

# **Architecture & Dwelling**

## Connecting the Tangible and the Intangible

### **RESEARCH PLAN**

**Master of Architecture, Urbanism & Building Sciences**

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## 1. Background

Ethiopia is a country in the eastern part of Africa, and it is surrounded by seven other countries. In the north it borders to Eritrea, in the northeast it borders to Djibouti, in the east it borders to Somalia, in the south it borders to Kenya, in the west it borders to South Sudan and in the northwest, it borders to Sudan. Ethiopia is a federal democratic republic with a parliament. Sahle-Work Zewde is the first female elected president of Ethiopia and currently the only female president in Africa.

The three main religions in Ethiopia are Ethiopian Orthodox, Islam and Protestantism. 43.8% of the Ethiopian people are Ethiopian Orthodox, 31.3% is Muslim and 22.8% is Protestant (Central Intelligence Agency, n.d.). Over 14 languages are spoken in Ethiopia, of which Amharic is the official national language (Central Intelligence Agency, n.d.).

The total area of Ethiopia is 1 104 300 square kilometers, and it has a population of 108 113 150 people (Central Intelligence Agency, n.d.). In the world, it ranks at number 13 of the country with the most inhabitants. In Africa it is the 2<sup>nd</sup> most populous country (Central Intelligence Agency, n.d.). The population density is high in the northern part and middle areas of the country, particularly in the centrally located capital of Ethiopia (see figure 1).

