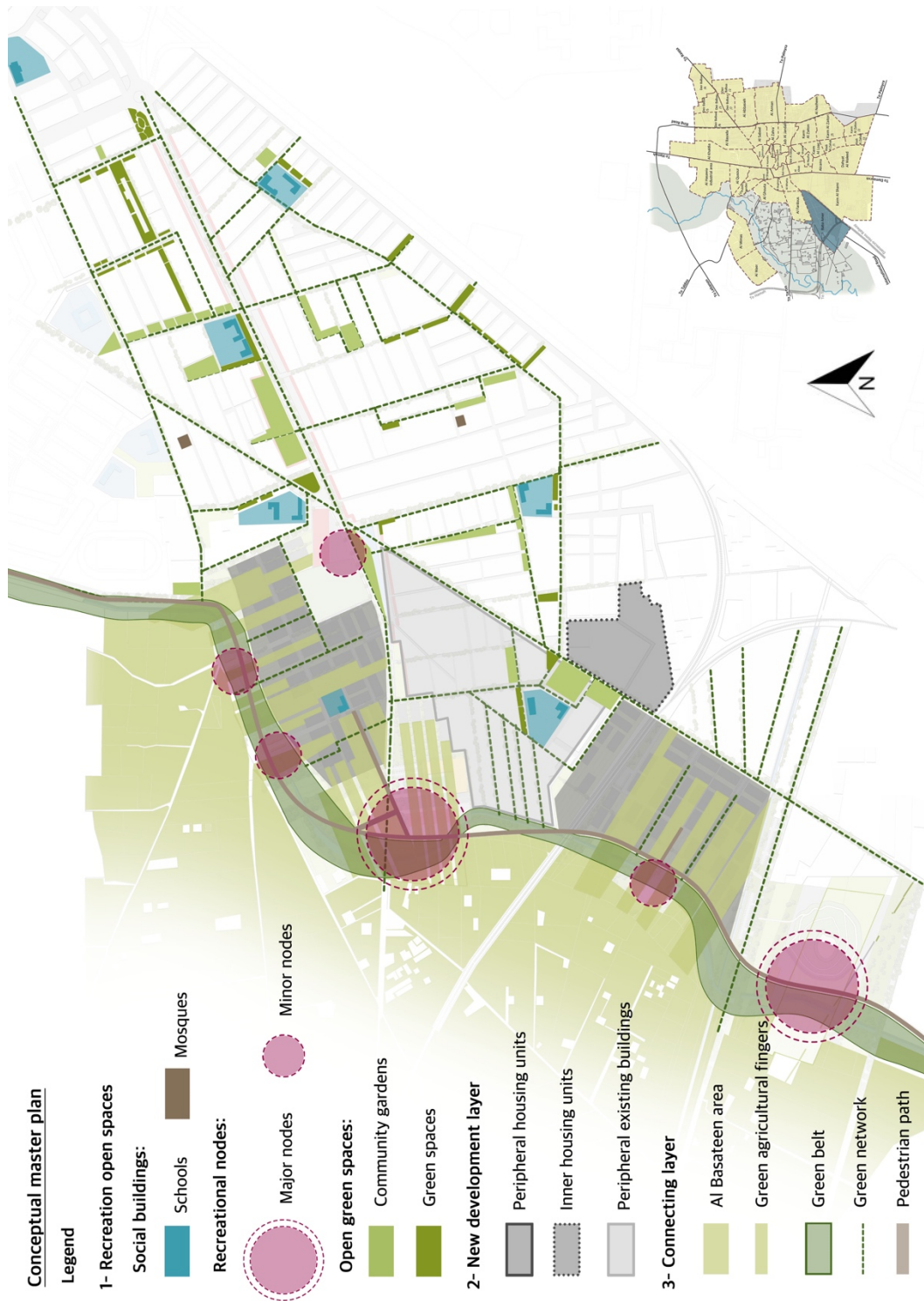


Figure 126: Conceptual master plan



Figure 127: Master plan

b. Design typologies

The master plan combines a series of typologies that provide policies and design guidelines to support the design of the previously illustrated intervention. These typologies can be part of long- and short-term reconstruction process which can be implemented synchronously or sequentially. They will transform the neighborhood into a catalyst of interrelated activities that will revive the neighborhood and create a sustainable livelihood atmosphere in the post-conflict recovery period. These prototypes can be divided into [Figure 128]:

01. Green corridors:
02. New constructed housing units
03. Revived cultural areas
04. Promoted social buildings; Schools as part of the urban agricultural network
05. Neighborhood agricultural spaces; Community gardens.





Figure 128: Detailed area

i. Green corridors

Based on the intervention, these corridors are considered the dynamic part of the urban agricultural and green network in the neighborhood. They will transform the existing street hierarchy in Baba Amer into a vibrant connected network that links the spaces together as a stripe of green areas and agricultural activity nodes. The connection of green corridors will be shaped through streets' greenery that reaches the various green spaces, community gardens, social buildings and commercial activities distributed

throughout the neighborhood, in order to enhance the permeability of all users to these existing, reactivated or created spaces. According to streets categories and types, these corridors can be divided into:

- Peripheral ecological corridor (PEC):

This corridor is located at the periphery of Baba Amer where it intersects with Al Basateen area. It aims to convert the neighborhood's peripheral edge, which was planned previously as a vehicular infrastructure by the government, into a vibrant green ecological corridor that invites visitors and residents to enjoy various activities and experiences; the traditional local food farming, urban agricultural lands for the public, fresh cultivated products, restaurants and farming kitchens as well as the amazing view of the "city lung" which is the largest public space in Homs city, Al Basateen. The corridor will transform the edge into a pedestrian infrastructure with no access to cars, in order to eliminate traffic noise, cars emissions, and vehicular infrastructural barriers and veer the pollution away from the agricultural valley [Figure 129].

More importantly, this corridor will contain two major nodes that were activated according to their previous land use. These nodes, as defined in the conceptual master plan section, are; the sports node and the promenade node. Each node in addition to their cultural values and activities will include a massive public agricultural land where people from all city neighborhood can access to enjoy the farming experience of cultivated products as well as fresh food experience of various dishes prepared in the installed kitchens and restaurants boulevards. More importantly, the design of these nodes will as well provide recreational spaces with kiosks and vegetables and fruits vendors with seating areas and shading trees where people can promenade and shop

their needs of products. They are more likely to be considered as spaces that gather both the production and consumption.



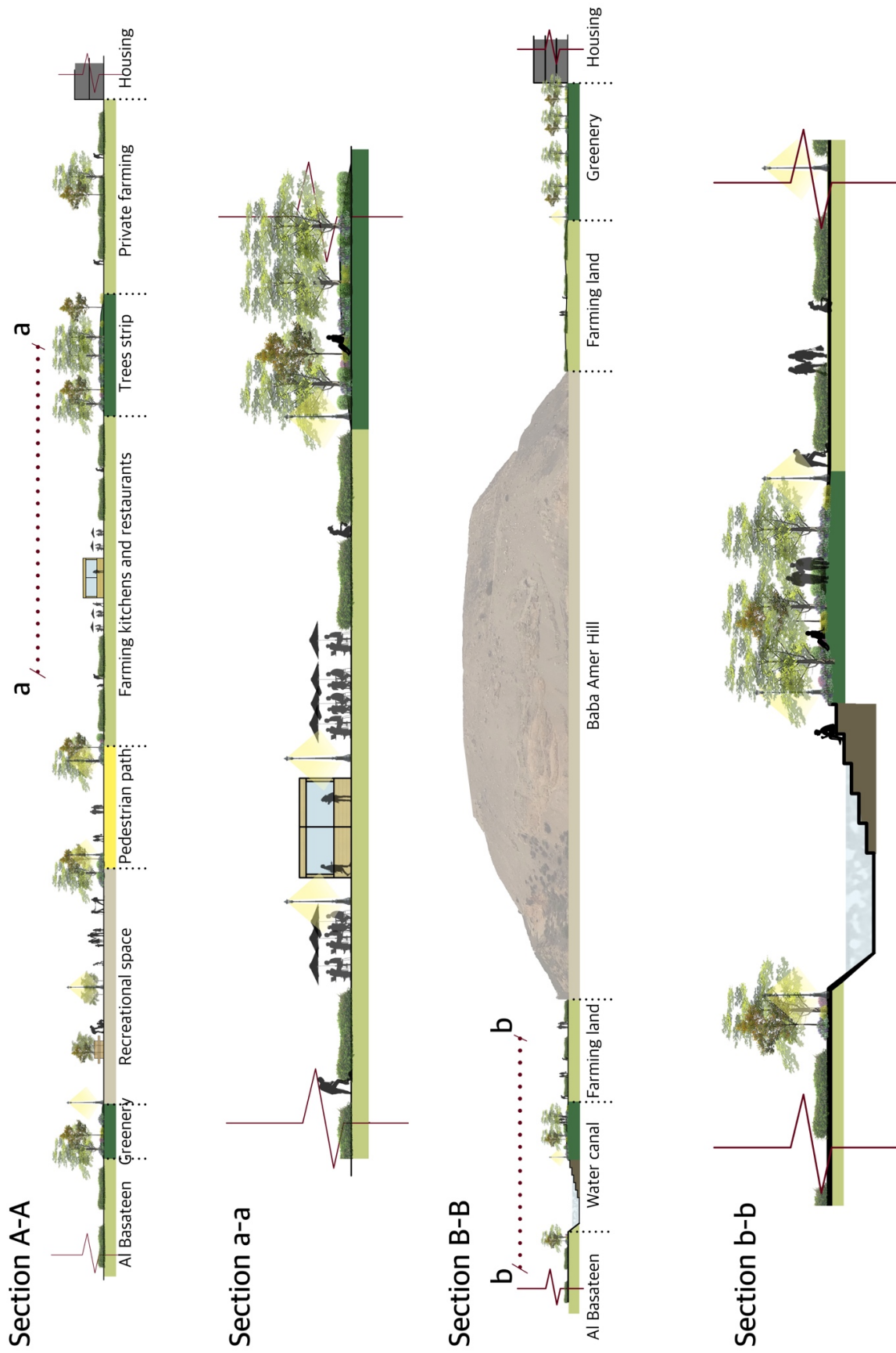


Figure 129: Peripheral ecological corridor sections.

Apart from these cultural nodes, this agricultural ecological corridor will be designed with a flexible pattern of spaces that offer to cater for change according to different demands of its users and programs. It could propose a recreational space to host food carnivals, cultural festivals, outdoor exhibitions as well as seating and resting areas where people can enjoy eating, congregating and interacting. These flexible spaces could as well differ according to the neighborhood's needs for green areas, fruit trees, recreational spaces, and agricultural lands [Figure 130].

