Ludovica Cassina

# THE PROJECT
# THE PRACTICED PLACE

## Addis in the Making

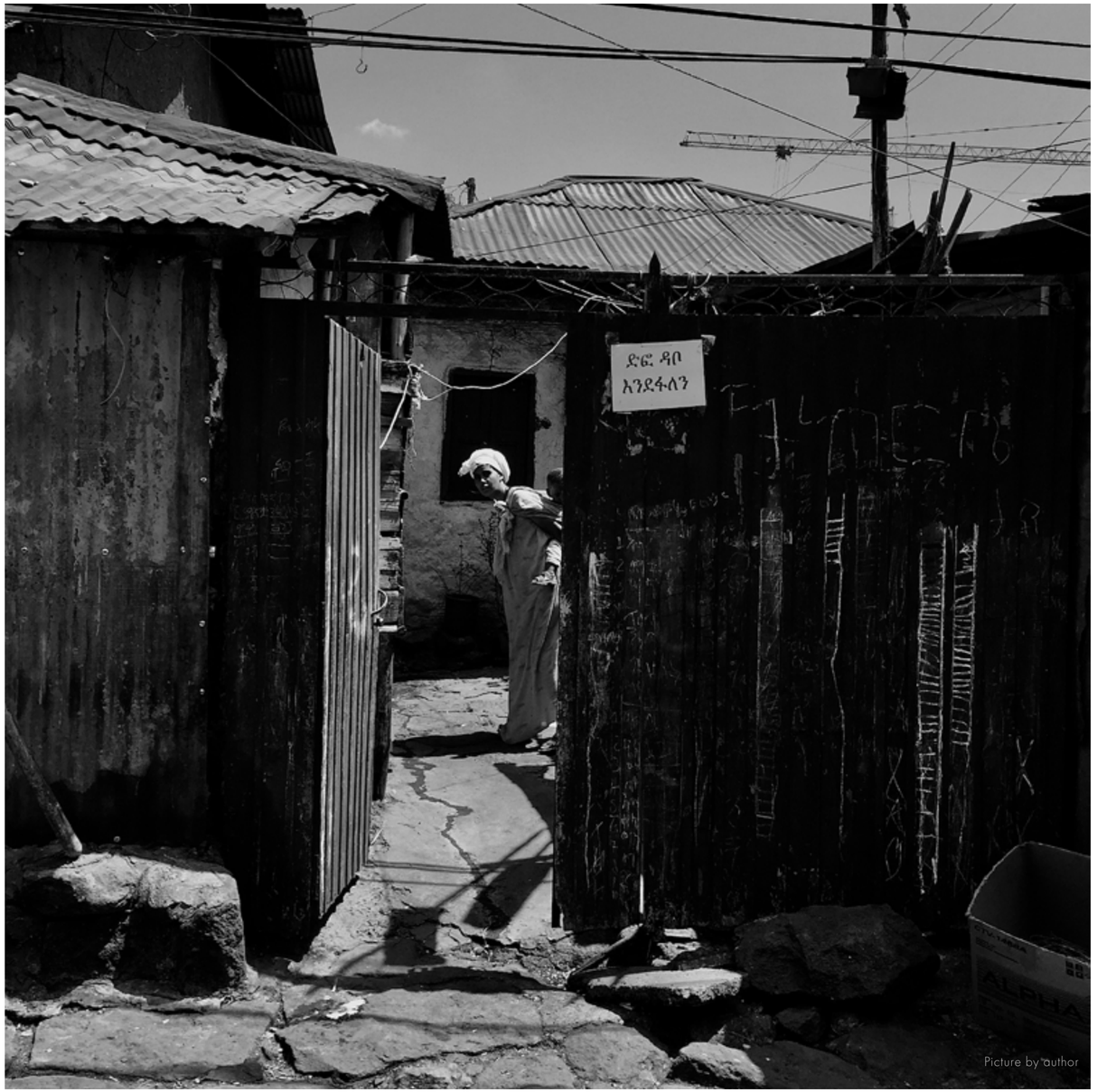


## Addis Ababa Living Lab

Graduation Studio Report
2019-2020

This book will be divided into two segments, the first synthetisizing both the theoretical and field research for the "unraveling of Addis". The second onepresenting the thesis design proposal "Practiced Place".






Picture by author

# UNRAVELING ADDIS

Addis Ababa Living Lab

Disclaimer: even though the design is an individual outcome, throughout the entire year the research has been carried out in collaboration with Antonio Paoletti. The material presented in the research booklet, unless differently stated is owned by both authors.

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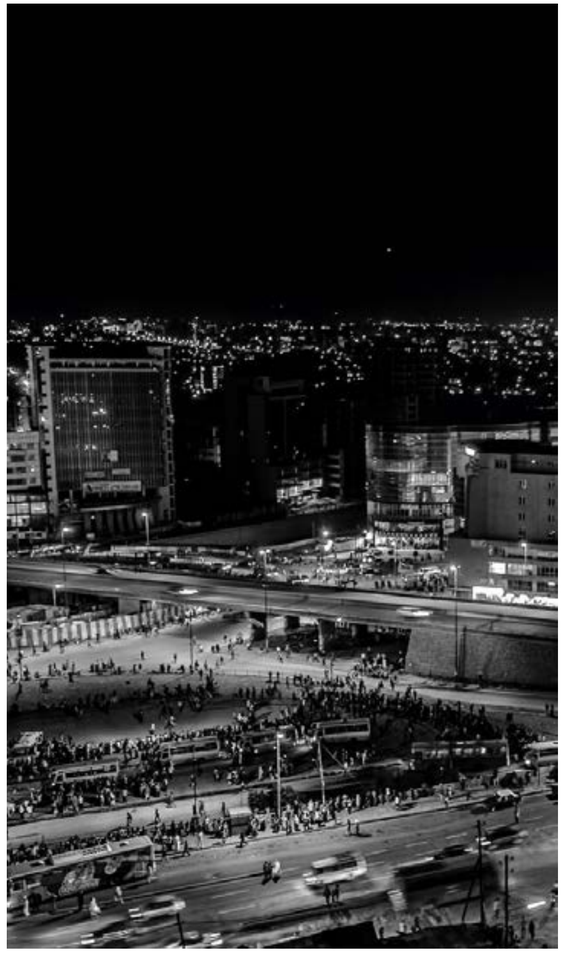


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# EXODUS



Chapter 1

# URBAN POPULATION GROWTH

We are currently witnessing the insane speed of urbanization of many cities around the world, which want to become up-to-date with the requirements of a 21st century city.

Urbanization is not even close to being a new concept. Since the first civilizations, hundreds of thousands of people have gathered in a relatively concentrated space to operate their activities and find the resources for livelihood. However, in the last centuries the phenomenon has been characterized by an increasingly rapid and whirling growth, especially in the Global South. Between 1950 and 2010, general urbanization in Africa has increased from 16% to 32%.

Although the population of the continent is still mostly rural, the situation will change soon.



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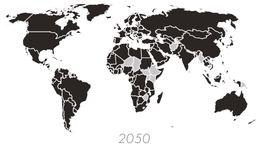

*2050*












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Excerpt from graphic novel 'Mengeste', by authors

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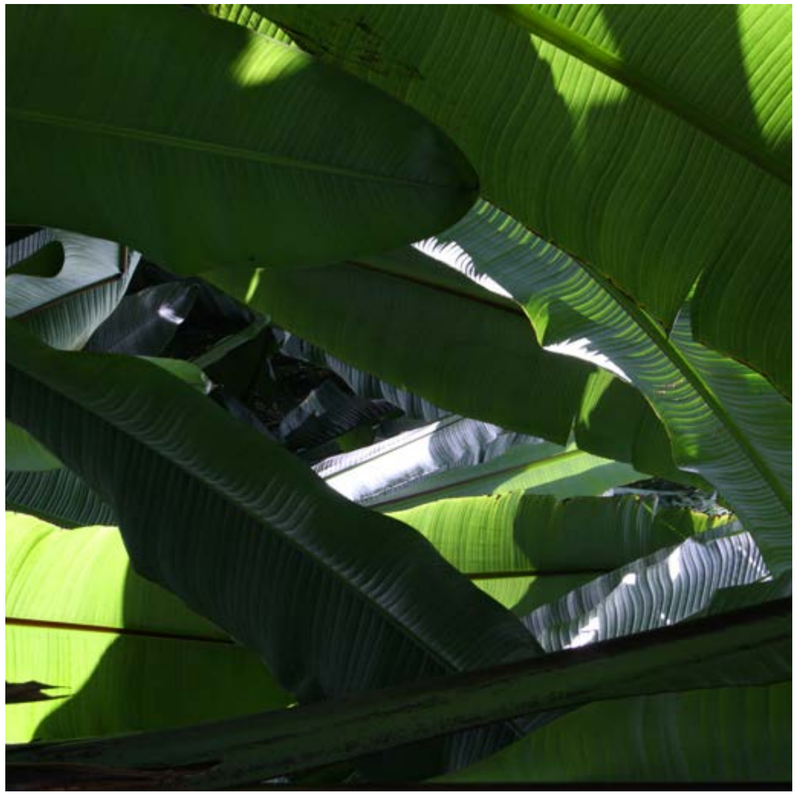
# RURAL ETHIOPIA

## SLOW BECOMING

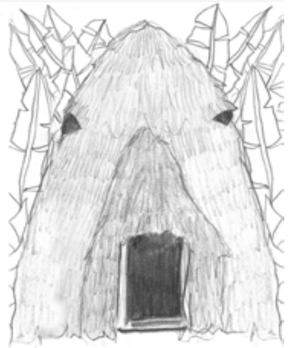
Round tukuls in Ethiopia are spread all over the country and they differ mainly for the material of which the walls are built. This of course depends on the topography and on the climate of each region. Vernacular housing in Ethiopia can be classified into four categories depending on wall types: timber structure with earth and fibres filling, mainly adopted in the central area of the country, load bearing stone masonry walls with earthen mortar, used in particular in the northern area of Ethiopia, bamboo and thatch walls, in the southern area and wood and mats huts adopted by nomads settlements in the eastern area of the country (Gutiérrez, Murtagh, Crété,2018, p.41).













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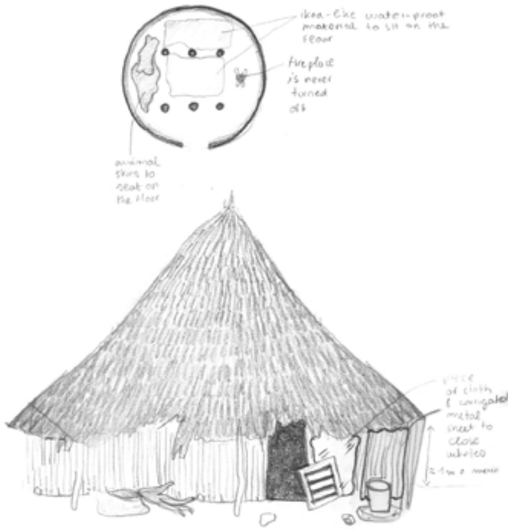
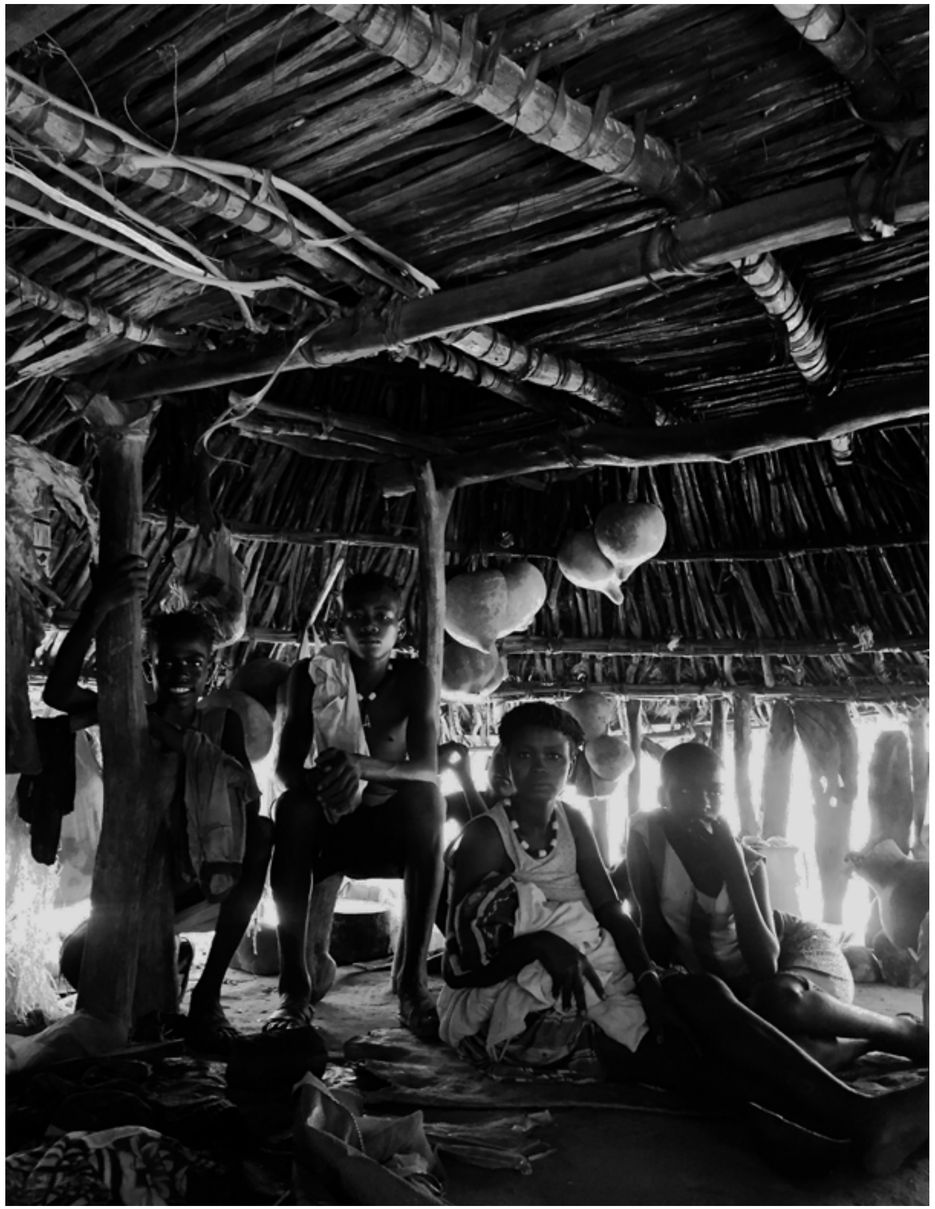
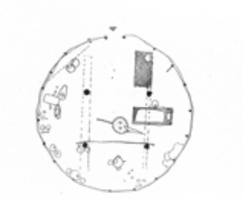
# LIFE IN THE VILLAGE

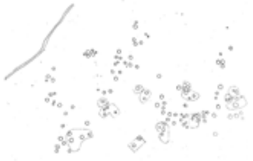










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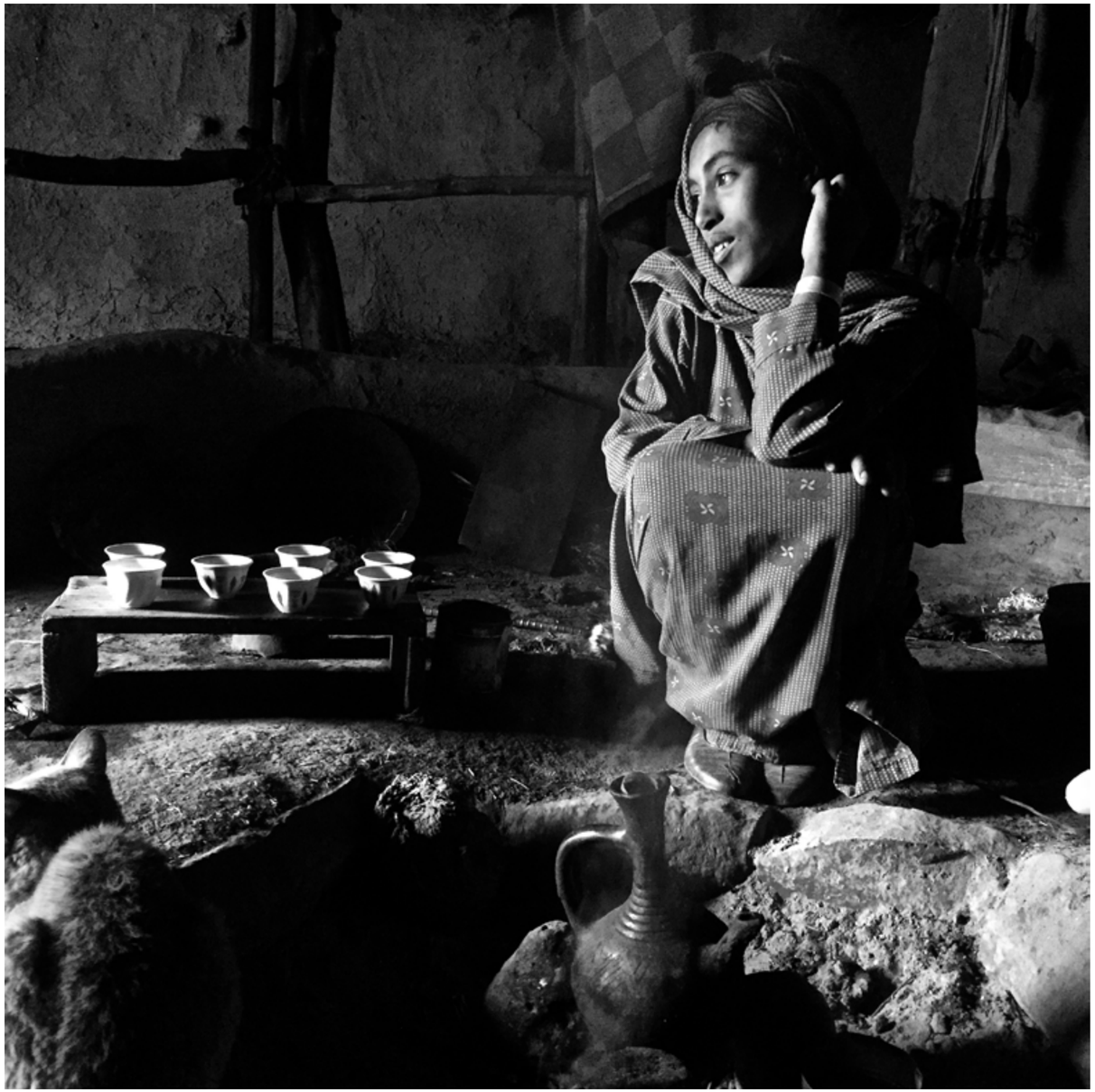








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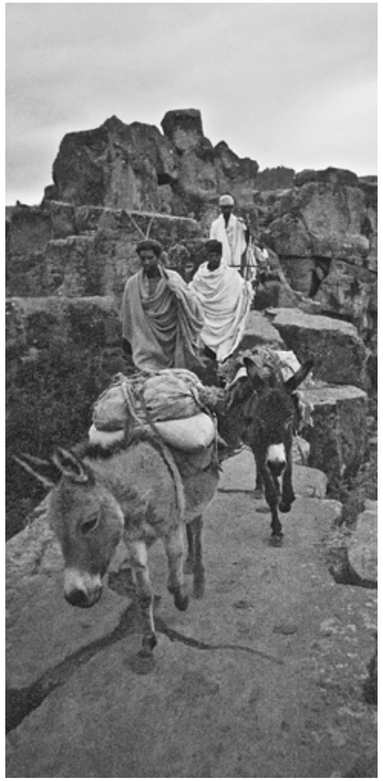
# MIGRATION TO THE CITY

Ethiopia, and in particular Addis Ababa, are experiencing the phenomenon of this rapid urbanization first-hand: the urban population alone is annually growing at a pace of 4%.

Walking around the city, there is an atmosphere of constant crave for development, and one cannot avoid noticing the invasive amount of construction sites. However, the quality of life remains far below decent and it has a deficit of at least 300.000 housing units and counting.

In contexts such as this one, one cannot avoid wondering where these units will be built. Of course, the most appealing location is the central one, where there is easy access to income generation opportunities. In this area of Addis Ababa, just like in most cities of the world, the center is characterized by historic neighborhoods, the so-called Old Sefers. The term "historic" is a tricky one, as these neighborhoods are often time a "red light" for businessmen and developers. Hence, when a under-developed city wants to develop, it will most probably erase all of the traces of historic sites to make space for modernization and improvement of the quality of life, disregarding the assets that such neighborhoods possess intrinsically.









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Fasil Ghiorgis,
"the city and
its architectural heritage"

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# URBAN POPULATION IN ADDIS

As previously mentioned, the population of Addis Ababa qill triplicate in the next 15 years. There are no housing units nor jobs for the amount of people flowing into the city every day. However, people come to the city in search for a job:  for this reason, 60% of the labor market is considered to be informal.









*Addis. November 11, 2019*

## Elias Yitbarek Alemayehu



“when we develop new housing, much focus should be given to this question: How do we create new housing developments in such a way that the housing units are still connected to the ground so that the inhabitants can continue what they were doing in the informal settlements?”



***Cities are often the result of a slow cumulative process of social and spatial structures. Addis Ababa is not only growing at an incredibly fast pace, but is also a rather recently founded city. Charles Correa would say that often megalopolis try to chase a generic image of modernity characterized by high-rise buildings and development driven by economical pursuits: “There is little vision, they are rather hallucinations.” Do you think such a reflection is close to Addis’s reality?***

Partly, yes. In a way what is happening now in Addis is driven by economic forces. But I would also add two things. The first one is that the current development is linked to the geopolitical condition of Addis Ababa. Because the city is surrounded by another regional state and it is, therefore, limited by its boundaries. So, in addition to the economic force, this focus on densifing with vertical growth and creating a very compact city is driven by political forces because it cannot expand towards the outside. The other factor is the speed of urbanization: the time factor. As you know, Ethiopian cities are one of the fastest-growing cities in the world. Basically, we are a rural country, 80%, but now the rate of urbanisation is so fast that we want to do things as quickly as possible and there is no time for thinking. We want to deliver. We want to do faster, quicker and in a huge quantity. So, generally yes, there is an economic force, but also a political force and this speed of urbanisation.

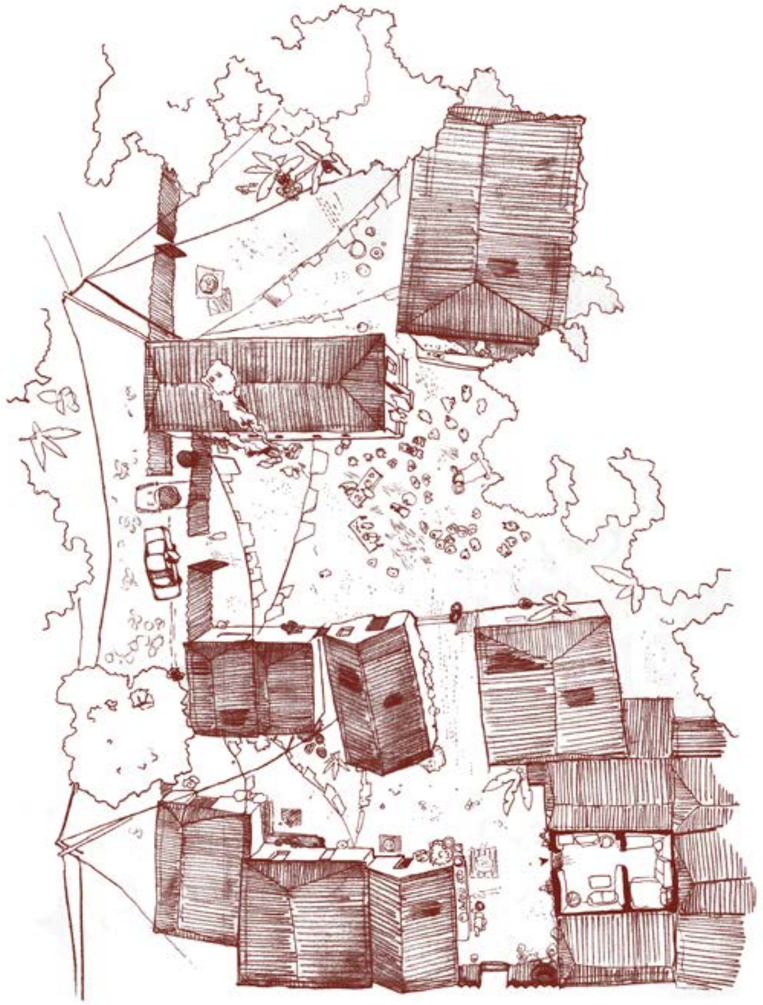
***“Human societies are very much like lava flows and human-made structures (mineralized cities and institutions) are very much like mountains and rocks: accumulations of materials hardened and shake by historical processes.” (M. DeLanda) In this parallel with mineral life, Addis Ababa is a volcanic explosion of gas e fluids. And yet, you can observe order taking form out of chaos. Patterns in everyday interactions between human and environment seems to be a part of a spontaneous self-organizing process that sets synchrony in turbulence. Could you reflect on this theme? Is there something to learn from informal settlements that we can bring in our visions for the city?***

I would like to start to reflect upon the second question: whether we can learn from informal settlements, which has been a theme in our master program for quite a long time. We tend to document which lessons we can learn from informal settlements. Then, maybe I would emphasize two main things. First, there is a need for horizontal density as opposed to vertical growth. Most of our informal settlements are characterized by single stories or double stories, but not more than that. **What we can learn from here is that most of the houses in informal settlements are connected to the ground so that their livelihood is so much attached to what happens on the ground.**
I would say that when we develop new housing, much focus should be given to this question: How do we create new housing developments in such a way that still the housing units are connected to the ground, that they continue what they









were doing in the informal settlements. That is a lesson from informal settlements that I think is possible to realize through design. The second one is the issue that you mentioned in a beautiful way to characterize this spontaneity as volcanic ashes erupting. However, I would say that it is not fully like that. We have as you may know 10 masterplans for Addis Ababa, the last one is now from 2017 up to 2027. Maybe not all of them but some of them, particularly the masterplan of 2002, have left many traces on the ground. Like the construction of roads in Addis Ababa follow more or less what has been designed for the structure of Addis Ababa. **I would say that what is on the ground in Addis Ababa is a collusion or a juxtaposition, as we like to say, between the traces of the masterplan and the spontaneity or the forces from the ground, the action of people of day to day activities.** Maybe, the actions are so much that while walking on the street you might not notice the traces of a masterplan because of the vibrancy of people and their activities. However, if you look carefully there are some parts of the city shaped by the traces of the masterplan too.

***Talian Sefer is one of the oldest neighborhoods in Addis Ababa. Despite often the conditions of life are miserable, the consolidated community and the richness of his heritage makes it a foundamental part of the city. What do you think one should prioritize while designing its redevelopment? How could we open new doors to new aspirations while drawing on existing values?***



This is an interesting question, because I live, myself, in one of the city centres, in Piazza. Where there are a number of interesting buildings and activities. So, I would say that **in places like Talian Sefer, I could guess there is a number of what we call 'urban traces' or 'intangible heritage' or 'heritage based on activities', so, not necessarily a building or a house.** The physical aspect itself may not be heritage but what happens inside —the activity— could be considered as heritage because of its long existence and the association of people with those activities. So, I think we can exploit or capitalize on these aspects of places like Talian Sefe and their intangible heritage. It could be as simple as recreating the story of a certain building. If we could spot such urban traces it can easily turn into a touristic attraction. Not only foreign ones but also locals. They could be students or anybody who could be interested to learn or to be informed of how the city developed through time. I believe that by small interventions we can recreate these areas into economically vibrant sefers.

***If housing is to be regarded as a right, rather then as a commodity. How can we build an inclusive environment that could reach even the milions who lie on the pavements and in the shanty towns?***

Well, if we could answer this question then there would not be any problem! However, as you rightly said there are a number of people living on the streets and it is well known that the majority of low-income people cannot afford the houses that so far are being sponsored or constructed by the government. So, I would say that instead of looking for a blanket solution for everybody, I would say: housing by all, for all. Meaning, if the government could only play a role of a facilitator for the provision of land, infrastructures, housing finance and affordable building materials and creating a level field by providing legal framework then I think that the construction of houses can be left to other actors and the people themselves. Only then we can create various options where people can fit according to their income. Let me put it in another way. Right now there is Kebele housing, which is very cheap, the amount of rent is so small that is almost nothing, on average is around 10 birr. The next step if you want a decent house is condominium housing, where the monthly payment is in thousands.

So the jump from the Kebele housing to the next available type of housing is so huge that the low-income people cannot afford it. Instead, if we create in-between options realized by different actors. ***Creating an affordability ladder where the riser or the steps are smaller, then people can gradually climb as their income increases.*** What I am saying is that there is a general tendency to say: "For Addis, there are 4 or 6 strategies to solve the housing crisis. But why do we say that? Instead of creating these 4,5 or 6 the policymakers, as I said earlier, could enable other actors to create several options, including rental housing, then anybody can fit into the available options according to their income.