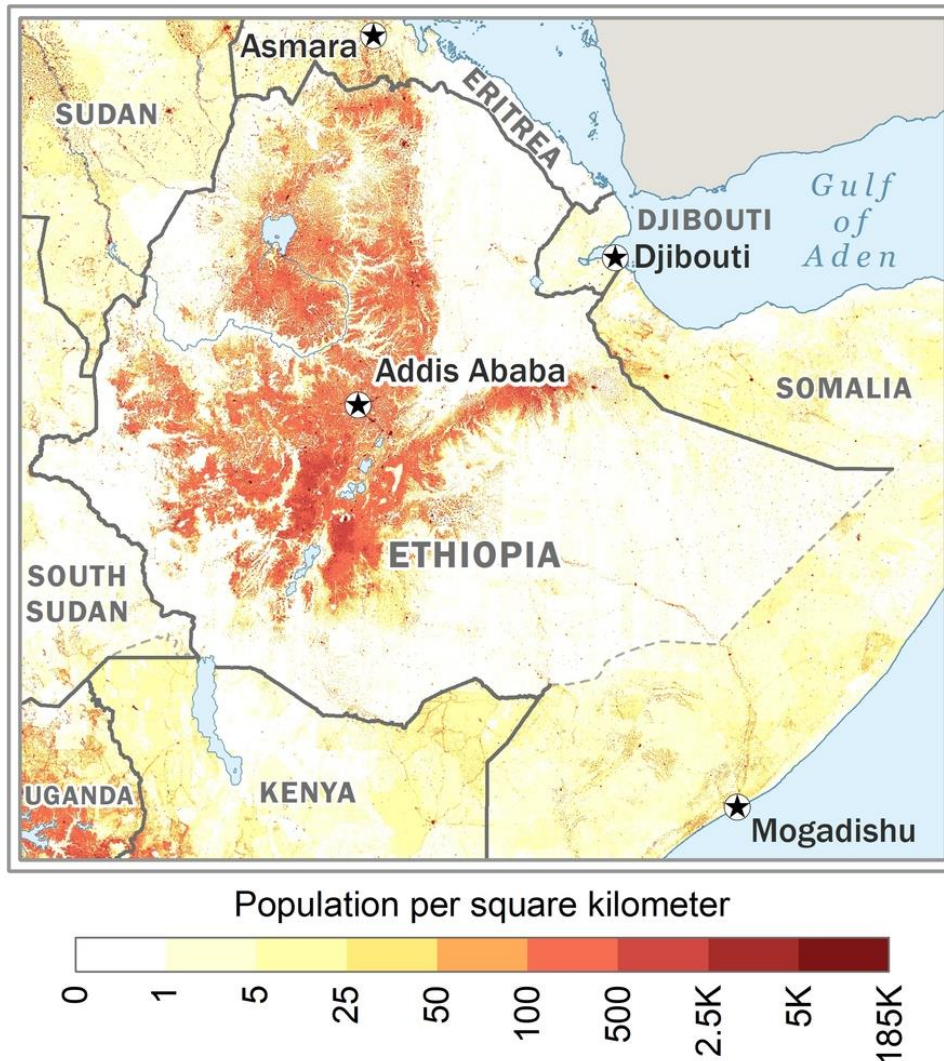


Figure 1 Population Density Ethiopia. Source: Central Intelligence Agency (CIA). (n.d.). CIA World Factbook — Africa: Ethiopia. [www.Cia.Gov](http://www.Cia.Gov). Retrieved 21 December 2020, from <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>

The capital of Ethiopia is called Addis Ababa, which means ‘new flower’ in Amharic. Addis Ababa has 4 794 000 inhabitants, and it is also the biggest city of Ethiopia. 21.7% of the Ethiopians live in an urban environment and the rate of urbanization is 4.63%, which is higher than the rate of total population growth (see figure 2).

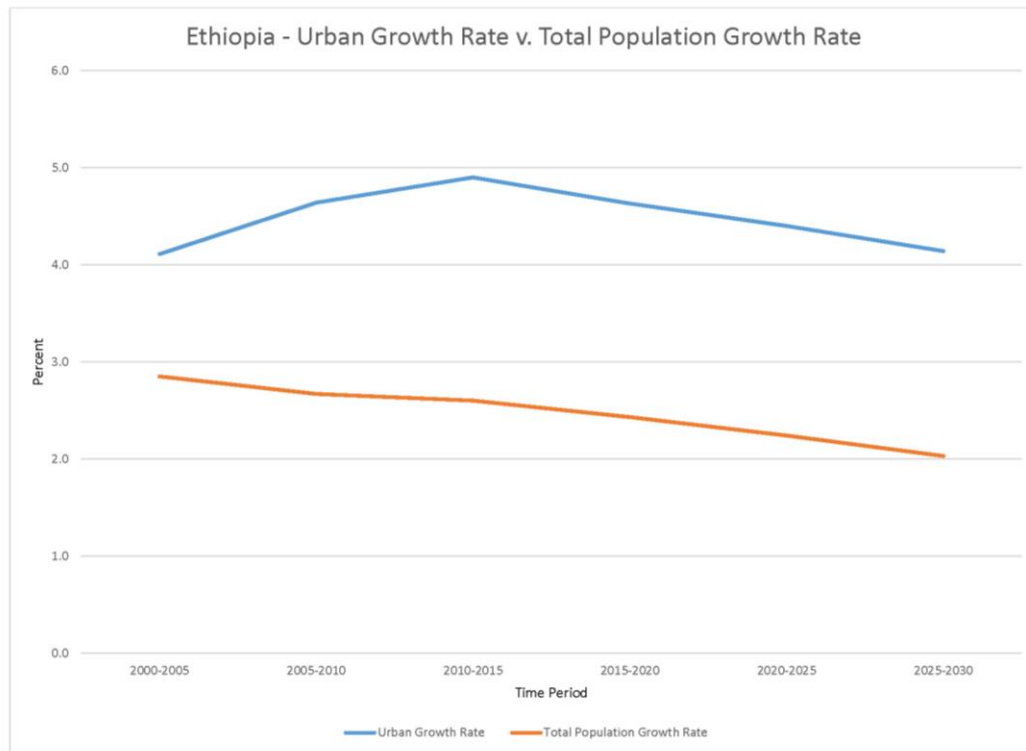


Figure 2 Population growth rate. Source: Central Intelligence Agency (CIA). (n.d.). CIA World Factbook — Africa: Ethiopia. [Www.Cia.Gov](https://www.cia.gov/library/publications/the-world-factbook/geos/et.html). Retrieved 21 December 2020, from <https://www.cia.gov/library/publications/the-world-factbook/geos/et.html>

