

WORKING PAPER

RETHINKING SHARED SPACE

THE CASE OF NABAA NEIGHBORHOOD,
BOURJ HAMMOUD

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AUB POLICY
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Preamble

This Working Paper is the result of the joint projects of Rouba Dagher and Petra Samaha who worked on the Nabaa neighborhood in Bourj Hammoud as a case study for their Master's theses. This research focuses on the rehabilitation and reorganization of one of the major arteries connecting the two parts of the neighborhood through a multi-scalar and multi-disciplinary intervention that aims to upgrade the street, improve its walkability, take over left-over spaces and integrate place-making and urban agricultural practices in the neighborhood.

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**RETHINKING
SHARED SPACE:
THE CASE OF NABAA
NEIGHBORHOOD,
BOURJ HAMMOUD**

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INTRODUCTION

Problem Definition and Objectives

The number of impoverished communities on Beirut's expanding peripheries is growing as it absorbs migrants and refugees sharing scarce resources and limited space with Lebanese living below the poverty line. One of the current and pressing challenges is to formulate sustainable solutions for expanding peripheral cities and to improve the quality of their livelihoods. Securing livable open spaces are among the challenges faced that can be addressed through innovative participatory strategies such as, place-making and urban agriculture (UA). This research contributes to this debate by productively rethinking the shared spaces in the disadvantaged neighborhood of Nabaa in Bourj Hammud located along the Beirut River on the city's periphery. Nabaa, once part of major agricultural lands that were important for food support to the city, has been transformed into a misery belt: a dense and poor neighborhood housing diverse communities lacking open spaces and growing to the detriment of remaining agricultural land.

The following research tackles this problem through a proposed design strategy that aims at improving people's quality of life and the built environment in the neighborhood through the use of the multifunctional dimensions of place-making and urban agriculture to create shared spaces of hope.

Our research question asks: How can spaces in Nabaa be re-thought through urban agriculture and place-making strategies to improve livelihoods of communities and grant them their right to the city and its open spaces? We address these issues through a framework that accommodates the diversity of users and uses identified in the neighborhood. These interventions will be particularly challenging due to the unavailability of public spaces, rendering material-practical arrangements as the more effective way to deal with the high variety of uses and conflicting demands over space. These arrangements include pedestrianization, time-scheduling, temporary structures for market and/or play and an urban agriculture strategy based on the multi-functionality aspect of urban agricultural interventions.

Figure 1

Location Map - Nabaa and surrounding municipalities of the eastern suburbs (Source: Cermoc)



Case Study: Nabaa

Located on the Eastern edges of municipal Beirut within the jurisdiction of the Bourj Hammoud municipality (Figure 1), Nabaa is a dense neighborhood of transient, low income population groups. Since its first development in the late 1940s, Nabaa has been a refuge for low-income city dwellers, mostly rural migrants, foreign migrant workers, and since the beginning of the war in Syria, a very large number of Syrian refugees. In the absence of an official population census, the number is estimated today to have increased from 22,000 inhabitants in 2012¹ to around 26,000 inhabitants in 2014 after the Syrian crisis.² Once a farming settlement, Nabaa shifted from very few farmhouses and fertile agricultural fields in the 1920s into a highly poor urbanized area today. The neighborhood extends between the Yerevan Flyover, the Mirna Chalouhi Boulevard, and the Emile Edde Street. The increase in urban areas was to the detriment of agricultural land (Figure 2). Today, there are no more agricultural lands present in Nabaa.

The neighborhood has developed since the 1940s incrementally in multi-story, overcrowded residential buildings that house large numbers of low-income groups (including Lebanese, Syrian, Ethiopian, Nigerian, etc.). The neighborhood continues to house newcomers from diverse ethnic, religious and sectarian backgrounds. It remains marginalized from its surroundings physically, by large infrastructure, and socially, through a powerful sense of “otherness” vis-à-vis neighborhood dwellers created by the influx of foreign migrant workers and Syrian refugees. All this has defined Nabaa as an enclave for trapped, low-income families, disconnected at different scales from nearby neighborhoods and the rest of the city.

1 An estimate by the vice president of the Bourj Hammoud municipality. Retrieved on March 07, 2014 from http://www.matnfiles.com/news_details.php?id=5375.

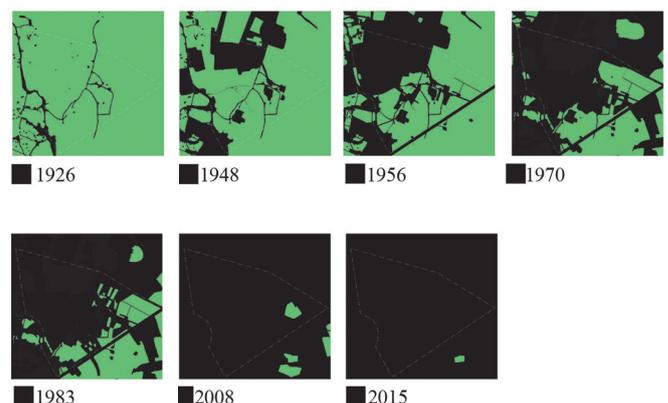
2 The count is based on numbers and statistics provided by Professor Mona Fawaz from her research on Nabaa, in which a sample of 300 households was surveyed for house size and number of dwellers. The final number is obtained by multiplying the average number of inhabitants per apartment by the number of apartments and buildings in the area, compiled through aerial photography and on-the-ground checking.