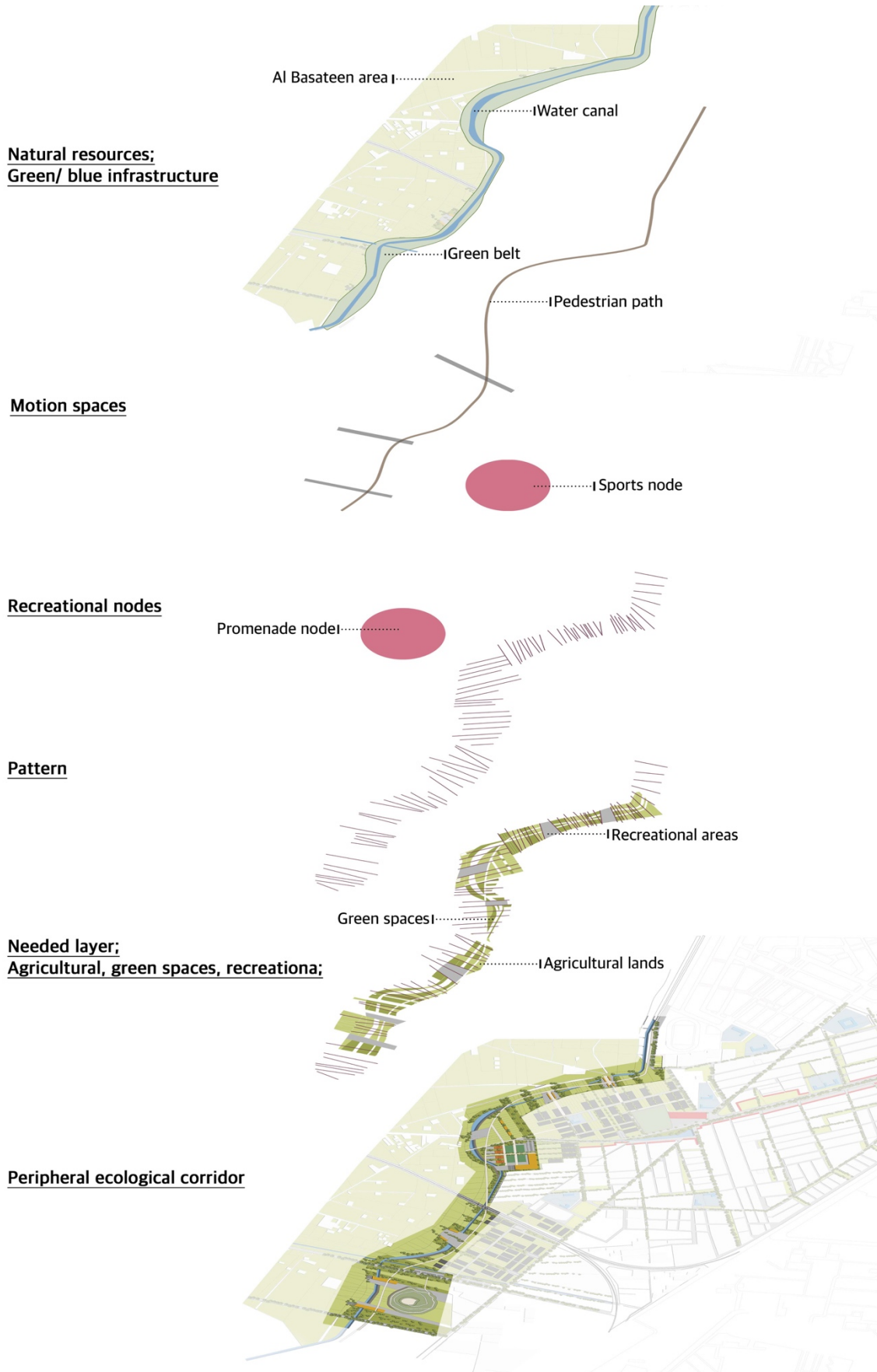


Figure 130: Peripheral ecological corridor components

This approach aims to support the neighborhood's livable experience of the residents and displaced by suggesting economic cultural pushing factors that offer job opportunities, promote and secure local food production as well as generate energy. More importantly, it tackles the landscape aspect by enhancing neighborhood greenery, design spaces for leisure and promenade, and more importantly, it offers restoration and remediation of the affected environment by the severe bombardment and fires that took place in the neighborhood during the conflict [Table 27]

INTERVENTION	OBJECTIVES
<ul style="list-style-type: none"> Protection zone Recreational spaces Green public parks Water infrastructure Seating areas Pedestrian and bikes paths Shading trees Solar panels Attraction nodes: <ul style="list-style-type: none"> - public farming lands - Seating areas - Farming kitchens and restaurants - Farming market - Solar panels 	<ul style="list-style-type: none"> 1- Job Opportunities 2- Leisure and promenade 3- Environmental restoration and remediation 4- Promote social coherence and interaction 5- support local food production 6- Secure food production 7- Landscape beautification 8- Protection of productive lands 9- Make the agricultural experience available for everyone 10- Attract newcomers and visitors 11- create pushing factors for returnees to back and occupy their neighborhoods 12- Generate energy

Table 27: Interventions and objectives of the peripheral ecological corridors

Baba Amer 's peripheral ecological corridor is an active part of a linear intervention that can be continued along Al Basateen area in order to convert the peripheral edge of Homs into a vibrant ecological corridor that will break the previous edge and separation between the city and its rural agricultural areas. More importantly, the major nodes shaping the attraction cultural areas along this corridor are, as well, part of a network of peripheral recreational nodes along Al Basateen area where they

intersect with Homs' other neighborhoods [Figure 131]. These nodes can work as generators of the green wedges which transitionally will be introduced and extended towards the city as well as the potential of social economic and industrial poles, emanating from the activation and rehabilitation of pre-conflict existing activities or by the creation of new activities inspired by the social and agricultural practices of Homs people.

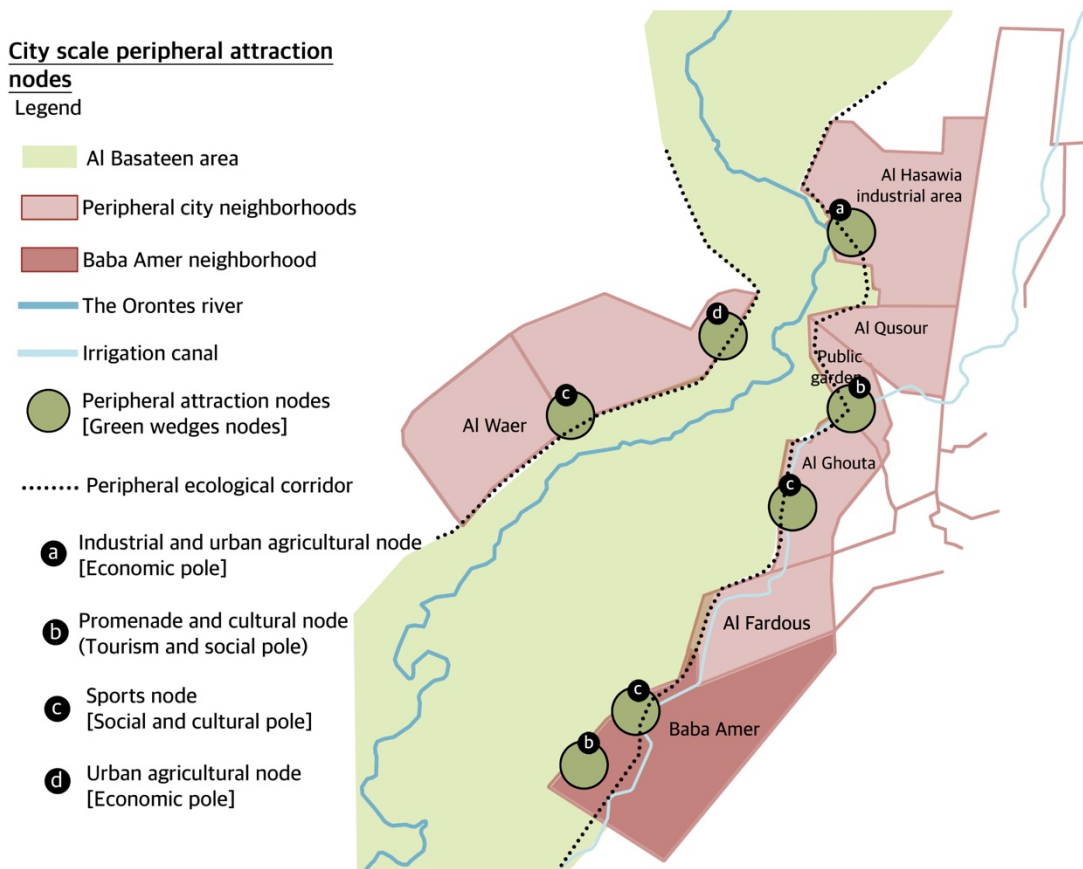


Figure 131: City scale peripheral attraction nodes.

- Main green corridors:

This approach will offer the main green corridors that allocate multifunctional activities. It will transform the inner main vehicular infrastructural system of Baba Amer into a green network that links different green spaces, agricultural gardens,

together with other social and cultural activities. In other words, it will transform the gray infrastructure of the neighborhood into a vibrant economic, agricultural, and recreational hub.

The development of main corridors will enhance streets, fabric, and landscape. It will work as a network that collects different activities distributed along these corridors such as reactivated vacant lands, promoted green spaces, and more importantly, it will provide a linear intervention of active street facades of different types of stores, both related and unrelated to the agricultural system. It will promote vehicular movements while providing adequate sidewalks for the pedestrian to enjoy these various activities along these corridors [Figure 132].

In addition to their role in enhancing movement quality for both pedestrian and vehicular, these corridors will create; (1) an economic pole that support households finance, offer job opportunities and grow the food needed for consumption, (2) it will help in cleaning the environment after it got affected by the severe bombardment through planting street greenery and trees as well as penetrating water surfaces, and finally, (3) they will offer an enjoyable experience for both residents and visitors by supplying street furniture such as; seating area and shading trees [Table 28].

INTERVENTION	OBJECTIVES
<ul style="list-style-type: none"> - Street greenery - Water infrastructure - Seating areas - Pedestrian and bikes paths - Shading trees - Solar panels - Provide adequate sidewalks - Active street facades (Shops, cafes and restaurants) - Transform vacant lands into community gardens 	<ol style="list-style-type: none"> 1- Job Opportunities 2- Leisure and promenade 3- Environmental restoration and remediation 4- Promote social coherence and interaction 5- support local food production 6- Secure food production 7- Landscape beautification 8- Protection of productive lands 9- Make the agricultural experience available for everyone 10- Attract newcomers and visitors 11- create pushing factors for returnees to back and occupy their neighborhoods 12- Generate energy

Table 28: Interventions and objectives of main green corridors.



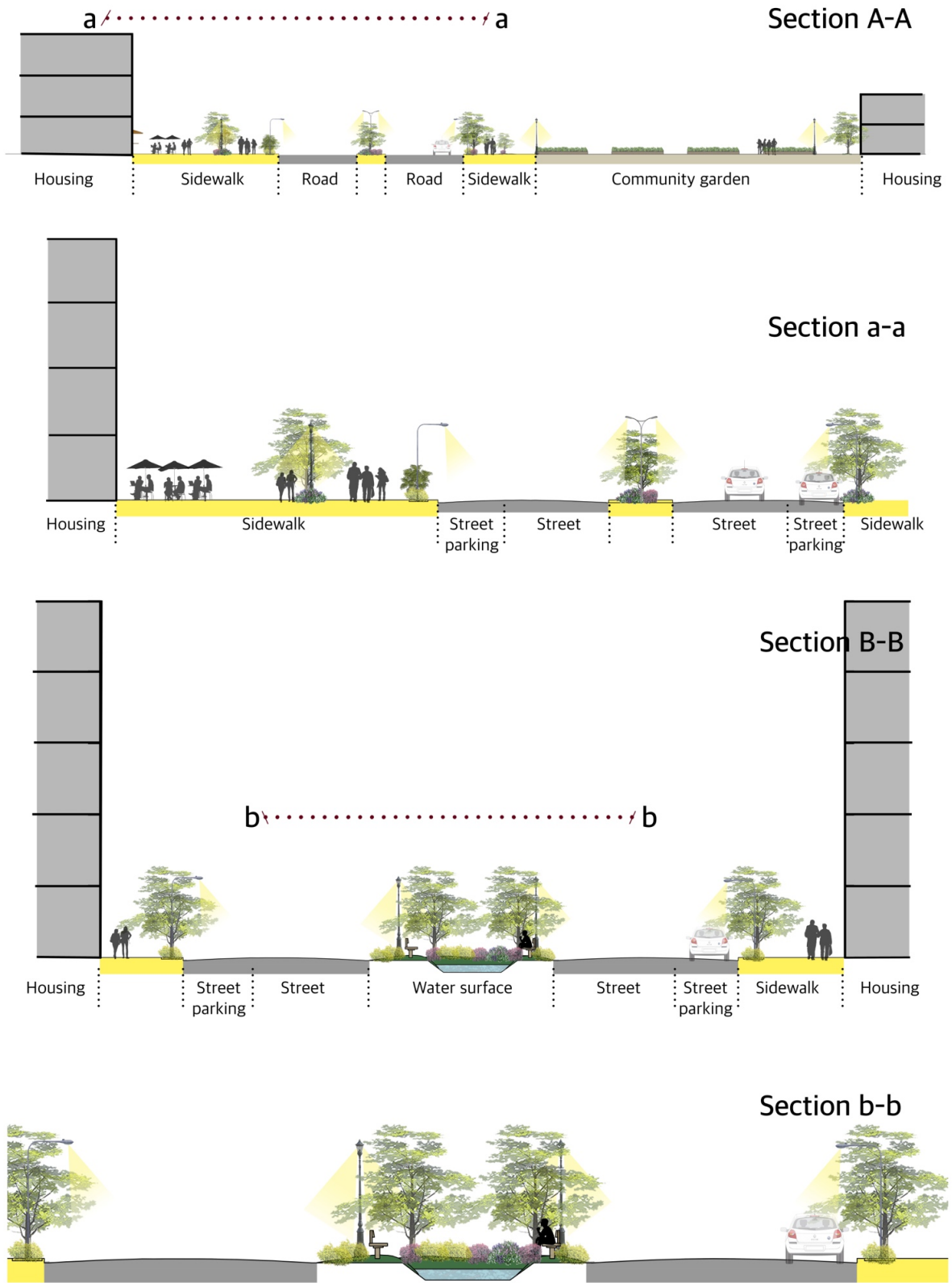


Figure 132: Main green corridors sections

- Secondary green corridors:

These corridors will be implemented on secondary streets which are mainly located in purely residential areas. They will have the same features and objectives of the main corridors except for the active street facades and major economic activities to limit pass-through traffic. This will help to maintain the living environment safe by eliminating dense traffic, noises and pollution caused by car emissions [Table 29].