# DISCOVERIES AND SKETCHES

*place and identity*

# TALES
# FROM AN OLD SEFER



Chapter 2







# ETYMOLOGY OF TALIAN

The neighborhood has been growing informally since 1886, when Addis Ababa was founded. Between 1889 and 1891, Addis Ababa became Ethiopia's capital, right after the ending of the first Italo-Ethiopian War. The latter ended with the Battle of Adwa in 1896: the fighting lasted only a few hours before the proud Italian army was annihilated. Most of the prisoners were locked in jail within Talian Sefer, according to the locals' recalling. When King Menelik II realized that within these group there were capable engineers and architects he allowed them to buy their freedom in exchange for the construction of houses and infrastructures.
Fourty years later, when the Italian army under Benito Mussolini invaded Addis for the second time, many generals decided to reside in the neighborhood once again.








*Picture from the 1930s*

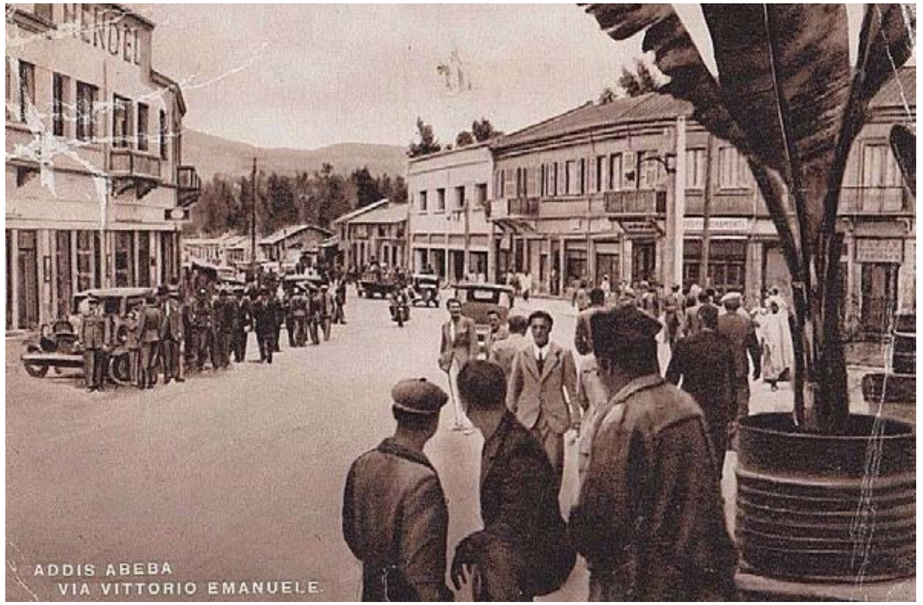
Hereby is reported the radio speech that Mussolini made in 1935 to the Italian Population.

"Blackshirts of revolution, men and women of all Italy, Italians all over the world, beyond the mountains, beyond the seas, listen. A solemn hour is about to strike in the history of the country. Twenty million Italians are at this moment gathered in the squares of all Italy. It is the greatest demonstration that human history records. Twenty million, one heart alone, one will alone, one decision.This manifestation signifies that the tie between Italy and fascism is perfect, absolute, unalterable. Only brains softened by puerile illusions, by sheer ignorance, can think differently, because they do not know what exactly is the Fascist Italy of 1935.
For many months the wheel of destiny and of the impulse of our calm determination moves toward the goal. In these last hours the rhythm has increased and nothing can stop it now. It is not only an army marching towards its goal, but it is forty-four million Italians marching in unity behind this army. Because the blackest of injustices is being attempted against them, that of taking from them their place in the sun. When in 1915 Italy threw in her fate with that of the Allies, how many cries of admiration, how many promises were heard? But after the common victory, which cost Italy six hundred thousand dead, four hundred thousand lost, one million wounded, when peace was being discussed around the table only the crumbs of a rich colonial booty were left for us to pick up. For thirteen years we have been patient while the circle tightened around us at the hands of those who wish to suffocate us.We have been patient with Ethiopia for forty years. It is enough now.The League of Nations, instead of recognizing the rights of Italy, dares talk of sanctions, but until there is proof of the contrary, I refuse to believe that the authentic people of France will join in supporting sanctions against Italy. Six hundred thousand dead whose devotion was so heroic that the enemy commander justly admired them—those fallen would now turn in their graves.
To economic sanctions, we shall answer with our discipline, our spirit of sacrifice, our obedience. To military sanctions, we shall answer with military measures. To acts of war, we shall answer with acts of war. A people worthy of their past and their name cannot and never will take a different stand. (...) The Italy of the blackshirt fascist revolution, rise to your feet; let the cry of your determination rise to the skies and reach our soldiers in East Africa. (...) It is the cry of Italy which goes beyond the mountains and the seas out into the great world. It is the cry of justice and of victory".



*Map showing the Italian occupations before WWII*










# ABUNE PETROS

"My countrymen, do not believe the fascists telling you that the Patriots are bandits, the Patriots are people who are fighting to free us from the terror of fascism. Bandits are the soldiers who are in front of me and you, who have come from far, terrorize and violently occupy a weak and peaceful country: our Ethiopia. God gives to the people of Ethiopia the strength to resist and never bow to the Fascist army and its violence. An Ethiopian land can never accept the orders of the invading army. Land of Ethiopia; I condemn you if you accept such an invasion." (Abune Petros)

After making him seat on a chair, Italian soldiers shot him dead. He became a martyr and was sanctified. His last days were spent in a prison that is still present in Talian.



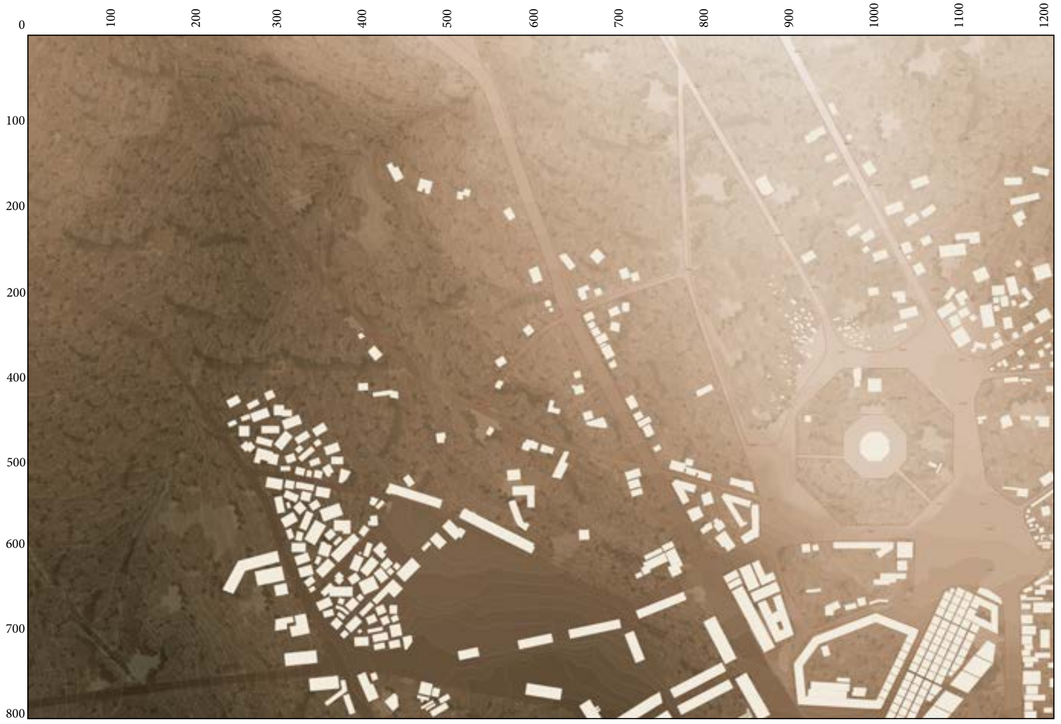









## 1930s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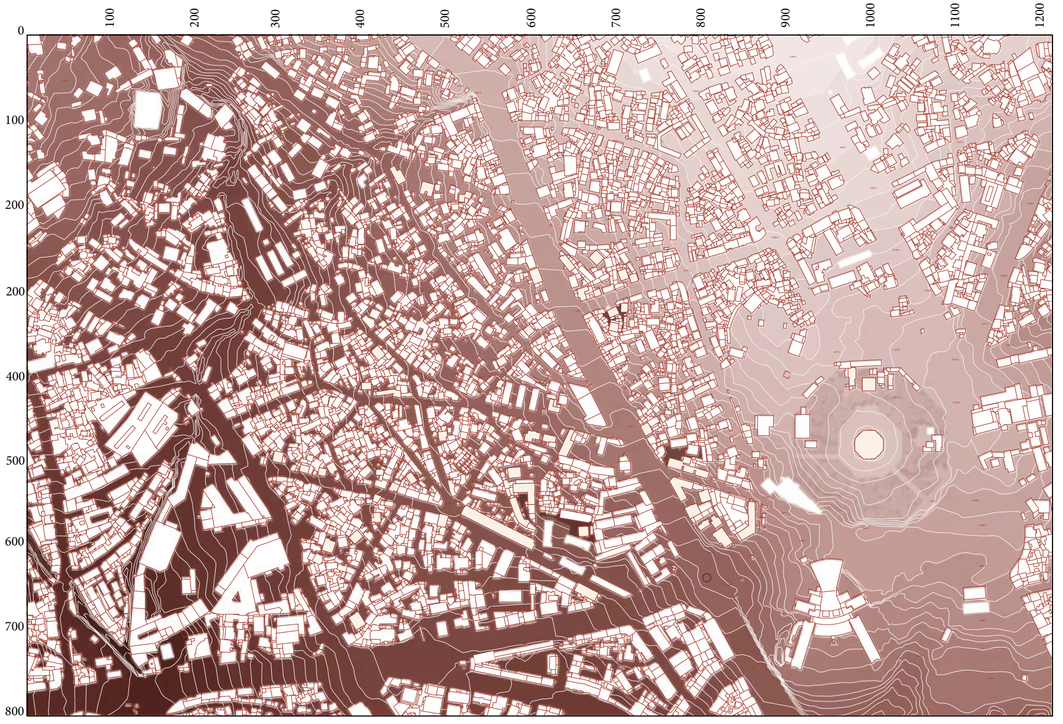
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# INVESTIGATING ORDINARY LIFE IN TAILIAN















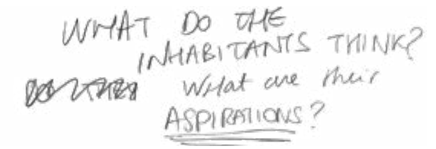










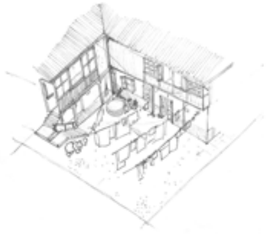

WHAT DO THE
INHABITANTS THINK?
What are their
ASPIRATIONS?

*Addis, data intervista, 2019*

## Mengeste



“No one passes the night without eating! If you don’t have anything to eat your share with people and people share with you! but if you go to Bole where the wealthy families live... They don’t give a damn shit about their neighbor! They are on their own.”







*Addis. data intervista, 2019*

## Demege bre Gelan



“I joined Haileselassies army and travelled to Korea. The war was very difficult. We carried out our mission successfully, we were very heroic; we killed and captured.
We were never caught by the enemy because emperor Haileselassie instructed us not to get caught.”










*Addis. data intervista, 2019*

## Interview with Mekides ketema



“Talian sefer is still the same. I wish that this area is retained and not demolished. It should stay intact and serve as a museum This is history. Brining new layers would make us forget what is in here.”







# RESEARCH METHODS

Ludovica Cassina

In the process of confronting all of Talian's issues, it is fundamental not to be simplistic about the seek for a single easy solution. There is no such thing. At the same time, though, I believe that multiple approaches and multiple design ideas can tackle these issues and create interesting conversations that open up for new possibilities. This means that only by constant confrontation can "solutions" arise.This is the reason why I have started preparing the conduction of this ethnographical research much earlier than the trip itself.

The first step has been reading a collection of material written by local authors: from "Addis Ababa: A Collage of Cities" by Elias Yitbarek Alemayehu (2018) to "Inner-City Dwellers and their Places in the Context of Addis Ababa" by Yonas Alemyahu Soressa and Imam Mahmoud Hassen (2018). Building a body knowledge absorbed from the study of native architects and researchers helped me in gathering the appropriate framework and vocabulary.

The second step in the pre-fieldwork preparation was producing a common body of knowledge with my classmates on hard data (raw analysis from an economic and geographical point of view), soft data (a study of history, culture and politics), spatial mapping, and housing policies. This was helpful because it forced me to synthesize and make sense of the infinite information one can find about a foreign culture.

After having built an intellectual framework, but still much earlier than the fieldtrip, I have started testing out possible expressions of visual ethnographies. I did this in a low-income neighborhood of Rotterdam called Schiebroek-Zuid. Together with two classmates, Wessel de Graaf and Cristian Rancati, we have spent some weeks visiting this site: our day consisted in the observation and interviewing of the inhabitants in their natural habitat, in order to grasp the atmosphere of the place and transform it into a visual ethnography. Initially, we thought that an interesting visualization of what we observed could be represented in drawing patterns of daily life. However, as an experiment undertaken with the whole class, we have transformed our experience into a graphic novel. We believed that this technique would have been much more engaging and challenging, with the idea of making a second one after the field trip to Addis Ababa, which you can observe in the first chapter of this booklet. The interesting aspect about these experiments was not only that the graphic novel produced a clear understanding or interpretation of both Schiebroek-Zuid and Mickeyleland, but that it allowed the inhabitants to notice aspects of their lives that were invisible to them. In addition, the confrontation between the work we had produced and the protagonists of the stories: it was the clash between our narration and their reactions that produced valuable conversations on their use of space.

The third step of the research methodology was creating the opportunity of participatory engagement during the fieldwork.
After the thorough analysis of the production methods of different uses of Earth was the beginning of a moment of experimentation.

As a group with Fabio, Cristian and Antonio, we have formulated both an interview format and activities in





*Picture by Fabio Buondonno*

order to engage with dwellers. Both of these would not have been possible without the help of local students, who volunteered to translate for us in order to communicate with those locals who did not speak in English. An interesting point I would like to discuss is that, within the group, we chose who would conduct the interviews depending on the person we were interviewing. For example, I noticed that women were more comfortable being interviewed by me (as the only female member of the research group). Trying to capture the ways to put locals at ease in the process was of great importance. For what concerns the activities we formulated, one of them had to do with creativity and individuating aspirations: while the interviewer was talking to the dweller, another member of the group would sketch quickly the plan of the house that the interviewee was describing. After that, we asked if, without any economic constraints, the dweller would change something about their current house. All of the interviewed subjects were initially skeptical, but managed to express their dreams for the future. We helped them sketching the desired changes on tracing paper, as you can observe in the picture below. This was extremely helpful to visualize their problems.

After the initial interviews and activities, we continued the active ethnographic engagement by returning multiple times to many of the communities. During our second visit to a community, we brought simplified maps of the area with highlighted landmarks, so that people who are not used to seeing architectural drawings could make sense of them. We asked people to draw the size of their communities and the important thresholds and boundaries within them. This was another successful moment of the research, as it allowed me to produce drawings such as those you will observe in the following pages.

These drawings had the aim to understand spatially these complex and informal self-grown compounds and how they are used spatially. At the same time, they gave me an idea of how big the community of a dweller in such slums should be for mutual help and survival of the inhabitants.

In summary, I seek to use the ethnographical tools I have discussed, and the mentioned literature, as two equally important elements to observe and represent the complexities of daily life in the Talian slum. The ethnographical studies I have been undertaking could fit in the category of visual or architectural ethnographies, as they seek to transform written and observed cultural and social practices into drawings in which they relate to spatial configurations. An example of work that has helped me greatly in understanding how to structure this visualization of ethnography is one published by Atelier Bow-Wow. In the presentation of this work for the Venice Biennale, Kaijima has asked the following question: "How does one address architectural drawings, not just as simple notational systems but as instruments to document, discuss, and evaluate architecture?". This question truly summarizes the intent behind an architectural ethnography: trying to use architecture as the lens through which one can interpret and observe life in all of its declinations.





*Picture by Antonio Paoletti*

he practice of Ethnography was first utilized by anthropologists as the study of human
behaviors within their culture. However, the practice of observing and writing about culture has been first introduced by Ancient Greeks. In the more contemporary examples, Malinowski's work in Trobriand Islanders (1914) can be considered one of the first real examples of this methodology of research. In fact, he was the first to highlight the importance of charts for analysis and the repetitive observation of everyday life in order to grasp its essence. His use of "participant observation" has shaped the conception of ethnographies for everyone who came after him.

An interesting concept that has always accompanied this methodology is the statement that "classic anthropologists were foreigners in their field sites" (Eriksson and Kovalainen, 2008). I have previously discussed this theme, as I personally was doubting the efficacy of such method as a non- native of the studied area. However, after studying precedents, I have realized that ethnographies have to necessarily happen in such context. "In the 1930s, the critical sociologists of the Chicago school introduced a new stream of ethnographic studies when they started to explore their own street corners just as if they were unknown places" (Deegan, 2007). Hence, even if I had to study the reality in which I grew up in, or my own house, I would still have to approach it as a foreign entity.

Within this discussion, it is important to mention that there are multiple kinds of ethnographies that can be pursued. From critical, to feminist, to auto-ethnography (Eriksson and Kovalainen, 2008), many anthropologists and researchers have attempted to use it for different studies and the purpose. In fact, the aim of all those conducting ethnographies is one of creating not only a body of knowledge regarding a specific culture in a specific site, but also material for cultural and social comparison. One of the first examples I can mentioned is that one showcased by Mead in her "Coming of Age in Samoa" (1966). In the piece of literature, the author studies how much culture influences the development of a teenager in the Samoan Islands. However, the point of the research was that any parent or teacher from anywhere in the world, for instance, could compare their context to that under ethnographical analysis and reflect on it.

The ethnographical studies I have been undertaking could fit in the category of visual or architectural ethnographies, as they seek to transform written and observed cultural and social practices into drawings in which they relate to spatial configurations. An example of work that has helped me greatly in understanding how to structure this visualization of ethnography is one published by Atelier Bow-Wow. In the presentation of this work for the Venice Biennale, Kaijima has asked the following question: "How does one address architectural drawings, not just as simple notational systems but as instruments to document, discuss, and evaluate architecture?". This question truly summarizes the intent behind an architectural ethnography: trying to use architecture as the lens through which one can interpret and observe life in all of its declinations. As I have discussed,

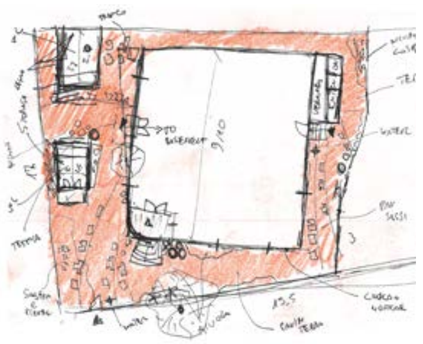


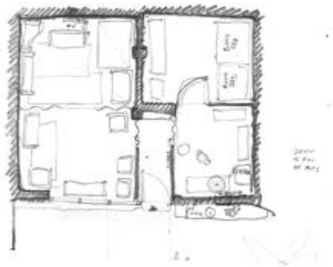


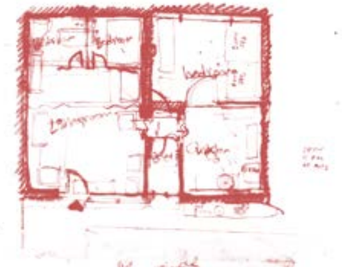
I used inductive ethnographical research with an architectural or visual expression. I believe that ethnography goes hand in hand with architectural research as a methodology because the relationship between space and culture is inextricable. Therefore, the researcher must have a great appreciation of space as a product of culture within the contexts of social conventions. My position in this discussion is that, in a sense, the ethnographer, just like the designer, serves as a translator of culture and identity in order for the rest of the world to be able to confront itself with it. As Balsamo writes: "Designers serve as cultural mediators by translating among languages, materials, and people, to produce – among other things – taste, meaning, desire, and coherence. Through the practices of designing, cultural beliefs are materially reproduced, identities are established, and social relations are codified. Culture is both a resource for, and an outcome of, the design process". I believe that this is fundamental not to fall into the risk of Populism when designing. In fact, both Populism and a complete disregard for the emic approach to the user are inviolable heuristics for my research. Although the distance between theory and action, as we discussed in class, is often immense, my approach is one of mediation and continuous confrontation between "me" and "you", emic and etic, unknown unknowns and known unknowns. As Venturi mentions, it is a matter of constant conversation between two sides of the human body, the brain (theory) and the hand (design). Central to this process is my belief that the architect should not be the bearer of dogmatic knowledge, as Popper would assert, but critical knowledge of the gap created between theory and design. This does not mean that research methods in architecture should be anarchical, but that they have to be placed in a constant dialectic dialogue. This really speaks to the fact that an architect should not just be "confined to a traditionalist romantic vision of the solitary artist and creator of a useless and uneconomical formal surplus to the built environment" (Gioeni, 2010), but, in fact, the opposite. Hence, the architect-researcher should be many things in my opinion: a good mediator, a brain under constant criticism and dialogue, a technician, but, most importantly, a human body. The body of one conducting research, as I previously discussed, not only cannot be excluded from research, but is a resource for knowledge. The body is in constant interaction and movement and is both a receptor of sensations and a vessel for human interaction; my position is that the human body should be used in all of its declinations to do research. Hence, the "observation" I have discussed before in my methodology does not just mean the reception of visive inputs: it regards smell and tactile senses, just like everything else that created the experience during fieldwork. This is the reason why I have decided to transform the ethnography into a graphic novel: I really think that a tool that comprises of drawings and dialogues can be a way to represent the "performance" of research. According to Rachel Smith, "The ethnographic form in these collaborative processes of research is always dialogic, incomplete and transient (...) and, regarding Marcus's studies, that the contemporary, understood as the present becoming of the near future, characterizes and defines the experimental properties of many ethnographic projects and collaborative experiments"; this explorative and experimental nature should always be a part of an architectural ethnography.