Methodology

This research work is based on archives, photographs, historical maps, field work, direct observation, zoning regulations as well as a suitability analysis using GIS software. The physical analysis of the neighborhood was based on field work: mapping using photography, documenting available remaining un-built leftover open spaces, their current uses at different times of the day/week, the existing vegetation layer, as well as identifying permanent and transient services in the neighborhood. Also, in order to profile the population and its needs and articulate accordingly a design strategy, livelihood strategies in the neighborhood were detected through informal talks that were complemented by a questionnaire that targeted three different users: shop owners, street vendors and passers-by. The outcome helped in understanding the ways in which the dwellers use the shared spaces of their neighborhood, their daily trajectories and commutes, identifying the areas of conflict or the practical agreements and arrangements they deploy. Hence, we were able to document their different practices in the public/shared spaces of the neighborhood. The results are presented in Chapter 3.

Figure 2

Agriculture in Nabaa and its peripheries over the years. The diagrams were produced by tracing over aerial photographs and historical army maps.



FRAMEWORK

Place-making Adapted

Over the past two decades, planners have become increasingly aware of the importance of relationships connecting city-dwellers to the spaces they inhabit, as social science has reflected important correlations between a sense of belonging, high standards of livability, and better functioning cities. As a result, the concept of place-making has emerged as a new body of theory and practice in which planners seek to foster and strengthen active relationships between citizens and the spaces they inhabit. It is a bottom-up movement that re-imagines public spaces and streets through encouraging the participation of people, hence enforcing the relation between people and place (See Friedmann 2010, Schneekloth & Shibley 1995, Silberberg, 2013).

Place-making interventions were primarily implemented in high-income neighborhoods to animate abandoned streets such as open streets, public markets, and pop-up interventions. More recently, they were adapted to other low-income contexts. People's practice and participation and the way they inhabit their neighborhoods guide such interventions, focusing on what is shared in terms of practices and spaces (see Hamdi & Goethert 1997, Hamdi 2004, Hamdi 2010, PPS & UN-Habitat, 2012). The participatory dimension of place-making is of paramount importance in providing opportunities for improving the conditions in Nabaa through a process that would encourage dwellers to become involved in their neighborhood.

Alternative Urban Agriculture Strategies

Securing food and livable open spaces are among the challenges faced that can be addressed through urban agriculture (UA), a multidisciplinary field based on growing food, plants and livestock.³

UA plays a major role in reducing food insecurity and poverty alleviation, and improving well-being and urban livelihood. We explore in this research how multifunctional UA strategies can be applied on different types of built and un-built surfaces to improve livelihoods of communities through food production and recreation in disadvantaged contexts like Nabaa. UA is not only about growing food, but is also about growing communities. It is becoming a catalyst for community building in cities and contributes to "the creation of resilient urban neighborhoods" (Orsini, 2014, p. 789).

Today, UA is serving different purposes: In poor developing countries, it is practiced as a single purpose activity, contributing to poverty reduction and food security. In developed countries, it is shifting towards a "multi-functional landscape" catering for needs and functions beyond the economic, such as social, recreational or environmental. Current research has been focusing on UA as a high-end greening strategy in high-income communities. Its applicability in low income neighborhoods and informal settlements aiming at improving livelihoods has been under-researched. In low-income neighborhoods, such as Nabaa, finding spaces for integrating UA is a challenge since it is often scarce. Therefore, all potential surfaces (streets, walls, balconies, roofs and vacant land) can have a valuable impact.

Delimiting the intervention area in Nabaa: the Street, the Lots and the Buildings

By focusing on the informal space formation, such as the sidewalk function that change every morning, the ways in which the neighborhood expands itself on the streets, as well as greening practices along different surfaces, we formulate a place-making and urban agriculture strategy that includes guidelines for application on streets, within lots, and on building roofs/facades. As a pilot project, we choose one main artery in the neighborhood (Sis Street), with the empty lots along it. This intervention can be also adapted to other streets in Nabaa or in other similar contexts.

Sis Street extends from Mar Doumit, crosses the Yerevan flyover and reaches the municipality square of Bourj Hammoud (Figure 3). It is enclosed by a series of multi-story apartment buildings ranging between 3-5 floors. Building corners are often filled with trash piles due to unorganized garbage collection. The only green patches consist of pots and planters placed by the dwellers along the streets and on balconies using up-cycled material. These are also deployed as an informal tactic to secure 'hard-to-find' parking spaces. Sis Street also counts one of the major landmarks of the area, *al hawooz*, or the water tower. On the foot of this tower, a small public space with two benches forms a small resting space. Several open abandoned spaces border Sis Street on both ends constituting a great opportunity to be integrated in the project and transformed into shared spaces for the dwellers that continuously claim the scarce spaces of the street.

³ This research didn't take into consideration livestock production.

A suitability analysis (See Figure 10) showed that these spaces are the least susceptible to change and most suitable to urban agriculture between the leftover spaces in the neighborhood, which leads to permanent interventions contributing most to livelihoods.

The intervention aims to organize the different uses on the street, in a responsive way based on the current existing practices and the constant changing processes in which the dwellers appropriate, claim, and extend (or retract) these places according to their needs. These interventions include pedestrianization, time schedules, and temporary structures for market and/or play-making use of empty lots along the street, alternative UA strategies based on the multi-functionality aspect of urban agricultural interventions.

Figure 3

Sis Street Location



Defining the “public” and the shared

Due to scarcity of space and high population densities, spaces in the neighborhood are prone to conflicts. They are constantly produced and reshaped in order to accommodate the versatility of functions that need to be served. For this reason, the boundaries between public/private, sidewalks/streets, and inside/outside are often shifting and elastic. Hence, as our work focuses on the shared spaces including streets and sidewalks, the scope of the intervention is not primarily defined by ownership, but also includes publicly used spaces, as well as the private abandoned leftovers. Whether roofs, abandoned lots, or leftovers, these spaces will present opportunities for interaction, thus transforming into public social spaces, defined by practice, contributing to the improvement of the shared spaces of the neighborhood.