INTERVENTION	OBJECTIVES
<ul style="list-style-type: none"> - Add material and features to slow vehicular motion - Street greenery - Seating areas - Provide adequate sidewalks - Transform vacant lands into community gardens or neighborhood green spaces 	<ul style="list-style-type: none"> 1- Enhance cars movement 2- Enhance living conditions by eliminating car access 2- Landscape beautification 3- Enhance neighborhood conditions 4- Promote pedestrians' walkability

Table 29: Interventions and objectives of secondary green corridors.

To achieve this, the design of these corridors will involve adding materials and features that help elimination and reducing cars motion within residential areas to promote its safety. It will as well reduce cars spaces and widen sidewalks in order to prioritize pedestrian motion [Figure 133].



Figure 133: Secondary green corridors section

ii. New constructed housing units

Major part of the post-conflict efforts in Homs' damaged neighborhoods should be articulated synchronously in both directions; reconstructing housing units and creating dwellers' income support schemes. These efforts together will provide a solid factor to support the returning process of the displaced. They will offer; sustainable living conditions and clean environment where people can work and live [Table 30].

INTERVENTION	OBJECTIVES
<ul style="list-style-type: none"> - New housing units - provide Private farming areas - provide adequate sidewalks and pedestrian paths - improve vehicular movement, yet, prioritize pedestrian motion - install materials and features that slow cars motion (pedestrian friendly streets) <ul style="list-style-type: none"> - Install Seating areas - develop green areas - implement the green fingers approach in order to integrate the agricultural lands into the built-up areas gradually 	<ol style="list-style-type: none"> 1- Revive the agricultural practice as a lifestyle and income resource 2- Create pushing factors for returnees by creating income resources 3- Leisure and promenade 4- Environmental restoration and remediation 5- Promote social coherence and interaction 6- support local food production 7- Secure food production 8- Landscape beautification 9- Attract newcomers and visitors 10- safer neighborhoods and more pedestrian friendly 11- keep residential neighborhood safe and unpolluted

Table 30: Interventions and objectives of the newly constructed housing units

The new housing units are going to be built in different areas determined according to the land use and damaged areas. They will either replace the removed damaged buildings or use vacant unused plan to add more houses to the neighborhood.

The new housing units where designed around the planted agricultural fingers that penetrate into Baba Amer from Al Basateen area. The intervention was designed to support the gradual transition from the productive agricultural valley towards the dense neighborhood.

In order to divert urbanization away from the agricultural valley, the intervention will use a pattern of specific zone;

1- The green belt; this buffer will mark the transitional line between the natural land and the urban land. It will specify a pure area around the water canal that prevents any major concrete interventions.

2- The second part of this grid is the public farming lands

3- The third part is where the housing units start to take place;

This section will start by light density residential units with less than 3 stories and each building will have its own private farming spaces. Towards the inner parts of this zone, the density will increase; the number of housing units will be multiplied, buildings heights will rise to a maximum 5 of stories. On the other hand, the more the intervention moves towards the old residential zones, the more farming areas will be reduced within the new buildings until they disappear in the existing fabric. However, this existing fabric will be supported by optimized community gardens that will be articulated in later typology. The grid will as well contain lines of trees that separate between the public farming lands and activities and the private farming lands [Figure 134].

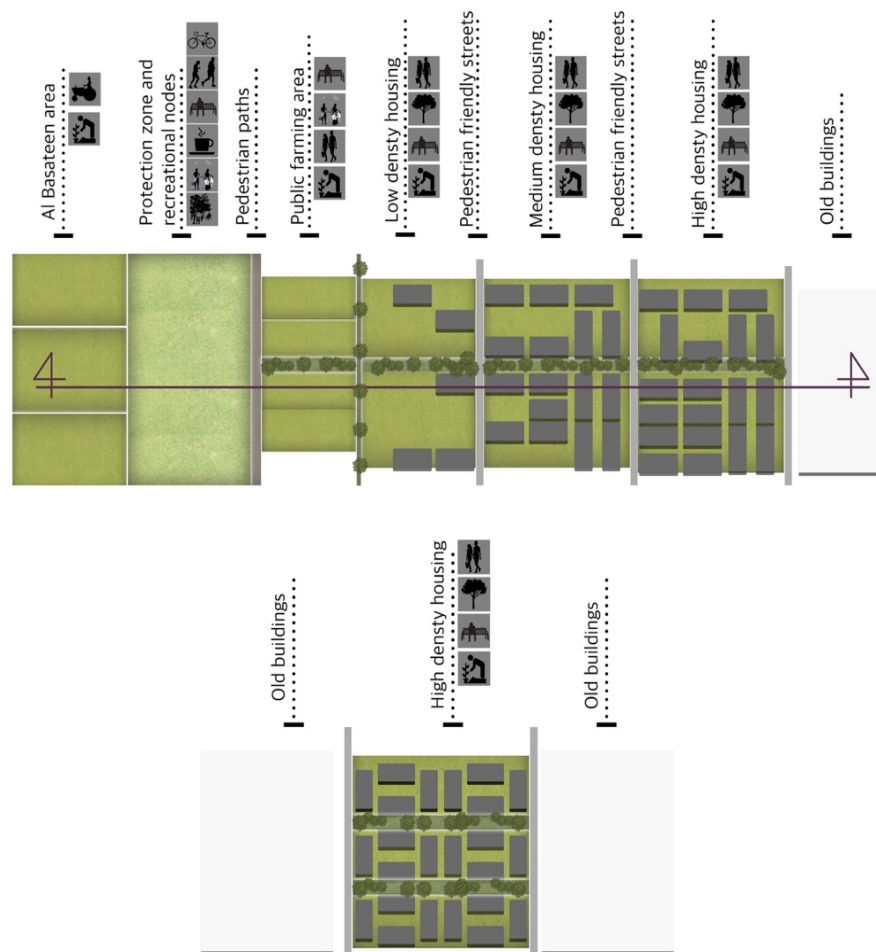
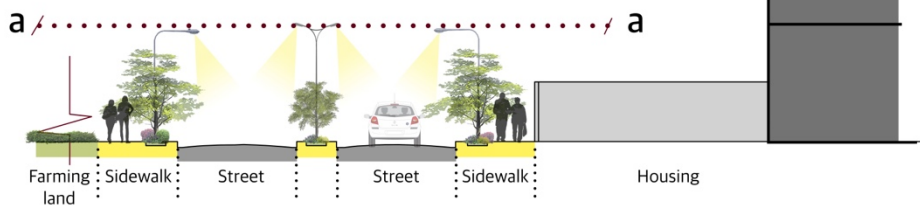


Figure 134: Diagram showing the transitional design of new development

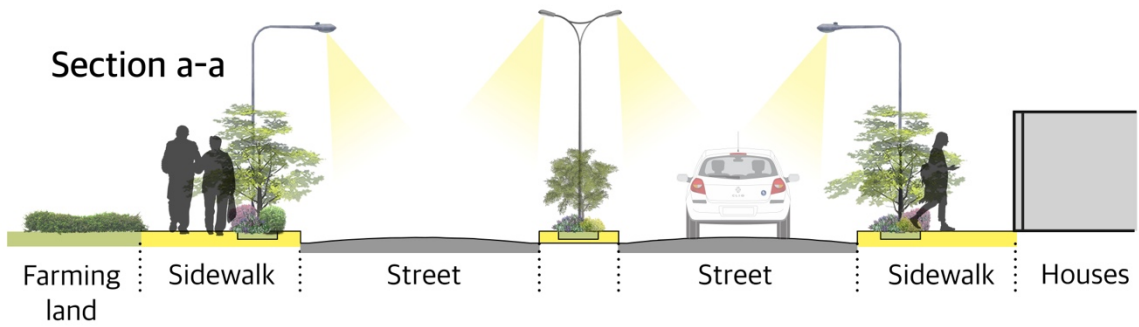
The newly developed houses will work on maintaining the traditional character of Baba Amer neighborhood in terms of buildings' heights. Although all proposed reconstruction projects of the area aim to raise the buildings' height to reach more than 15 floors, however, my proposed intervention will protect the old fabric of the neighborhood in order to shape a skyline that offers visual permeability rather than creating an additional barrier between Al Basateen and the city. Therefore, the proposed intervention proposes a gradual leveling system between the peripheral and inner units [Figure 135].



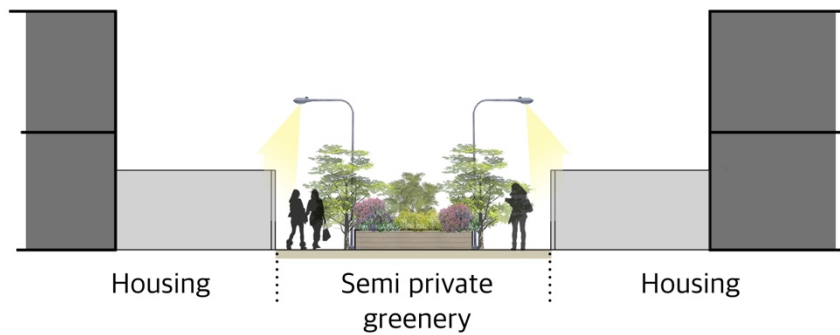
Section A-A



Section a-a



Section B-B



Section C-C

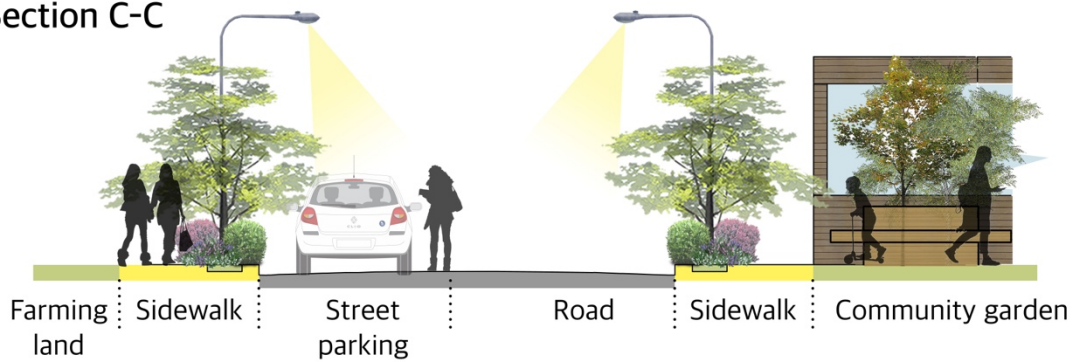


Figure 135: Section in the newly developed area

iii. Revived cultural areas

This typology is part of the peripheral green corridor explained previously. The value of this intervention is to revive the old important features for Baba Amer neighborhood in order to stimulate their return. Reviving the traditions and memories of residents can play an essential role in the returning process like any other economic and accommodation features.