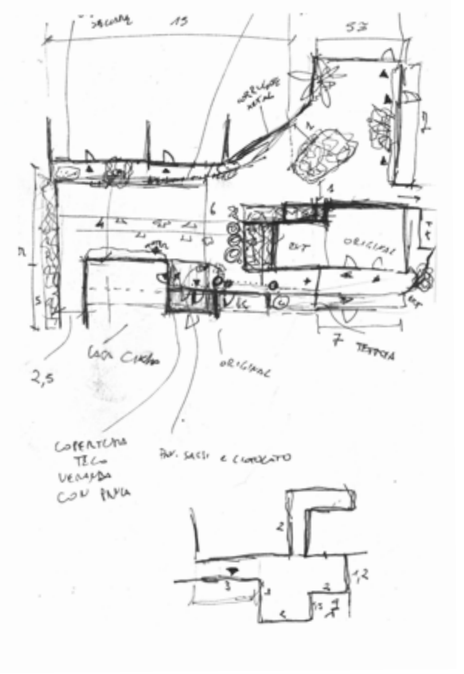






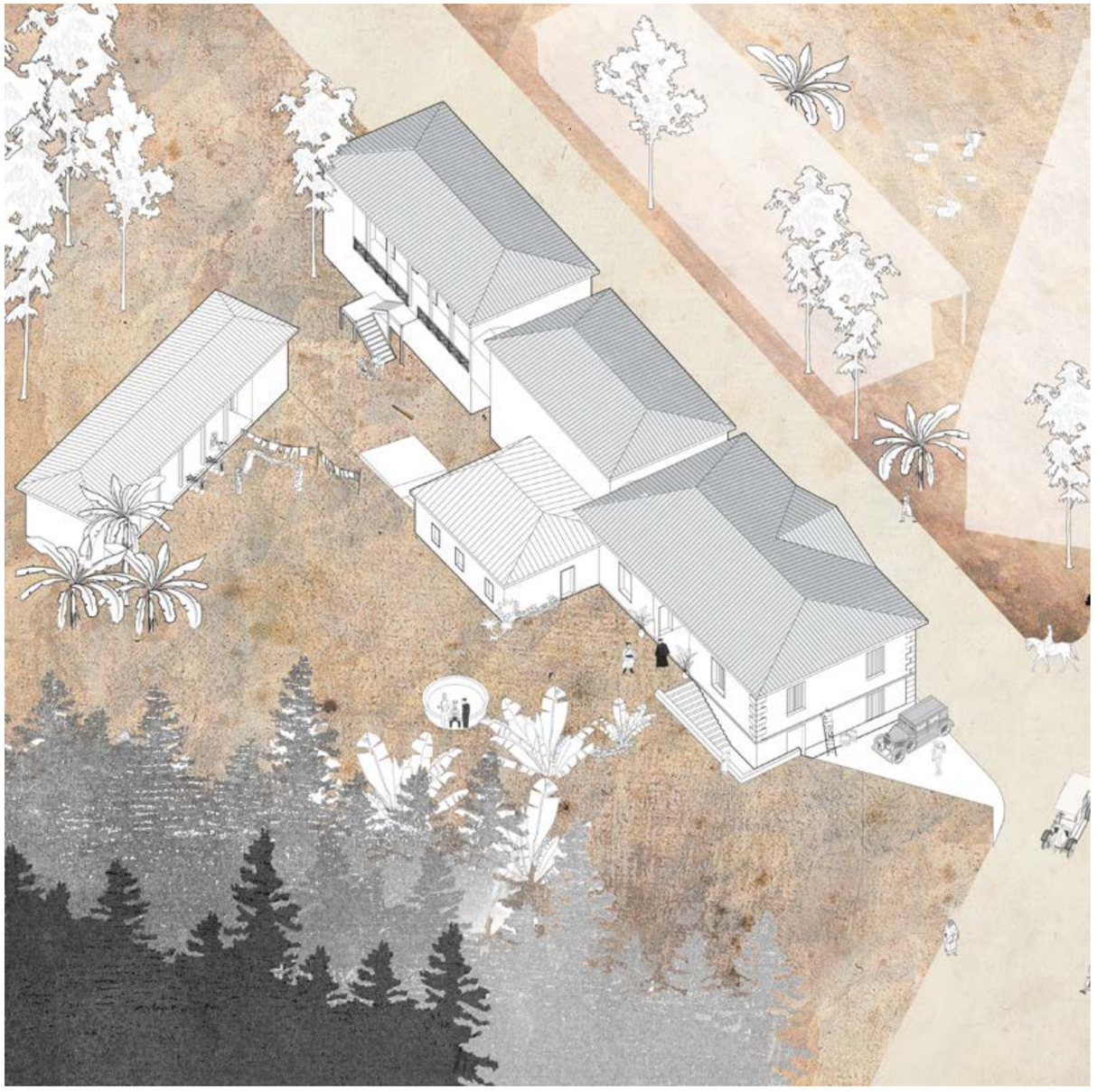




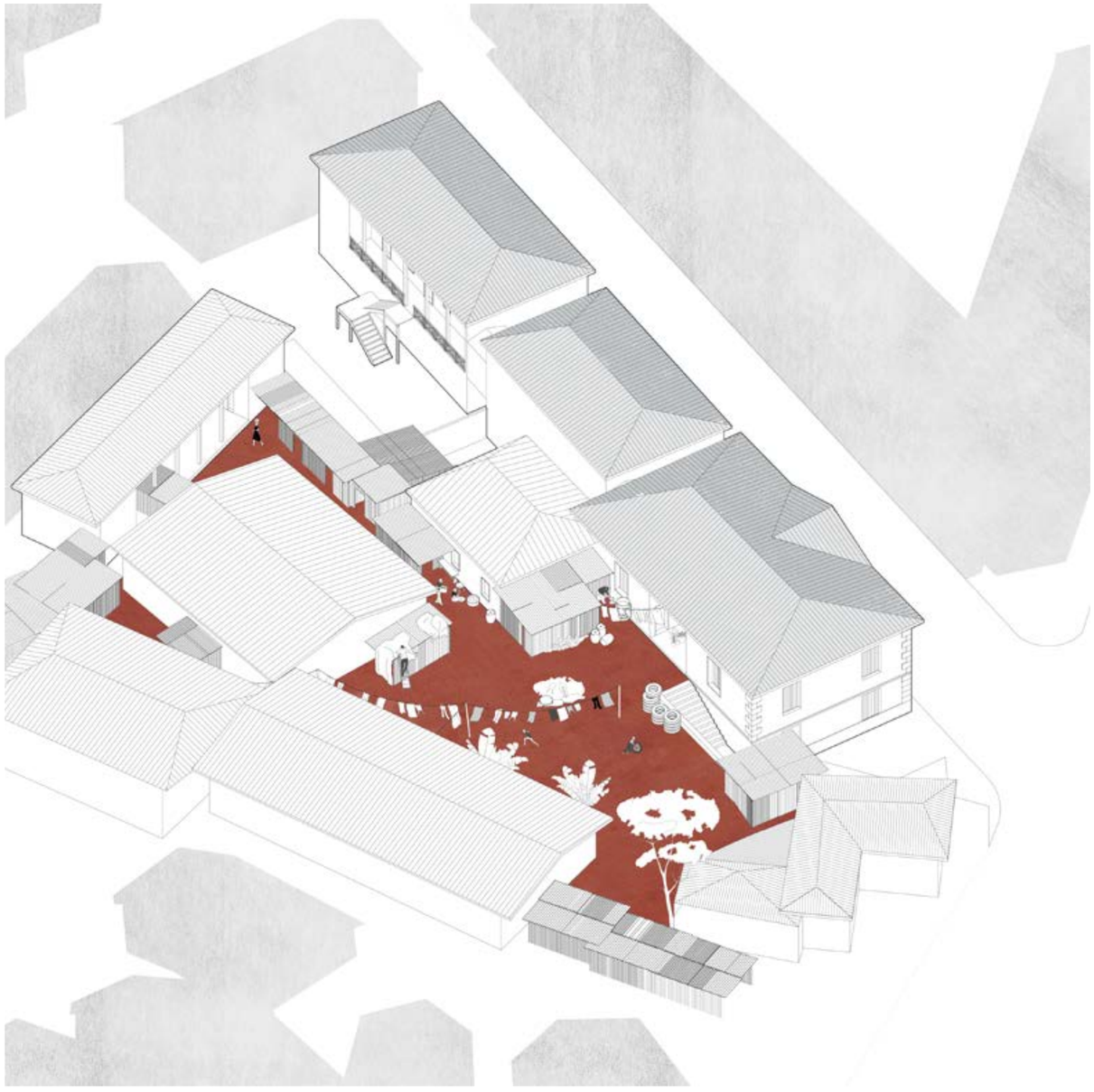


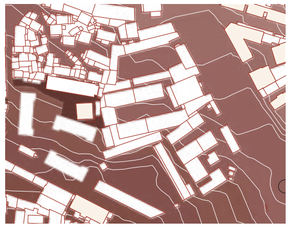




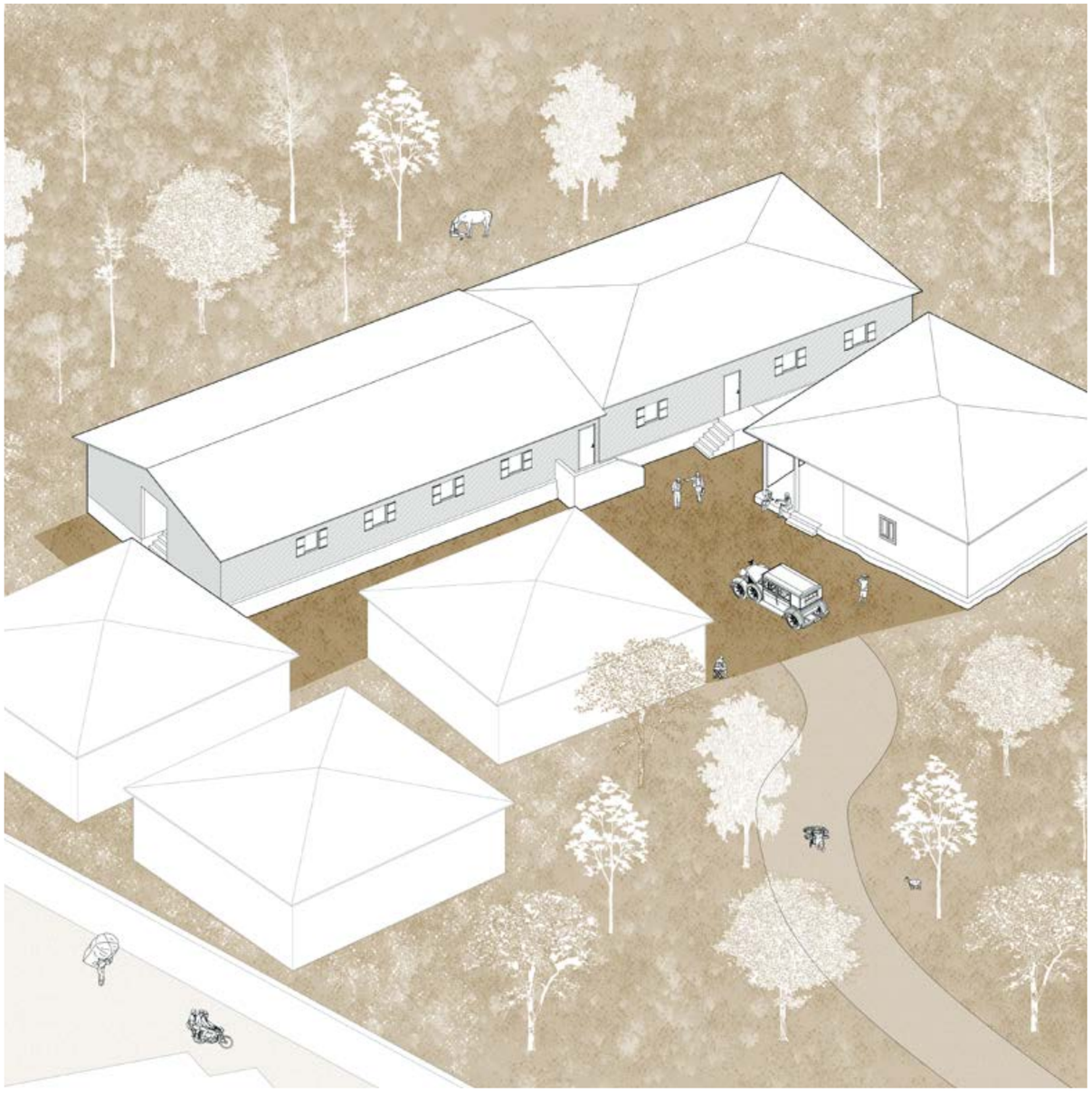


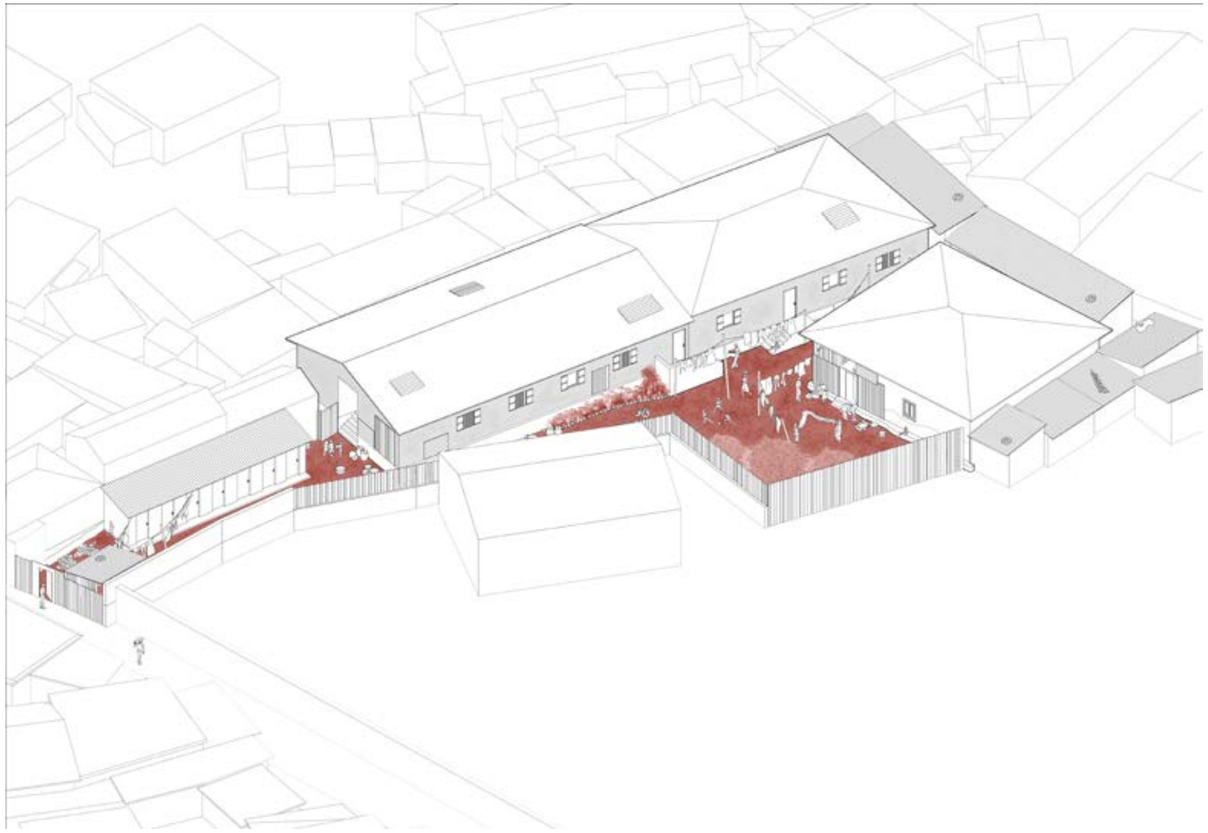


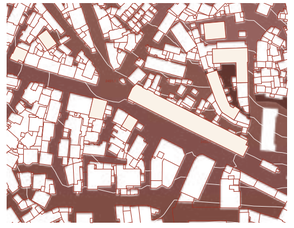




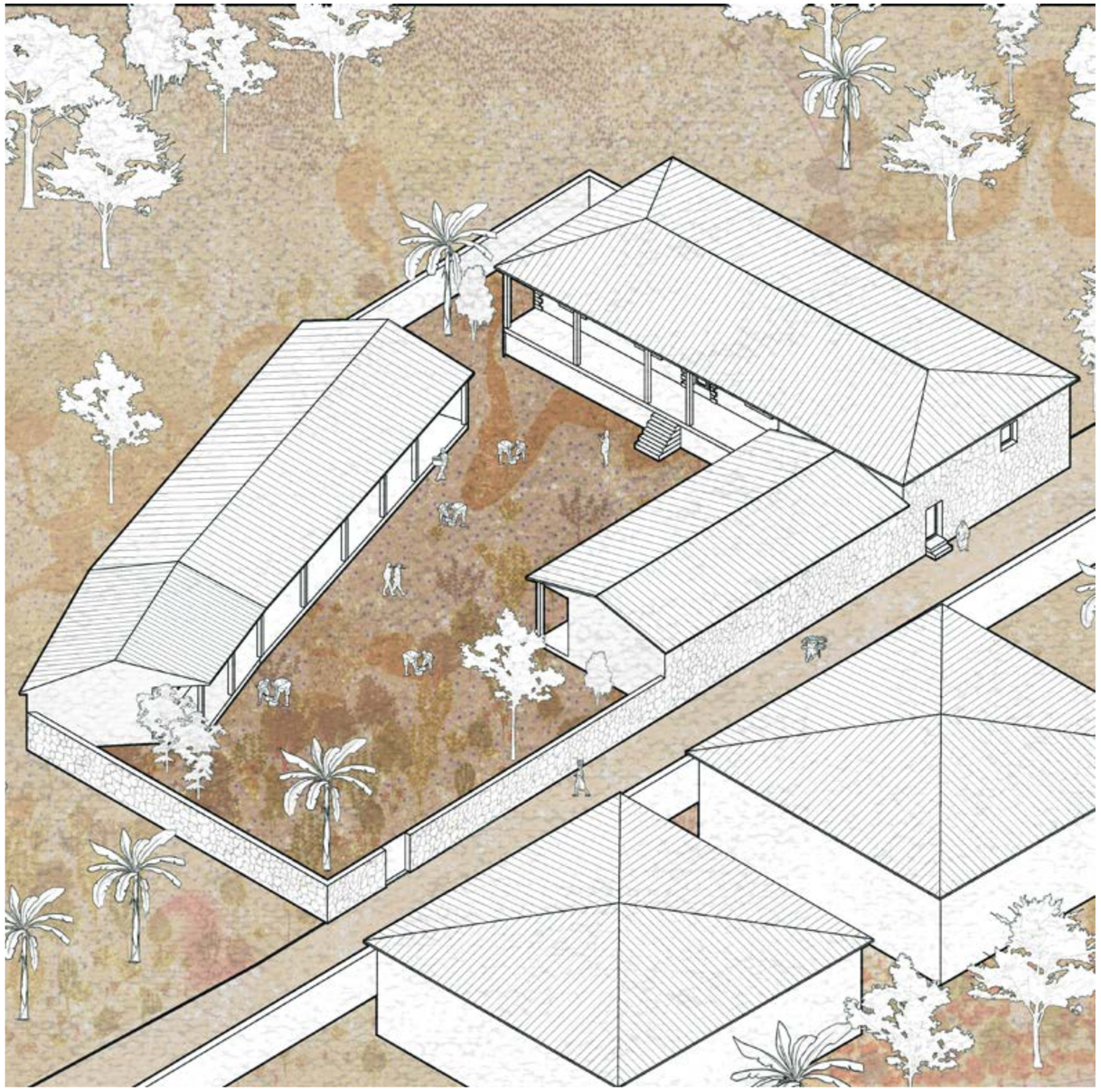

TRADITIONAL KITCHEN
WC/SH
WC/SH
KITCHEN
COAL PLATFORM



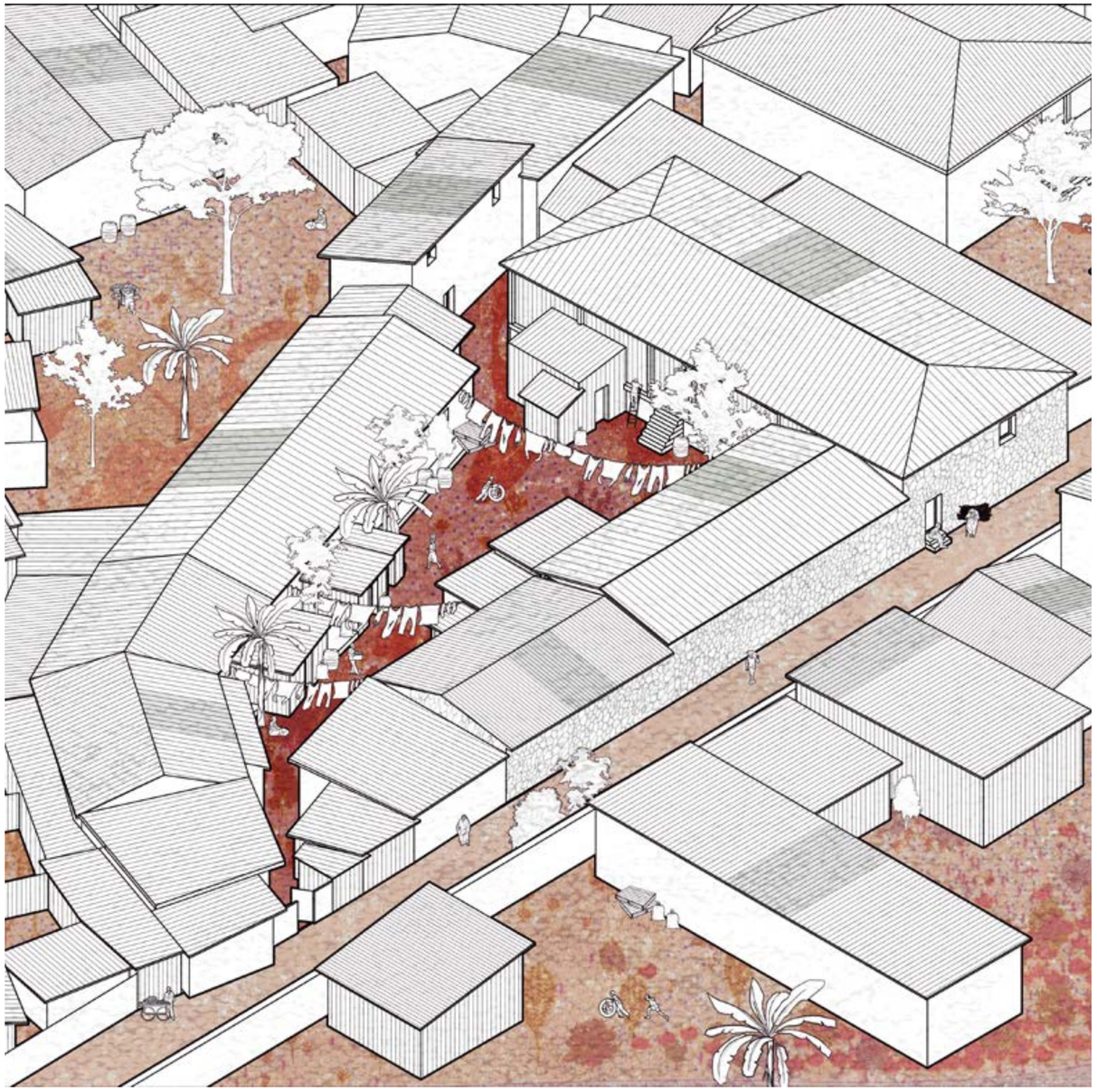










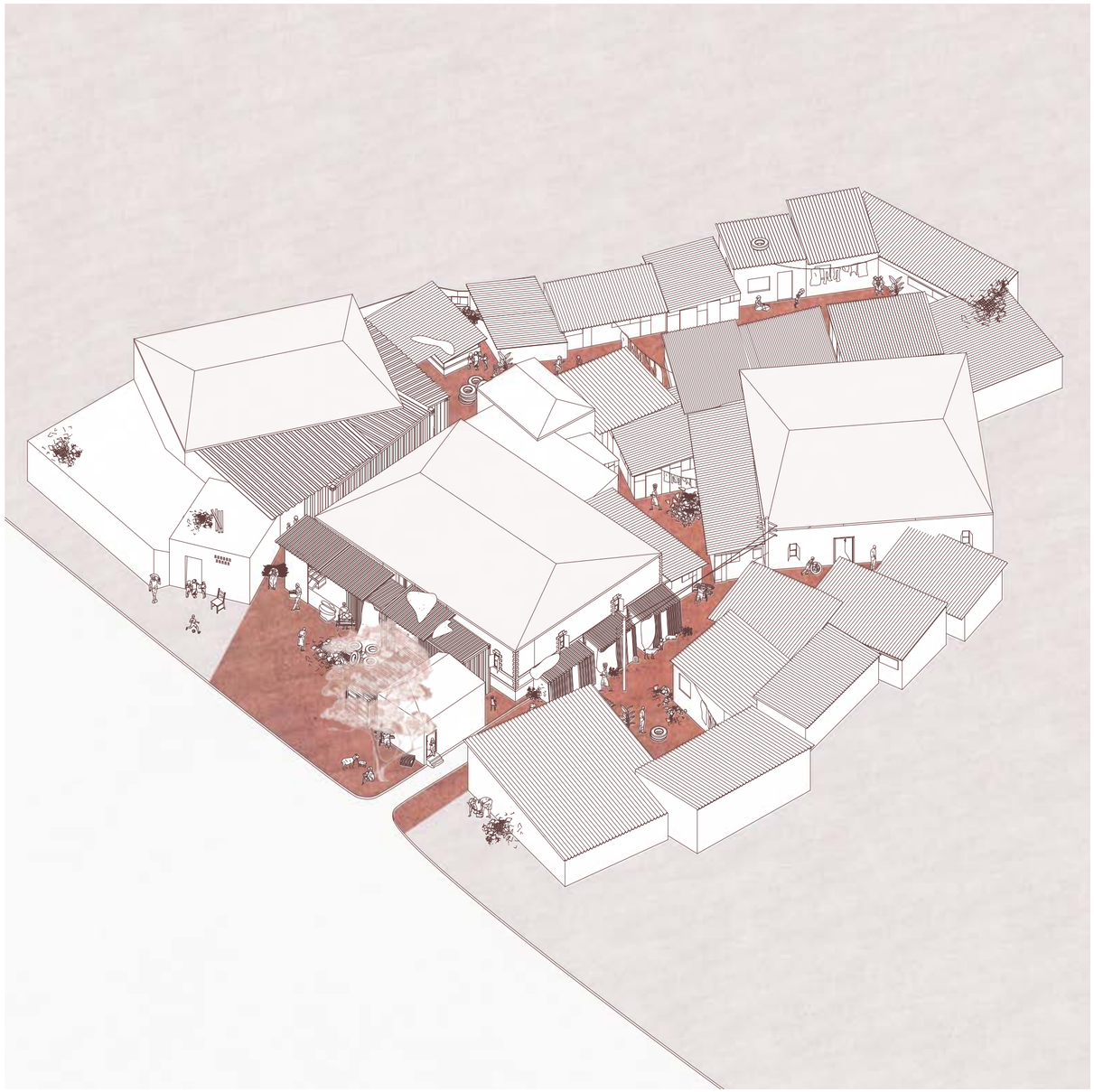










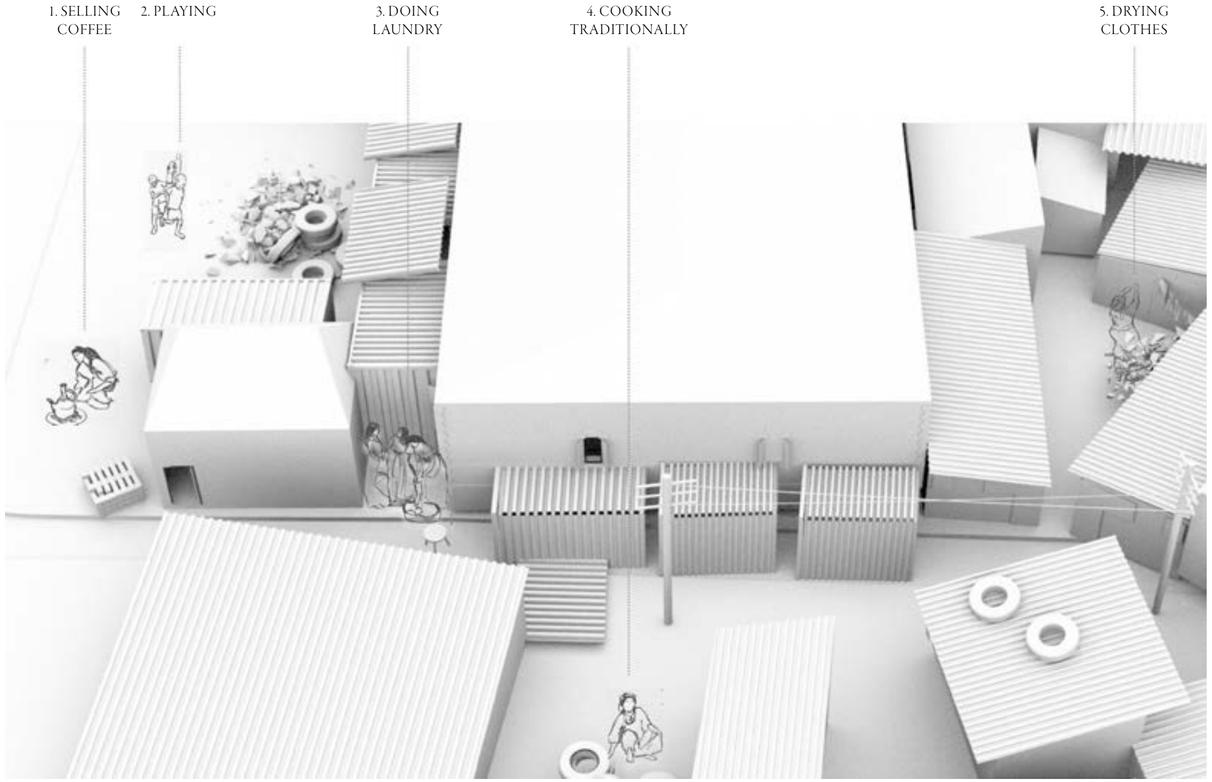


The heritage that has to be preserved in Talian is twofold: firstly, as I previously mentioned, preserving the value of the communities. Secondly, what has to be maintained are the synchronous spaces that the neighborhood naturally presents. A synchronous space is one where many things happen at once. Every street, cross-road and communal courtyard in Talian can be considered to be such space. Throughout a single day, dwellers can use the same physical space to cook traditional food, eat, play games, celebrate marriages, dance, pray and many more activities. In a sense, the compound itself can be defined as a synchronous stage, with the historical building within it playing the role of the main actor. Therefore, most of these buildings have to be kept alive and actively used as residential dwellings.

The following diagram is an attempt to synthetize how this communal synchronous space can be used throughout the day.

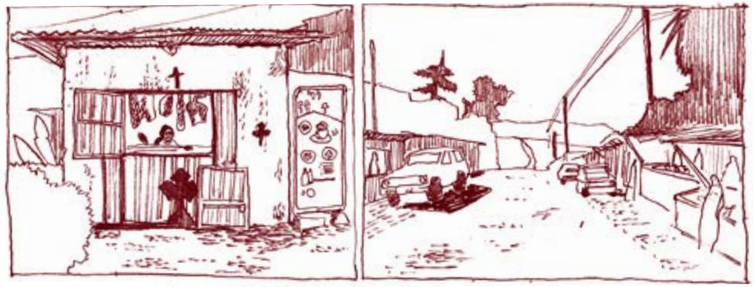
As you can observe, at the scale of the compound, there is a fundamental problem with ownership and maintenance. In general, people in Talian live happily for the strong sense of community that has been built throughout generations. The compounds are generally formed by 6/8 families that live partially in historical buildings and partially in the informal dwellings that have grown as parasites to the first ones. Therefore, a chunk of the population is able to legally rent a house from the government, while the rest is forced to survive illegally. In both cases though, there is a complete lack of maintenance, which causes most compounds to be highly at risk, in terms of personal security and historical preservation.

At the scale of the building, dwellings lack of sanitary services and access to water in almost all cases. In fact, a compound is usually generated around two toilet stalls that are meant to serve 25 to 35 people on average. Not to mention the lack of showers and the intermittent access to drinking water. People have expressed their need to store water from communal sinks whenever they have the chance, as communal sinks can stop working for up to a week.







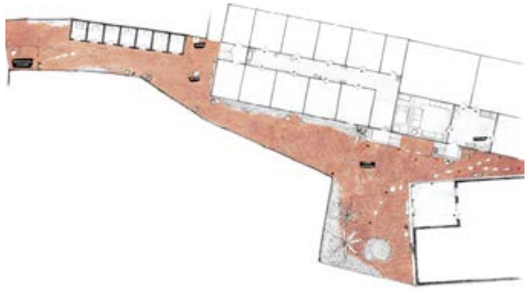


| | Talian's Comp. 1 | Talian's Comp. 2 |
|---|---|---|
| ***Area*** | 363 sqm | 1130 sqm |
| ***Courtyard*** | 82 sqm | 431 sqm |
| ***Number of Households*** | 14 | 16 |
| ***Number of Dwellers*** | 62 | 80 |
| ***FSI*** | 0,55 | 0,61 |
| ***Toilet size*** | 4sm | 3sqm |
| ***Room size*** | | 15-25 sqm |
| ***Kitchen size*** | 11sqm | 9sqm |
| ***Commercial Activity*** | 95 sqm | n/a |





1



2



3



4

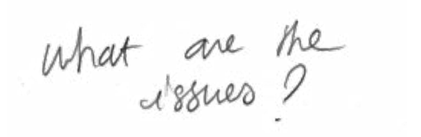
| | Wereda 2 | Talian |
|---|---|---|
| *Area* | 58,02 hectars | 27,2 hectars |
| *Density* | 319 pph | 319 pph |
| *Number of Parcels* | 1.092 | n/a |
| *Number of Households* | 4.832 | 1.905 |
| *Number of Dwellers* | 22.010 | 8.677 |
| *Minimum Rent L-I** | n/a | 16 Birr |
| *Maximum Rent L-I** | n/a | 232-520 Birr |
| *Median Rent L-I** | n/a | 63-85 Birr |
| *Commercial Activity per sqm* | +80.000 Birr | +80.000 Birr |
| *FSI* | 0,5/0,6 | 0,5/0,6 |

** All of the rent prices are indicated per month*
*Monthly rent for 10/90 units cost up to 315 Birr per month*



| | 10/90 | 20/80 |
|---|---|---|
| *Area* | n/a | 21 hectars |
| *Density* | n/a | 175-300 pph |
| *Number of Parcels* | n/a | n/a |
| *Number of Households* | n/a | n/a |
| *Number of Dwellers* | n/a | n/a |
| *Studio Rent M-I** | 315 Birr | 3.500-4.500 Birr |
| *Studio sqm* | 29 | 32 |
| *1-bedroom Rent M-I** | n/a | 4.500-5.500 Birr |
| *1-bedroom sqm* | n/a | 50 |
| *2-bedroom Rent M-I** | n/a | 5.500-7.500 Birr |
| *2-bedroom sqm* | n/a | 65 |
| *3-bedroom Rent M-I** | n/a | >8.000 Birr |
| *3-bedroom sqm* | n/a | 85 |
| *Costruction Cost* | 2.310 B/sqm | 3.000 B/sqm |
| *Commercial Activity* | n/a | 80.000 B/sqm |
| *FSI* | <1 | 1,03 |

** All of the rent prices are indicated per month*


what are the
issues ?