CASE STUDY ANALYSIS: THE NEIGHBORHOOD IN LAYERS

In neighborhoods like Nabaa, streets are often lively vibrant everyday places, spaces of encounter, sharing, and everyday exchanges where a sense of community may be built through the necessary daily cooperation and negotiations required for its operation. The different configurations of the street and the findings of the urban analysis of the neighborhood based on the dwellers’ negotiations and practices will be further elaborated in this chapter.

Physical urban analysis

Public and open spaces

Animated public spaces are limited to two playgrounds. One of them is located on the neighborhood periphery and managed by the municipality, the other one was implemented with the help of an NGO on private land, in coordination with the municipality. As these playgrounds have a limited time schedule, the street remains the major open space for children to play. Most of the remaining public lots are fenced by the municipality.

Figure 4

Kids breaking into the closed playground



Another non-optimized type of open spaces is the alleyways that remained after the subdivision of the agricultural plots. They are transformed now into narrow streets alienated from the road network (Figure 5).

Figure 5

The alleyways remaining after the urbanization of the area that used to delimit agricultural plots are transformed into narrow streets alienated from the current road network.



Generally, only few parks or open spaces are dedicated to shared activities, and their access is regulated. There are also many leftover open spaces but most of them are either abandoned or used as parking areas which undermines their potential to be shared spaces for communal activities. Very few spaces include greenery, with no reminiscences of agricultural activities.

Natural assets and “green practices”

Along Sis Street, natural assets are restricted to:

- (1) Discontinuous streetscape with narrow, shaded and congested sidewalks contrasting with Bourj Hammoud’s green main streets that are cleaner and well landscaped

with edible fruit bearing plants such as olive and lemon trees (Figure 6) mixed with ornamentals along the sidewalks. In Nabaa, trees and shrubs are often planted in pots or movable structures by the dwellers.

Figure 6

Olive and orange trees in Bourj Hammoud's streetscape vs. streets in Nabaa



(2) Few trees remaining from previous agricultural orchards belong to private gardens. Mulberry, pomegranate, citrus and lemon are the most common species remaining in the neighborhood.

Figure 7

Fruit trees in the neighborhood



(3) Spontaneous vegetation in underdeveloped private land (Figure 8).

Figure 8

Vacant land on the periphery of Nabaa. (Source: Mohammad Saad, 2014)



Street corners have become spaces for piling and collecting garbage. To counter this effect, some garbage collecting spaces have been replaced with religious shrines surrounded by greenery, expecting people to refrain from littering near sacred places. Eventually, these spaces often end up used by children to play (Figure 9).

Figure 9

Greening near shrines



Suitability analysis for Urban Agriculture

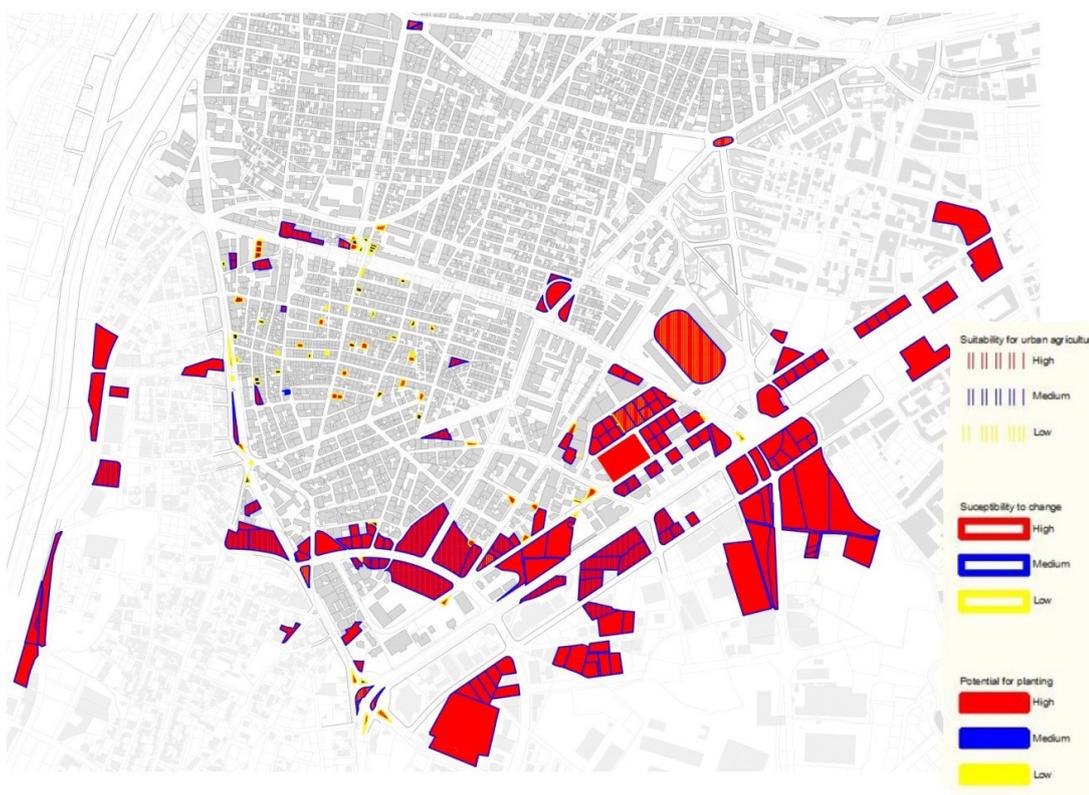
In the neighborhood and its peripheries, open spaces remaining within built lots (interstitial spaces and leftover land in built lots) as well as un-built lots were mapped and analyzed using GIS to develop three primary criteria for the identification of suitable surfaces: (1) susceptibility to change due to real estate dynamics and zoning, (2) suitability for a UA, and (3) potential for planting. Each of the three criteria was defined by specific variables.