Previously, Baba Amer comprises three main cultural areas that need either reactivation, enhancement or reactivating. These areas are the cemetery, Baba Amer hill, and the sports area. After the intervention, these three areas became part of major and minor attraction nodes along the green corridors.

iv. Promoted social buildings: Schools as part of the urban agricultural network

This typology deals with schools' design to be converted into community spaces for agricultural activities. As part of the urban agricultural network, schools' yards and rooftops can provide spaces for land farming or farming pockets. These lands, as explained previously offers an educational, laboratory, social and productive areas. They provide spaces for interaction by opening them to the public after classes or in weekends [Figure 136].

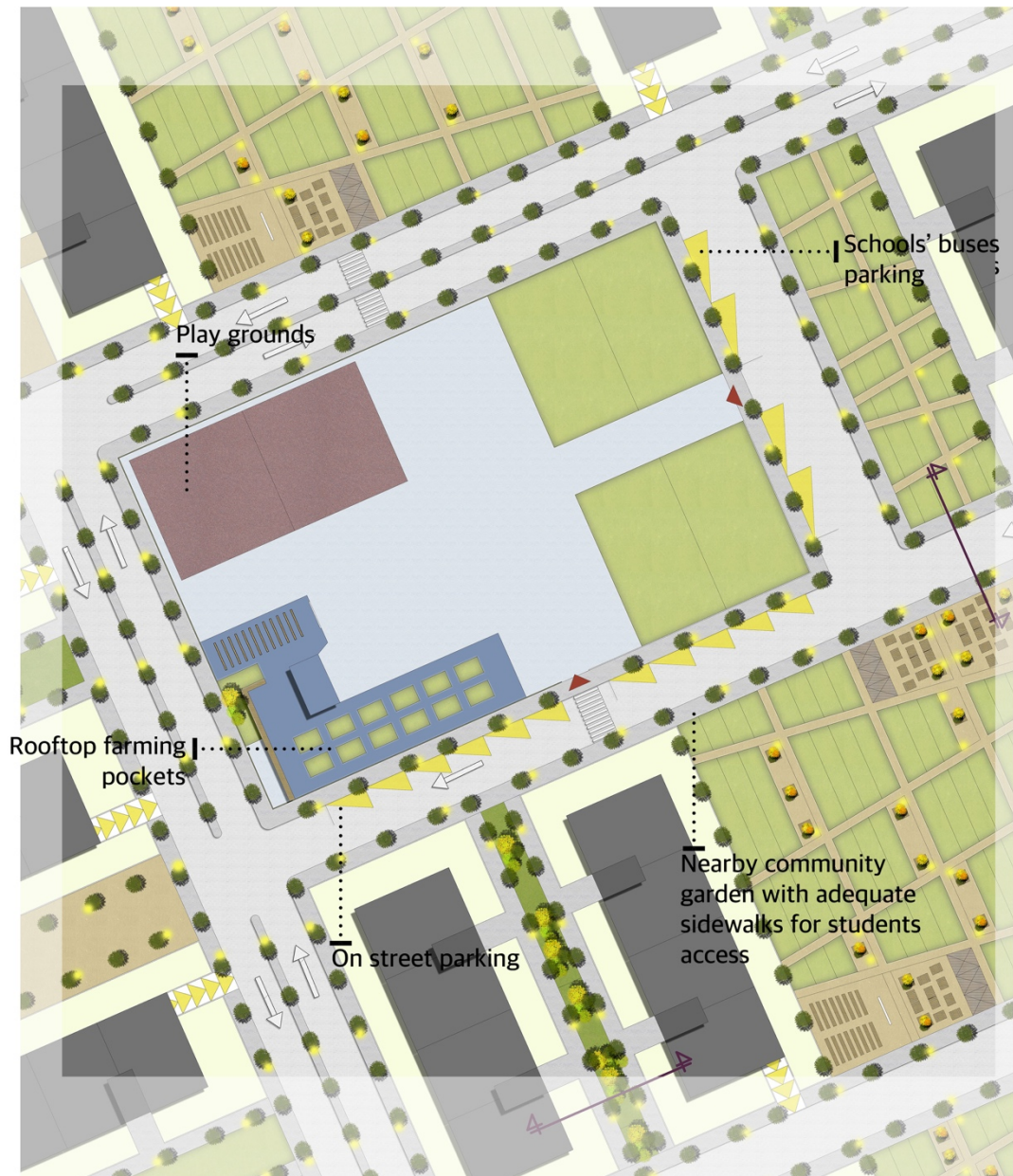


Figure 136: Schools design guidelines.

For further agricultural experience and community interaction and in order to maintain some space as playgrounds, the design enhances the access between schools and other nearby community gardens [Figure 137]. Schools and other educational facilities work as the core for the revival of neighborhoods in terms of social infrastructure.

Schools locations

Legend




-  Schools buildings
-  Schools yards
-  Nearby community gardens



Figure 137: Schools location and nearby community gardens.

v. Neighborhood agricultural spaces: Community gardens

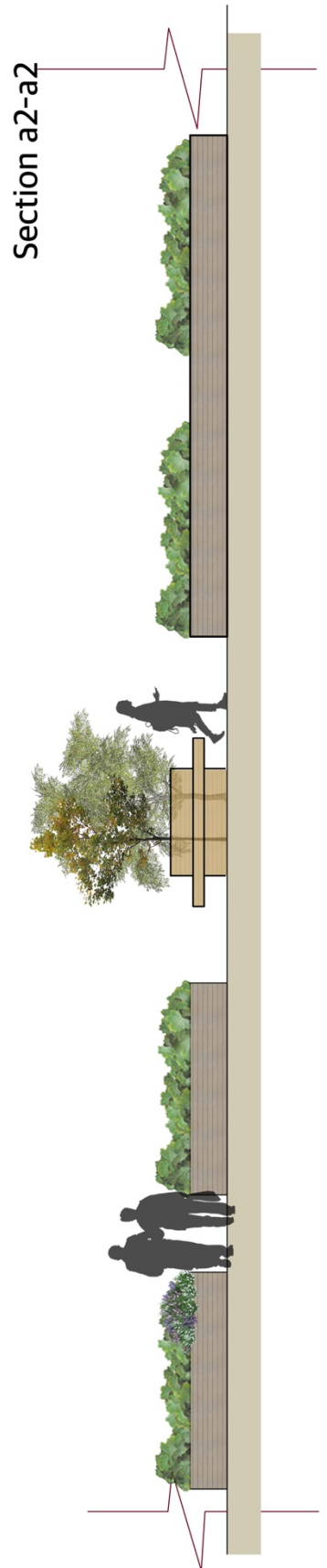
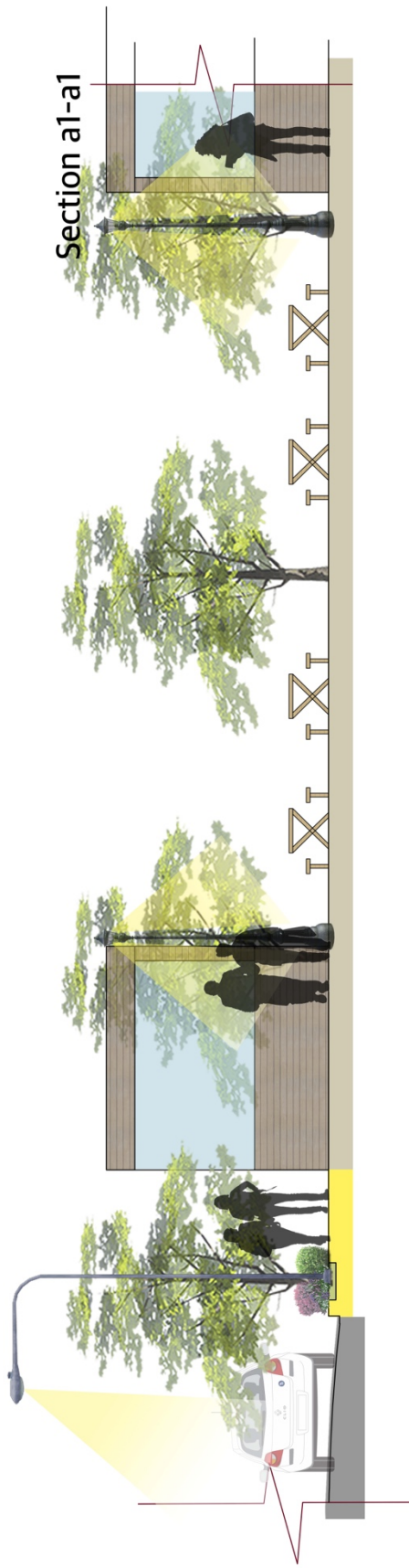
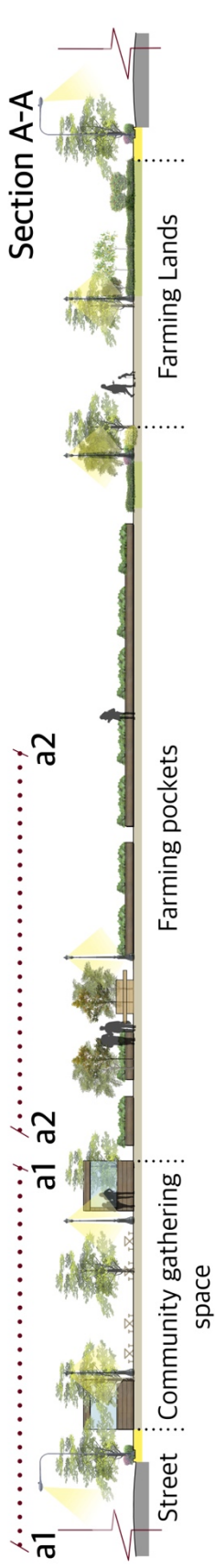
After designing the new peripheral developed areas around planted agricultural lands, the existing fabric of Baba Amer needs some additional spaces in order to form community gardens to serve the residents economically, socially and in food production terms [Figure 138]



Figure 138: Proposed community gardens

The design of these community gardens will focus on transforming suitable underused vacant lands and green spaces into productive farming pockets. Using this method of moving farming offers a flexible solution for temporary interventions in case these vacant lands were susceptible for later change in the long-term period. In addition to these pockets, community gardens will as well contain seating areas, planted spaces with fruit trees and, more importantly, food vendors, and kiosks [Figure 139].