The total population and the urban population are expected to grow in the coming years (United Nations, 2018). A study done by the World Bank in 2013 (Bundervoet, 2018) showed that respectively ‘search for work’, ‘moving along with family’, ‘marriage arrangement’ and ‘education’ were the most important motivations for people to move to an urban area in Ethiopia. In a reaction to this the government of Ethiopia came up with a plan to provide the Ethiopians with enough housing. The government of Ethiopia implemented since 2005 a so-called Integrated Housing Development Program (IHDP), which started off in Addis Ababa. Among other goals, the goal of this program was to create 200 000 jobs, promote 10 000 micro and small enterprises and to create 400 000 condominium units (UN Habitat, 2011). The principles behind these goals were to build houses on a large scale for people of the lower income groups within Ethiopia and with this to promote homeownership. Even though the goal of the 400 000 units was not reached within the five years that was set out for the IHDP, building low-cost houses at a very large scale was successfully achieved within this program, the costs of construction per m<sup>2</sup> was about 77 USD (UN Habitat, 2011). In the private sector this number would be 193 USD for the same quality.

However, the IHDP has encountered some design problems. The units and the urban design are not responsive to the needs, activities, and lifestyle of the occupants. The newly built condominium sites are alienating and detaching occupants from their community (UN Habitat, 2011). ‘Most occupants are accustomed to living close to the ground and so adjusting to life in multi-storied

apartment blocks is proving a challenge.’ (UN Habitat, 2011, p. 41) Living close to the ground means having space and a connection to the community (UN Habitat, 2011).

## **2. Problem Statement**

The general problem is that the rapid population growth of Ethiopia puts pressure on the land resources of Ethiopia. It expands environmental degradation. It raises vulnerability to food shortages (Central Intelligence Agency, n.d.). On top of this and to the field of architecture most importantly, the rabid *urban* population growth will (and has) put constraints on the Ethiopian housing market and specially on that of the social housing market (UN Habitat, 2011).

The specific problem is that the solution and the reaction of the government to supply the people of Ethiopia with enough housing, is lacking. These newly built condominium sites are alienating and detaching people from the community and the neighborhood.

## **3. Research Question**

Hence, the main research question is: *How to design social housing with a strong connection between the community and the neighborhood in Addis Ababa, Ethiopia?*

#### 4. Theoretical Framework

For the theoretical framework the following literature pieces are mainly revised:

- 'Perspectives on Neighborhood and Community: A Review of the Literature' by Robert J. Chaskin.
- 'Mental Health and the Built Environment: More than Bricks and Mortar' by David Halpern.
- 'Healthy and Community Design' by Lawrence Frank, Peter Engelke and Thomas Schmid.
- 'Stress, social support, and the buffering hypothesis' by Sheldon Cohen and Thomas Ashby Wills.
- 'Mental Health and the Built Environment in Making Healthy Places' by William C. Sullivan and Chun-Yen Chang.

These are the most important literature pieces which will be used in my graduation project and because of that elaborated on hereafter. Besides these, there are also others which will be revised during my graduation project, but not mentioned here and only in the list of references at the end.

*The distinction between community and neighborhood is often not clear and the use of these words may cause confusion. To fore come this and to set the base, these two words are defined and explained. This is done with primarily the following piece of literature: 'Perspectives on Neighborhood and community: A Review of the Literature' by Robert J. Chaskin (and 'Neighborhoods: Their place in urban life' by Howard W. Hallman, but this one is not part of the main literature).*

A Neighborhood is a geographical place where residents live close to each other and share happenings that are connected to living close to each other (Chaskin, 1997). Neighborhood is physical and because of that a more comprehensible term, in contrast to 'community'. It is a 'place' and because of that more *tangible*, more understandable. A neighborhood is a part of a bigger area and usually populated by residential units (Chaskin, 1997). Along these lines Hallman (1984) gave the following definition to the word: "A neighborhood is a limited territory within a larger urban area where people inhabit dwellings and interact socially." How the social interaction happens and to what extent is not defined in this definition, but the term neighborhood is almost always linked with connectivity (Chaskin, 1997, p. 13). This connectivity can have multiple causes socially, functionally, culturally and or circumstantially.