Susceptibility to change for each un-built lot was analyzed through identifying three variables: ownership type, minimum buildable size according to zoning law and type of prospective projects.

Suitability for UA included variables such as the extent of use of the lot and its function. The potential for planting variable is the lot surface area and informs about the lot suitability either for mass production supporting the existing fruit and vegetable market in the neighborhood or for smaller scale supporting household consumption. The results (maps and data tables) were combined and analyzed to develop a composite map overlapping the three criteria for each lot (Figure 10). Sis Street is marked with a dotted line.

Figure 10

Composite map overlaying the three criteria: Susceptibility to change, suitability for urban agriculture and potential for planting in the neighborhood



The streets condition in Nabaa

The streets are defined by a variety of shops and push cart vendors that sell all types of goods and services. Along with sidewalks, streets constitute the major social public space in the neighborhood. The streets are alive with children playing, people talking, shopping, and strolling. Shopkeepers choose carefully their seating spots at the edge of the sidewalk.

Lighting at night is limited to a few streets where municipality lamps are distributed, as well as places where the dwellers themselves have managed to “illegally” connect projectors and light the pathways. Shops that stay open late at night ensure liveliness and illumination to the street till late night hours (10 pm to midnight).

The analysis of the streets as a social public space will be elaborated in the following section with a detailed mapping of the uses and users.

Social analysis - Community practices and livelihoods

Community diversity and available institutions

The duration of stay among dwellers in the neighborhood vary considerably. Nabaa has become a melting pot of old residents and a majority of transient population groups including locals, refugees, and displaced with different ethnic and religious backgrounds. However, it is important to note the following:

- ▶ Low-income Lebanese tenants who rent from absentee landlords form an increasing minority. Some of these dwellers have actually settled in the neighborhood during the years of the civil war and now rent the units they once squatted.
- ▶ There is a wide variety which includes single male workers from Syria, Egypt, Sudan and Sri Lanka as well as female migrant workers such as Ethiopians and Bangladeshis. Some of these migrants are well organized and count institutions in the neighborhood, while others are vulnerable and have a more scattered presence.
- ▶ Since 2012, the majority (80%) of the neighborhood dwellers have become Syrian refugees (Fawaz, forthcoming).
- ▶ Political parties play an important role in the neighborhood and determine a fixed power structure across the communities.

Moreover, the neighborhood is abundant in educational establishments, religious institutions, and NGOs. The various identities and high densities of population render these institutional spaces in Nabaa as lively places frequently visited by the dwellers. These institutions are part of shared practices that have a significant role in the lives of the communities especially that it is through them that aid for refugees and poor families are channeled.

Dwellers' Experiences and Preferences

▶ Street Life and Tactics of Place-making

Venturing along the streets of Nabaa, one can see crowds of shoppers, dwellers, shopkeepers, mobile vendors, children, and teenagers. Carts, bicycles, motorcycles, cars, trucks, strollers fill the spaces. Those vibrant daily practices on the streets constitute in a sort some other kind of place-making. For instance, waste material is reused as an alternative for many needs: curtains, shading devices, wooden frames to prohibit rats from entering, planters (Figure 11 and Figure 12).

Figure 11

Planters to secure parking spaces for cars as well as motorcycles



Figure 12

Recycled material used in 'place-making' tactics to improve living spaces



▶ Mobility and the Experience of the street

Although hindered by many obstacles, pedestrian activity remains high. Other transportation means are most commonly motorcycles, bicycles for short distances and taxi-service.

Traffic does not really diminish the social life of the streets of Nabaa, but it definitely presents a hazard. High demand for cars renders the street a space of more conflict (Gehl & Svarre, 2013). All roads in Nabaa are narrow and serve as two-way streets, with cars parking on the side. Generally, vehicles park on any empty spot they can find, including sidewalks. The streets with high traffic are more noisy, chaotic and crowded. Pedestrians have to always be precautious and vigilant, since sidewalks are blocked or nonexistent. Children play in the streets without any supervision causing more hazards. On the streets of Nabaa, Lebanese and immigrants, children and elderly and whoever cannot afford cars, struggle to find safe places to walk. Hence, traffic-free streets would allow the variety of activities to happen more freely while including different age groups.

Figure 13

Vibrancy of the ground floors level replicated on first levels of buildings



Figure 14

Street vendors reaching for the customers on the first floor through a speaker



Shopkeepers experiences and arrangements

Partly due to the insufficiency of private spaces, people consider streets and public spaces as an extension of their private space. Hence, shops expand their showrooms and working spaces onto the sidewalks.

Product deliveries frequently lead to road blockages. Despite the fact that they are more frequent in the early mornings, deliveries are not confined to a certain period of the day. Only vegetables and fruits shops receive deliveries during the early hours of the day (typically between 5:30 am and 7:30 am). But even if other shops receive products less frequently, the huge number and diversity of their products sold render the street a loading bay for delivery trucks.

Figure 15



Figure 16

Sometimes, outer displays are helpful for mothers with baby strollers



A guide to street vending in Nabaa

Although their patterns and trajectories in space hinder pedestrian mobility, street vendors represent an essential element of the streets' vibrant activities, which contributes to safer, livelier streets. They offer the needed commercial services answering the demand for affordable products. It is in the street that many refugees, desperate for any form of employment, eventually find ways of earning a living.