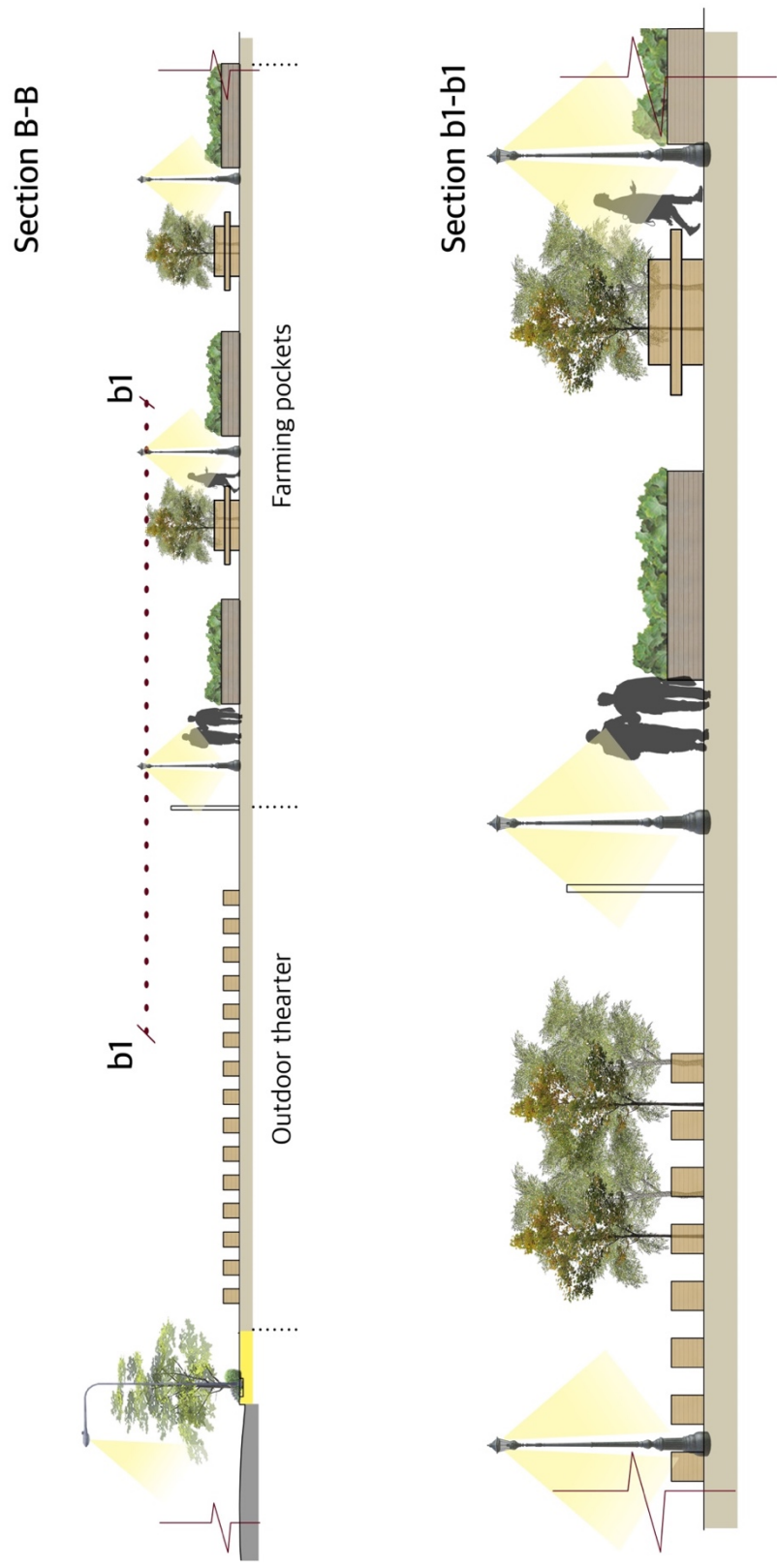


Figure 139: Community gardens

The value of these typologies in their flexibility to cater for implementation. They can be implemented individually and according to a specific system related to time (in short term or long terms) and available funding.

Different scenarios can be articulated in relation to the proposed intervention in this research. It is widely known that reaching a sustainable livelihood need times and a lot of support and participation in order to reach the best outcome. Accordingly, the best Scenario can start by implementing the agricultural lands, reviving schools and, most importantly, helping in the reconstruction process of less damaged buildings. Later on, the neighborhood will start to obtain more funding, returners and participants to start construction the new development project about these agricultural lands, and as emphasized earlier, Baba Amer comprises major characters that create a platform to stimulate significantly the post-conflict reconstruction process and reach the sustainable environment residents need.

More importantly, given their flexibility, these prototypes will be used as a model that can be implemented in other damaged neighborhoods in the city of Homs in order to spread the healing system formed by these typologies for damaged communities [140].

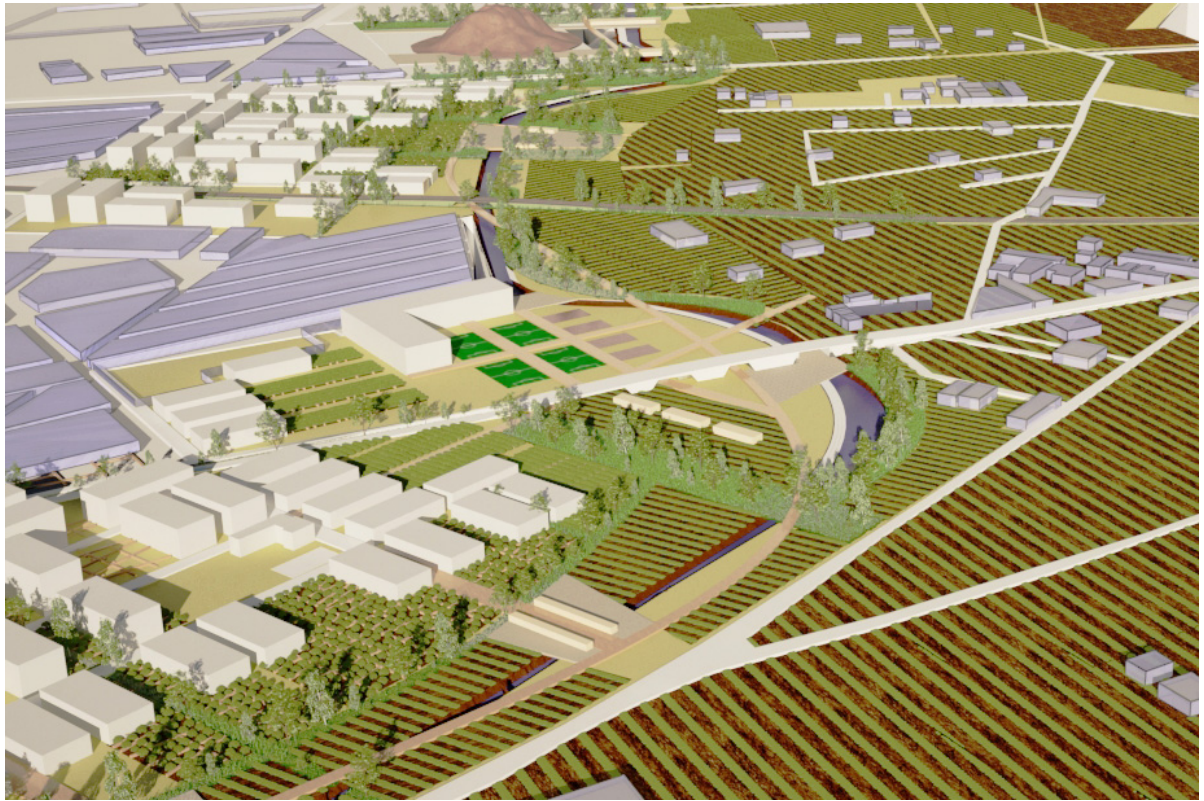
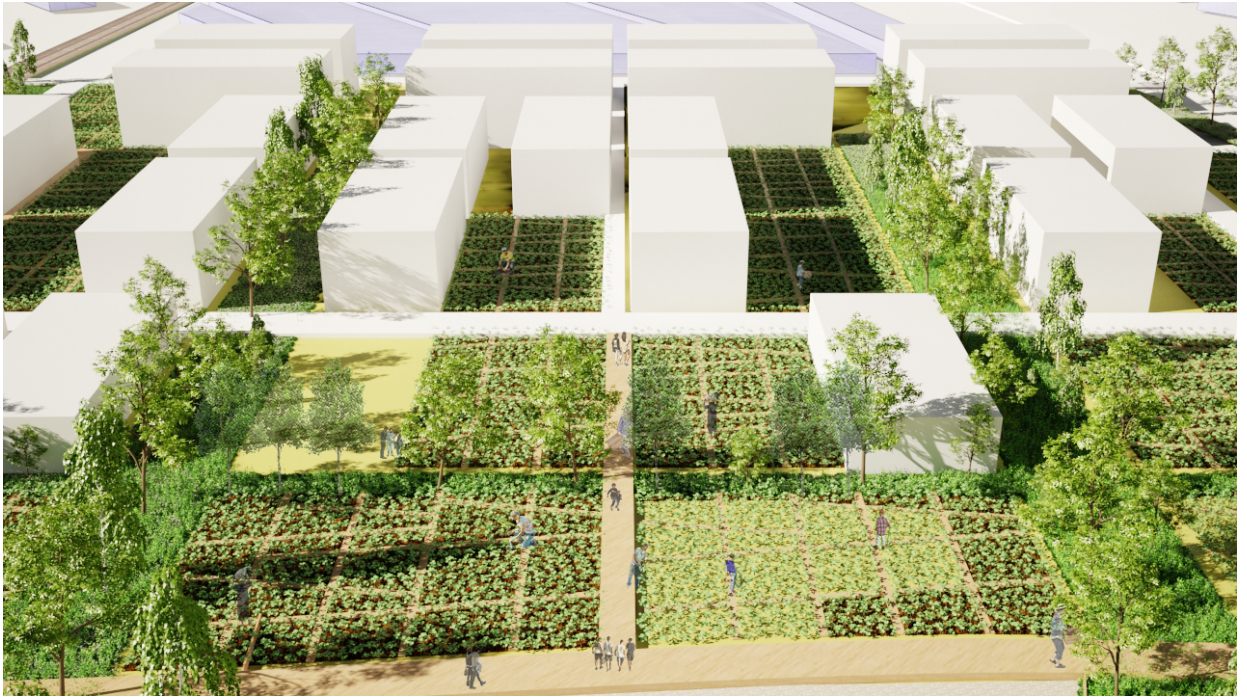


Figure 140: 3D illustrations



1- Green ecological corridor





2- Housing development

CHAPTER VIII

CONCLUSION

A. Intervention timeline

The purpose of this research is to tackle a post-conflict recovery framework and approach that is rare to be addressed or involved in the reconstruction efforts, which is urban agriculture. In the case of Homs city, urban agriculture provides a valuable and rich platform for the short-term and long-term efforts in post-conflict period because of its immediate impact on communities; socially, economically, physically, educationally and environmentally.

Homs city and its neighborhoods contain important factors that help to conceptualize and support such approach; the traditional lifestyle which was used previously as households finance generator, the availability of fertile and agricultural lands within city boundaries, the adjoining agricultural valley, the availability of water resources, more importantly, the city's need for a cheap recovery solution that helps tighten and bringing the city together as a revival unit.

The recovery of communities in the conflict aftermath is no magical thing and cannot be achieved immediately after the fire ceasing. It will extend over a period of time until reaching a healed and recovered communities. Therefore, according to the study, post-conflict recovery scheme and healing system can be divided into two periods of time [Figure 141];

(1) Immediate short- term interventions; according to my case study:

renovating and rehabilitating partially damaged buildings and services; rehabilitating of neighborhoods infrastructure; attracting labor, investors, residents and funders; as well as establishing farming lands and farming markets to start the production-consumption cycle which provides the base of the proposed approach. In this period, the community starts to recover slowly socially and physically.

(2) Long- term intervention: involves more construction and developing

implementations as well as developing communities, in which, urban agriculture is more likely to be integrated within the built-up areas to create spaces where people can work, live and interact. In the long- term period, city neighborhoods start to heal, recover and sustain livelihoods

Healing and recovery scheme:

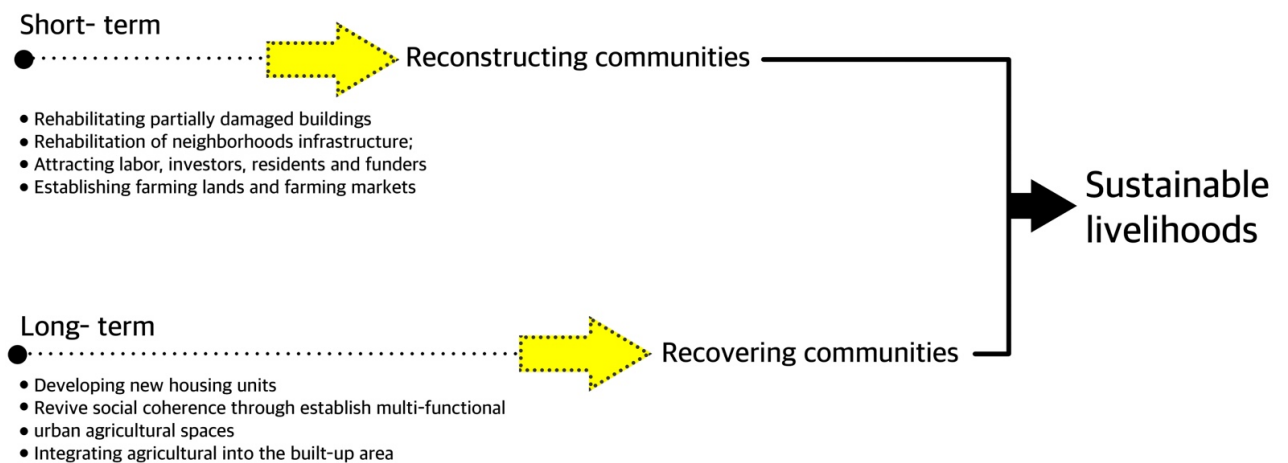


Figure 141: Healing recovery scheme

Post-conflict healing system can begin by tackling the recovery of small communities shaping the whole neighborhood through the urban agricultural sites as

well as protecting the agricultural hub located at the peripheries and penetrating it into the urban area.