The same 'connection' is also implied with the term community. 'Some combination of shared beliefs, circumstances, priorities, relationships, or concerns' connect people and these connections bid people as a community (Chaskin, 1997, p. 522). These elements that connect people may be because of the place (where they live) or not, but either way sometimes it is more formal than other times. A community can be socially connected (friends), it can be functionally connected (production and consumption), it can be culturally connected (religion) and it can be circumstantially connected (economic status). What is important to notice is that a community is not per se linked with a physical place, which is the case with 'neighborhood'. A community is a connection between individuals who will act collectively and share a collective identity, this can be attached to a physical place but also not bound by a physical context (Chaskin, 1997). It is *intangible*.

*As can be noticed, the two terms have definitions which are very close to each other and this also explains the confusion. The literature on this topic hence discusses more definitions, but due to time constrains this will not be discussed here. Rather, an elaboration of the word 'connectivity' is given here, since in both 'neighborhood' and 'community' this word plays an important role it is worthwhile having a closer look at this word and how this word is linked with the built environment and how this*

influences a 'good' neighborhood. All of this is described in 'Mental Health and the Built Environment: More than Bricks and Mortar' by David Halpern, in 'Healthy and Community Design' by Lawrence Frank, Peter Engelke and Thomas Schmid and in 'Stress, social support, and the buffering hypothesis' by Sheldon Cohen and Thomas Ashby Wills.

Connectivity refers to social network, that is the various ways to start and maintain an important relationship with people of interest as implied earlier. This may be a family member, a friend, a colleague and or a neighbor. (In this case the quality of the relationship is not considered.) Research has found that this 'social network' or connectivity plays a significant role in mental illness (Halpern, 1995). It is generally accepted that mental health, the social network, and the built environment affect each other. How our built environment is designed, shapes how we live and how we move. An office prescribes how we work, a house how we dwell and a park how we enjoy. The design of a built environment also prescribes how much we pollute, how hazardous our activities are and whether a community/ neighborhood is durable. Also, Frank et al. (2003) in 'Healthy and Community Design' come to the same conclusion: the design of a community or the built environment can have serious effects on our mental and physical health. But, to what extent the built environment influences our mental health has always been a topic of research (Cohen & Wills, 1985). In the eighty's researchers found out that mentally ill people had different social networks versus not mentally ill people (Mueller, 1980). On average a 'normal/ not mentally ill' person had a social network of 25 to 40 people, six to ten of these people were considered well known and the density had the level of medium. Density means the 'interconnectedness' (Halpern, 1995, p. 110) of the network. In a normal network about 20 percent of all the possible linkages exist. In the diagram below the lines between the dots represent this.

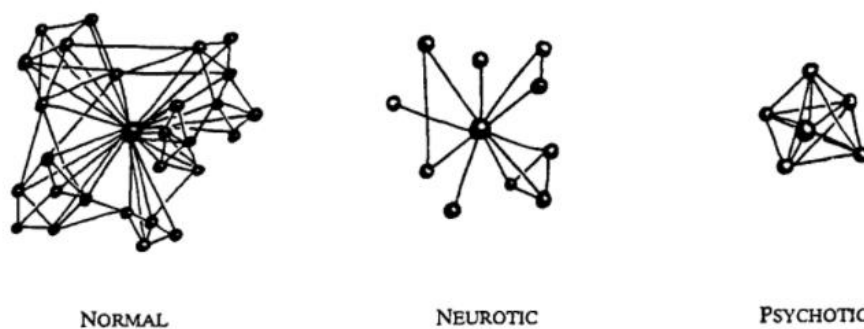


Figure 3 The social network of different types of people. Source: Halpern, D. (1995). *Mental Health and The Built Environment: More than Bricks and Mortar* (illustrated edition). Taylor & Francis.

This density creates typically clusters of six to seven people in a normal situation (Halpern, 1995). This was not the case with people who had neurosis or psychosis. Neurosis and psychotic are two types of mental illness. Neurosis is a milder version of mental illness, which can be the cause of stress, depression, or anxiety and this type of mental illness is not caused by organic diseases (BYJU's, n.d.). Psychosis is a sever type of mental illness which can harm and weaken the person who has this and is a major personality disorder (BYJU's, n.d.). In the research described earlier, was found that people suffering from neurosis had a social network of around 10 to 15 people and the 'density' in their social network was much lower. People suffering from psychosis had even a smaller social network of 4 to 5 people but, the 'density' was extreme dense, and these people in such a network were usually only family members (Mueller, 1980). However, it can also be argued the other way around. The lack of a social network can cause mental illness, but metal illness can also cause a lack of a social network (Halpern, 1995).