► Street Vendors' Tactics and Movements

The presence of vendors has generated numerous arrangements: choice of immobile points of the day, location to park the cart at night, as well as negotiations with shopkeepers and residents that are part of their daily route or trajectory. The vendors do not share the same level of mobility; neither do they occupy the same amount of space. For example, some have established semi-permanent stalls with shading devices hinting to a higher level of permanence and immobility. The arrangement of street vendors, stands and temporary kiosks, is often chaotic and arbitrary, which forces them to negotiate common spaces with shopkeepers and pedestrians.

Figure 17

An immobile street vendor expanding his service on Sis Street



► Relationship with their location

None of the vendors mentioned that they were asked to pay rent for the space or being kicked out by shopkeepers. What was frequently described as the reason for this was that people understood that everyone needed to make a living (*rez'a*). It was also stated that dwellers appreciated the 'to-doorstep' services of street vendors who recognize their clients as all being the dwellers of Nabaa.

Figure 18

Street vending activities: trajectories and stops



Synthesis: Informal Streetscapes, Tactics of Transgressing

As the dwellers extend their living and working places to the streets and privatize public space, the sidewalks—perhaps the major public spaces—become in turn playgrounds, workshops, displays, and terraces. The practices and users of the streets are profiled in a table (Figure 19) based on two broad categories: the mobile such as street vending, and the stationary such as the extension of living or working spaces by the residents.

► Activities fixed in space:

- Sitting: extending living spaces for coffee, water pipe, chats, backgammon or people watching, working places for display and workshops, leisure spaces as cafés extensions;
- Playing: on the streets and around shrines;
- Parking: for carts, bikes, motorcycles, and cars;
- Immobile street vending;
- Greening activities: trees, pots and planters / shrines.

► Activities mobile in space:

- Mobile street vending: with varying degrees of mobility;
- Walking: including mothers with babies in strollers;
- Cycling: bikes are used by children as well as by adults as a mean of transportation;
- Motorcycling: another efficient transportation mean that adds chaos to the unmanaged traffic;
- Garbage collection: passing by specific streets leaving piles of litter in others;
- Cars: most of the streets in Nabaa hardly accommodate two-way traffic.

These practices have conflicting schedules; using the space differently. Some uses have specific trajectories and stops within the neighborhood (street vendors). Others come from outside the neighborhood to offer services or deliver goods (delivery trucks). And finally, there are the uses that congregate in one area without moving around the neighborhood (extension of one's private space).

Figure 19

Dimensions of time and space

		Typologies	Time	Space	Photos
Mobile	Wheelers				
	Strollers				
Stationary	Sitters				
	Sitters				

While some practices retract at night, after street vendors clear the streets for example, the flexibility of space is highlighted rendering the streets a dynamic space, function of a specific patchwork that works according to an elastic schedule set according to the needs of the users and uses of space.

Based on the physical and social analysis of the neighborhood, we propose in the following chapter an integrated place-making and urban agriculture strategy that aims to tame the conflicts over space while improving some of the physical conditions of the built environment in the neighborhood.

INTERVENTION/DESIGN STRATEGY

By learning from the existing informal practices, the intervention's aim is to allow the current practices to take place under better conditions. The discussion of place-making and UA within the context of Nabaa aims to create new productive pockets that encourage optimization of use of available surfaces by reusing or repurposing the available underused streets and nearby vacant lots, as well as connecting these spaces and communities together through a network aimed at enhancing livelihood.

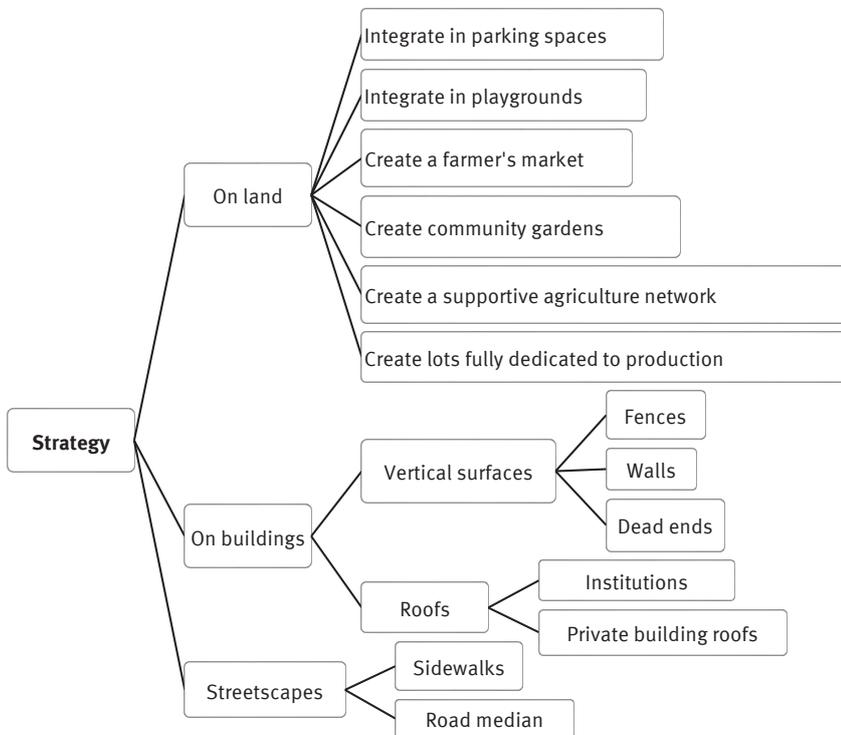
The UA strategy will be applied on different types of built and un-built surfaces: streetscape, buildings and land.