This process can easily start from the wide range of schools covering and forming the essential social infrastructure in the neighborhood. Each school represents a potential micro-enterprise that will help residents and displaced to recover slowly in the post-conflict reconstruction period. By proposing policies that emphasize on creating community gardens in rehabilitated schools' yard, this impact will spread to affect the small communities surrounding these schools. Furthermore, this system can as well be supported by converting green open spaces and vacant lands into community gardens and farming markets, in order to tackle each small community shaping the neighborhood [Figure 142].

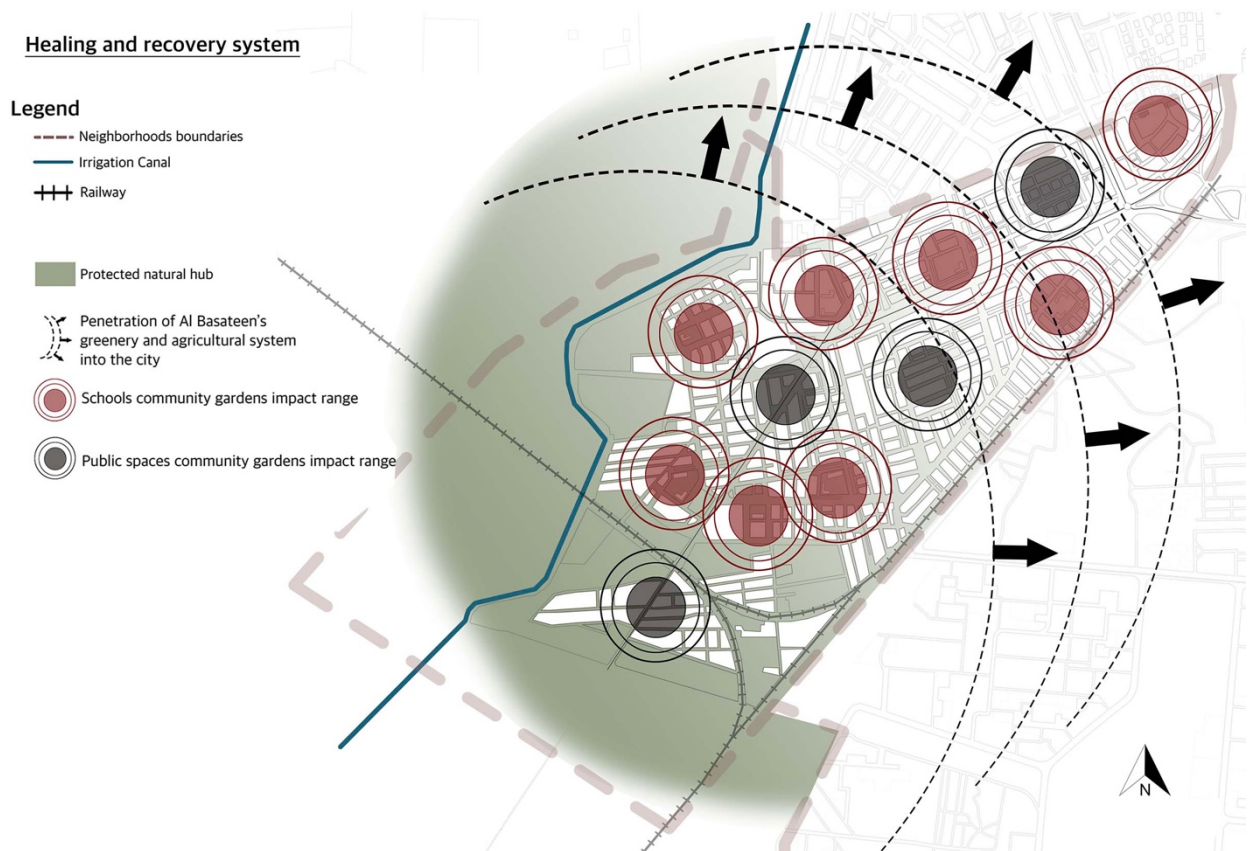


Figure 142: Baba Amer immediate healing system

In the short term, healing small communities in neighborhoods will spread later to play a key role in enhancing livability in the whole neighborhood in both the long term and short- term post-conflict recovery periods. By applying the same methods of these healing nodes in each neighborhood, the outcome will represent a holistic healing system that covers the whole city of Homs [Figure 143], and later on, the whole landscape region of the Orontes basin [Figure 144].

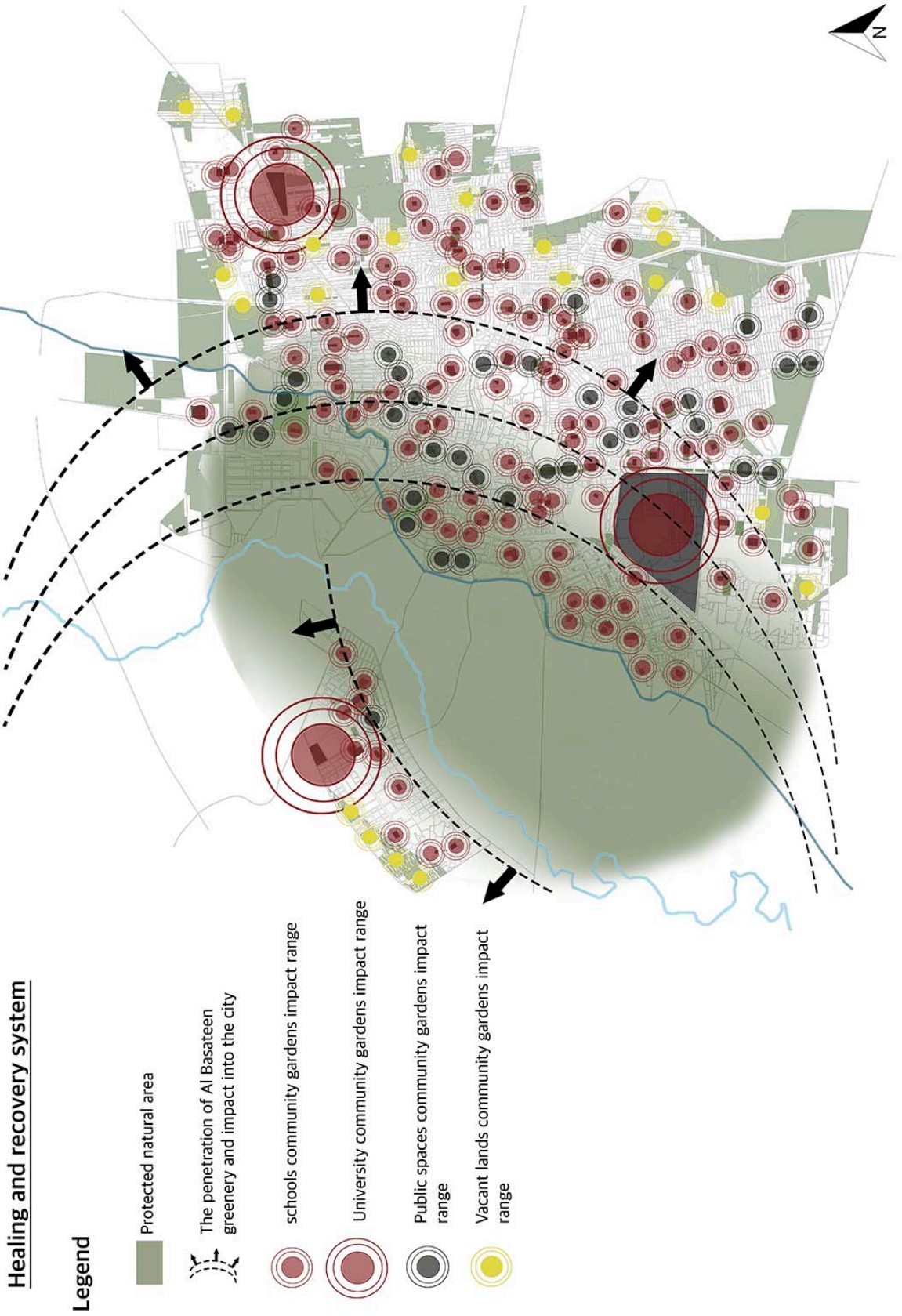


Figure 143: Homs city immediate healing system

Legend

-  Mediterranean sea
-  Orontes river
-  Major urban centers
-  Small urban/rural centers
-  Protected natural area (the Orontes basin)
-  Healing and recovery system in major urban centers
-  Healing and recovery system in small urban/rural centers

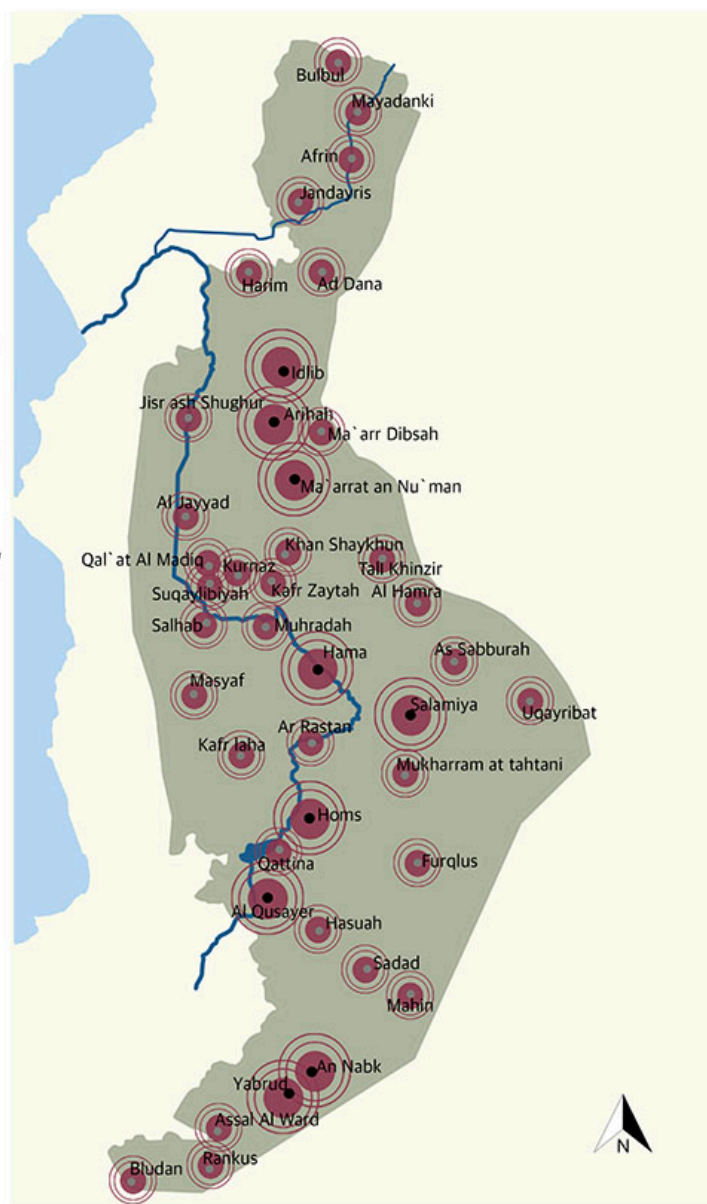


Figure 144: The Orontes basin immediate healing system.