# LACK OF HOUSING

This Sefer presents issues at all scales. In fact, there is a total lack of transparency between public and private spaces: all of the slum-like dwellings face an interior courtyard that is often locked away with a fence. The reason is the high rate of criminality and total lack of security present in the area. The effect is that people do not have ownership over public spaces, which are in indecent conditions and mainly inhabited by unemployed alcoholics. The need for a separation between public and private is certainly cultural, deriving from the ancient Ethiopian tradition of building fenced *tukuls*, but also caused by the presence of criminal activity in the area. Young girls and women are particularly terrorized to leave their compounds after 6 p.m.. While I was conducting research on site, the inhabitants would force me to call a taxi as soon as the sun was setting, expressing their concern for my well-being. The sense of insecurity within the Sefer is aggravated by the fact that there are no lights: this makes it so that someone who is not familiar with the context might easily get lost in its informal urban fabric.







# LACK OF SECURITY

This Sefer presents issues at all scales. In fact, there is a total lack of transparency between public and private spaces: all of the slum-like dwellings face an interior courtyard that is often locked away with a fence. The reason is the high rate of criminality and total lack of security present in the area. The effect is that people do not have ownership over public spaces, which are in indecent conditions and mainly inhabited by unemployed alcoholics. The need for a separation between public and private is certainly cultural, deriving from the ancient Ethiopian tradition of building fenced *tukuls*, but also caused by the presence of criminal activity in the area. Young girls and women are particularly terrorized to leave their compounds after 6 p.m.. While I was conducting research on site, the inhabitants would force me to call a taxi as soon as the sun was setting, expressing their concern for my well-being. The sense of insecurity within the Sefer is aggravated by the fact that there are no lights: this makes it so that someone who is not familiar with the context might easily get lost in its informal urban fabric.



*A collage trying to evoke the feeling of walking at night in Talian Sefer*





# LACK OF WATER

The hygienic conditions of the neighborhood are against any conception of human rights. Dwellings lack sanitary services and access to water in almost all cases. The water crisis is a mainly silent one. These water and sanitation problems disproportionately affect women and children.

In Talian, a compound is usually generated around two toilet stalls that are supposed to serve between 25 and 35 people, on average. In a couple of analyzed cases, hoewever, the number of people sharing two toilet stall reached 124. Not to mention the lack of showers and the intermittent access to drinking water. People have expressed their need to store water from communal sinks whenever they have the chance, as these can stop working for up to a week. This is the reaosn why in many dwellings you will find big plastic tanks as a back-up plan.



*A collage trying to evoke the feeling of walking at night in Talian Sefer*









# UNEMPLOYMENT

This incessant flow of people, coming from the villages in the country-side and seeking a job in the city, results in the constant increase of housing and jobs demand. While that of dwelling exceeds the 300.000 units, the unmet demand for new jobs is around 1 million. This creates a precarious social condition in which 20% of the population is unemployed.



# LACK OF HYGIENE

Talian Sefer's society relies strongly on family bonds. The average family consists of a father, a mother, and 2 to 3 children. These families most often sleep in the same bed, and share a small room where all of the indoor activities take place. As a general rule, women are in charge of the house-hold chores and activities. Because they do not have enough space within the one-room dwelling, they usually collectively perform activities such as cooking and cleaning in the courtyard of their compound or on the street. During the day, one can see them making the typical *injera* or practicing the Ethiopian coffee ceremony. However, when the sun starts setting, they quickly collect their utensils and lock themselves within the fences of their compound or even household. In fact, women daily experience threats to their livelihood and safety in Talian. In addition, they also struggle with access to healthcare facilicites, which means that only 1% of low-income women in the area give birth assisted, for instance.

0 %

leave home
after sunset

1/27

chances to die
giving birth

0sqm

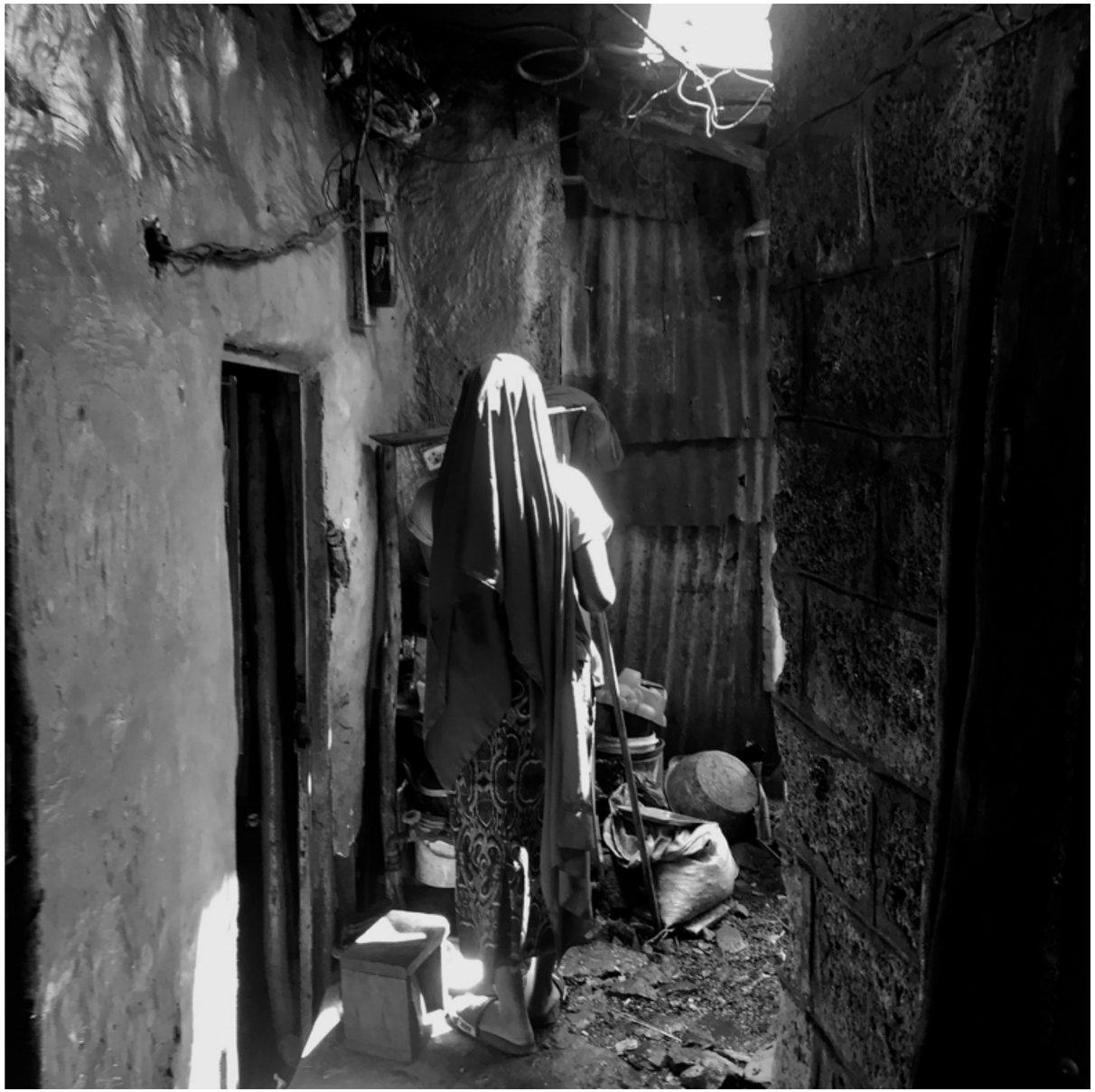
of appropriate
cooking space

1

avg toilet per 60
women

Being a pregnant woman in such a neighborhood, one has 1 out of 27 chances to die, according to the WHO. Out of those who survive, 94% give birth alone at home.





*Picture by Author*

*"Where I used to work, they never let me wash myself and they wouldn't give me food. Because I was not able to wash, I had sores. I didn't have anywhere to shut myself away and be alone and I used to starve. Most of the time the son (who was thirteen, two years older than me) beat me for no reason. When I asked him why he was doing it, he beat me again. I will go to Sheromeda, the cotton district, where children from rural areas are sent to work."*

**Getache***



# Problem Statement

Ludovica Cassina

Talian Sefer is a neighborhood adjacent to Piassa, located in the very center of Addis Ababa. Its name derives from the period of the Ethio-Italian wars, when the Italian invaders decided to start constructing edifices, both for housing and imprisonment. The precise boundaries of the neighborhood are impossible to identify even for those who have resided in it for generations, as the whole area has been growing organically and informally for the past century. It is this very informal growth that has permitted to extend and expand the historical buildings into proper compounds, which are thriving with vibrant social interactions.

In light of interviewing a sample of the Talian Sefer's population, it appears that the majority, if not all, of the inhabitants are enthusiastic about residing in such neighborhood. The reasons mainly regard its central geographic location, and its richness in diversity of inhabitants, which I will thoroughly discuss later on. However, the neighborhood surely presents many characteristics that should not be romanticized.

At an urban scale, Talian Sefer does not match with the needs of a rapidly urbanizing city of the 21st century. The current trends of fast urbanization in Addis Ababa are trying to fight against the urban decay, high rates of homelessness and total lack of infrastructure and public services to transform it into a modern globalized hotspot for the African continent. The first problem is that the neighborhood is not dense enough: it does not respond to the necessity of big-scale housing schemes to accommodate the vast amount of people which need a dwelling at the moment. This point is extremely important to expand on, because it will be a true game-changer in the development of the design project. In fact, the Ethiopian Government has released a masterplan that highlights Talian Sefer as a place where the building height for future development should be unlimited, unapologetically disregarding the argument of protecting the neighborhood's historical heritage. In my opinion, building towers around the currently inhabited Italian buildings would mean completely obliterating them and the identity of their communities. After having acknowledged that there is a real need for increased density, the challenge of the project will be to accommodate and integrate it with the historical and social patrimony of the area. Another weakness in the urban fabric of the Sefer is its total lack of infrastructure and public services. Many inhabitants have complained about the absence of green and social spaces where they can have planned interactions, especially for younger generations.
At the scale of the street, there is a partial lack of transparency, which further enhances the segregation between the public and private spaces. Walking around Talian, most compounds are



open and accessible from the road during the hours of light, while completely shut off from sunset to sunrise. This total separation between public and private is in part cultural, deriving from the ancient Ethiopian tradition of building fenced tukuls, and, in part, caused by the presence of criminal activity in the area. However, even though fences and gates might work in the short term for personal safety, they only harm the communal sense of security. In Talian, people are scared to walk around after sunset and this will be a big issue to challenge in the process of re-designing the neighborhood.

At the scale of the compound, there is a fundamental problem with ownership and maintenance. In general, people in Talian live happily for the strong sense of community that has been built throughout generations. The compounds are generally formed by 6/8 families that live partially in historical buildings and partially in the informal dwellings that have grown as parasites to the first ones. Therefore, a chunk of the population is able to legally rent a house from the government, while the rest is forced to survive illegally. In both cases though, there is a complete lack of maintenance, which causes most compounds to be highly at risk, in terms of personal security and historical preservation. How can it be possible that historical buildings
are not checked upon? Unfortunately, most of these buildings are not recognized nor registered as historical heritage.

At the scale of the building, dwellings lack of sanitary services and access to water in almost all cases. In fact, a compound is usually generated around two toilet stalls that are meant to serve 25 to 35 people on average. Not to mention the lack of showers and the intermittent access to drinking water. People have expressed their need to store water from communal sinks whenever they have the chance, as communal sinks can stop working for up to a week.

If Talian is so problematic, why should it not be erased to create something new?

The most straightforward response to "unslum the slum" would be to destroy everything and replace it with "projects which became almost pathological displays of slum troubles".

Can it truly be considered an historical patrimony?

At this point of conversation, you might have been wondering about the mentioned lack of recognition of historical heritage. Therefore, it is appropriate to discuss whether, given the fact that Addis Ababa is a fairly new city, Talian Sefer could really be considered historical patrimony. The first logical step to answer this question would be to certify precisely the date and reason of construction. However, after having spent time and efforts raising questions about the history of the neighborhood to its inhabitants, and having looked for reliable literature, it is fair to say that it is uncertain when the buildings in discussion were actually constructed and by whom. Some claim that they were built under Menelik II after the Battle of Adwa, when the Ethiopian aristocracy figured out that within the group of prisoners there were capable engineers and planners. Others claim that these were certainly built in the occasion of the second





Italian occupation under Mussolini. Although the second hypothesis seems to be more plausible, it is not possible to give a certain answer. It is not even possible to determine whether the historical heritage under question is a mere integration of Italian traditions only, for instance. However, I have come to believe that these uncertainties on the genesis of such buildings do not affect their value as heritage. In fact, what truly has historical value is, in my opinion, the symbiosis between the Italian architecture of the time and the local building materials and methods applied to this particular geographical location. But even more importantly, the fact that this architectural syncretism has created buildings that are still actively inhabited today by thriving communities. In summary, the historical heritage of Talian comprises of two elements: on one side, the type-form buildings that allow for synchronous activities to be carried out, and that represent the traditions and history of multiple populations. On the other, the communities that, from the beginning of the 20th century until today, have preserved the neighborhood's history and strong identity.

Why does it matter to highlight that Talian is an historical patrimony? Because historical heritage allows for the enrichment of ourselves through the understanding and study of how past generations lived and functioned. Put simply, it is the way to create and maintain cultural identity. This is an exception in the context of Addis, as there has been a deficiency of attention towards the preservation of the latter by erasing the memory of the past for a more flourishing economic future.

Addis Ababa is not the only city facing this issue, because virtually any rapidly urbanazing city of the Global South might be. In fact, it is a common situation that historical centers are destroyed to quickly make money out of developer's pressures. An example of this dynamic of identity destruction can be found in Richard Sennett's Building and Dwelling, where he discusses the annihilation of the shikumen in Shanghai.

Why is it worth it to defend this patrimony?

My interest for the site did not arise from the fact that it has historical buildings per say. Or from the fact that it portrays a sentimental conception of self-organizing communities. Nor for the generations of families that have inhabited it since its creation.

My interest for Talian derives from the fact that, at an urban scale, it is one of the only "anti-fragile" neighborhoods left in Addis Ababa. Just like our human brain combines different synapses to come up with new ideas, the urban fabric of Talian is a "living muscle", where social interactions keep building stronger communities that truly work. Talian is not an "artificial town", as Jacobs would put it, it is an anti-fragile cité that drives forces from its strategic geographical location, its strong social "synapses", and its ability to absorb the Italian architectural heritage and



continuously give it purpose by altering it into what is needed by the communities that inhabit it.
How did this happen? Why was it decided, after the Italians left, that the buildings that were constructed in Talian should not be destroyed, even though they portrayed years of subjugation and pain? The answer is to be found, in my opinion, at the building scale itself. In a sense, we could assert that the anti- fragility of the neighborhood has manifested itself as an inclusive and informal self-organizing force: different people of different levels of income have found their place within the Talian community. Walking around the neighborhood you can meet the slum-dweller who illegally rents a piece of corrugated metal for a couple of Birrs a month, and, right next to him, the FHC worker who can afford to rent an ex-Italian villa. And within the category of the Historical Italian buildings there is much more to say. In fact, according to my observations, the Italian buildings of the Sefer are what Sennett would define as a "type-form". These buildings provide a resilient framework that, for example, transitioned from the typology of a single-family villa in the 1930s, to a communal house for seven families at the current moment. Just like what was used in the 30s as a jail for Ethiopian prisoners of war has now become a row of single-family studios. The fact that these buildings are still alive, although in very poor conditions, and that they still work for people, means that they have a value that goes far beyond the one of mere museum material. These buildings are still alive because of the communities that inhabit them, and vice versa. Therefore, the two are intrinsically bounded and should be maintained in a re-development project, because they tell the story of their traditions.
After all, should the situation be kept untouched because the neighborhood is anti-fragile and it has survived as it is for many decades?
The sense of identity that Talian can portray is immeasurable and has a unique character, reason why it has to be defended and preserved. Synchronously, the substantial problems at all scales we have discussed are equally as important to keep in mind. In fact, the rapid and destructive urbanization processes in Addis Ababa will not stop and reflect on the Sefer's values and will turn it into dust the first chance they get. The challenge of this thesis project will be to find the right equilibrium between what has to be maintained and what has to radically change to turn Talian into an open neighborhood, interwoven in an urbanized city, where people can fulfill their ambitions for the future without completely erasing their traditions and social networks.
Thesis Statement
Sennett has indicated the five ways to create an open city. In this case, we have to discuss the creation of an open neighborhood within an open city. In order to do that, I have tried



to re-interpret these five concepts in the context of Talian: keeping the synchronous characteristics of space that already exist, preserving type-forms and integrating them with new housing strategies of increased density, having punctuated markers, maintaining porous membranes, support seed-planning. Prior to explaining why these

are fundamental steps in the creation of the design hypothesis, I would like to add a step zero: preserving the value of communities, by turning the area into one people want to and can stay by choice.

Preserving Communities to "unslum the slum" – Talian Sefer is, in my opinion, a place where "attachment to a slum becomes strong enough to stimulate unslumming". In fact, "Why slum dwellers should stay in a slum by choice, after it is no longer economically necessary, has to do with the most personal content of their lives, (...) which is the dwellers' personal attachments to other people". The point is that it is already a place where the process of unslumming has already started and has to be facilitated. The first step would be to re-weave Talian's urban fabric in the bigger context of the city of Addis Ababa. "This means, among other things, that (the neighborhood) must be capable of holding its populations through choice. It means it must be safe and otherwise workable for city life. It needs, among other things, casual public characters, lively, well-watched, continuously used public spaces, easier and more natural supervision of children, and normal city cross-use of its territory by people from outside it. In the process of being rejoined into the city fabric, these projects need to take on the qualities of healthy city fabric themselves" (Jane Jacobs). Hence, Talian should be a place where the people that currently inhabit it want and can stay, and at the same time a place where people from outside can come to perform specific activities. In many compounds, families of war veterans have been given dwellings generations ago. I truly value the presence of these communities and believe that they have the right to come back to their homes if it is their will. Therefore, I would like to research what are the legislations regarding the relocation of legal inhabitants in such situations, if any exist.

I would like to add that often, in the process of providing better housing solutions, communities are broken, because the wealthier people become the less they rely on each other for survival. "Many adults either don't want to become involved in any friendship-relationships at all with their neighbors, or, if they do succumb to the need for some form of society, they strictly limit themselves to one or two friends". This change in human behavior can be observed in first hand in any condominium projects of Addis Ababa, where there has been little attention towards maintaining shared spaces for continuous interaction. This is not the case in Talian, both for an economic reason of mutual reliance and for a cultural desire to maintain strong social bonds within the compound. It will be a great challenge, but a necessary one, to maintain the nature of the spontaneous interactions within the community.

Maintaining Synchronous Spaces - Regarding the heritage of the neighborhood the challenge will be twofold: firstly, as I mentioned above, preserving the value of the communities. Secondly, what has to be maintained are the synchronous spaces that the neighborhood naturally presents. A synchronous space is one where many things happen at once. Every street, cross-road and communal courtyard in Talian can be considered to be such space. Throughout a single day, dwellers can use the same physical space to cook traditional food, eat, play games, celebrate marriages, dance, pray and many more activities. In a sense, the compound itself can be defined as a "synchronous stage", with the historical building within it playing the role of the main actor. Therefore, most of these buildings have to be kept alive and actively used as residential dwellings.

Preserving type-forms and integrating them with new denser housing - Once a strong strategy for the historical buildings has been defined, the challenge has to be to symbiotically integrate this type-forms with a strategy of social housing of increased density, to improve the quality of life in the neighborhood bringing new inhabitants into the picture. The current governmental strategy for responding to the housing shortage is the design of condominiums such as the Mikililand project. My strategy would aim to be comparable to the density achieved by the condominium with a lower building height and a preservation of the current communities and historical heritage.

Having Punctuated Markers – designing markers will be complex, starting from the scale of the urban fabric to try and give a sense to the pre-existing streets In Talian, to trying and transform some historical buildings to "exclamation points" to maintain local identity.

Preserving Porous Membranes – As we have already discussed, Talian is anti-fragile neighborhood. Anti-fragile, not flexible. Flexibility is created by subjugation to a specific event; on the contrary, plasticity is a constant adaptation. As philosopher Catherine Malabou would put it, plasticity is a way of "receiving form", but it is also a way of "giving form". This constant form of resilience through both external and self-alteration is what makes it truly resilient and valuable as a neighborhood. But why is it more resilient than most neighborhood in Addis? What makes it anti-fragile? I believe the answer is found in its existing partially porous membranes. These membranes are not perfect, as we discussed in the problem statement: many gates and fences isolate communities at night. However, they can be considered to be porous

# DISCOVERIES AND SKETCHES

*activities and actors*

# DAILY PRACTICES



Chapter 4

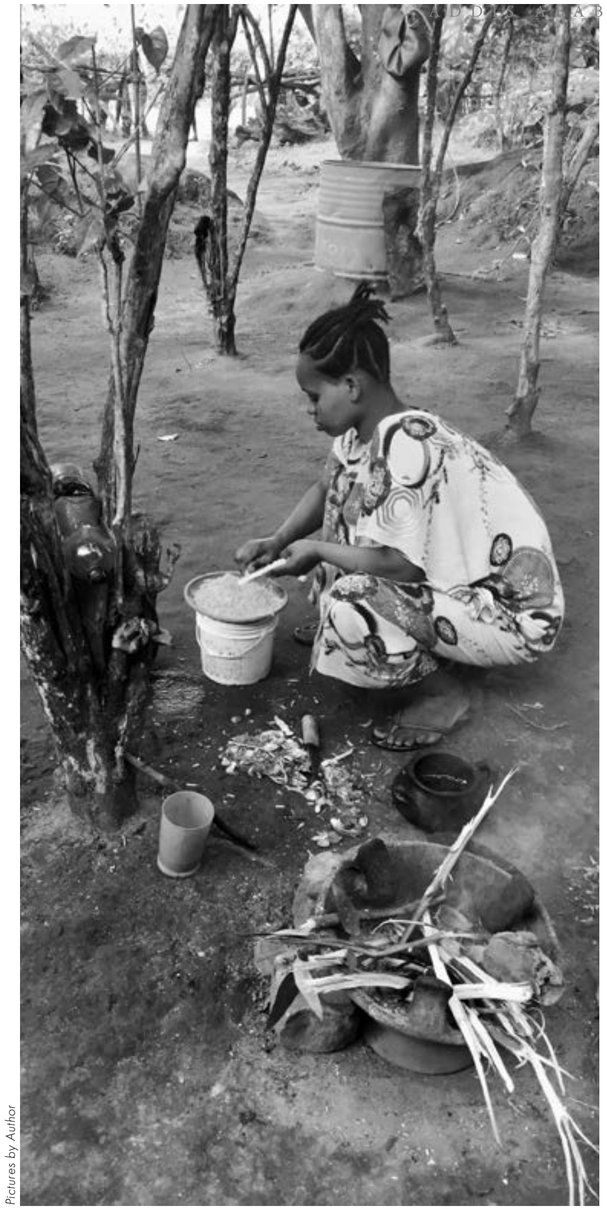
# COOKING





## COOKING AS COMMUNAL?

From our and other researchers' interviews, it seems like people enjoy cooking traditional food in group. This makes it a prerogative to create a communal space for such activity.







Pictures by Author





Pictures by Author

*"I can't cook traditional food in a condominium kitchen. (...) I have to use a smokeless stove and not charcoal. I cannot use electricity for injera baking, because it needs a higher voltage. I mustn't make noise at night and wouldn't be able to prepare food on time for my customers. Lastly, I won't have enough room for storage and food preparation."*

**Lubaba***



# WHAT IS NEEDED FOR A TRADITIONAL ETHIOPIAN KITCHEN?

Walking around Talian Sefer, one cannot avoid encountering women that creatively find ways to cook injera. Whether it is sitting on the floor in the middle of the street, or building a small hut dedicated to such an activity, making traditional food is one of the prominent activities of Ethiopian daily practices. Many of these women end up selling the final product for an average of 6 Birr. An example is Lubaba:

*"This is good enough for us, Especially the kitchen shelter. It is a space I use for working. I cook traditional food and sell it. The kitchen should be separate from the living area because of the smoke. If it is indoors the smoke causes serious health problems, such as eye, respiratory and skin problems. I start working at 3 a.m."*.

For her the most difficult task was

*"keeping the food preparation and storage clean and tidy. Cracks in the walls of floor can harbor insects and rodents. Leftover foods and dirt should be removed properly"*.

What is needed to allow people to keep cooking traditionally is not much:
1. space detached from the living one for smoke reasons
2. space for gulcha (traditional fireplace). Hence, somewhere that fire can be controlled and not become dangerous
3. a communal space where women (and dwellers in general) can be together
4. somewhere connected to selling space
5. gulchas attached to a vertical surface





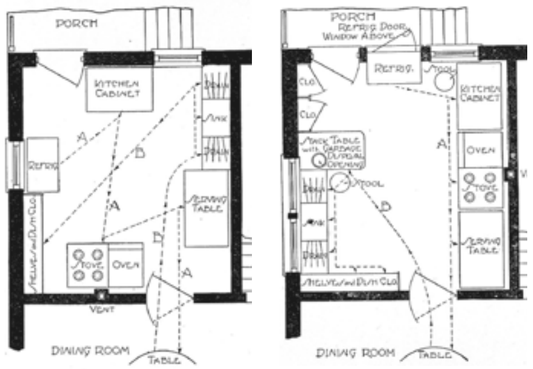


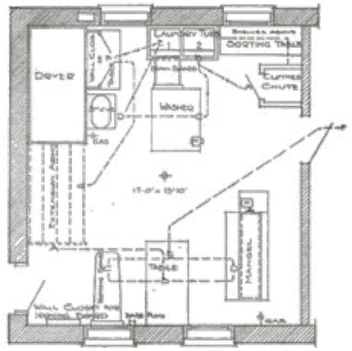


# "THE GREAT LABORATORY OF EVERY HOUSEHOLD"

In 1861's England, Isabella Beeton wrote a book that became the Bible of every middle class woman, *Beeton's Book of Household Management*. In her work, she asserted that the kitchen is :the great laboratory of every household" and indicated five principles for kitchen design:
1. convenience of distribution in its parts
2. excellence of light and good ventilation
3. easiness of access
4. remote from apartments of the members
5. plenty of fuel and water
These principles, (along the lines of other important pieces of work such as Christine Frederick's 1919 book *Household Engineering)*, and although formulated in a completely different context and historical time, are still extremely relevant.

The sketches below are her attempt to explain how the movement inside of the kitchen space should be studied and organized sequentially. By understanding the patterns of movement inside of the kitchen, one can start dwelving into very specific matters. One I have taken in consideration was really dear to the Italian architect Piero Portaluppi, who designed the kitchen and serving area ot Villa Necchi Campiglio without any right angles, in order to avoid incidents while cooking. Another topic that is relevant to this discussion is that of the injera making process. Traditional Ethiopian kitchens, as previously discussed, are basically created by lighting a fire within three stones, and by placing on it the *mogogo*, which is the typical pan. How can we incorporate this composition in a communal kitchen?



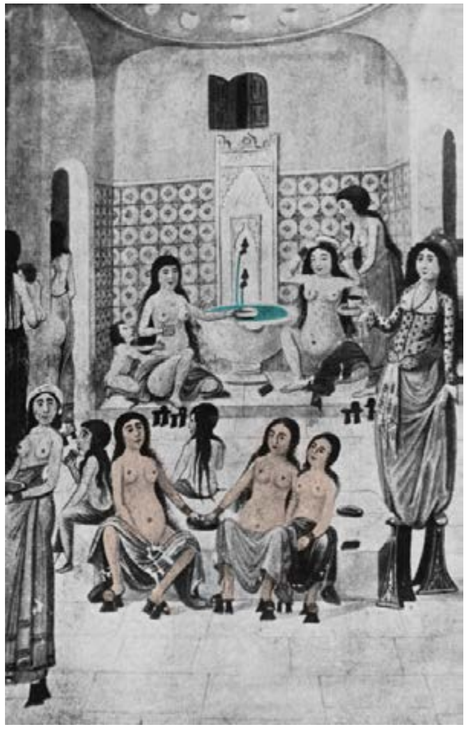



# WASH-PLACES

Supervised by Ing. Francesco Steffinlongo



Water sources have always represented a place of encounter for people. Creeks and canals petrified into fixed structures were meeting kept on happening.



# LAVATORY AS PART OF PUBLIC LIFE

Up to our great-grandparents generations, washing clothes was a tiring, loud and "crowded" matter. It generally involved the women, who had to often spend a full day every 15 to 30 in their town's public washrooms or along a river. In the poorer families, due to the shortage of clothes and bed linen, it was necessary to do it much more frequently. For many women, this activity was also a way to create income.

The first step to rinse the most stubborn stains within the household to remove a first thick layer of dirt.