Figure 20

Surfaces for urban agriculture in Nabaa



Figure 21

Surfaces and forms for urban agriculture**The street**

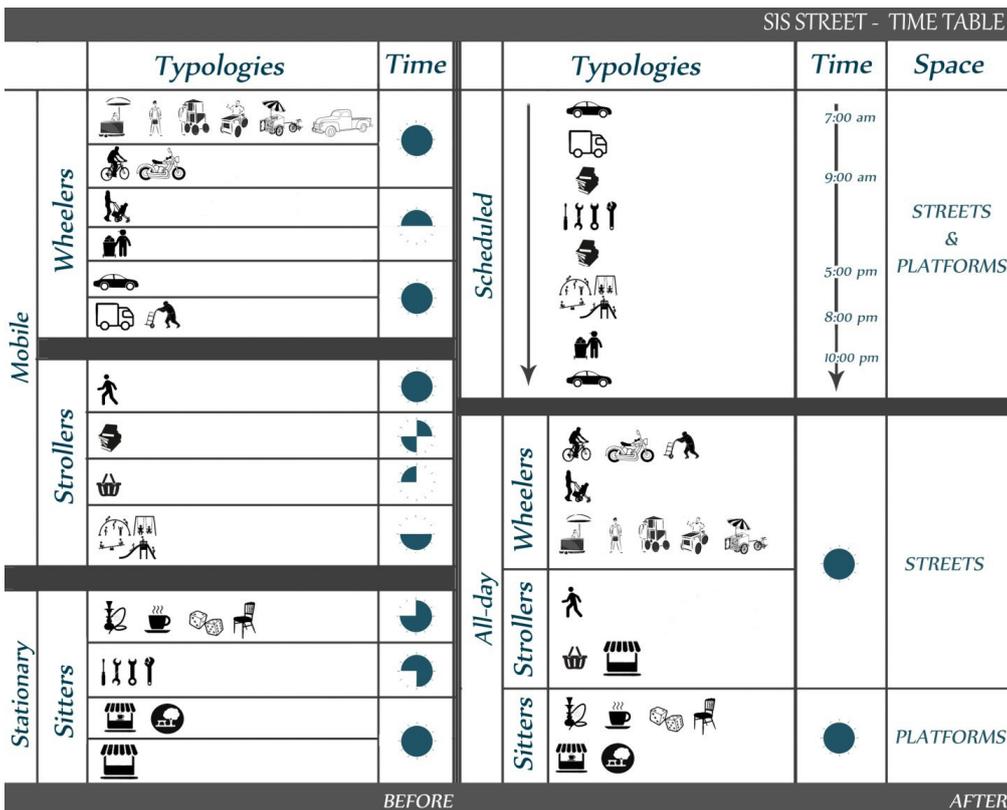
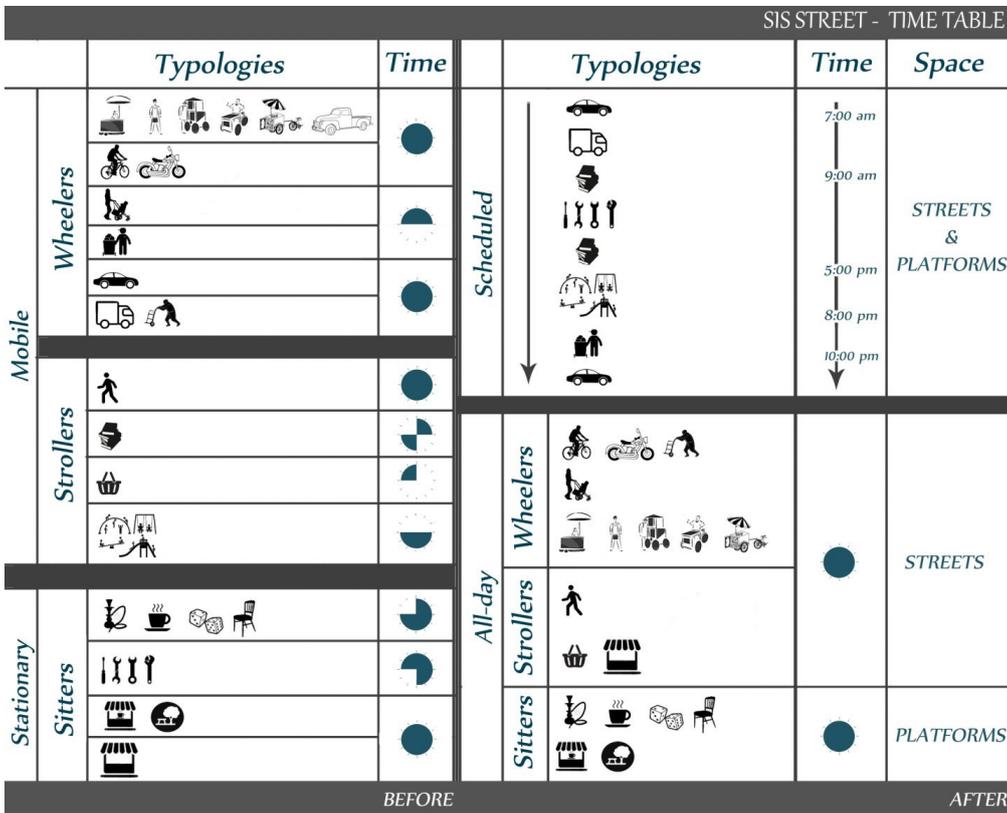
Based on all the mapped practices and the issue of temporality, an arrangement for Sis Street is proposed. It is flexible not just through space, but also through time, responding to the ever-changing processes in which the dwellers appropriate the spaces according to their needs, leaving the boundaries flexible.