B. Research findings, recovery, and healing scheme

This thesis proposes an intervention for Baba Amer neighborhood central to the needs of communities and individuals in the post-conflict period. The extensive destruction the city of Homs witnessed during the last 7 years, has affected heavily the agricultural system, social and physical fabric. The strategy provided guidelines and models for urban agricultural intervention to create a catalyst for post-conflict recovery and reconstruction, by taking the case of Baba Amer neighborhood which is considered as one of the severely affected neighborhoods.

The strategy offers recovery and healing scheme that provides a sustainable livable environment for the displaced and residents, by tackling the social, physical, economic and environmental aspects in the city;

On the social impact level:

- Regain previous characters of Homs city in general and Baba Amer in particular especially in terms of safety and coherence aspects.
- Revive pre-conflict social connections through creating social recreational spaces. These spaces can be either in the shape of public community gardens distributed around the neighbored, peripheral farming lands connected to Al Basateen area or in schools' yards and buildings
- Improve the visual and physical permeability of the urban fabric to provide access to land by all neighborhood dwellers, visitors and later on tourists.
- Empower local communities to ensure their participation in the reconstruction and development efforts, considering the strategy depends largely on

the local experiences and previous existing lifestyle; agriculture, industry and construction.

- Form a platform for generations integration to offer knowledge exchange and provide multi-functional productive spaces where residents and visitors can share the agricultural experience and agricultural activities that integrate local food production and consumption. To achieve this social interaction, the research improves visual and physical permeability of the urban fabric to provide access to land by all neighborhood dwellers, visitors and later on tourists.

On the physical impact level:

- The intervention works on rehabilitating the medium damage buildings, rather than evacuating all existing urban fabric of Baba Amer neighborhood as proposed by the government.

- On the other hand, the intervention develops a construction plan for completely damaged areas. The design develops housing units where people can benefit from integrated spaces for business incubation. These newly developed residential areas will provide mixed-use areas, based on agriculture practices, where people can live, work and interact. The proposed plan will provide around 77 new building units which accommodate around 4500 inhabitants. This developed design criteria will help in creating business incubation, which in turn, will help to increase house value while maintaining residents' right in the land.

On the economic impact level

- Support home food production to maintain families' and neighborhoods' security through establishing private farming areas for new housing units and public farming lands and pockets throughout the neighborhood.
- Transform the neighborhood into a multi-functional commercial hub to create a destination for newcomers, tourists and investors. This hub will help in creating job opportunities through the establishment of public farming areas, active streets facades, recreation commercial recreational areas and other agricultural related business such as farming kitchens and markets
- Promote connectivity between the production system in Al Basateen and other urban farming areas and other consumption spaces and markets in the neighborhoods and the city.
- The outcome of easily implemented multi-functional activities can contribute to neighborhood funding needed to kickstart the reconstruction process.

On the environmental impact level:

- Create a transitional area between the neighborhood and Al Basateen area that embraces the urban fabric expansion towards the agricultural valley.
- Penetrating the green wedges into the neighborhood will enhance air quality and make green spaces accessible by all.
- Increasing neighborhood's greenery will help to enhance environmental conditions which were severely affected by the heavy bombardment. The agricultural and green wedges will help in cleansing and restoring the environment to enhance air quality

- Shape a network of urban agricultural spaces through green ecological corridors.
- Promoting residents' access to fresh air and green areas will enhance the mental health.

This recovery scheme, based on urban agricultural network, celebrates the importance of agriculture practice that characterizes Baba Amer's neighborhood prior to the conflict and major urbanization. It will reverse the expanding of urban areas towards the agricultural valley and transform it into agricultural and green wedges domination toward the city.

The proposed intervention and design for Baba Amer neighborhood provides a flexible model that can be implemented in other city neighborhoods, given the similarity of features that characterizes these neighborhoods in terms of; the agricultural experience, the availability of suitable lands for urban agricultural activities and the location of Al Basateen area adjoining most of Homs' neighborhoods.

C. Further studies and intervention limitations

In addition to the aspect viewed in this thesis, further disciplines and studies can support this intervention:

- Livestock production scheme can provide an additional contribution to the economics of neighborhoods if integrated with agricultural practices.
- Enhancing the exporting system of the surplus supply to other cities with less agricultural experience.

- Improving the cooperation with the government, private sector, national organizations, and foreign investors in order to promote the socio-economic aspects.
- Finding more immediate methods to encourage further foreign and private investors to help obtaining more funding needed for the reconstruction.
- The possibility of creating visitors' promenade tracks in Al Basateen area without intruding on residents' private life.

Despite the flexibility of the healing scheme implementation, however, multi-levels limitations can slow down this process:

- The unsettled political status in the post-conflict immediate period might create an obstacle in understanding the future of city conditions.
- The blurred knowledge of the government' plans for the refugees, willing to bring local residents back, attracting newcomers to change the city's social hierarchy or developing spaces for foreign invasion.
- The security status that pursues many displaced and refugees and limit their returning process will result in manpower and labor shortage.

BIBLIOGRAPHY

- Ackerman, K. (2012). The potential for urban agriculture in new york city; growing capacity, food security & green infrastructure. [pdf]. Retrieved from: http://urbandesignlab.columbia.edu/files/2015/04/4_urban_agriculture_nyc.pdf
- Al Dbiyat, M. (2015). Population density and demographic trends. In Jaubert R., Saadé-Sbeih M., Al Dbiyat M., Haj Asaad A. (Eds), Atlas of the Orontes River Basin, Water Security - Orontes River Basin, Graduate Institute of International and Development Studies, Global Program Water Initiatives Swiss Agency for Development and Cooperation. Retrieved from: https://www.water-security.org/files//2014-10/Demography_e_Atlas.pdf
- Al Dbiyat, M. and Geyer, B. (2015). Topography and Hydrography: The Orontes, a Complex River. In Jaubert R., Saadé-Sbeih M., Al Dbiyat M., Haj Asaad A. (Eds), Atlas of the Orontes River Basin, Water Security - Orontes River Basin, Graduate Institute of International and Development Studies, Global Program Water Initiatives Swiss Agency for Development and Cooperation. Retrieved from: www.water-security.org.
- Al-Sabouni, M. (2016). The Battle for Homs: The Vision of Little Architect in Syria. [Scruton, R]. Thames & Hudson.
- Allen III, W. L. (2012). Advancing Green Infrastructure at All Scales: From Landscape to Site. In Environmental Practice. Vo.14 No.1. pp. 17-25
- Anderlini, S. N. and El-Bushra, J. (N.D). Post- conflict reconstruction. [PDF]. Retrieved from:http://siteresources.worldbank.org/INTMNAREGTOPGENDER/Resources/Post_conflict.pdf

- Annor-Frempong, I. & Olang'o Ojijo, N.K. (2012). Rebuilding Livelihoods in Post-Conflict and Protracted Crisis Countries: Results of the Kigali Workshop on Strengthening Capacity for Agricultural Innovation. [PDF]. Retrieved from: http://www.fao.org/docs/eims/upload/305974/Briefing_Paper_P3.3_version_2_DO.pdf
- Azzouz, A. (2017). Rebuilding Homs: How to resurrect a city after six years of conflict. INDEPENDENT news. [online]. March 2017. Retrieved from: <http://www.independent.co.uk/arts-entertainment/architecture/rebuilding-homs-how-to-resurrect-a-city-after-six-years-of-conflict-a7640786.html>
- Barakat, S. and Zyck, S. (2009). The evolution of post-conflict recovery. In *Third World Quarterly*. Vol. 30 No. 6. pp. 1069-1086
- BBC. (2015). Homs: Syrian revolution fallen Capital. BBC news. [online]. September 2015. Retrieved from: <http://www.bbc.com/news/world-middle-east-15625642> [Accessed October 2017]
- Benedict, M. and McMhon, E. (2006). Why green Infrastructure? In *Green Infrastructure; linking landscapes and communities* (pp. 1-53). Washington. Island press
- Brown, L. (2013). Eastdale collegiate opens its roof to urban agriculture. *The star*. [online]. December 2013. Retrieved from: https://www.thestar.com/yourtoronto/education/2013/12/25/eastdale_collegiate_opens_its_roof_to_urban_agriculture.html
- Carter, A., Mann, P and Mann, A. *Farming from the City Center to the Urban Fringe Urban Planning and Food Security*. Retrieved from: <http://alivebynature.com/FarmingCitytoFringe.pdf>

- Caruso, C.M. (2015). A Study on urban agriculture: recommended policies for California. Senior Project. California State University.
- Center for Strategic and International Studies (CSIS) and the Association of the United States Army (AUSA). (2002). Post- conflict reconstruction: Task framework. [PDF]. Retrieved from:
https://www.ausa.org/sites/default/files/RAMP_2002_Post-Conflict-Reconstruction-Task-Framework.pdf
- Commins, D. (2004). Historical Dictionary of Syria. (2nd ed).[e-book].Toronto, Oxford: Scarecrow Press Inc. Retrieved from:
https://books.google.com.lb/books?id=_EhACvcqVXkC&pg=PR17&source=gb_s_selected_pages&cad=3#v=onepage&q&f=false [Accessed 5 October 2017]
- Coutts, C. (2016). Green infrastructure, ecosystem services, and the study of their contribution to health. In Green Infrastructure and Public Health. New York: Routledge
- Dagher, R. (2015). Urban Agriculture as a design strategy to improve livelihoods in disadvantaged neighborhoods: the case of Nabaa (Bourj Hammoud, Beirut). Thesis (MA). American University of Beirut.
- De Bon, H., & Parrot, L. and Moustier, P. (2010). Sustainable urban agriculture in developing countries. In *Agronomy for sustainable development*. Vol. 30 No. 1. pp. 21-32.
- De Oliveria, F.L. (2015). Abercrombie’s green-wedge vision for London: The County of London Plan 1943 and the Greater London Plan 1944. In *the Town planning review*. Vol.86 No.5. Retrieved from:
https://researchportal.port.ac.uk/portal/files/2145574/Abercrombie_GreenWedgeVisionsForLondon_TPR_PostPrint.pdf

- De Oliveira, F. L. (2017). *Green Wedge Urbanism: History, theory and contemporary practice*. New York: Bloomsbury Academic.
- El Masri, S. (1992). *Reconstruction after disaster: A study of war- damaged villages in Lebanon. The case of Al- Burjain*. Thesis (PHD). University of Newcastle.
- FAO. (2008). *Asi-Orontes River Basin in Irrigation in the Middle East region in figures; AQUASTAT Survey 2008*. [PDF]. Retrieved from:
http://www.fao.org/nr/water/aquastat/basins/asi-orontes/asi.orontes-CP_eng.pdf
- Fischer, M. (2004). *Recovering from violent conflict: Regeneration and (Re-) integration as elements of peace-building*. [PDF]. Retrieved from:
https://www.berghof-foundation.org/fileadmin/redaktion/Publications/Handbook/Articles/fischer_handbook.pdf
- Gehrels, H., van der Meulen, S., Schasfoort, F (eds.), Bosch, P., Brolsma, R., van Dinther, D., Geerling, G., Goossen, M., Jacobs, C., De Jong, M., Kok, S., Massop, H., Osté, L., Pérez-Soba, M., Rovers, V., Smit, A., Verweij, P. De Vries, B. and Weijers, E. (2016). *Designing green and blue infrastructure to support healthy urban living*. [PDF]. Retrieved from:
<https://repository.tudelft.nl/view/tno/uuid%3Aa6836c45-9a45-4a66-b954-2c7d06e2e886>
- Haj Asaad, A. and Jaubert, R. (2014). *Geostrategic stakes and the impact of the conflict in the Orontes River basin*. In *Confluences Méditerranée*. [PDF]. pp. 173-184. Retrieved from: <https://www.cairn.info/revue-confluences-mediterranee-2014-2-page-173.htm?contenu=article>

- Haj Asaad, A. and Shamaly, O. (2016). The Effects of the Conflict in the Orontes River Basin in Syria. In *Water Resources Management in the Lower Asi-Orontes River Basin: Issues and Opportunities*. pp. 11-17.
- Human Right Watch. (2012). Syria: New Satellite Images Show Homs Shelling: Russia and China Fail to Act While Residents Suffer Death, Destruction. [online]. Retrieved from: <https://www.hrw.org/news/2012/03/02/syria-new-satellite-images-show-homs-shelling> [Accessed 11 November 2017]
- Jaafar, H., Zurayk, R., King, C., Ahmad, F. and Al-Outa, R. (2015). Impact of the Syrian conflict on irrigated agriculture in the Orontes Basin. In *International Journal of Water Resources Development*. Vol.31 No.3. pp. 436–449.
- Jaubert, R., Saadé - Sbeih, M., Al Dbiyat, M. and Haj Asaad, A (Eds). (2015). Introduction. In *Atlas of the Orontes River Basin, Water Security - Orontes River Basin*, Graduate Institute of International and Development Studies, Global Program Water Initiatives Swiss Agency for Development and Cooperation. Retrieved from: www.water-security.org.
- Jaubert, R., Saadé - Sbeih, M., Al Dbiyat, M. and Haj Asaad, A. (2015). Water infrastructure; Contemporary water infrastructure. in *Atlas of the Orontes Basin, Water security-Orontes River Basin*, Graduate Institute of International and Development Studies, Global Program Water Initiatives Swiss Agency for Development and Cooperation, Retrieved from: www.water-security.org.
- Kanu, S., Tengbe, P., Winnebah, T.R.A. & Konneh, P. (2009). Promoting Urban Agriculture in Post-conflict Greater Freetown Area, Sierra Leone. In *Urban Agriculture magazine*. [PDF]. No. 21. Retrieved from: <http://www.ruaf.org/sites/default/files/UAM21%20p.19-21.pdf>.