The second step was to pour boiling water over white ash, often coming from acacia trees (and many other species), over a large cloth and wrap the clothes inside of it. The boiling water poured on the ash dissolved the dirt components and helped making them white with a particular and inimitable perfume. It was fundamental to leave the textiles in the dissolved ash for the whole night, in order to give an extra degree of hygiene to the fabrics before immerging them in the communal lavatory.

The latter was also considered to be the most social space for women to start conversations and keep eachother company throughout this tedious activity. The situation must have been overwhelmingly fascinating: voices, screams, noises of all kinds, children playing with water, women chatting about the latest gossips.

In the countryside of Ehtiopia, this tradition is still present, as you can see from the picture to the right. Women walk for miles to reach the closest river in a group, and spend the day in company outdoors.





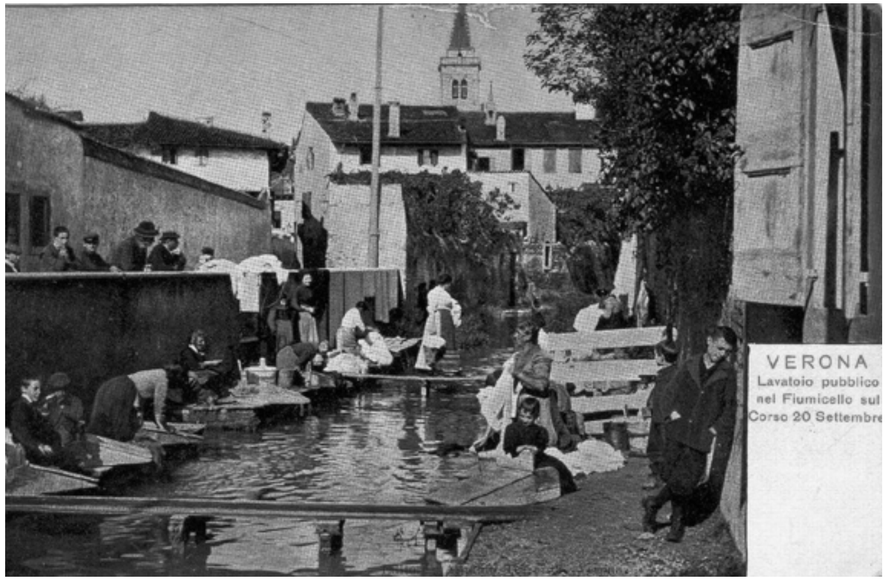


*Women doing laundry at a river close to Arba Minch*



'In the past, not such a remote one, there was no running water in the houses and the water needed for daily needs had to be drawn from public fountains. The women, to do the laundry, went either along the rivers or on the shores of the lake, carrying clothes in the panniers, both in summer and in winter. All this created considerable discomfort and required a lot of effort. To ease the women from this burdensome task,

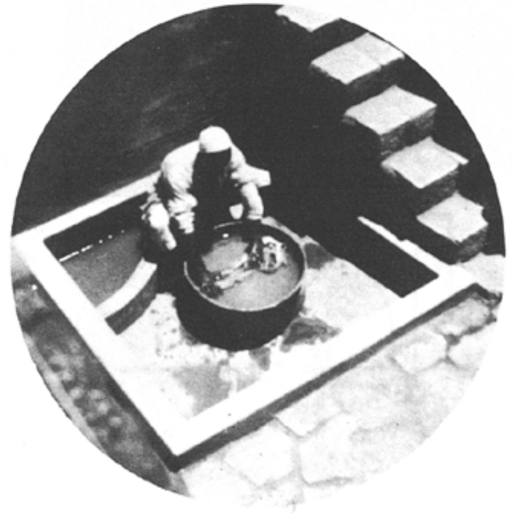




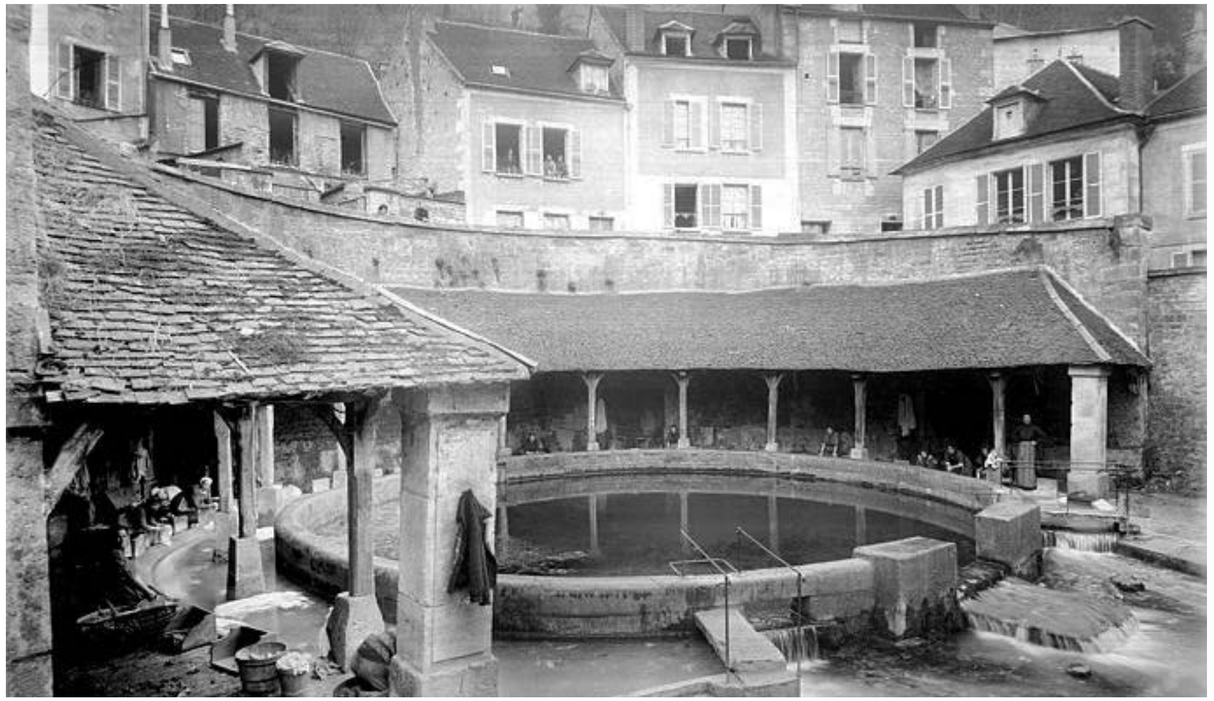

each country equipped itself with public washrooms. They were built in places close to natural sources and accessible by users. Some had shallow tubs and women had to kneel to wash. In this case the women used the "briela", a sort of wooden kneeler that allowed isolation from the floor. Others had higher tanks and washing operations could be carried out while standing". (Elena Poletti Ecclesia)

After making caferul observations and measurements on people actually doing laundry, and even trying the position myself, I designed a simple arrangment of a shallow pit with bricks walls and floor, plastered with cement, a circular stand in the center to carry the tesht, a seat conveniently close to the stand, and a trough in one corner.

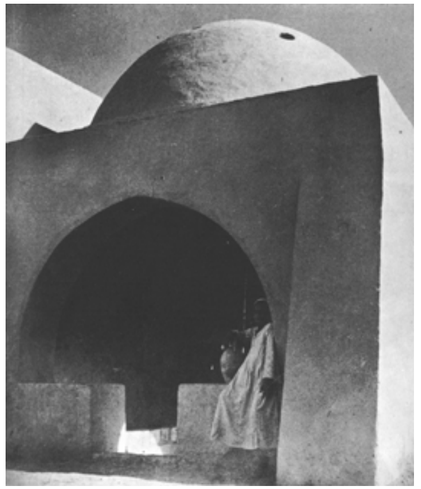
Hassan Fathy (1973, p.101)







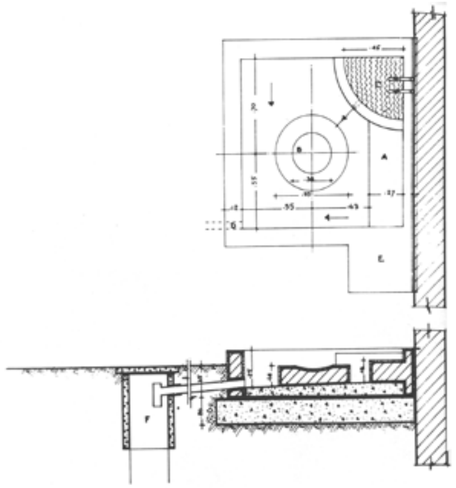




# NEW GOURNA

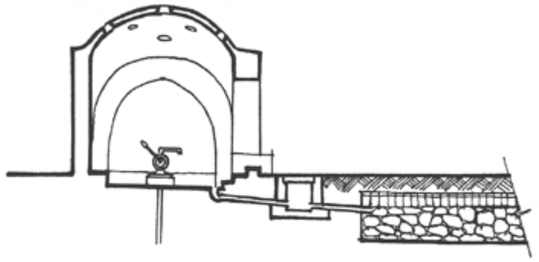
Hassan Fathy recognizes that man and its tools are in a constant state of becoming, and to design a settlement means to trace these evolutions and to draw trajectories for the future. He believes that a great deal of the role of the architects lies in the observation of common practices. His critical studies on the peasant's way of life informed every decision he took in his project for New Gourna.
He observed that often in rural areas or in poor city quarters water supplies and wells are surrounded by vast muddy ground which results in unhealty proliferation of bacteria. Therefore, after careful analysis of the activities related to water supplies he designs a simple, yet beautiful, place to accomodate those in a cleaner environment.
Moreover, due to the new characteristics of the design several other activities begun to take place in those. The laundry pit became a bathroom. People could wash their babies in it and later on, when the design was expanded, adults could shower there with hot water. As a result, by transforming the tool, Fathy transformed the practice in a natural way.

The great advantage of these pits was that, like the one round the public pumps, they prevented the waste water from running all over the place or being tipped out into the courtyard or the street. While not upsetting the local laundering customs, they made the process neater and drier. (ivi)

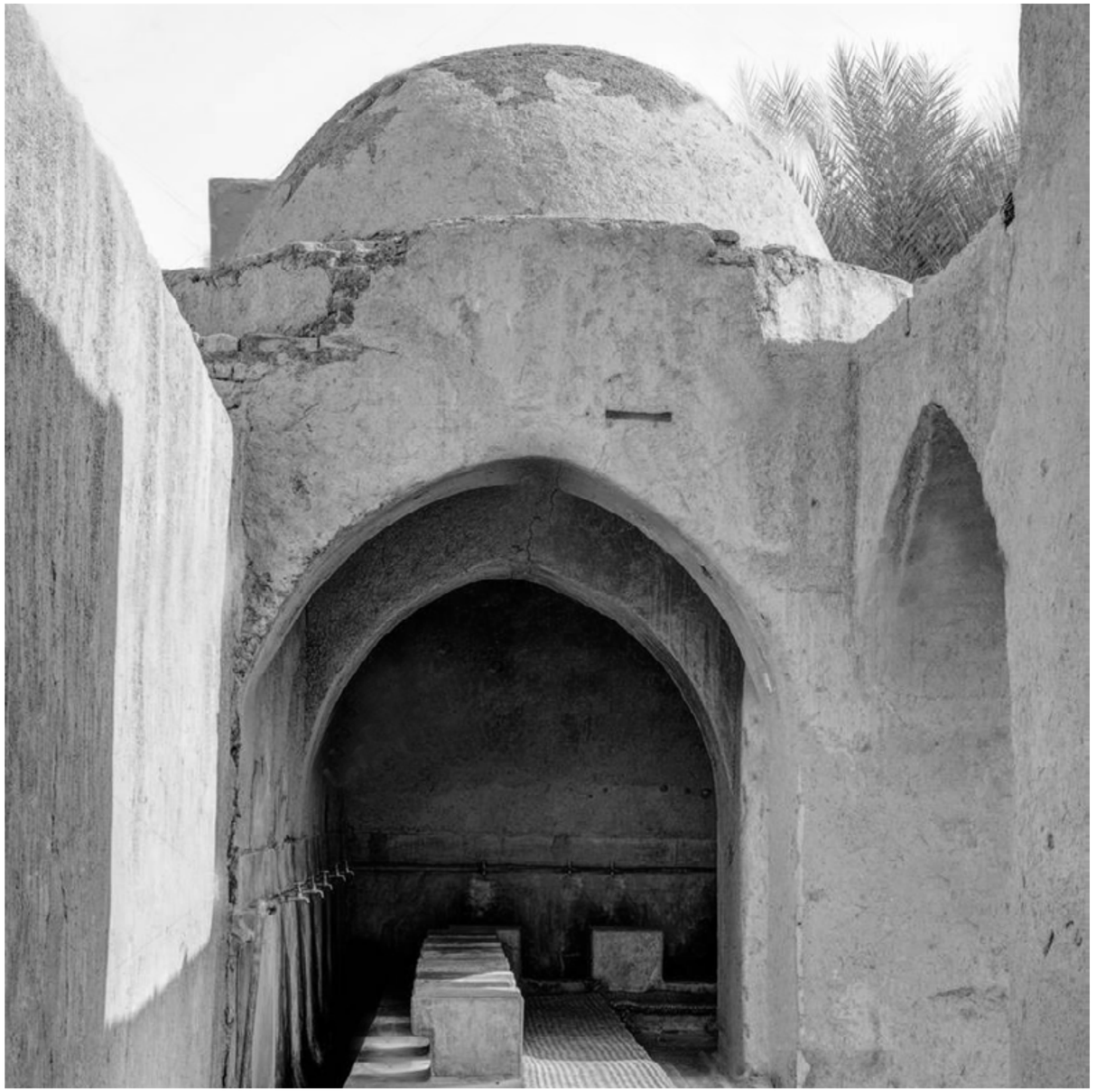














crouching + river



sitting + basin



standing + barrel





Picture by Author







# LAVATORY AS SPACE IN THE HOUSEHOLD

In her writing, Christine Frederick explains how water can be divided into two categories, depending on the amount of lime and magnesium salts it contains. "Rainwater is best for laundry work: it is "soft" because it will quickly form a good lather with common forms of soap". She continues by asserting that: "washing should be done in a room separate from the kitchen whenever possbile. This is for sanitary reasons, and also because nothing causes more confusion than to try and wash in the kitchen while carrying on the work of meal preparation three times a day. There is much to be said in favor of having the laundry situated on the first floor with sunny exposure (...)".

Again, even if this statements are formulated in the context of a 19th century Western society, they are still closely related to the nature of the activity itself.

The idea could be to transform such a space into a proper public one, which could activate the space in front of the compound, and also smooth the topographical difference between two compounds.









# COFFEE CEREMONY



*"I am a hard-working woman. God, wherever you are, help me! I only need 3,000 ETB to pay for and start a small business. People like coffee. I will sell it to my cuostomers and sit with them and chat. We will live like that. I will work from 4:30 am until 10 at night. My son will study. We will make ends meet. Some days we go to sleep without eating. I don't know how we will managae to sleep when we have no bed!"*

**Akelu***



# THE CEREMONY

A Ethiopian might argue that the coffee ceremony is one of the most important moments of the day. It is something that brings great pride to the person who is carrying it out, and it creates a moment of pause in the frenetic pace of everyday life. Usually, it is a woman who performs the ritual, even thought the activity is not strictly bound to gender.

According to Yoseph Metasebia, "the space of coffee drinking is not only for quenching thirst. It is a space of blessing where people pray for peace and affluence of the household and the whole society, as well as where people conduct various rites de passage. It is also a space of gathering where people of all social categories participate, and talk together about private to public topics". In fact, the preparation process is an opportunity for dialogue and interaction with the rest of the community that might sit around the stove and incense. It is also something that, as a ceremonial practive, we might struggle to fully understand. According to Metasebia "Coffee's role as an agent of social cohesion and fraternity, maybe hard to envision in the current Western understanding of the coffee shop, a far cry from its origins in Ethiopia".

It is an activity that unites all, even children take a full cup of Ethiopian coffee before going to school! The general atmosphere might be described as hallowed: the dialogue is kept at a very respectful tone of voice, especially if an elder member is present.



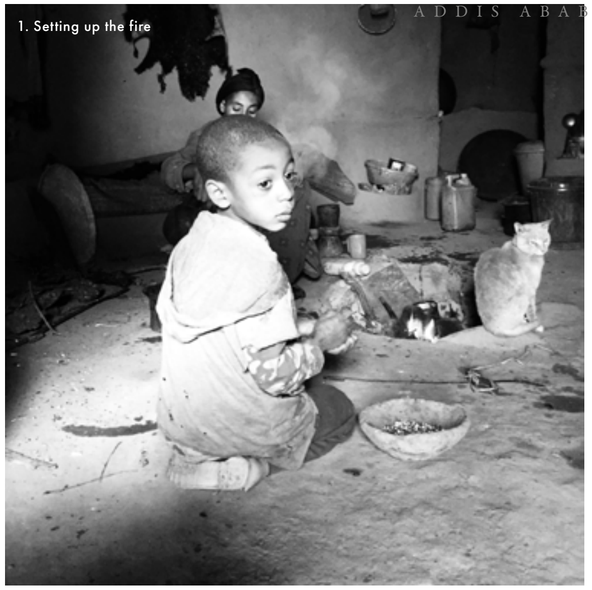




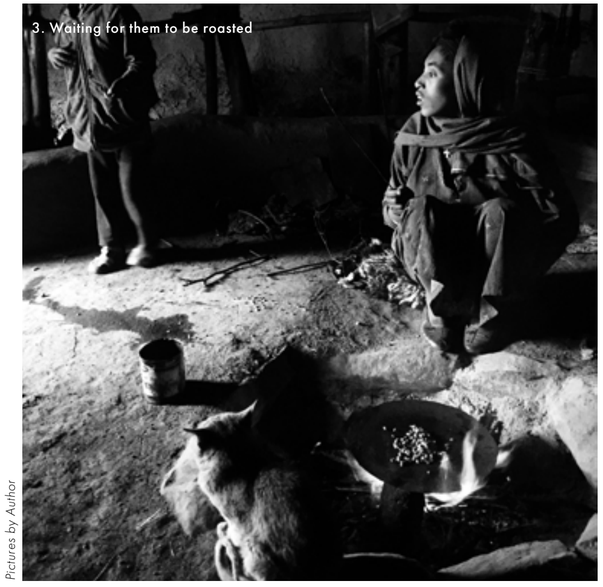




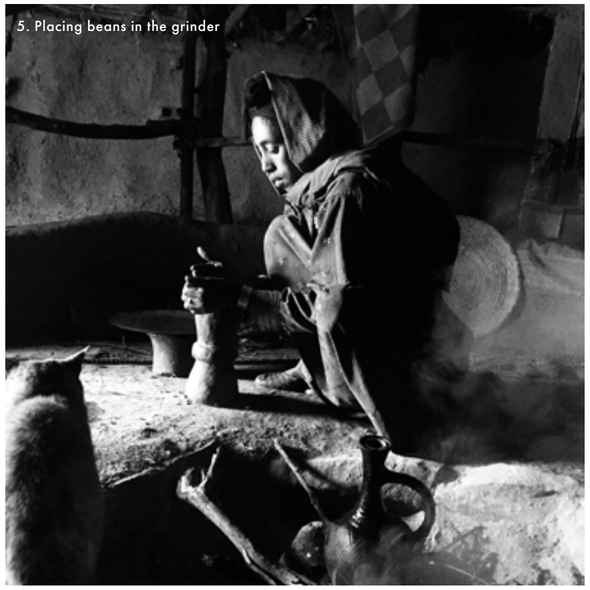
100 cm


1. Setting up the fire

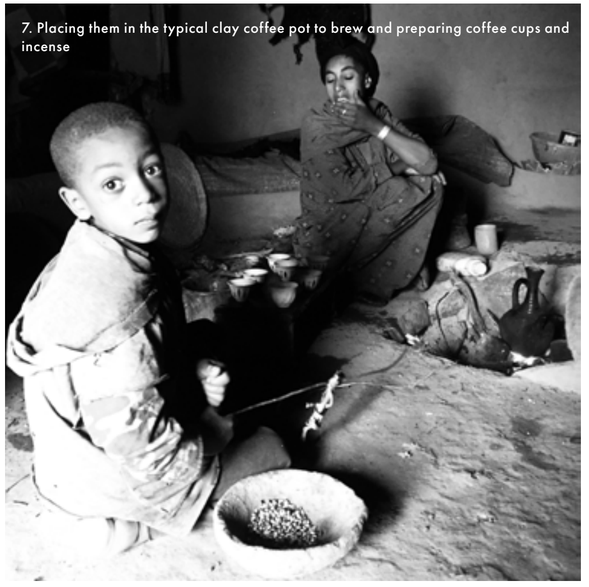

2. Placing coffee beans on the roasting plate

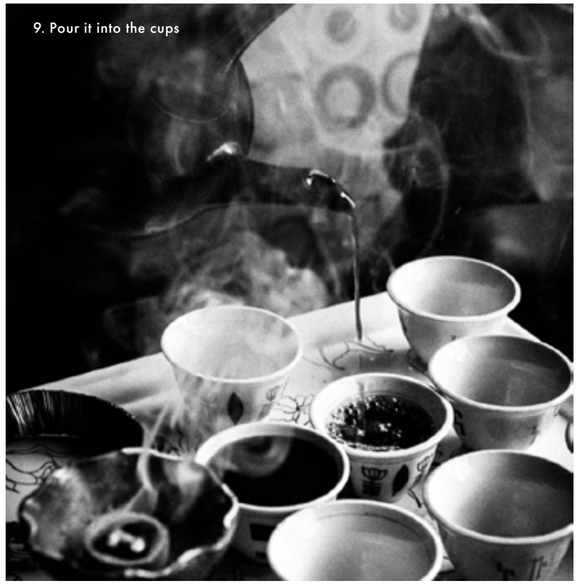

3. Waiting for them to be roasted


4. Heating up the water


5. Placing beans in the grinder


6. Grinding them properly


7. Placing them in the typical clay coffee pot to brew and preparing coffee cups and incense


9. Pour it into the cups

*Pictures by Author*

# WHAT IS NEEDED FOR COFFE-MAKING?

- cinis (traditional style, diminutive coffee cups without handles)

- jebenna or jabanah (traditional coffee pot)

- stove

- water

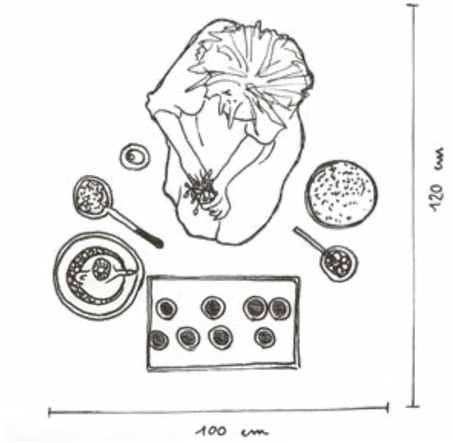
- mortar & pestle (for grinding coffee)

- qétéma (grass reeds or mat)

- ittan (incense)

- rak'boat (serving tray)

- berchuma (traditional style three legged wooden stool) or another type of stool



*Building Technology*

# MATERIALS AND TECHNIQUES



Chapter 5

# CURRENT STATE OF THE MARKET

**Currently, large construction companies who are heavily subsidized by the government to build western concrete frame/slab construction dominate low-cost government housing.**

Low-cost housing is expensive because of the cost of imported materials. Compared to the Western paradigms they copy, the only improvement has been the use of precast ribbed beams and prefabricated concrete floor elements again, both produced by heavily government subsidized programs, resulting in less concrete and simplified formwork. 'Low-cost' for Ethiopia is classified as less than 1000 ETB /m2 ( 75 USD/m2). At the end, the cost of the housing provided by the government as 'low-cost' still costs the buyer 2500-3500 ETB/m2 ( 185-260 USD/m2), and this after heavy subsidies on different levels. To summarize, these are the following reasons why concrete is neither a sustainable nor an appropriate building material:

1. **it is imported**. According to architect Rahel Shawl, "Sustainability also means to make construction more Ethiopian in terms of material: not transporting materials from all over the world"

2. Therefore, **it creates dependance on China**. When China finances roads, railways, and hydropower dams, he says, it stipulates that Chinese construction companies build them with Chinese concrete and steel, according to The Guardian. China's credit line to Africa has provoked criticism. Earlier this year, Rex Tillerson, then US Secretary of State, said that China's "predatory loan practices" in Africa "mire nations in debt and undercut their sovereignty, denying them their long-term, self-sustaining growth."

3. **it is expensive**. According to UN Habitat, "there is a pressing need for more cost efficient alternative materials, as teh current cost of construction materials is around 70%.

4. **It emulates foreign standards.** "Unfortunately, [...] people go to Dubai or to China where they see those and they say "I want that! I want the gold façade, I want the silver façade, etc." Rahel Shawl insists. None of the typical Ethiopian characteristics in terms of the organization of space or building materials are currenlty being pursued.

4. **Addis Ababa evidently lacks alternatives** in terms of building materials. The reasons for that are multi-faceted: forbidden natural building materials in Addis Ababa, a very limited formal building material market, and a **bias towards traditional construction methods as backwards.** Through our Ethiopian sources, we further discovered how limited budget, abilities, and knowledge further impede the implementation of sustainable building in contemporary Ethiopia.

This is not to say that concrete has to be completely discarded as an option, but that proposing alternative building materials would be necessary to promote a sustainable and healthy economic growth in the Ethiopian construction industry. "Innovative solutions are necessary to address these pressing issues in a sustainable manner(...). While the urgency for action might be extreme in Ethiopia, its socio economic conditions are nevertheless comparable to other parts of Africa", according to Block et al. in *Tile vaulted systems for low-cost construction in Africa.*

Often, concrete accounts for 70% of the total construction cost





*Picture by Author*

# EARTH AS SHELTERING MATERIAL

Contrary to concrete, earth ha many many advantages. It has high thermal mass is very energy-efficient in both summer and winter, and ideal for passive solar heating and cooling.
It is completely environmentally friendly, with its low carbon footprint and embodied energy. Even more importantly, it can be locally extracted. But it is also an ideal material for owner builders and unskilled labour. "The simple spans of around 3/4 m could be learned by ordinary people and, of course, larger spans can be built by master masons" (Khalili). The idea of creating workshops where loca people from Talian could be taught how to make mudbricks and build with them sounds feasible, according to the analysis of project undertaken by architects such as Fathy and Khalili.

On the other side, earth construction also presents many problems. it is wuite hard for a dense project to make it sound structurally, unless there are massive walls (in the case of adobe bricks) or high quality machinery in the case of rammed earth, for instance.

This is why it could be a great material for the infill of the single units, as it creates gret conditions for tehrmal comfort, for instance.







*Picture by Author*





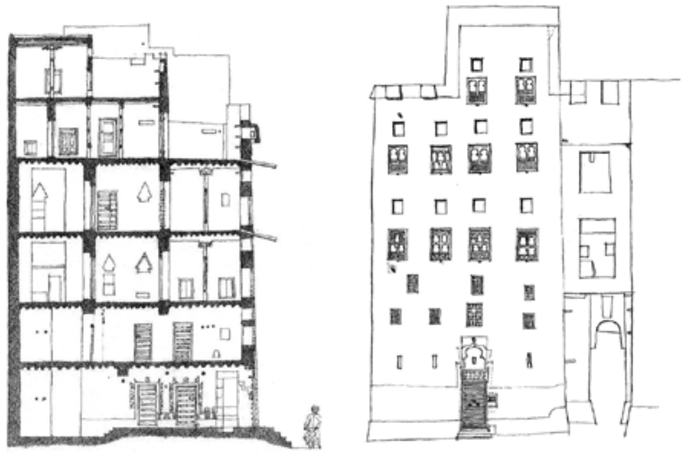






Hassan Fathy recognizes that man and its tools are in a constant state of becoming, and to design a settlement means to trace these evolutions and to draw trajectories for the future. He believes that a great deal of the role of the architects lies in the observation of common practices. His critical studies on the peasant's way of life informed every decision he took in his project for New Gourna.
He observed that often in rural areas or in poor city quarters water supplies and wells are surrounded by vast muddy ground which results in unhealty proliferation of bacteria. Therefore, after careful analysis of the activities related to water supplies he designs a simple, yet beautiful, place to accomodate those in a cleaner environment.
Moreover, due to the new characteristics of the design several other activities begun to take place in those. The laundry pit became a bathroom. People could wash their babies in it and later on, when the design was expanded, adults could shower there with hot water. As a result, by transforming the tool, Fathy transformed the practice in a natural way.

The great advantage of these pits was that, like the one round the public pumps, they prevented the waste water from running all over the place or being tipped out into the courtyard or the street. While not upsetting the local laundering customs, they made the process neater and drier.