For this end, the variable of time is introduced in the intervention by proposing first a 'time-table' for the street. When combined with the spatial arrangements, it will allow the space of the street and the sidewalk to gain more flexibility with fewer conflicts.

While the mapped users were primarily divided between mobile and stationary, the new time table highlights the variable of time through dividing the users between scheduled and all day users (Figure 23).

Figure 22

The arrangement of the street before and after the intervention



The width of Sis Street varies between 8 and 10 meters. The locations where the street is wider will allow additional multi-use spaces as shown in the plan (Figure 23) and visuals (Figure 25 and Figure 26). These spaces where cars can park at night, transform into parklets during the day. The proposed roadway is 3.5 meters wide allowing one car to pass and transforms into a pedestrian link and a bike lane during the day. Vendors share the pedestrian paths and can stop at the platforms/parklets. The sidewalks are arranged optimally between mobile and immobile uses, highlighting the elastic boundaries between public and private, and maximizing the use of the scarce open spaces. They are dedicated for pedestrians when cars are allowed on the roadway. And then they transform into a market/display when the roadway is closed for cars and used by the passersby. Hence, through introducing the variable of time, the space of the street and the sidewalk gains flexibility. The intervention plan is presented through time, where the uses on the plan are determined according to the hours of the day.

In addition, the proposed UA scheme below combines five strategies; surfaces (land, building, street) and types of planting (directly on land or in raised planters) and defines temporality for potential lots along Sis Street. It can be summarized in three concepts regardless of their type of application (residential, roof, balcony, wall, streetscape, urban pockets):

- ▶ Connecting these spaces through the street. A network will link major landmarks, services and institutions (schools, religious buildings, and NGOs) to the new proposed spaces for intervention, acting as catalysts of urban agriculture. The old pedestrian streets will be revived. There is also a connection to the surrounding streets.
- ▶ Introducing urban agriculture activities within already existing activities land (in already planned open spaces such as public parks, etc.) and on buildings (roofs and walls of schools, and institutions).
- ▶ Creating new spaces fully dedicated for urban agriculture.

Figure 23
Uses distributed through space and time along Sis Street



Figure 24
 UA strategies on different surfaces along Sis Street



Along Sis Street, fruit trees along sidewalks whenever they are larger than one meter will connect to the already existing edible streetscape implemented in the upper area of Bourj Hammoud. It will contribute more to greening the neighborhood rather than heavy agricultural production. When the sidewalk is narrow, grape vines could be climbed on the wall. Residents can agree to manage and harvest the fruits along the streetscape.

-  Permanent intervention (low susceptibility to change)
-  Integrate planting directing in soil (used highpot + soil)
-  Integrate planting in raised bed or wall (used + highpot + no soil)
-  Full planting directly in soil (unused + highpot + soil)
-  Full planting directly in raised bed (unused + highpot + no soil)
-  Green roof on institutional building
-  Introduce activity - community garden (unused + medipot + soil)
-  Low planting or supportive
-  Old pedestrian passages revived - Street connector
-  New sidewalks to entrance - Street connector
-  Network

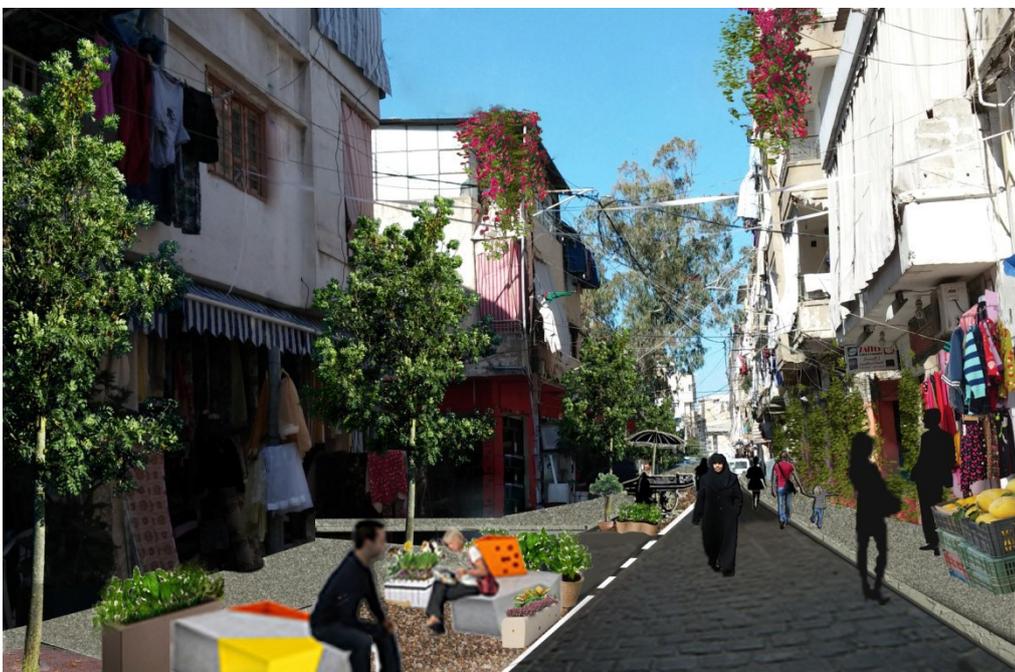
Figure 25

Sis Street – current situation



Figure 26

Sis Street after the proposed intervention



In addition, dead end walls in the neighborhood can be “activated” to provide spaces for fruit and vegetable production. The wall can be used as a growing surface, like many residents are already doing. Fences can be used as a growing support for either climbing plants or to be used as containers.