To conclude and to simplify, the neighborhood is a geographical place and because of that it is tangible, the community is rather the interaction of the people in a place and because of that intangible. Both terms are linked to each other through the word connectivity and this refers to the social network of a human being. The form of the social network of a person defines to a certain extent their mental situation. A question that remains is, what has all of this to do with architecture and moreover with the redesign of a condominium site in Addis Ababa, Ethiopia? As the definitions of these key terms (Neighborhood, Community, Connectivity and Social Network) already slightly imply: "The quality and characteristics of the settings we inhabit – the places in which we live, work and play – influence our mental health." (Sullivan & Chang, 2011, p. 107). Design decisions made by architects and engineers hence influences the physical and mental health of occupants. In other words: it is very important to design a neighborhood with a strong community. So, these terms have a great link with architecture and moreover: a great link with the condominium projects in Addis Ababa, Ethiopia. The government of Ethiopia had all the good intentions with the IHDP, but due to the desire to increase the density, the desire to keep the houses affordable and due to time restrictions, the design decisions that were made did not take into account that the physical environment of the occupants was going to change drastically (UN Habitat, 2011). Besides the fact that the occupants in the newly built condominium sites were detached from the ground, they lost the sense of community (UN Habitat, 2011) and architects can change this.

*The question that remains unanswered is: What can architects/ engineers do? What are the hands-on approaches that can affect the built environment and with that the community? Here these tools are presented and shortly explained with examples. This is done with mainly the following piece of literature: 'Mental Health and the Built Environment in Making Healthy Places' by William C. Sullivan and Chun-Yen Chang. (Here again: other literature pieces are also revised, but they are not mentioned here because they are also not part of the main literature.)*

These 'tools' presented below are not detached from each other and they sometimes contradict each other. It is up to the architect, the place, the situation, and the goal whether string A or string B should be pulled and how hard. So, rather than listing all the tools the literature mentions, this part tries to compile them into groups (face-to-face contact, proximity, place attachment) to show their relation with each other and to summarize.

#### Face-to-Face Contact

The built environment can be designed in such a way that it promotes face-to-face contact. This means creating places that promote informal social contact. This social contact can promote social ties, which is crucial to create a social network and hence a community and a neighborhood (Sullivan & Chang, 2011). A common space, which is not exposed to too much noise. A common walkable green space, square or a shared facility (a dining hall in an elderly home for example) are such examples (Sullivan & Chang, 2011). These places need to be maintained, or architects need to design them in such a way that they can easily be maintained. These common spaces also need to be safe and not overcrowded, because research has shown that if these conditions are not met, people tend to be discouraged for social interaction (Evans 2006). All that is described here thus far is about the neighborhood, but the same applies to the dwelling unit itself. By creating visual sightlines or 'neutral territory' within a building itself, a designer can also create face-to-face encounters (Sullivan & Chang, 2011, p. 109). In general, creating a built environment that promotes *reoccurring* face-to-face contact is seen as positive, because the opportunity for social contact reoccurs. "Individuals who have frequent face-to-face



contact are likely to form and maintain social ties.” (Sullivan & Chang, 2011, p. 109) So, the scale plays an important role in social interaction, because face-to-face contact is only bound to happen at specific distances (Sullivan & Chang, 2011).

#### Proximity

It needs no attention that proximity to people is important to maintain and keep a strong social network. The same applies to the proximity of the above-described places. However, it is interesting to take a closer look at how proximity to other services also can play an important role. For example, research found that different households tend to interact less if their proximity to a street with high traffic levels is bigger (Appleyard and Lintell, 1970). The same applies to children, the chance to decreased social and motor skills are more likely to be found in children with a proximity to higher traffic areas (Appleyard and Lintell, 1970). These children are less likely to play outdoors and hence to have a smaller social network. Here the proximity to high traffic areas is discussed elaborately, but proximity to small shops, restaurants, pharmacies, salons, and music shops are also important for social interaction (UN Habitat, 2011). These amenities are social spaces (people can meet at a bar etc), but they are also valuable for other reasons. These amenities create revenue, offer convenience (shopping locally) and they ensure safety because of the different activities at different times throughout the day (UN Habitat, 2011).