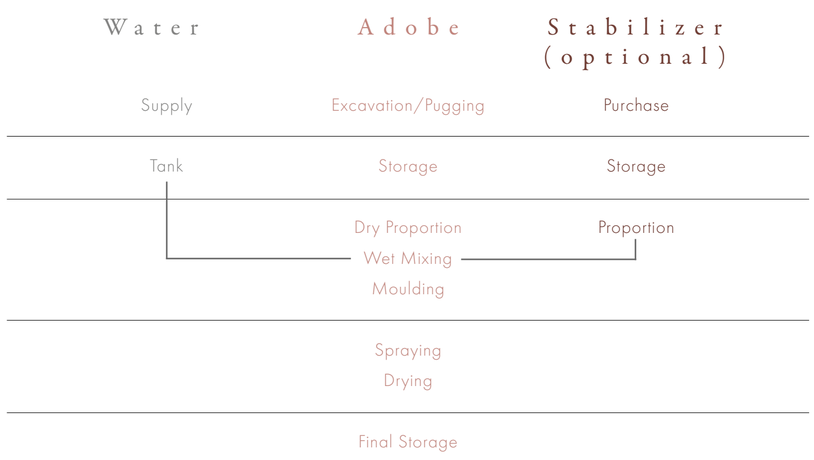






# ADOBE BRICKS PRODUCTION

Mud-bricks (or Adobe) or are one of the simplest building materials that can be used for a project. They have been widely used historically world-wide. In contrast to both Rammed Earth and Compressed blocks. mud-bricks are malleable but way more fragile. In addition, they need a very extensive production area, since they have to be dried individually. An advantage of using them is that they can be shaped in any form. they only have one fundamental limitation: unless it is done mechanically, they require pleasant weather to dry. If produced mechanically, 20.000 units a day can be made for $300,000, on average. If produced manually, only 500 units can be made every day.





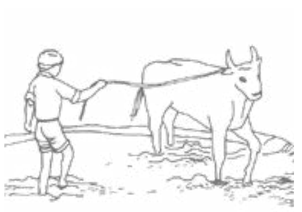

Mechanical

Manual

## Pugging

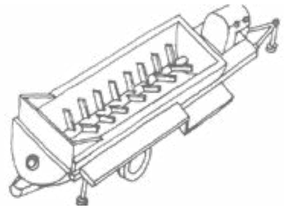
Before excavating the earth, a long pugging operation has to be undertaken. Animals can be used, such as donkeys, cows, and horses. Otherwise, these operations can be done by appriopriate machinery.





## Mixing

The type of mixer required to produce mud-bricks varies according to the budget of construction. There are rendering, linear, concrete, screw and planet wheel mixers.

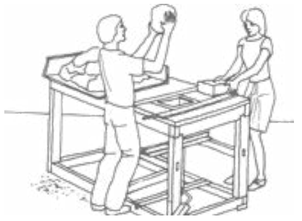




## Moulding

Safety is a fundamental problem in the phase of setting up formwork. The use and cost of formwork material can change according to the strategies used. For example, does the formwork have to be static?

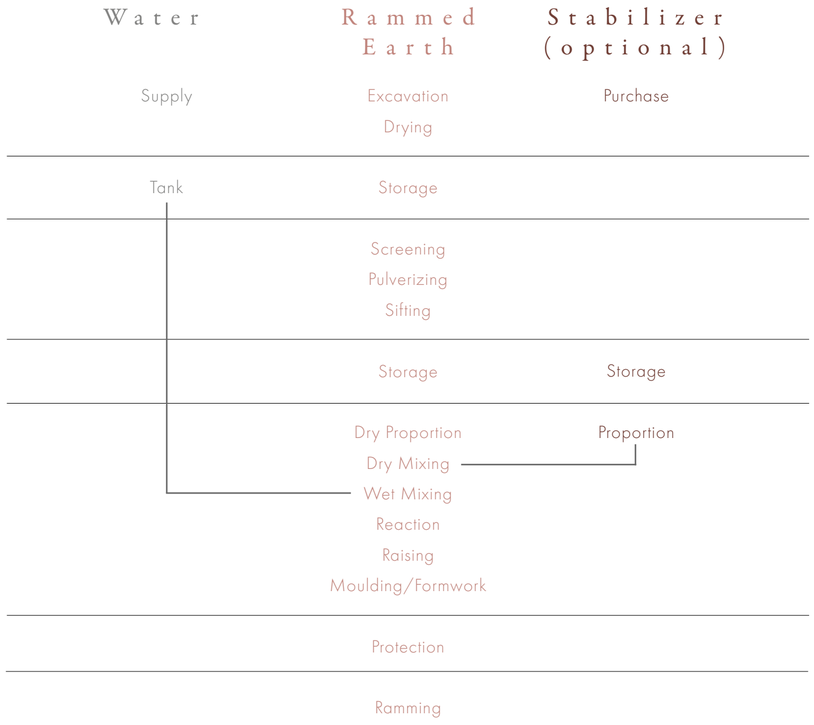




# RAMMED EARTH PRODUCTION

Before beginning to analyze the production processes of Rammed Earth there are two notes to bear in mind:
1. Usually whoever produces rammed earth is the same that builds.
2. Stabilization creates some problems and has to be done with a high degree of organization of a professional crew.

Below, I have summarized the steps for the production of this material. On the opposite page, there is a thorough explenation of the most delicate and cost-determining steps, since they can be done both manually and mechanically. The choice of which technique to use is important for the budget.






Mechanical

Manual

## Excavation

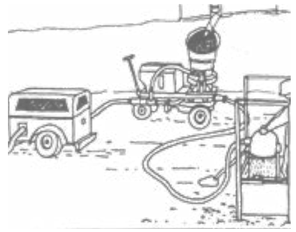
The first phase of the production process, which includes excavation, screening and drying, can either be done manually or mechanically. This will create substantial change in the budget of the project.





## Transport

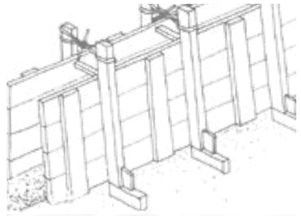
In this phase, the use of appropriate machinery is necessary and fundamental. One of the major problems to be faced is the transport of the pulverized material (if it is not already processed on site).

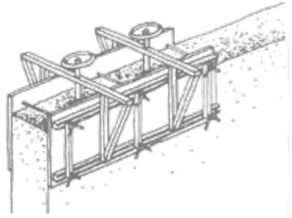




## Formwork

Safety is a fundamental problem in the phase of setting up formwork. The use and cost of formwork material can change according to the strategies used. For example, does the formwork have to be static?

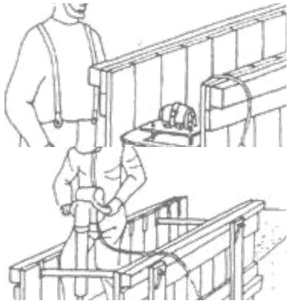




## Ramming

The diversity in design of the tools that can be used for ramming is great. Ramming is a slow and tedious task, and can be done both with wooden or steel manual rammers. The recommended weight of a manual rammer goes between 5 and 9 kg. Otherwise, the cost of a mechanical ramming machine varies on average from $1500 to $3500. There are mainly two types of mechanical rammers, pneumatic or vibration. Pneumatic rammers imititate manual ones but with much higher frequency. The quality of earth they create is excellent. Vibration rammers, on the other hand, require much more space and are difficult to use, which is way they are rarely utilized.





# CEB PRODUCTION

The table below applies to artisanal brickyards with a daily capacity of 10 tonnes of blocks and approximately 25 workers, for the production of 300 units. The amount of blocks that can be produced every day, however, strictly depends on such conditions. In fact, a proper plant can produce up to 60,000 u/d. There are virtually infinite types of compressed blocks: solid, hollow, interlocking, anti-seismic, customized, eperforated etc. An advantage of these blocks compared to Rammed Earth is that they can be pre-fabricated and are not site-specific, but for the rest, they very similar characteristics.

| Water | Block | Stabilizer (optional) |
|---|---|---|
| Supply | Pounding/Excavation | Purchase |
| | Drying | |
| Tank | Storage | |
| | Pulverizing | |
| | Sifting | |
| | Storage | Storage |
| | Dry Proportion | Proportion |
| | Dry Mixing | |
| | Wet Mixing | |
| | Reaction | |
| | Trituration | |
| | Moulding | |
| | Curing | |
| | Spraying | |



# TYPES OF MECHANICAL PRESSES

## Cinva Ram

The advantage of Cinva-Ram type presses are that they are light, sturdy, low cost, and simple to manufacture and repair. Their main disadvantages are that they can wear out quickly.



### Output

The average output of a Cinva-Ram or similar press is 300 blocks/day, though this can be increased to 1200 blocks/day.

## Brepak

The Brepak is a small press which is considerably more productive than the Cinva-Ram. Pressures of up to 10MN/m2 can be achieved by replacing the swivel and rod system of the Cinva-Ram with a hydraulic piston. The resulting blocks have identical dimensions to those made using the Cinva-Ram but are approximately 20% denser.

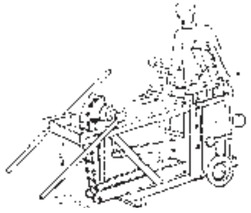


### Output

Similar to Cinva Ram

## Terstaram

These presses are sturdy and do not wear out easily. They can produce pressures greater than the minimum threshold of 2MN/m2. They are easy to use and maintain and have interchangeable moulds.



### Output

This press produces 90 bricks per hour per cycle and requires 5-7 men to complete the process of production (incl. excavation and mixing)

# ADOBE BRICKS

ADVANTAGES

• High thermal mass is very energy-efficient in both summer and winter
• Environmentally friendly: Low carbon footprint and embodied energy
• Local material
• Ideal material for owner builders and unskilled labour. "The simple spans of around 3/4 m could be learned by ordinary people and, of course, larger spans can be built by master masons" (Khalili).
• Relatively inexpensive for a long lasting building. "It is of great value to almost all Third World countries, because of the availability of cheap and relatively unskilled labour. But this applies only if the whole process is done by hand and with traditional methods" (Khalili).
• Lends itself to creative and free-form walls
• Rondavel (round) type Adobe buildings are capable of withstanding seismic activity
• Fireproof
• Excellent sound insulation
• Can easily be built up to 3/4 stories without ring beams
• Straw can reinforce it and help with insulation and repelling water
• Can be recycled
• Short construction time
• No imported material required
• No long-distance transport needed

• Simpler production method than any other material

DISADVANTAGES
• Fairly labour intensive
• Adobe cannot be laid during very wet or freezing weather
• Insects, notably termites and small rodents can burrow into the walls weakening them. The use of dung in the mud mix, and lime plaster can negate this problem
• Needs ring beam for extra support
• Needs large area for drying units

# RAMMED EARTH

ADVANTAGES

• Low carbon footprint and embodied energy
• The thermal mass is ideal for passive solar heating and cooling
• Rammed earth walls are extremely strong
• Excellent sound insulation
• Fire proof
• Insects and rodents are not a problem
• Does not need to be plastered
• Can withstand seismic activity providing it has a concrete ring beam
• "Promising for industrial countries, where labour is expensive and equipment relatively inexpensive" (Khalili)
• No imported material required
• No long-distance transport needed (if the soil is extracted on-site or close by)

DISADVANTAGES

• Rammed earth walls are very labour intensive.
• Building the walls is a slow and precise process.
• The formwork adds considerable cost.
• The walls cannot be built during wet or freezing weather
• Difficult to recycle
• Very expensive



# COMPRESSED EARTH BLOCKS

ADVANTAGES

• High thermal mass is very energy-efficient in both summer and winter, and ideal for passive solar heating and cooling. Indoor temperatures vary only about 5 degrees between summer and winter (17-22 degrees), making it naturally cool in summer and warm in winter.
• Environmentally friendly: Low carbon footprint and embodied energy
• Local material
• Ideal material for owner builders and unskilled labour. "The simple spans of around 3/4 m could be learned by ordinary people and, of course, larger spans can be built by master masons" (Khalili).
• Relatively inexpensive for a long lasting building. "It is of great value to almost all Third World countries, because of the availability of cheap and relatively unskilled labour. But this applies only if the whole process is done by hand and with traditional methods" (Khalili).
• Lends itself to creative and free-form walls
• Fireproof
• Excellent sound insulation
• Can easily be built up to 6/7 stories
• Can be pre-fabricated
• Reduced sensitivity to water
• Absoprtion of higher compression strenght then adobe bricks
• No imported material required
• No long-distance transport needed

DISADVANTAGES

• Fairly labour intensive
• Required skilled labour
• Heavier blocks than adobe, but this could be solved by designing the shape of the brick
• The walls cannot be built during wet or freezing weather

# CONCLUSION

Due to the analysis mentioned above, the decision of verging towards Compressed Earth Blocks came naturally. They have all of the advantages of adobe bricks, but are more resistant (especially if stabilized with cement) and can allow for higher constructions. The next step is to understand how vaulted brick constructions work.

# CEB PROPERTIES

According to Doctor E.A. Adam in "Compressed Stabilised Earth Block Manufacture in Sudan", to extend the use of compressed stablised earth building blocks to all types of housing, production techniques need to be further improved so as to achieve better quality and reduce production costs. This can be achieved by considering:

- optimal proportions between soil and stabiliser
- produce blocks that are dense and strong
- block surfaces and edges need to be smooth and regular

| | Fired bricks | Stabilized CEBs | Concrete blocks |
|---|---|---|---|
| *Wet Compressive strenght (MN/sqm)* | 5-60 | 1-40 | 7-50 |
| *Moisture Movement (%)* | 0.00-0.02 | 0.02-0.2 | 0.02-0.05 |
| *Density (kg/ cubic m)* | 1400-2400 | 1700-2200 | 1700-2200 |
| *Thermal Conductivity (W/mC)* | 0.70-1.30 | 0.81-1.04 | 1.00-1.70 |
| *Durability against rain* | excellent to very poor | good to very poor | good to poor |



# CEB MANUFACTURE

Doctor E.A. Adam continues by asserting that "the potential scale for compressed stabilised earth block production depends on the degree of mechanisation of the manufacturing process used. Manually operated equipment may produce a few hundred units a day, while mechanised equipment has the capacity to produce several thousand units per day.

| Type of production | CEBs/ day | Time |
|---|---|---|
| MANUAL | up to 400 | 1 week |
| MECHANICAL | 400 to 4000 | 1 day to 1 week |

# STABILIZATION

The behaviour of CEBs change depending on the properties of the soil they are made with. The lack of such knowledge for this graduation project means that there is a need to account for stabilization in order to make the proposal of such material feasible. In fact, stabilizing the blocks with 5% cement will achieve the following goals:

- strength and cohesion of the soil will increase and permeability of the soil will be reduced
- the soil will be made water repellent
- the durability of the soil will increase
- the soil will shrink and expand less in dry and wet conditions

# CREATION OF EMPLOYMENT OPPORTUNITIES

"The creation of productive employment is one of the most important aims of national development plans in developing countries. Hence, technologies which need more labour per unit of output than other technologies are preferable, providing that labour is used in an efficient and economical way. Experience has shown that in general, the small scale production of compressed stabilised earth blocks is much more labour intensive than that of other similar building materials such as fired clay bricks or concrete blocks (...) **Thus, the manufacture of compressed stablised earth blocks could create a great deal of both direct and indirect employment, more so than for other building materials.**

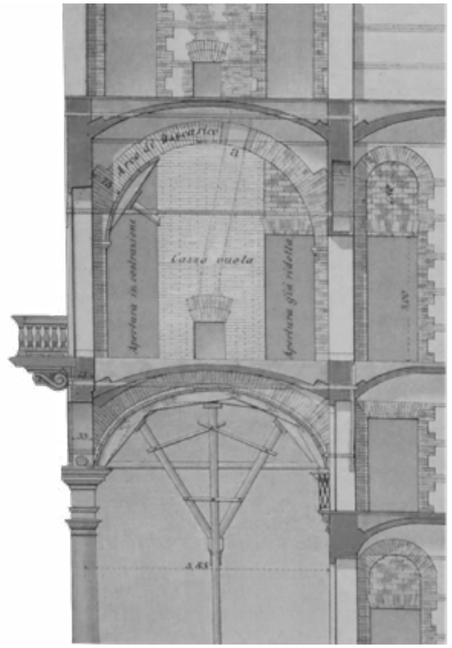
The Al Haj Yousif experimental prototype school, constructed in compressed stabilised earth blocks, was found to be very cost effective by Sudanese standards. **The total savings made, in cost per square metre, were approximately 40%.** Similar findings were also reported in Kenya where the average unit cost of compressed stabilised earth blocks is approximately 20% to 70% that of concrete blocks, depending on the method of production followed". (Compressed Stabilised Earth Block Manufacture in Sudan).

The data below is taken from Hassan Fathy's direct experience in New Gourna. The number refers to the assembly of a single-storey house.

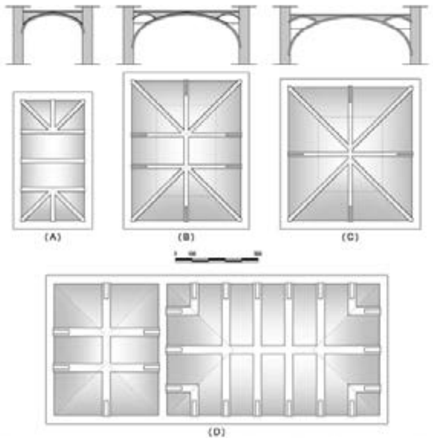
| Labor | Number | Expertise |
|---|---|---|
| MASON | 2 | Highly Skilled |
| WORKMAN | 2 | Skilled - Unskilled |
| HELPER | 2 | Unskilled |
| TRAINEE | 1 | Unskilled |

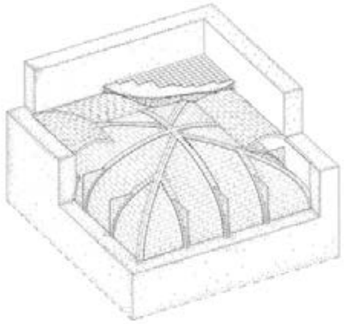


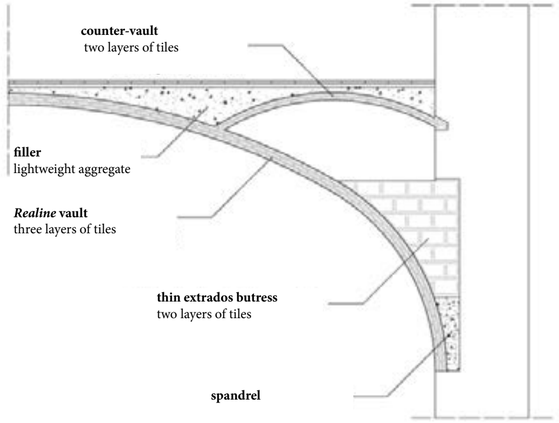
# HOW DO VAULTS WORK?




*Drawing by Musso and Capperi*



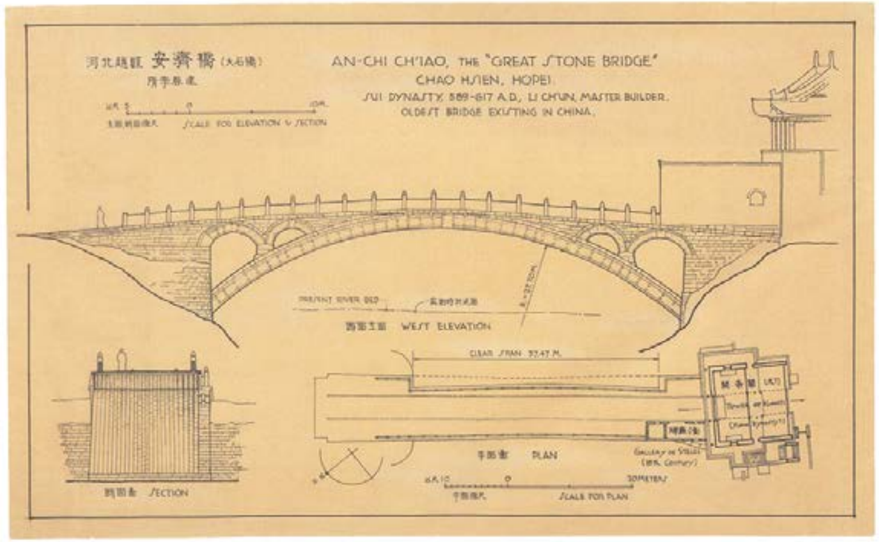





Villa of Prince Villarosa in Bagheria, Palermo, 1790 ca., architect Marvuglia. On the left: The void under a counter-vault and a thin butress. On the right: Exposed tile vault during restoration, diagonal strips, weight-reducing counter-vaults and thin buttresses.

*Drawings and photographs by Giovanni Fatta et al.*


Verona - Ponte della Pietra


AN-CHI CH'IAO, THE "GREAT STONE BRIDGE."
CHAO HSIEN, HOPEI.
SUI DYNASTY, 589-617 A.D., LI CH'UN, MASTER BUILDER.
OLDEST BRIDGE EXISTING IN CHINA.
SCALE FOR ELEVATION & SECTION
PRESENT RIVER BED
WEST ELEVATION
CLEAR SPAN 37.47 M.
PLAN
SECTION
SCALE FOR PLAN

# THE VIKAS SETTLEMENT
## A precedent built with CEBs



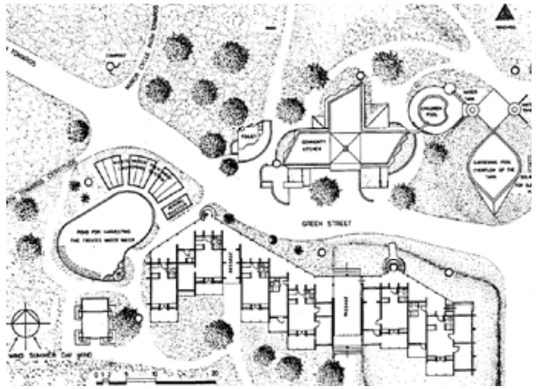
# WHAT DOES SUSTAINABLE MEAN?

The Vikas Settlement is a project by Satprem Maïni in Auroville, South India.

The idea behind it is to create a collective sustainable project for a community of an initial count of 500 people. The number was not limited by a pre-established budget or strict building restrictions, but merely for social reasons: according to the commissioners, "it seemed to be the maximum number that could allow a more complete and fraternal life and exchange to happen". The aim was to create housing for all members of the Vikas community and a series of shared facilities (such as a kindergarten, a school, a library, a laundry, a multi-purpose hall etc.) in an appropriately eco-friendly and resilient way.

**This means that the building materials constitute maybe the most important aspect of the project, as they have been carefully selected with the aim of being both sustainable from an environmental point of view, as well as being functional, efficient and long-lasting.**

The project was undertaken in three distinct phases: the first in 1992 with four apartment blocks and a collective kitchen built within a year from the beginning of construction, the second in 1996 with the construction of 6 apartment blocks also finished within a year of construction, and the third which started in 1997 and ended in 1999 with 13 apartment blocks and a couple of individual houses. The whole process followed two main principles: the fact that both the building and maintenance was funded by the community, with every member participating in proportion to their means, and that the building process was thought of with the participation of the members who were willing to help.



*Layout for the First Phase, 1448 sqm carpet area for 50 dwellers + collective kitchen to the top right*





*Pictures and drawings by Satprem Maini*

# COMBINING BUILDING MATERIALS

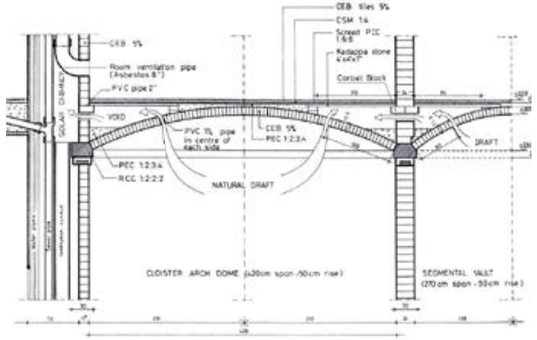
As mentioned earlier, if a building does not last long enough, or if it does not match the aspirations and needs of its dwellers, even if it is made of fully recyclable and locally extracted materials, it cannot be defined as sustainable.

**This is the reason why we here witness the combination of Earth and Ferro-cement.**

The Earth-based category of materials comprises of: CEB with 5% cement (which greatly reduces CO2 emissions and consumes up to 15% less energy than fired bricks), stabilized rammed earth for foundations with 5% cement, and paints and plasters made of stabilized earth. In conjunction with the latter, the ferro-cement components are: 25mm channels for some floors and roofs, 12mm lost shuttering for the few reinforced concrete components, and waterproof plasters for the water tank.

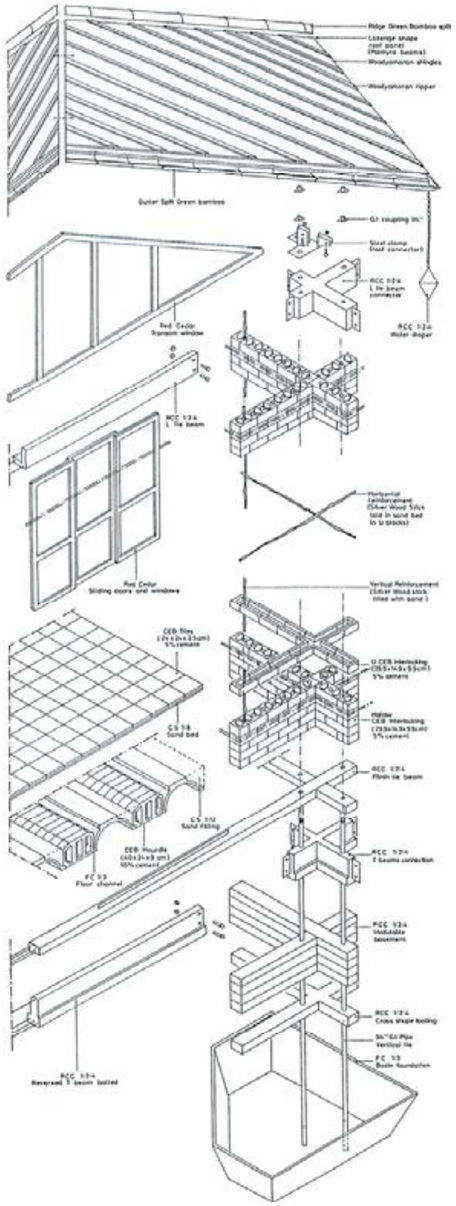
It is extremely important to mention that all of the listed elements are designed to be easily produced by semi-skilled labor, in light of a training workshop (you can observe excerpts of the building process in the pictures to the right).

The structure is entirely load bearing and the walls are 24cm thick from the plinth level to the parapet wall, and goes up to four storeys.




*Construction detail of a CEB vault with ferro-cement supporting beam for a span of 426 cm*








*Pictures and drawings by Satprem Maini*









*Pictures and drawings by Satprem Maini*

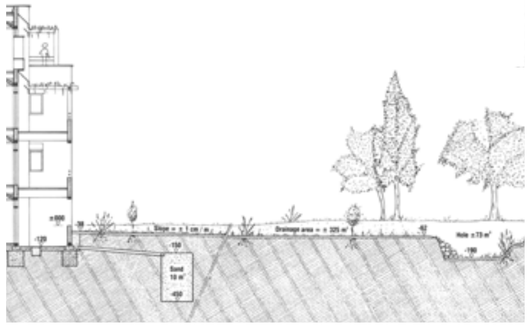
# ENERGY-RELATED DESIGN DECISIONS

The energy-related principles that guided this project focused on three main ideas:

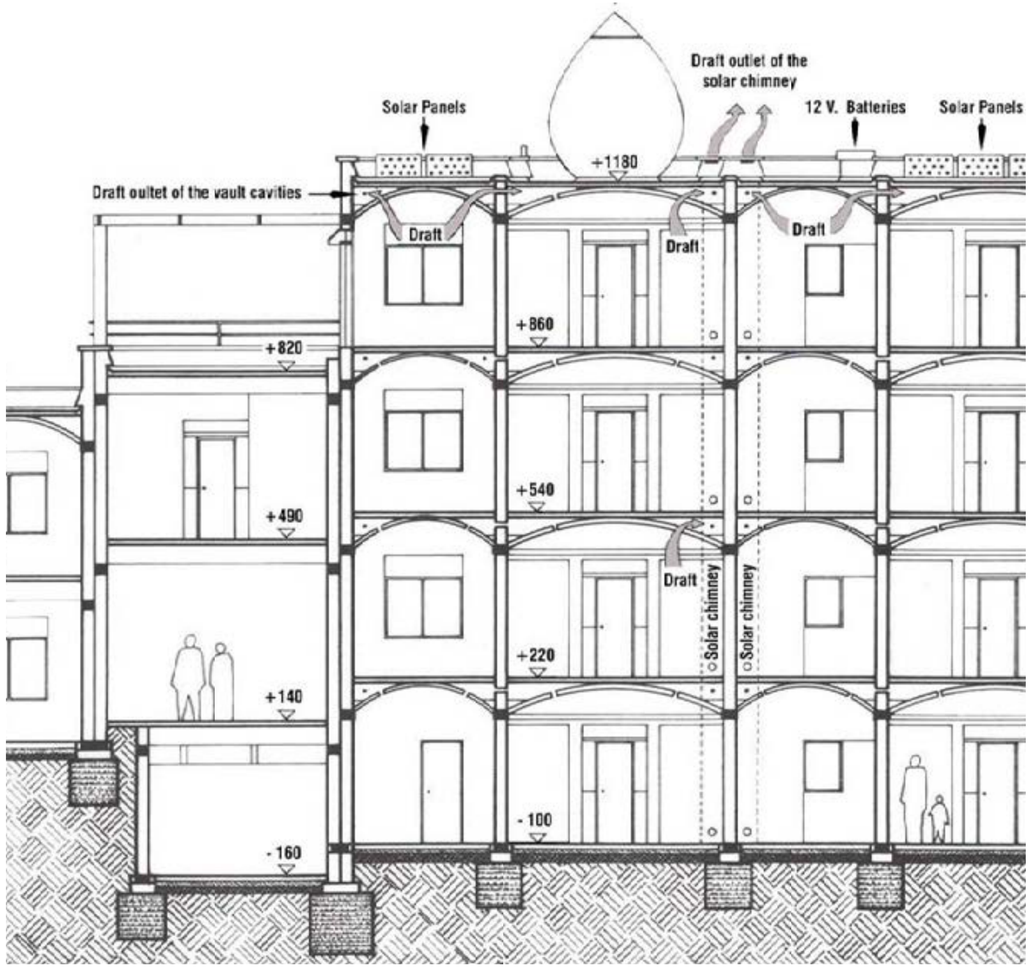
1. renewable energy sources
This means the implementation of PV panels, a solar water heater, and solar pumps. However, prior to that it is fundamental to take advantage of passive design strategies such as: proper building orientation, sun shading devices, cross-ventilation, a solar chimney, and thermal mass by the use of CEBs. One of the results of such environmental decisions was, for example, the much-desired complete lack of fans and air conditioners.