Figure 27

Integrating grape vines in spaces fully used as parking spaces inspired by the existing practice in the neighborhood



The lots

While existing vacant lots can be developed into multi-use nodes order to tame the overstimulation of the street, alternatively, we present urban agriculture strategies that can be deployed on these potential surfaces adding environmental, functional and aesthetic dimensions altogether. Through reinforcing existing practices in the neighborhood, these spaces along Sis Street would convert to green pockets of place-making and urban agriculture, repurposed as places for social interaction such as community gardens (Figure 29) or places for heavy production of fruits and vegetables used for commercial purposes.

Figure 28

Urban agriculture components in the neighborhood.



Water collection



Garbage sorting
Recycling
Upcycling
Composting



Farmer’s market



Recreational
Community gardens



Commercial
Agricultural production



Support stations

These spaces take the form of productive landscapes servicing the community. The intervention will be based on sustainable tools of intervention and will have supporting activities for urban agriculture such as:

- ▶ **Garbage sorting:** Providing the neighborhood with recycling bins in specific spaces will help in sorting the garbage for the local garbage collector and reducing street littering around street corners. Bins dedicated for organic waste collection originating from household and commercial use of fruits and vegetables will help in reducing organic waste and assist in producing compost and growing medium for the crops to be grown.
- ▶ **Up-cycling:** The intervention is also based on existing practices in the neighborhood such as repurposing unused materials as containers. The unused rods originating from structures of the amusement park can be used for creating greenhouses.
- ▶ **Assistance or support stations for urban agriculture:** NGOs can have support stations in the neighborhood for providing assistance regarding agricultural practices such as providing seeds, tools, teaching how and when to grow, etc.
- ▶ **Water collection:** using water efficient systems such as water collection from the roofs, from air conditioning units or creating water collection units.
- ▶ **Fruit and vegetable market:** A market is proposed under the bridge to sell fruit and vegetables produced in the neighborhood. Branding Nabaa’s agricultural products could be used as a marketing strategy and part of promoting the urban agricultural landscape proposed. Fruits and vegetables in addition to traditional food products produced by the residents can be sold.
- ▶ **Other services include:** packaging stations will be dedicated for packing the fresh produce. Parking for push cart vendors: Specific areas will be allocated for push cart vendors to park their carts at night.

Figure 29

Potential space for community garden with supportive agricultural activities before and after design on a municipal land along Yerevan flyover



The neighborhood residents seem to prefer movable small structures. In the case of community gardens, mobile gardening can offer flexible solutions, especially for temporary interventions on lots that are highly susceptible to change. It will also allow the users to easily move the containers to other locations.

Figure 30

Integrating edible landscapes in Bourj Hammoud playground (Strategy 3)

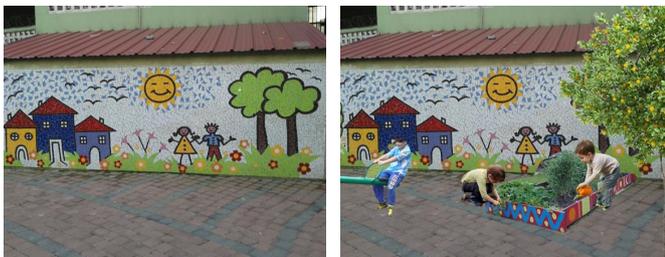


Figure 31

Leftover open space within a built lot near an abandoned building (peripheries of Sis Street)



Figure 32

Integrating recycling bins for organic waste to produce compost



The buildings

Apart from vacant lots, planting can also be added using green roofs and green walls. These strategies are often coupled with rainwater harvesting and reuse of organic waste that would alleviate the garbage crisis and assist the garbage collection and sorting in the neighborhood. Hence, organic waste can be composted and added as soil amendment or medium to plant in.

Roofs

When conditions permit, residential and institutional building roofs will be converted to edible gardens. Since the condition of residential roofs is deteriorated and often used by residents, the strategy for green roofs involves planting on unused roofs of identified institutional buildings such as NGOs, schools, universities and religious institutions. These have the capacity to introduce and maintain their roof but also they are major hubs with a potential to gather people and will act as the “hosting institutions” for urban agriculture.

Walls (building facades, dead ends and balconies)

Vertical agriculture can be implemented on the building facades. Dead ends in the neighborhood can also be “activated” to provide spaces for fruit and vegetable production. The wall can be used as a growing surface, like many residents are already doing, an activity that also contributes to the physical upgrading of the street condition.

Figure 33

Green wall with water collection for air conditioning units inspired from the “green wall” in the neighborhood



Balconies can assist in small scale food production for household consumption by growing in pots inside the balcony or hanging pots on the balcony edge or handrail.

CONCLUSION

In conclusion, the research focused on the rehabilitation and reorganization of one of the major arteries connecting the two parts of the neighborhood through a multi-scalar and multi-disciplinary intervention that aims to upgrade the street, improve its walkability, take over left-over spaces and integrate urban agricultural practices in the neighborhood. The intervention would have many benefits: encourage social interaction and cohesion, connect to other streets, and protect the few remaining open spaces within the neighborhood while catering to the wide array of uses needed by the high number of dwellers in Nabaa. The research also contributes to the applicability of place-making and urban agriculture on a neighborhood scale in the context of a low-income neighborhood.

With the concepts of place-making and urban agriculture combined and adapted to the conditions of the neighborhood, not only the spaces of the neighborhood would be better used, but also they will be physically upgraded with the participation of the dwellers, lifting a barrier on the way to improvement. After all, the quality of the physical outdoor space does affect the activities happening around, especially for the most vulnerable, i.e., the elderly, the children and the “wheeled” (Gehl, 2001). When the space is suitable and safe for walking, sitting, standing, and talking, a broad spectrum of other community activities will therefore be able to naturally take place. These small daily activities are the seed for more complex communities’ place-making interventions.

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