- Kasouha, S. (2014). Towards a strategy for regaining cultural identity in the urban reconstruction of the war - ravaged city centre of Homs, Syria. Thesis (MA). University of Ain Shams.
- Kechichian, J. (2012). A short history of Homs. Gulf News world. [online]. March 2012. Retrieved from: <http://gulfnews.com/news/mena/syria/a-short-history-of-homs-1.989655>
- Kim, J. (n.d). The Value of urban agriculture in urban design and development: literature Review and Case study in Detroit. In The Value of urban agriculture in urban design and development. Lawrence Technological University. pp. 709-716
- Kong, L. (2012). Break the Green Belt? The differences between green belt and its alternative green wedge: A Comparative Study of London and Stockholm. Thesis (MA). Blekinge Institute of Technology.
- Lovell, S. (2010). Multifunctional Urban Agriculture for Sustainable Land Use Planning in the United States. In Sustainability journal. pp. 2499-2522
- Lteif, C. (2010). Urban agriculture landscapes in 21 century Beirut. Thesis (MA). American University of Beirut.
- Maksimoyic, C., Mijic, A., Suter I., Bozovic, R., Van Reeuwijk, M. and Smith. K.M. (2017). Blue Green Solutions. A Systems Approach to Sustainable, Resilient and Cost-Efficient Urban Development. [PDF]. Retrieved from: <https://www.climate-kic.org/wp-content/uploads/2018/03/BGDGuide.pdf>
- Malual, J.D. (2008). Sustainable livelihoods analysis of post-conflict rural development in southern Sudan. Thesis (MA). Iowa State University.

- Meenar, M., Featherstone, J., Cahn, A. and McCabe, J. (2012). Urban Agriculture in Post-Industrial Landscape: A Case for Community-Generated Urban Design. In 48th ISOCARP Congress 2012.
- Münger, F., Bösch, C. & Jaubert, R. (2014). Water Security in the Middle East, Syria: The impact of the conflict on population displacement, water and agriculture in the Orontes River basin. [PDF]. Retrieved from: <http://graduateinstitute.ch/files/live/sites/iheid/files/shared/news/2014/Syria%20Feb%202014-2.pdf>
- Municipal dreams. (2014). The County of London Plan, 1943: ‘this new world foreshadowed’. Retrieved from: <https://municipaldreams.wordpress.com/2014/07/15/the-county-of-london-plan-1943/>
- Nasr, J., Komisar, J. and Gorgolewski, M. (N.D). Carrot city. [PDF]. Retrieved from: http://www.fondazioneinnovazioneurbana.it/images/ortipertutti_convegno_17giugno15/BolognaCCpresentation1706_carrotcity.pdf
- Nettler, J. (2012). Detroit gives go-ahead to controversial urban farm project. [online]. December 2012. Retrieved from: <https://www.planetizen.com/node/59688>
- North American Urban Agriculture Committee. (2003). Urban agriculture and Community Food Security in the United States: Farming from the City Center to the Urban Fringe. [PDF]. Retrieved from: <http://alivebynature.com/PrimerCFSCUAC.pdf>.
- Odemis, B., Evrendilek, F. and Kazgoz, D. (2016). Sustainable Agricultural Water Management in the Asi Basin. In Water Resources Management in the Lower Asi- Orontes River Basin: Issues and Opportunities. pp. 97–109.

Orsini, F., Kahane, R., Nono-Womdim, R. and Giorgio Gianquinto, G. (2013). Urban agriculture in the developing world: a review. In *Agronomy for Sustainable Development*. Vol. 33 No. 4. pp. 695-720.

Patriarchate of Antioch (GOPA) and Department of Ecumenical Relations and Development (DERD). (2017). Homs Governorate. [online]. Retrieved from: <http://gopaderd.org/derd-in-governorates/Homs>

Reilly, J. (2017). Homs. (G. K. Kate Fleet, Ed.). *Encyclopaedia of Islam*. [online]. Retrieved: http://referenceworks.brillonline.com/entries/encyclopaedia-of-islam-3/*-COM_30511

Ringenback, J., Valcourt, M. and Wang, W. (N.D). Mapping the potential for urban agriculture: A land inventory assessment. Bachelor project. Faculty of Worcester Polytechnic Institute.

Santo, R., Palmer, A. and Kim, B. (2016). Vacant lots to Vibrant plots: A review of the benefits and limitations of urban agriculture. [PDF]. Retrieved from: https://www.jhsph.edu/research/centers-and-institutes/johns-hopkins-center-for-a-livable-future/_pdf/research/clf_reports/urban-ag-literature-review.pdf

Sakalasuriya, M., Haigh, R.P. and Amaratunga, D. (2018). A conceptual framework to analyse consequences of post conflict reconstruction interventions. in *Procedia Engineering*. pp. 894-901. Retrieved from: https://www.researchgate.net/publication/323346741_A_Conceptual_framework_to_analyse_consequences_of_post_conflict_reconstruction_interventions?enrichId=rgreq-04b193e730339be2b3d4533b2225db60-XXX&enrichSource=Y292ZXJQYWdlOzMyMzM0Njc0MTtBUzo1OTg2NjY0NzM2NDQwMzJAMTUxOTc0NDYxODQ5Mg%3D%3D&el=1_x_2&_esc=publicationCoverPdf

- The Editors of Encyclopædia Britannica. (2014). Homs, Syria. in Britannica encyclopedia. [online]. Retrieved from:
<https://www.britannica.com/place/Homs> [Accessed 8 November 2017].
- The Magnuson Community Garden. (2015). The Magnuson community garden. [online]. Retrieved form: <http://magnusongarden.org>
- The Syria Institution. (2017). No Return to Homs; A case study on demographic. [PDF]. Retrieved, from <https://www.paxforpeace.nl/publications/all-publications/no-return-to-homs>
- The world Bank. (1998). Post-conflict reconstruction: the role of the world bank. [PDF]. Retrieved from:
<http://documents.worldbank.org/curated/en/175771468198561613/pdf/multi-page.pdf>
- United Nations Development Program. (2008). Post-Conflict Economic Recovery: Enabling Local Ingenuity. [PDF]. Retrieved from:
<http://www.undp.org/content/dam/undp/library/crisis%20prevention/undp-cpr-post-conflict-economic-recovery-enable-local-ingenuity-report-2008.pdf>
- United Nations Economic and Social Commission for Western Asia and Bundesanstalt für Geowissenschaften und Rohstoffe (UN-ESCWA and BGR). (2013). Orontes river basin. in Inventory of Shared Water Resources in Western Asia. (pp.1-21). Retrieved from: <https://waterinventory.org>
- UN-HABITAT. (2015). Baba Amer Neighborhood Profile Report. [PDF]. Retrieved from: <https://unhabitat.org/syria/syria-documents/>

- UN-HABITAT. (2014). City Profile: Homs, multi sector assessment Report. [PDF]. Retrieved from: <https://unhabitat.org/city-profile-homs-multi-sector-assessment/>
- UN-Habitat. (2016). Homs Multi-Sectoral response strategy. [PDF].
- UN-Habitat. (2017). Population: city of Homs 2017 estimations. [Excel worksheet].
- Van Rompay, L. (2012). Honoring the Extraordinary Religious History Of The Syrian City Of Homs. [online]. Retrieved from: http://www.huffingtonpost.com/lucas-van-rompay/homs-the-invisible-sun_b_1316375.html
- Wakkola, P. (2012). Building sustainable livelihoods during post-conflict recovery; A study of skills training in Jendema, Sierra Leone. Thesis (MA). University of Turku.
- Yaghi, T., Aldarir, A., Nangia, V., Oweis, T. and Arslan, A. (2016). Impact of Climate Changes on Water Resources Availability in the Orontes River Watershed: Case of Homs Governorate in Syria. In Jordan Journal of Agricultural Sciences, Vol. 12 No. 2. pp. 499-519.

Arabic references:

- Al Dbiyat, M. (1999). "حمص و حماه في سورية الوسطى: قطب ثنائي أم ازدواجية عمرانية؟". Insanyat. [online]. Retrieved from: <https://journals.openedition.org/insaniyat/12249>
- Central Bureau of Statistics. (2016). "المجموعة الإحصائية 2016". [online]. Retrieved from: <http://moaar.gov.sy/main/archives/17612> [Accessed 8 December 2017]
- Ennb balladi. (2016). "حي الوعر الحمصي. زراعة الحدائق وشرفات المنازل من أجل البقاء". Enab baladi news. [online]. June 2016. No. 227. Retrieved from: <https://www.enabbaladi.net/archives/87333>

- Habib, H. (2005). "دراسة تغيرات استعمالات الأراضي في مدينة حمص ومحيطها بين عامي 1970 – " . In Department of soil and agriculture magazine. vol. 21. No.1. pp. 243-257
- Haj Omar, A. (2017). "هل بدأت عجلة إعادة الإعمار في سوريا؟". Al-Alam. [online]. November 2017. Retrieved from: <http://www.alalam.ir/news/3132031/-إعادة-إعمار-في-سوريا؟>
- Homs City Council. (2007). "دراسة متكاملة لتقييم المخطط التنظيمي لمدينة حمص". [PDF].
- Ibrahim, S. (2006). "!!بساتين حمص ... حضر القانون ... وغاب التطبيق". Thawra. [online]. September 2006. Retrieved from: http://thawra.sy/_print_veiw.asp?FileName=104435121020060919220709 [Accessed 12 November 2017]
- Mohamad, G. (2013). "بالفصيل: خطوات استملاك العقارات والأراضي وشروطه وبدائله". Al Iqtisadi. [online]. October 2013. Retrieved from: <https://aliqtisadi.com/209562--الاستملاك-إل-وفق-الأسعار-الرائجة-يتطلب-إل>
- Tai, A. (2014). "حمص أو «إيميسا»... مدينة للحياة والعزّ ولو أوى المتأمرون ومدعو الحرية". Al Binaa news. [online]. August 2014. Retrived from: <http://www.al-binaa.com/archives/article/12560>

Interviews:

- Baalbaki, R. (2017). Director of decision support and regional planning in Homs Governorate. Interview with author. February.
- Droubi, A. (2017). Interview with author. September.
- Haroon, N. (2017). Engineer in the Old city of Homs rehabilitation committee. Interview with author. February.

Raslan, G. (2017). Interview with author. March.

Sibai, M. (2017). Professor in Al Ba`ath University, Civil engineering department.
Interview with author. February.

Syrian Army. (2017). Baba Amer military check point. Interview with author. February.

Workers in Homs Municipality. (2017). Architects and engineers. Interview with
author. February.