2. a method of rainwater harvesting and management
This has been done through landscaping the site in such a way that there is zero run off in Monsoon season, and by the creation of reservoirs and a biological wastewater treatment. The latter is a process through which dirty water is recycled in 8 days and is available for watering plants.

3. a thorough calculation of how much soil was needed in order to produce all of the earth building components
In fact, while for the first two phases the extracted water for the creation of the pond and garden tank were enough, this was not the case for the third and last batch of construction. These buildings were built with a basement which goes 1.2m under the ground, as the result of the need of excavating a greater amount of material. The amount of soil generated by the basement was enough to build 819 sqm, carpet area, on 4 floors.



*To the left: Landscape section for the design of a water recyling system*
*To the right: Detailed section showing the underground basement level and the water tank reservoir*




Pictures and drawings by Satprem Maini

# SETTING UP A WORKSHOP

The point behind building with compressed earth blocks, other than all of the already mentioned advantages, is that it is a very easy material with which regular people can learn to build. However, understanding how to teach unskilled locals a construction technicque means organizing a series of workshops before starting to build the project. In order to understand how to do so, I have started following the instruction of Nader Khalili's building workshops, during which he teaches even kids how to construct a vault.







Picture by Author



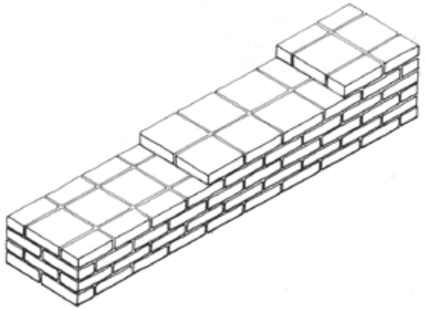


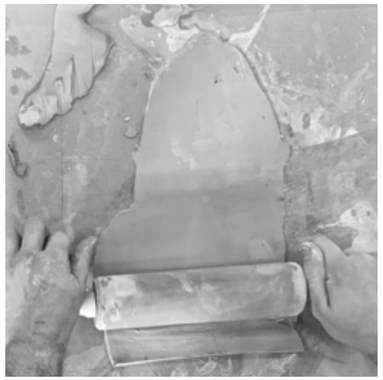






Pictures by Nader Khalili

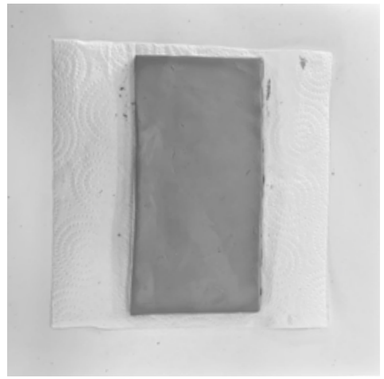














Pictures by Author



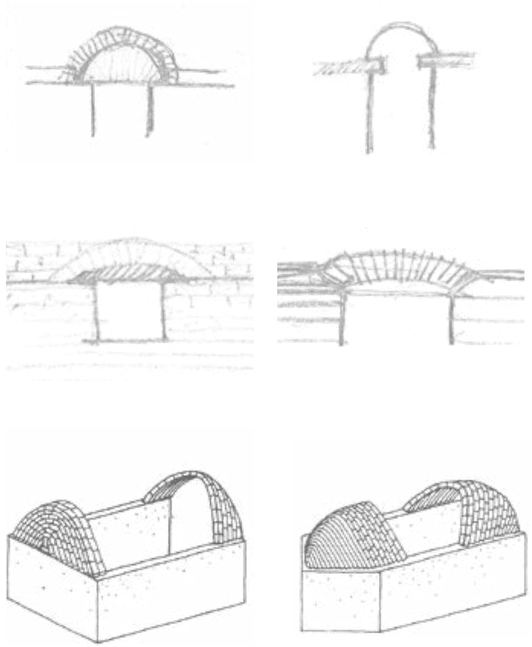




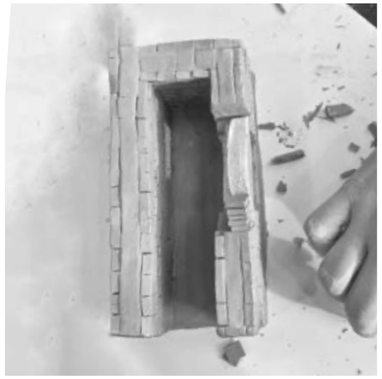


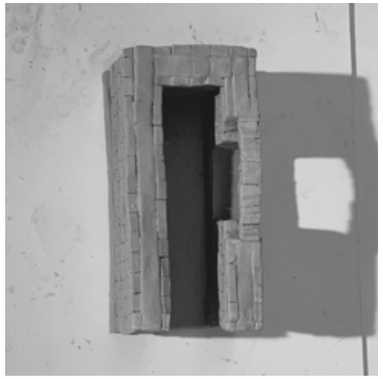


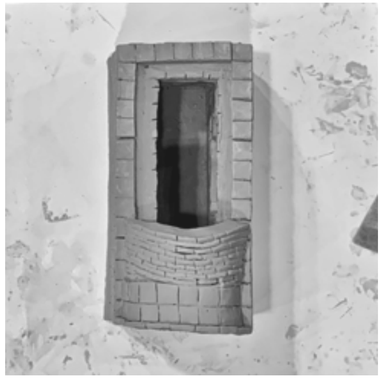
Pictures by Nader Khalili













Pictures by Author

# TIMBER


Cliché Vérascope Richard ABYSSINIE - Avenue d'Eucalyptus (Consulat de France, Addis-Abbaba)





# PROTECTING EARTH WITH WOOD

Eucalyptus represents one of the greatest sources for timber production in East Africa. Ethiopia is one of the pioneer countries that introduced Eucalyptus in Africa for socio- economic reasons. Indeed, the fast-growth and adaptability of the species represented a significant potential for fuelwood, construction material, etc... Even though this tree proved to be a great resource for the fast urbanization of Ethiopia and has improved people's living conditions, Eucalyptus forests raised questions regarding their effects on the environment. The main arguments against regard:

1. drainage of water resources
2. erosion of soil
3. depletion of soil nutrients
4. allopathic effects
5. inhibition of undergrowth vegetation

Even if these concerns are valid and the effect of the species on the environment needs to be seriously considered, there is "no reason for banning eucalyptus all together" (FAO 2011). It seems that many of these detrimental effects can be minimized and the benefits optimized with careful silvicultural practices. Indeed, it has been indicated that most of these concerns are related to poor managerial decisions and uncontrolled plantation of the species. However, the country is experiencing a "huge deficit (84,2 million m3) between the supply (about 10.6 million m3 ) and demand for wood (94,8 million m3)" (EFAP 1994). On the one hand, to satisfy this need the country has been importing large quantities of material. On the other hand, according to different scholars, there are numerous plantations and potential species whose industrial and commercial benefits are not yet fully realized (Demel Teketeye et al., 2010).

ADVANTAGES

• high quality timber

Several Eucalyptus species are indicated as suitable material for light and heavy construction, representing a great potential as a substitute for endangered species in Ethiopia.

• decreasement of deforestation

By being a fast-growing species, Eucalyptus provides an alternative local source to meet domestic and international demand.

improvement of rural economies

• Diversification of local communities income, increasing farming system productivity and self-sufficiency.

• resiliency

It requires minimum care.

DISADVANTAGES

• aggressive water consumption

There is no doubt about the large use of water and nutrients in Eucalyptus plantations, however, this is not only due to the aggressivity of the genus as much as with poor silvicultural practices.

land degradation and soil erosion

Eucalyptus trees deplete soil nutrients needed by agricultural crops, but depletion can be controlled by forest management techniques, including fertilization and regulated harvesting.

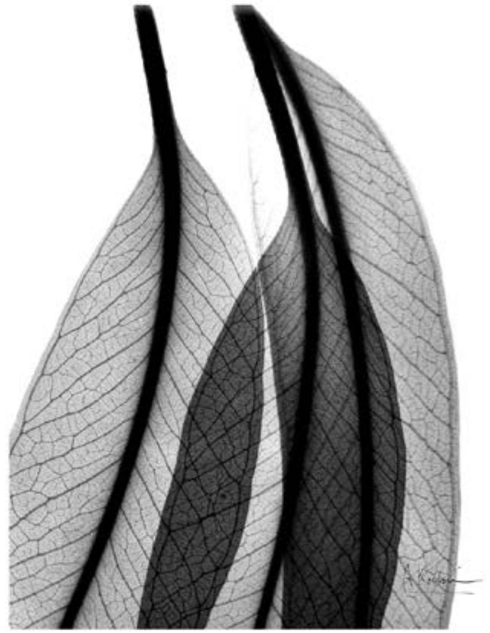
inhibiting undergrowth vegetation

Eucalyptus leaves have been reported to contain chemicals that inhibit the germination or growth of other plant species. In dry regions, the impact might be severe.

• threat for biodiversity

Studies indicate that single species Eucalyptus plantations have the potential to alter biodiversity. Nevertheless, it has been observed how intercropping it with other species might avoid the risk.

• land degradation and soil erosion
• inhibiting undergrowth vegetation
• fire -safety



https://commons.




floristic regions

*Ar: Arsi region; ba: Bale region; gg: Gamo Gofa region; Gj: Gojam region; Gd: Gonder region; Ha: Harerge region; il Ilubabior region; Kf: Kefa region; Su: Shewa region; sd Sidamo region; Tu Tigray region; WG Welega region; WU Welo region.*

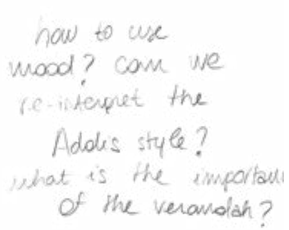


# SUITABLE SPECIES FOR HEAVY CONSTRUCTION

| Timber species | Distribution | Mechanical properties | | |
|---|---|---|---|---|
| | | *modulus of elasticity* | *compression* | *bending strenght* |
| **Eucalyptus camaldulensis** | GD HA KF SU TU (large-scale plantations) | *14177 N/mm²* | *71 N/mm²* | *131 N/mm²* |
| Eucalyptus fastigata | AR (trial plots) | *9872 N/mm²* | *53 N/mm²* | *102 N/mm²* |
| **Eucalyptus globulus** | (large-scale plantations) | *11655 N/mm²* | *52 N/mm²* | *124 N/mm²* |
| Eucalyptus grandis | AR HA KF SU (large scale plantations) | *10308 N/mm²* | *45 N/mm²* | *92 N/mm²* |
| Eucalyptus microcorys | AR, HA, SU (trial plots) | *17715 N/mm²* | *76 N/mm²* | *129 N/mm²* |
| Eucalyptus paniculata | AR, HA (trial plots) | *15453 N/mm²* | *55 N/mm²* | *147 N/mm²* |
| **Eucalyptus regnans** | AR KF SU (large-scale plantations) | *14254 N/mm²* | *51 N/mm²* | *88 N/mm²* |
| Manilkara butugi | IL KF SL WG | *14538 N/mm²* | *63 N/mm²* | *147 N/mm²* |
| Mimusops kummel | AR BA GG GJ GD HA IL KF SU SD TU | *14517 N/mm²* | *61 N/mm²* | *139 N/mm²* |

| ADVANTAGES | DISADVANTAGES |
| --- | --- |
| **high quality timber**<br>*Several Eucalyptus species are indicated as suitable material for light and heavy construction, representing a great potential as a substitute for endangered species in Ethiopia.* | **aggressive water consumption**<br>*There is no doubt about the large use of water and nutrients in Eucalyptus plantations, however, this is not only due to the aggressivity of the genus as much as with poor silvicultural practices.* |
| **decreasement of deforestation**<br>*By being a fast-growing species, Eucalyptus provides an alternative local source to meet domestic and international demand.* | **land degradation and soil erosion**<br>*Eucalyptus trees deplete soil nutrients needed by agricultural crops, but depletion can be controlled by forest management techniques, including fertilization and regulated harvesting.* |
| **improvement of rural economies**<br>*Diversification of local communities income, increasing farming system productivity and self-sufficiency.* | **inhibiting undergrowth vegetation**<br>*Eucalyptus leaves have been reported to contain chemicals that inhibit the germination or growth of other plant species. In dry regions, the impact might be severe.* |
| **resiliency**<br>*It requires minimum care. Some species are fire-, drought-, and flood-resistant. It also proved to resists to pathogens and pests.* | **threat for biodiversity**<br>*Studies indicate that single species Eucalyptus plantations have the potential to alter biodiversity. Nevertheless, it has been observed how intercropping it with other species might avoid the risk.* |











MUNICIPALITE-ADDIS-ABEBA

# HARD CORE / LIGHT MEMBRANE

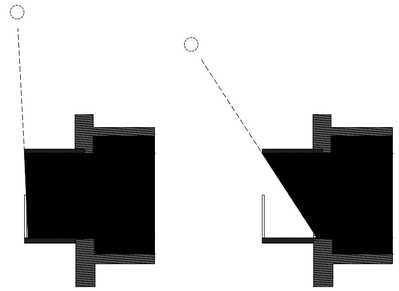






# PASSIVE SOLUTION

A passively climate-controlling building is unchangeable, but the building and its spaces can be used in various ways over day and night or at the different seasons of the year in relation to the changing climate.



## Cost

The cost related to this type of verandah is **minimal** because mainly related to the use of a single-pane glass in the inner layer. The cost of the outer membrane depends on the choice of material, but can be kept low with local screens of bamboo or timber.

(+) low cost

(-) multiple types of verandahs have to be produced to deal with climate

## Function

Such a solution means a **permanent disposition of spaces**: the verandah cannot be transformed according to the user's preferences because it is always exposed to weather conditions. However, proper operability of screens can still create variation in light exposure.

(+) indoor comfort always reaches average satisfaction

(-) indoor comfort is permanent and lacks flexibility

## Climate

A passive strategy saves great amounts of energy and still guarantees a **stable climate**. This means that the design has to fully depend on the conditions in which it is located: every verandah will change depending on orientation, for instance, in order to provide the same result.

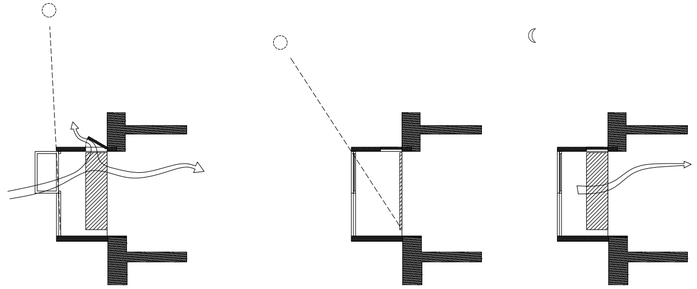
(+) climate is understood and dealt with permanently

(-) climate is understood as objective



# ACTIVE SOLUTION

An actively climate-controlling building can change dynamically and adapt to changing climate conditions, meaning light, air and temperature by means of an intercative façade.



## Cost

The cost of this strategy is surely **higher**, as it comprises of two well-designed and adaptive layers in the double skin façade. However, a solution to deal with this increase could be to pre-fabricate standardized panels in order to cut the cost of production.

(+) only one type of verandah to produce

(-) higher cost

## Function

This strategy is able to **mutate to respond to the user's needs**. For instance, the verandah itself, can be transformed into a bedroom at night and an a living-room during the day, for example. This makes the design task even more difficult, as it has to forecast a broad number of options.

(+) indoor comfort always reaches each dweller's satisfaction and is flexible

(-) dweller needs to be active

## Climate

In this solution, there is an idea about comfort not as a strict and permanent condition, but rather as a **subjective** one. Therefore, instead of stabilizing indoor climate dy the effect of mitigating the outdoor condition, the choice of result is in the hands of the occupant.

(+) climate is understood and dealt with subjectively

# WATER MANAGEMENT

Being water a major issue in Addis, harvesting and re-using water to compensate the lack of govermental provision has a great impact on the structure of the cluster.

Supervised by Ing. Francesco Steffinlongo

# Rooftop Rainwater Harvesting as an Alternative Approach of Sustainable Water Supply:

## A Case Study of Addis Ababa Ethiopia

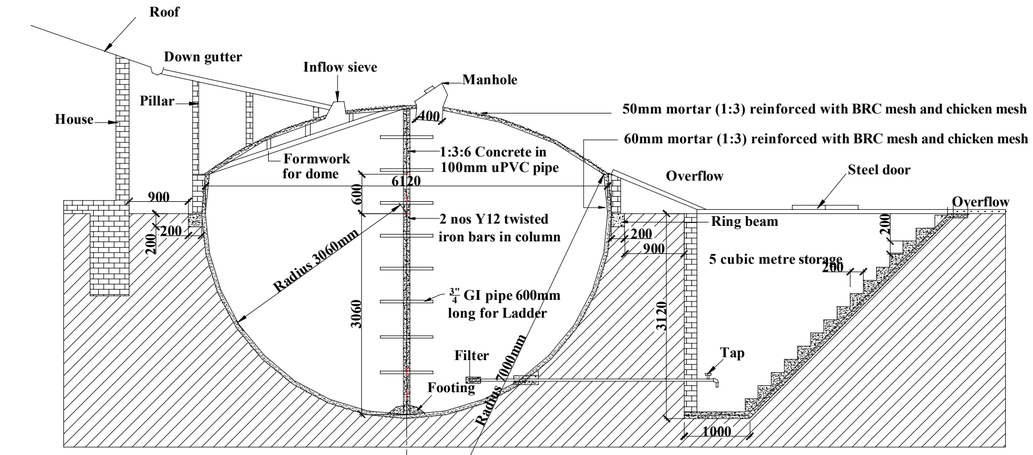
Due to rapid urbanization and ever increasing growth of population, fulfilling the demand of the safe water supply is always a challenge. All the countries are ensuring sustainable approaches to protect the available water resources and also to adopt newer technologies. Rainwater harvesting is one of the environmentally sound systems of gaining water. During rains, the portion of the water which falls on the roofs of buildings is collected directly from the roofs before it reaches the ground, which is called rooftop rainwater harvesting. The rationale of this research is to study about the potential of rooftop rainwater harvesting as an alternative approach to sustainable water supply in Addis Ababa, Ethiopia. Available 20 years daily rainfall data from five meteorological stations were collected and analyzed through SPSS and MS-Excel program to observe the variations and the trend in the amount of precipitation. In addition, AUTOCAD drawings and satellite images of buildings within the city of Addis Ababa were collected and Arc GIS software was used to calculate the roof areas. Exploratory research method has been applied. The study revealed that, adopting rooftop rainwater harvesting system at city level can cover 28% of the daily water demand or it can fill the deficit faced by the city water supplier AAWASA. The study necessitated the need for similar approaches towards sustainable water usage in Ethiopia, Addis Ababa in particular.



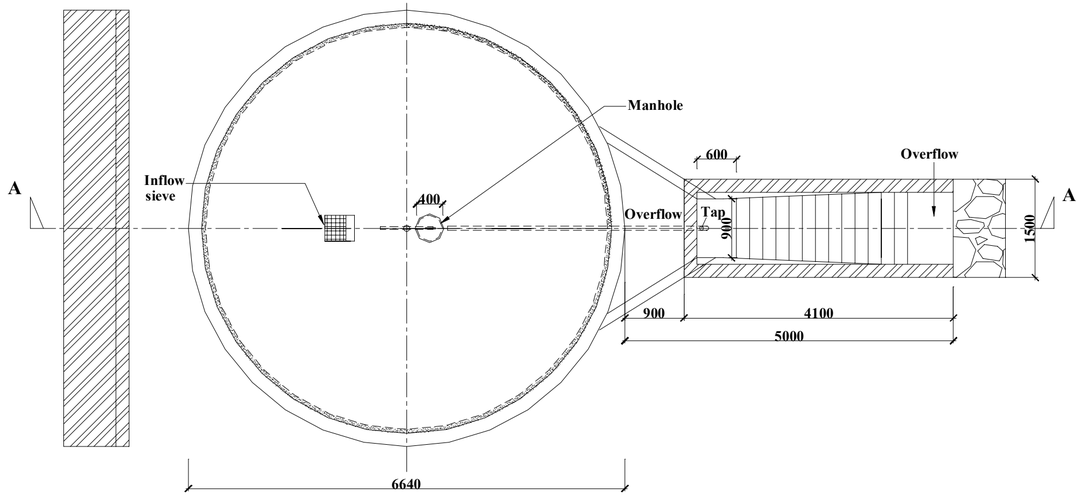
# DATA

| | |
|---|---|
| *liters pro capite pro die* | 35 families + 4 members x 20l) = 2800l/die<br>max: 50l pro capite = 7000l/die<br>min in a year: 2800 x 365 = 1022 m3<br>max in a year: 7000 x 365 = 2555 m3 |
| *average rainfall* | 1100 mm/y |
| *governmental contribution* | 68% |
| *tank dimension* | 800 m3 -1800 m3 |

*A water tank could be in the centre of the courtyard collecting water from an alluminium rooftop (0.9 runoff, hygenic material) with a common wash-place. The use of aluminum is fundamental, burns bacteria in rainwater.*




SECTION A - A (mm)




PLAN OF A ROOF (mm)

*Plan of action*

# STRATEGY
## FOR A MODERN SEFER



Chapter 3

# THE PLAN OF THE GOVERNMENT FOR ADDIS

The action plan of the Government to solve this housing problem in the city is the construction of dense, cheap, and fast to build condomiunium blocks. While on the one hand these housing schemes do improve the hygenic conditions of a family, on the other one they annihilate completely the Ethiopian identity and community life. In fact, these condominium apartments do not present the possibility of having spaces for social interaction, other then a narrow gallery in front of the entrance, and a massive green space between one block and another. I believe that the scales of such spaces make them not interesting for a low income dweller in Addis Ababa. As you will understand in the next pages of this booklet, these communities have a really specific and fascinating way to use outdoor communal space, and, unfortunately, the condominiums do not take it into account. Another problem of this mass-housing strategy is that, in order to move in, people have to apply to a lottery system. This makes it so that a dweller might wait for years to get an apartment in the periphery of the city, which is where most of these condominium blocks are located. As a consequence, people have to commute for hours to get to their work-place. In order to understand all of the problems that the apartments in the Condominium presented, we have decided to analyze them first-hand. We have structured our work with a series of interviews and visists in Mickeyleland. This study has resulted in the elaboration of a graphic novel, that truthfully represents what we have observed. This work was made in collaboration with Wessel De Graaf and Cristian Rancati. The following drawings are an excerpt of the comic book.







*Picture by Cristian Rancati*

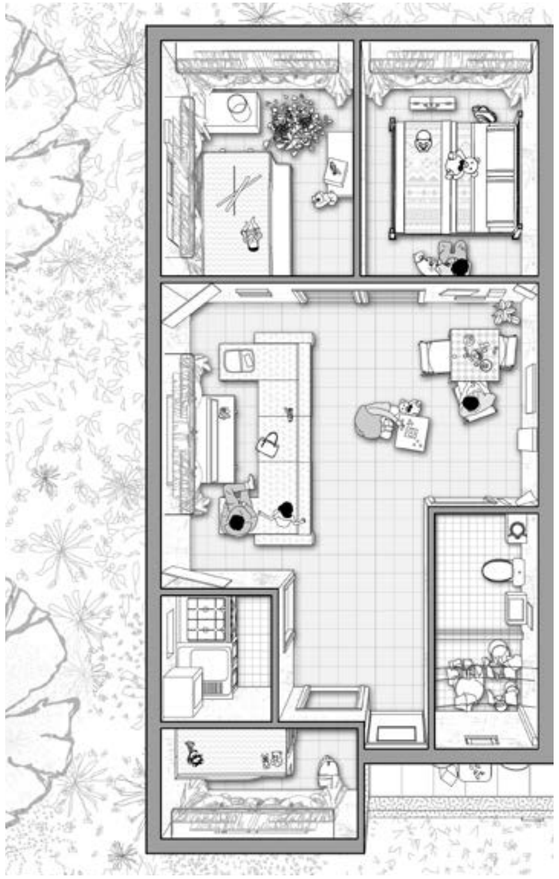


As you can observe, there are different typologies of apartments, which all have the commonality of presenting low levels of flexibility and no space for income generation opportunities. You will also notice that some dwellers had to re-create slum-like conditions within the Condominium to have a proper job. For example, in the next pages you will observe a hut, that an inhabitant used as a tailor shop. In fact, the design of such affordable housing greatly disregards both the commercial and social aspect of daily life.

In such architecture, the lack of a proper space for interaction is another key issue. The buildings offer two kinds of communal spaces: the gallery and the central courtyard.
The gallery is too small and inconvenient for most activities: because of its use for circulation any type of human presence becomes an impediment for passersby. On the other hand, the courtyard is too big that no one ever takes ownership over it: people feel intimidated by its extension. The lack of something in between makes it so that people do not have an appropriate space for interacting with each other, even though Ethiopians, for example, are culturally more inclined to favor rich social networks.

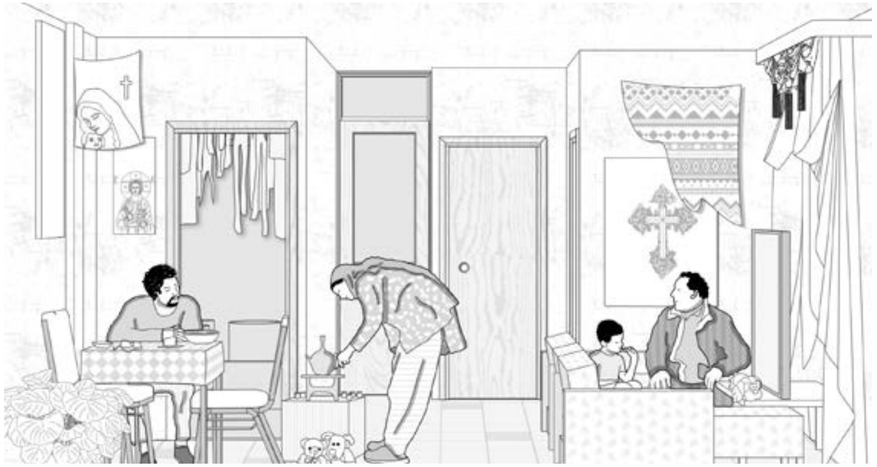
However, this stiff architectural condition does not cause any changes in the way Ethiopians create culturally synchronous spaces, as Richard Sennett would define them. Every room, every unit, every chunk of space we have visited changes its program according to the hour of the day, shifting from one activity to the other. This will be a great lesson for the production of the Thesis project, which will require the thorough design of synchronous spaces that can vary.

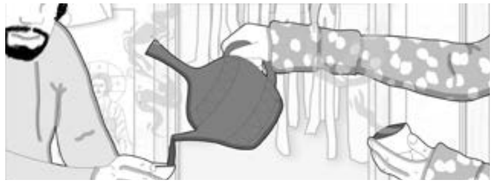
An example of this can be found in these drawings, where you can observe how a living room can become both a cafeteria and a bedroom, or how any space can be tranformed into an opportunity for income generation.