#### Place attachment

With place attachment is meant a positive emotional bond between the people who live somewhere and their place. There is not a simple way for designers and planners to make people have a strong bond with their environment, but in general if a designer can make a place attractive, a place where people can ‘linger’ then the chance someone can create a bond with that specific place is also bigger (Sullivan & Chang, 2011, p. 108). Here a good example is a communal area, this is usually a freestanding building located in a neighborhood in the courtyard (in the case of a condominium site). This place is meant for activities which cannot be done in a house/ dwelling itself, for example slaughtering of animals, extensive cooking for gatherings or laundry washing activities (UN Habitat, 2011). These communal areas are meant to respond to the ‘cultural needs of residents’ (UN Habitat, 2011, p. 22) and even in some condominium sites where there were not communal area’s designed, the residents built them themselves (UN Habitat, 2011). This shows the need for such a place and how designers can *attach* a resident to a place with an architectural design that contains (in this case) a communal area. With place attachment in general is meant designing an architectural element that is very specifically designed for the specific place and the specific people in that place. (In the case of redesigning a condominium site, an important factor of the assignment is to make the design in such a way that it can be ‘reproduced’ everywhere. The downside of this is that the design can never be site specific and exactly this is the challenge. With place attachment is shown that there are indeed some elements which can be/ should be specific to the site.)

To conclude, the tools presented here are not meant to be an extensive list. There may be ‘tools’ or approaches overlooked here or simple not mentioned. Accordingly, the information in this part should be put into perspective and as already mentioned it is for an architect or designer very difficult in some cases to know which tool to use, because the subjective character of the field. Even the decision to summarize the ‘tools’ presented in the revised literature is subjective and interpreted, this should be kept in mind while reading.



## 5. Methodology and Methods

To answer the research question the following methods will be used: typological analysis, auto-ethnography, literature review and field research (done by students in the in the previous years).

Typological analysis and the auto-ethnography study are mainly used in the preliminary research phase which are a direct input for the design hypothesis. These results are not presented in this research plan, but mentioned here because of their influence on for example the site selection, density, the meaning of dwelling etc. Literature review will be used to set the background for the graduation project, to give definitions to some of the terms used, and to shortly address the findings in other academic fields which also will impact the field of architecture. Lastly, field research (done by students in the in the previous years) will be used to elaborate on what a community means in a sefer and how the sense of a community is translated into physical forms in Addis Ababa, Ethiopia.

For the field research the findings of my colleagues of the studio Dwelling-Global Housing 2016, are used. Due to the global pandemic and the travel restrictions, it was unfortunately unsafe and banned to travel to Ethiopia and to do field research. Hence, all credit and thanks go to the following students: Maartje Holtslag, Ellen Chang, Monica Lelieveld, Michele Bassi, Fabio Tossutti, Anne Van der Meulen, Margot de Man, Yau Yuet Sun Cherry, Paolo Turconi, Arianna Fornasiero.

My colleagues defined in their field work social spaces in sefers in Addis Ababa, Ethiopia. A social space is a physical place where people gather and interact and build the social network as was described previously. They did this by studying/analyzing four different redevelopments sites in Addis Ababa. These redevelopment sites are called sefers, these places are sometimes also called 'informal settlements' or 'slums' and exactly these places are usually demolished and rebuild with condominium blocks. The reason why it is interesting to do field research in these places is that in these places occupants had a strong sense of community before redevelopment (UN Habitat, 2011). So, by looking at these places, we can learn and come up with a better design. The questions the field research answers are in this context: where are these social spaces and how do they look like? The field research my colleagues did in 2016 showed that roughly four types of social spaces could be identified in sefers in Addis Ababa, Ethiopia: The courtyard, the commercial hot spot, the inner street, the left-over spaces.

### The Courtyard

The courtyard, or the open space formed and enclosed by a cluster of unites, is usually a shared space for several families. In some cases, up to fifteen families use this place for several activities. Activities like doing the laundry, cooking, drying spices, washing, gardening, drinking coffee and playing. The courtyard is not open to the public and hence the responsibility is privately shared between the families who have their houses/ units adjacent to the courtyard. These courtyards are usually 'the in between areas' of different units, which are located close to each other and because of that the courtyards are usually irregular shaped. Sometimes the courtyard is not completely enclosed by units, but partly by fencing of corrugated steel. These courtyards are used during daytime (around 9am to 6pm) and usually by women. Children regularly make use of these places after school hours.

### The Commercial Hot Spot

The commercial hot spot is usually an informal business taking place either inside a unit or just outside a unit. These informal businesses are food stations, coffee stations and or a spice selling business. Specially during daytime these places are crowded by local people. These people can be characterized by their age: young

adults usually are seen in front of the food or coffee units, who play cards, play table tennis, or listen to music. Older people are more likely to be found near the spices selling places, where they drink coffee or socialize. A good example of a commercial hot spot is a Tej House. In these 'houses' the traditional honey wine (Tej) is consumed. These Tej Houses have on the outside the same appearance as any other unit within a sefer. The interior of these units is rather dark and furnished with linear shaped benches and simple tables. These Tej Houses are commonly used by elder men and from the late morning to the late night and besides drinking the traditional drink, playing cards, reading the newspaper, and socializing are also common activities in these places. These places are semi-public spaces, meant and easily accessible for the inhabitants of the sefer.

#### The Inner Streets

With inner streets here, are the inner streets of a sefer meant. These streets house many activities. Activities like income generation and activities like the ones that take place in a courtyard. In general, these inner streets are a place of exchange, exchange of goods and exchange of words. These exchanges preferably happen in shaded areas, created either by trees or by the man-made elements. In some cases, these streets house also homeless people. These streets are usually only walkable, but at some places also accessible by cars and other vehicles. Most of the activities taking place in these streets happen during the daytime and usually these streets house a variety of people. These streets are public places.

#### The Left-over Spaces

The left-over spaces are the places which are activated only during some parts of the day, sometimes for just a few minutes and sometimes even for a few hours. These places are not specifically defined by a physical boundary. These places are for examples the areas in front of a school or the areas in front of a church/ mosque. These places are activated for example when the parents go pick up their kids from school or after a ceremony of a church or a mosque is ended. An important feature of these areas is the fact that they belong to a specific target group (parents and their children/ religious people).

To conclude, this field research was done by several students, in several different sefers and then brought together in a booklet. All the info collected during the field research was brought together in words, in pictures and drawings. So, the method they used to describe the above-mentioned social spaces had a 'observative' character. They went to the sefers, observed the sefers and then made the booklet. Specially because so many different students worked on the booklets, each with their own frame of reference and each in their own way, the information given above is subjective. This must be taken into account, even though the report had a descriptive character.

## 6. Relevance

Affordable housing for all is a basic need as is described in the Sustainable Development Goal 11 (SDG) of the United Nations. Hence It is of crucial importance to ensure access to adequate, safe, and affordable housing for everyone everywhere. But what does 'adequate' and 'safe' mean? And specially in the field of architecture? Architecture for example plays an important role in our mental and physical health and hence it is relevant to ask the question: How does architecture play a role in this and to what extent? So, having a place to live is important, but also having a 'good' place to live is important and the literature on this topic is bulky.

This question 'How does architecture play a role in our mental and physical health and to what extent?' has been asked many times before, but the answer is not always given with a design project and more specifically not in the context of Addis Ababa. This is relevant because Addis Ababa is the capital of a developing country, so the constraints that the graduation project deals with are big. In Addis Ababa, Ethiopia people are focused on the basic needs of a human being (SDG's), so the quality of these needs may sometimes be overlooked, as we saw with the newly built condominium sites. Whereas in the developed countries people are not so much focused on the SDG's, so the question 'How does architecture play a role in our mental health and to what extent?' is a different question in the western world. In other words, there is a gap in the literature when this question is death with. My graduation project fills exactly that gap, by asking the same question but for a different place and with the foreknowledge that community and neighborhood are determinant factors in designing 'good' (healthy) architecture in that specific place. The question is then reformed into: *How to design social housing with a strong connection between the community and the neighborhood in Addis Ababa, Ethiopia?* So, this graduation project will contribute to the earlier mentioned bulky literature, by asking the same question, which is asked many times before, but with one big exception: what to do when the resources are limited and, in a place, where people's main focus isn't designing a strong community?

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