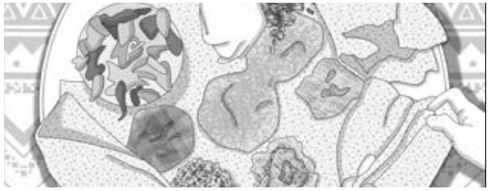




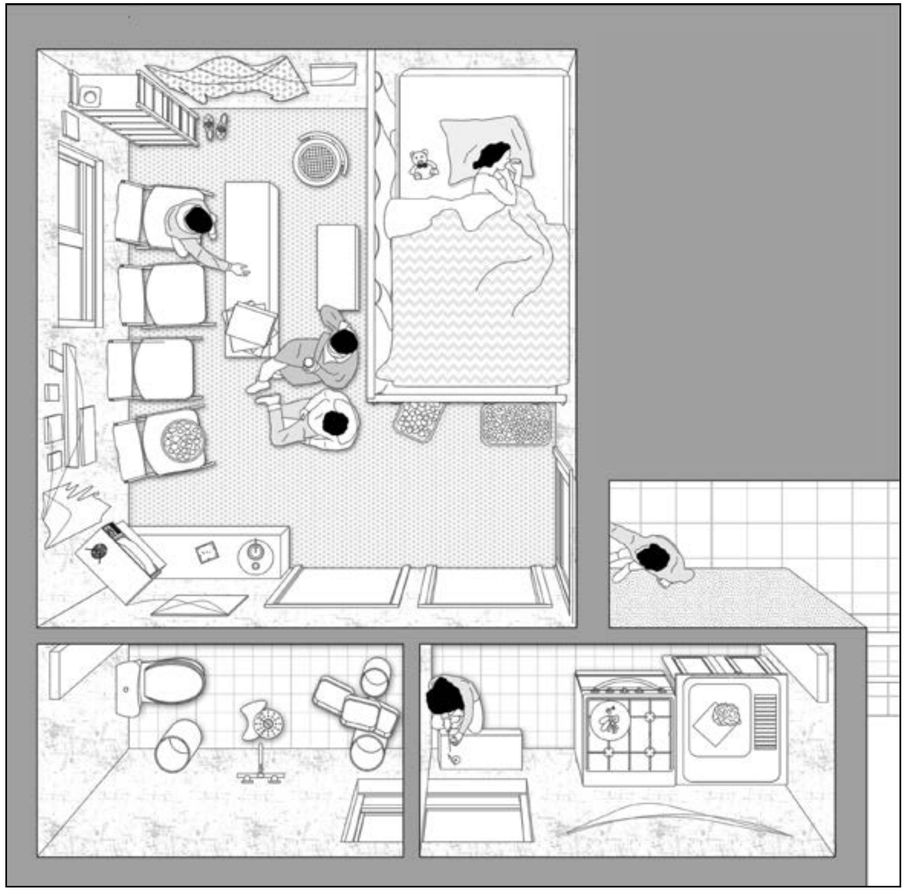




















*"Only people who could afford the down-payment were given a unit in a condominium. Everyone else was put out on the street. Secondly, those of us who paid were scattered all over the outskirts of Addis and not moved into a condominium in the next Kebele as promised. They never actually built the condominiums. It was a lottery: we were sent very far away from our jobs, our children's schools, our friends, our relatives, our associations. They managed to destroy 100-year-oldneighborhood networks."*

**Nigusse***

# WHAT IS THE PLAN FOR TALIAN?

## NEW BUSINESS CENTER



# VISION FOR A MODERN CITY

"The main idea for our city development plan is to create a livable place for all residents of Addis. We need to build more roads and more green spaces. As a city that represents African Union, our ambition is to create a modern city," said Haregot Alemu, Director of the Agency of urban renewal and land development.

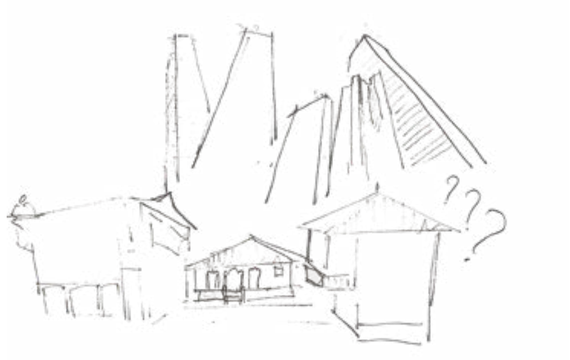
(...)

The government plans to build about 700,000 homes in five years. For now, though, housing prices remain high. The government put an asking price tag of a minimum contribution valued at 10% of the total price of the apartment. A sum of between 5,000 and 25,000 dollars well beyond the minimum wage in Ethiopia which is 34 dollars a month.

(...)

"As the seat of the African Union, our vision is to create a modern city and a model on the continent," he said.

AFP,Africanews.com







is there any value
in what would be
destroyed?







# *CASE STUDY*

## REVITALIZATION OF HISTORICAL CENTER IN CUENCA

**"In conservation policies and practices, a monument or site is considered a cultural heritage, for the recognition and interest of the values of the community to which it belongs"** according to a study conducted in Cuenca by Van Balen and Cardoso.

After a monument or site has been established as a cultural heritage, decisions and actions for its protection must be taken through intervention. A study that aims to protect, promote, or preserve a monument is based on the values that underpin it. In this field, "authenticity" plays an important role that should be seen as a layered concept of values.
According to the Nara document, authenticity and value are defined by the information source of cultural heritage in the following aspects: form and design, materials and substance, use and function, traditions and techniques, position and environment, position and environment, spirit and feeling, and other internal and external factors.

We believe that the historical buildings in Talian constitute a body of heritage not because of their outstanding or exceptional architectural characteristics, but because, as a whole, they represent the following:

1. the melting pot of different building techniques and architectural influences (Ethiopian, Indian, Italian etc.)

2. the spirit and identity of a neighborhood which has been present since the foundation of Addis Ababa

3. a community of people that bring forth the traditions of the historical center of the Ethiopian capital

UNESCO, on the "Operational Guidelines for the Implementation of the World Trade Convention," defines that if a building is recognized as heritage the following procedures can be set forth:

a) the inscription of properties on the World Heritage List

b) the protection and conservation of World Heritage properties

c) the granting of International Assistance under the World Heritage Fund

d) the mobilization of national and international support in favor of the heritage site




















Is it still possible to find a way to make ordinary historical objects coexist with the explosive growth of a modern city?



IS IT HERITAGE?
something that once was the local, JUST A BUNCH OF SCATTERED VILLAS?
Can they still be attractive?

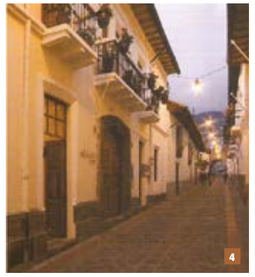





1


2


3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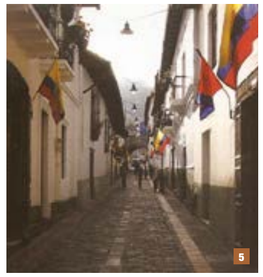
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# *CASE STUDY*
## SOCIETY HILL, article by J. Brey

"he plan was in place before he came along — drawn up many years before by celebrated city planner Ed Bacon, with restored houses and modern apartments connected by an intricate web of walkways weaving through the sober street grid. The goal of urban renewal was nothing less than the salvation of American cities, which the upper crust had been fleeing in droves ever since trolley cars and railways and automobiles made the outlying areas a viable commute in the first half of the 20th century. Urban renewal meant bringing those people back, and in many cases it meant the wholesale demolition of slums.

(...)

In those days, you could do a blanket condemnation," D'Alessio told me in his downtown office, where he still works as a principal at NorthMarq Advisors, a real estate development consultancy. "They just said, 'Okay, from 2nd Street to 6th Street and from Walnut to — zoom! It's yours.' A judge signed an order, and I said, 'You mean we own all this stuff? Those people in those properties are gonna be a little surprised. Just like that, the city, in the guise of Old Philadelphia Development Corp., owned the whole neighborhood. And in order to restore the earliest buildings, the ones deemed worthy of salvaging, it enacted a complicated scheme. Property owners who couldn't afford to carry out the rigorous and expensive historic-restoration plans the city had put together would be paid fair-market value — "plus a little bit for inconvenience," D'Alessio said — and sent packing, their renters included. But if owners could show they had enough steady income to restore their historic property, the city would not only deed it back; it would lend those owners the money to complete the restoration at a bargain-basement one percent interest rate. The restoration-worthy houses that had been vacated were sold to others who could afford the upgrades.

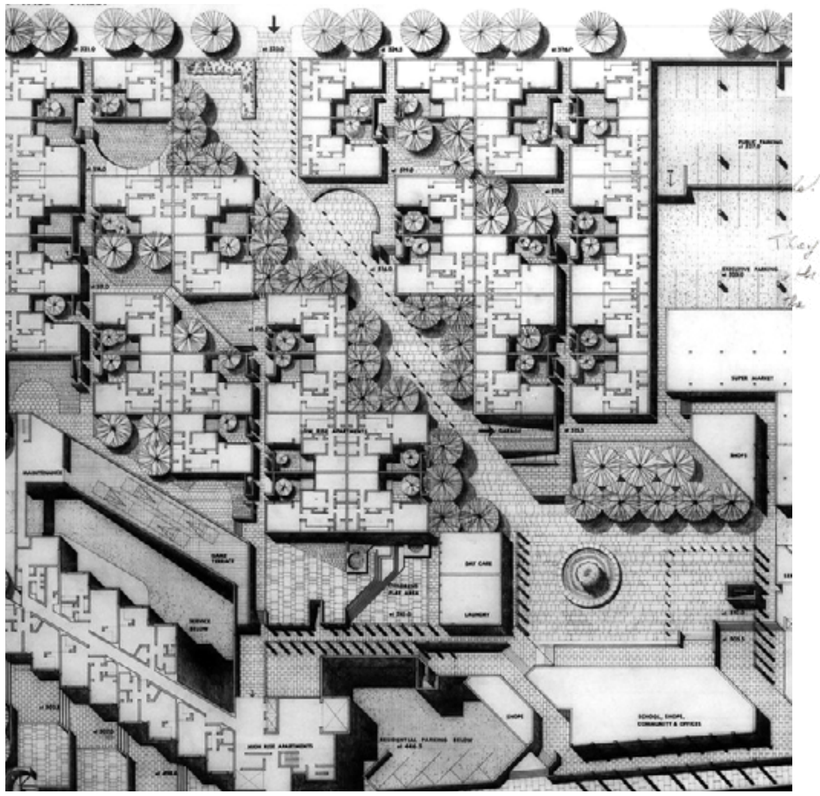
**It was pure Robin Hood in reverse, a transfer of property from the poor to the rich.**

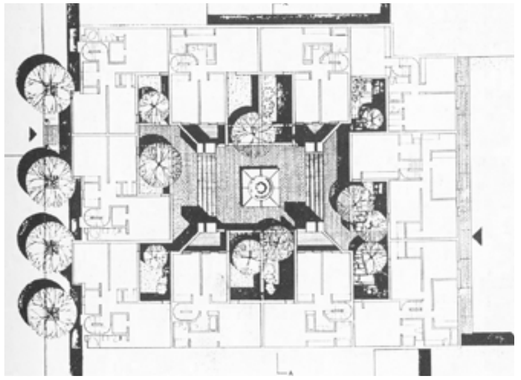
Bacon later admitted to his biographer, Greg Heller, who's now the executive director of the Philadelphia Redevelopment Authority, that he knew the program was "cruel," but he didn't see any other way of revitalizing Center City."
The nomination that won Society Hill its protection as a historic district boasted of that heritage: "The buildings of Society Hill reflect the history of the heterogeneous mix of class, ethnicity and faith — wealthy, poor, middling, European, African, Protestant, Catholic, and Jewish — all within walking distance of each other, that characterized Philadelphia for at least the first two centuries of its history."

(...)

At the same time, in order to develop the character of the neighborhood, the city began installing brick sidewalks and replicas of 18th-century street lamps. Society Hill hadn't stopped developing in 1850, of course, but the city was determined to refashion it as a new Colonial neighborhood, so it demolished a century's worth of buildings that would no doubt be considered historic today.
In the urban-renewal years, Dilworth and others promised that despite the name, the newly renovated neighborhood wasn't meant to be an exclusive, blue-bloods-only, high society kind of Society Hill. And in fact, it wasn't all captains of industry who bought in. News reports of the era described the newcomers as "rich hippies" and "off-beatniks."



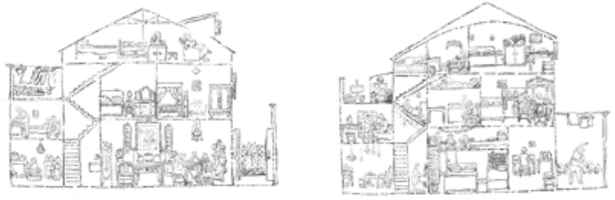




# *CASE STUDY*
## THE SHIKUMEN

In Shanghai, the annihilation of the *shikumen* was believed to be the only logical solution to the impelling pressures of developers. Destroying this heritage has turned out to be a huge mistake. In fact, the latter have been rebuilt to their original form, but they have changed in nature due to the removal of the original dwellers and the consequent gentrification that transformed it into an "hipster" middle-class neighborhood.



*A cross-section view of an unmodified individual unit in No. 111 Alliance Lane in the 1940s. Courtesy of Jie Li.*









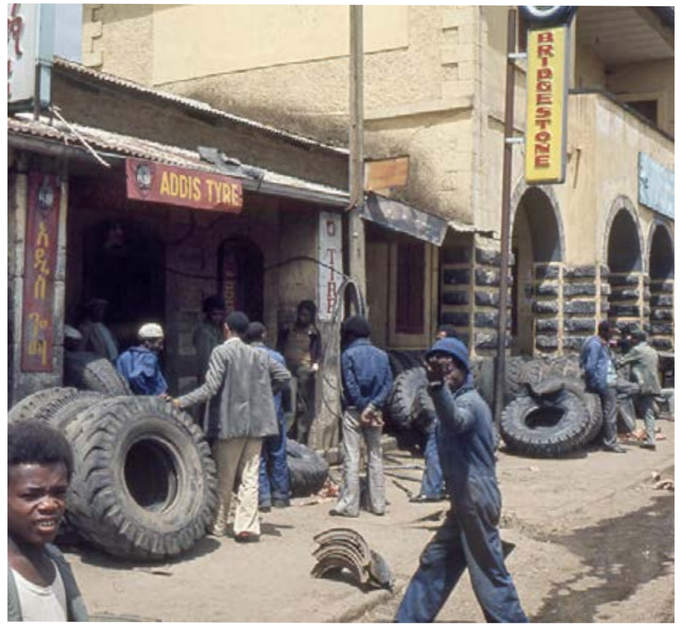
how we make the historical centre an attractive area for the whole city, while we cater for the dreams of those who cannot afford an architect?

why is it valuable in an historical district where the land has such a high value, to cater for the poor and mid-low income groups?

how can we draw creatively from the past without making tradition a folkloristic ORNAMENTATION?

# RESEARCH QUESTION

How can Talian Sefer become both an up-to-date neighborhood, which integrates historical and cultural identity with denser and higher quality dwelling projects, and an environment where the most vulnerable members of society (and their communities) can create income to improve their living conditions in the long term?



# GENERAL STRATEGY

In light of what was discussed in the previous pages of this chapter, it is important to mention that the Government would probably not build new condominium blocks in Talian Sefer, but would actually rent it out.

However, designing a redevlopment project without the involment of the Government is also unfeasible, given that it owns all of the land on which the neighborhood should be rebuilt. Therefore, an efficient strategy of action would be that of finding a better masterplan both for the people of Talian and for the Government. Having acknowledged that the neighborhood does need denser housing, in order to accommodate for the thousands of people without a home, the challenge of such a redevelopment would be to integrate these new dwellings with the neighborhood's heritage. **In fact, what has to be preserved and protected in Talian are its tangible heritage (1), its intangible heritage (2), and its communities and social networks (3)**.

At this point of the conversation, you might be wondering why it is so important to preserve these buildings and these people's social networks and activities.

One could say that this preservation is necessary because of the uniqueness of the identity and cultural traditions that are intrinsic to Talian Sefer. The cultural mix between the Italian culture, which was abruptly imposed on the territory in the 30s, the Ethiopian one, and the Indian one, for instance, already make it a fascinating melting-pot. It is a neighborhood that does not resemble anything like it on the face of the African continent, and therefore, it should not be so easy to annihilate it.

However, from a more realistic and economic point of view, these special characteristics, if well exploited, could bring a substantial monetary profit. You should remember that Addis Ababa is only a century old, and does not have any cultural attraction that one can go visit. The restoration of Talian;s buildings, which are the oldest existing in the city, could not only tell the stories of the formation of the city ot the failed attempts of Western colonization, but could also become the heart of the Ethiopian urban identity. This is the reaosn why I envision a neighborhood that can both portray the memory of the violence emmbedded in it, and the immense cultural value that is still maintained alive by its inhabitants. This is the reason why all three of these categories have to be protected and recognized as cultural and historical patrimony of the city.

(1)



(2)



(3)



*Picture by Antonio Paoletti*

# UNESCO'S HERITAGE LIST

**"In conservation policies and practices, a monument or site is considered a cultural heritage, for the recognition and interest of the values of the community to which it belongs"** according to a study conducted in Cuenca by Van Balen and Cardoso.

After a monument or site has been established as a cultural heritage, decisions and actions for its protection must be taken through intervention. A study that aims to protect, promote, or preserve a monument is based on the values that underpin it. In this field, "authenticity" plays an important role that should be seen as a layered concept of values.
According to the Nara document, authenticity and value are defined by the information source of cultural heritage in the following aspects: form and design, materials and substance, use and function, traditions and techniques, position and environment, position and environment, spirit and feeling, and other internal and external factors.

We believe that the historical buildings in Talian constitute a body of heritage not because of their outstanding or exceptional architectural characteristics, but because, as a whole, they represent the following:

1. the melting pot of different building techniques and architectural influences (Ethiopian, Indian, Italian etc.)

2. the spirit and identity of a neighborhood which has been present since the foundation of Addis Ababa

3. a community of people that bring forth the traditions of the historical center of the Ethiopian capital

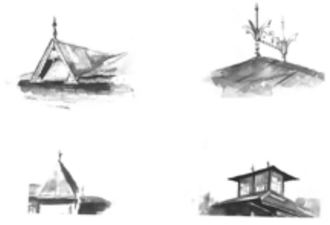
UNESCO, on the "Operational Guidelines for the Implementation of the World Trade Convention," defines that if a building is recognized as heritage the following procedures can be set forth:

a) the inscription of properties on the World Heritage List

b) the protection and conservation of World Heritage properties

c) the granting of International Assistance under the World Heritage Fund

d) the mobilization of national and international support in favor of the heritage site



*Watercolor drawings depicting details of an "Addis Style" construction by Fasil Giorghis*



# SHOULD ALL BUILDINGS BE INCLUDED?

Considering Talian's historical buildings as a unite body of heritage for teh city is a fundamental step within this discussion. However, some of them were damaged to the extent of having to be fully rebuilt. Therefore, before starting such a discussion, and following Cuenca's heritage study, I have elaborated these following steps:

**Step 1: ANALYSIS**
One should identify the manifestation and characterize the effect of the damage; then, proceed with the identification by means of comparison based on examples and definitions.
Required information and procedure
- Composition of the used materials in the elements with damage or wear
- Type of damage
- Magnitude / dimensions
- Location of the damage

**Step 2: DIAGNOSIS**
The conservation of a historic building needs a careful selection of suitable treatments based on an accurate diagnosis (just as any medical treatment) and a determination of the causes of its deterioration. After acquiring a thorough knowledge of the historic building, the diagnosis of deterioration is the first task for the restorer.

**Step 3: ASSESSMENT**
Classyfing the buildings into these clear categories is at this point necessary to move forward.
Good = For a good maintenance of the monument are no immediate works to be carried out.
Mediocre = local defects were established. These need to be repaired in a timely manner.
Bad = the building is in such conditions that would have to be fully re-built

**Step 4: TREATMENT**
One formulates recommendations to prevent/stop/revert the identified damage in relation to the cause and identified mechanism. One determines the consequences of replacing the element. One gives recommendations about the most suitable materials (compatible) for the intervention.



GOOD



MEDIOCRE



BAD



*Pictures by Fabio Buondonno*

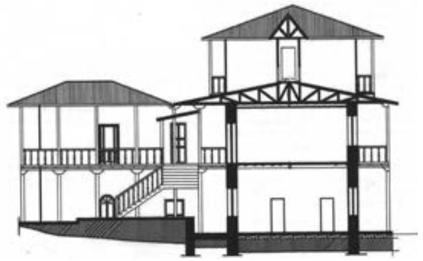
*"... rather than thinking about heritage as a set of objects, it may be more useful to think of it as a set of effects... What we might call 'the heritage effect" lies in edging us towards essentialised notions of culture and identity. Heritage weighs down on the side of reification. It places notions of culture and identity beyond critique"*

African Keywords, Nick Shepherd

















*Drawings by Fasil Giorgis*

Ludovica Cassina

# THE PROJECT

# THE PRACTICED PLACE

## Addis in the Making



Addis Ababa Living Lab

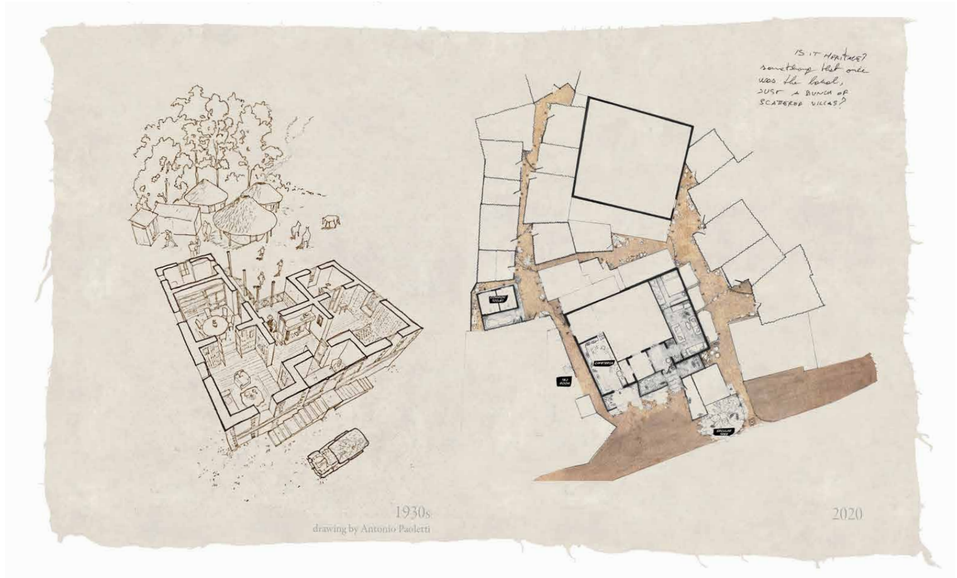
Graduation Studio Report
2019-2020

# A reflection

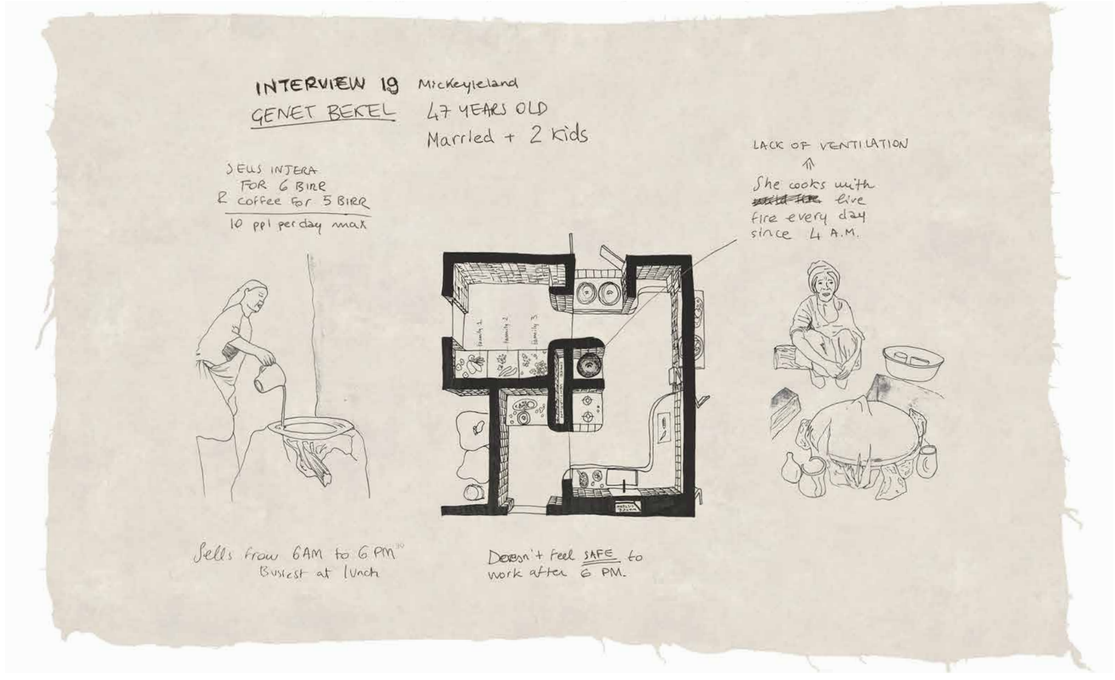
## on the words of Saskia Sassen

Why should the urban takeover of big stakeholders concern us? It is a given that the state of large corporate investment has surged immensely. At the current scale of urban developments, we are seeing a systemic transformation that alters the meaning of the city. Such transformation has deep and significant implications for equity and democracy and human rights. "A city is a complex but incomplete system: in this mix of complexity and incompleteness lies the possibility for those without power to assert "we are here" and "this is also our city". It is in cities where the powerless have left their imprint.

(*Saskia Sassen, **The City: A collective Good?***)



# PRACTICED PLACE




*"a place is the order in accord with which elements are distributed in relationships of coexistence"; a place is thus "an instantaneous configuration of positions. It implies an indication of stability"*

*(Michel De Certeau, The practice of everyday life)*

***Where is this project located?***

Talian Sefer is a neighborhood adjacent to Piassa, located in the very center of Addis Ababa. Its name derives from the period of the Ethio-Italian wars, when the Italian invaders decided to start constructing edifices, both for housing and imprisonment. The precise boundaries of the neighborhood are impossible to identify even for those who have resided in it for generations, as the whole area has been growing organically for the past century. It is this very informal growth that has permitted to extend and expand the historical buildings into proper compounds, which are thriving with vibrant social interactions.

***At all scales, Talian Sefer presents problematic characteristics:***

In light of interviewing a sample of the Talian Sefer's population, it appears that the majority, if not all of the inhabitants, is enthusiastic about residing in such neighborhood. The reasons mainly regard its central geographic location, and its richness in diversity of inhabitants. However, the neighborhood presents many characteristics that should not be romanticized.

***At an urban scale,***

Talian Sefer does not match with the needs of a rapidly urbanizing city of the 21st century. The current trends of fast urbanization in Addis Ababa are trying to fight against the urban decay, the high rates of homelessness and the total lack of infrastructure and public services to transform it into a modern globalized hotspot for the African continent.

Moreover, the neighborhood is not dense enough: it does not respond to the necessities of big-scale housing schemes to accommodate vast amount of people in need of a dwelling. In fact, the Ethiopian Government has released a masterplan that highlights Talian Sefer as a place where the building height for future development should be **unlimited**, unapologetically disregarding the argument of protecting the neighborhood's historical heritage. However, building skyscrapers in Talian would mean erasing all tangible heritage and the identity of their communities. Surely there is a real need for increased density but the challenge of this project will be to accommodate and integrate it with the historical and social patrimony of the area.

***At the scale of the compound,***

there is a fundamental problem with ownership and maintenance. The compounds are generally formed by 6 to 8 families that live partially in historical buildings and partially in the informal dwellings that have grown as their parasites. Only a chunk of these dwellers is able to legally rent their home, while the rest is forced to dwell illegally. By increasing the neighborhood's density and elaborating a mixed income strategy, the proposed housing scheme in the project that will follow will accomodate for a larger and more diversified number of dwellers.

***At the scale of the building,***

dwellings lack of sanitary services and access to water in almost all cases. In fact, a compound is usually generated around two toilet stalls that are meant to serve 25 to 35 people, according to the research carried out on site. Not to mention the lack of showers and the intermittent access to drinking water. People have expressed their need to store water from communal sinks in their homes whenever they have the chance, as communal sinks can stop working for up to a week. Therefore, this project aims to develop a sound water strategy in order to maximize water collection.

***If Talian Sefer is so problematic why should it not be erased to create something new?***

The challenge of this thesis project will be to find an equilibrium between what has to be maintained and what has to radically change to turn Talian into an open neighborhood, interwoven in an urbanized city, where people can fulfill their ambitions for the future without completely erasing their traditions and social networks.

***Objective n.1:***
***Preserving Communities to "unslum the slum"***

Talian Sefer is a place where "attachment to a slum becomes strong enough to stimulate unslumming". In fact, "Why slum dwellers should stay in a slum by choice, after it is no longer economically necessary, has to do with the most personal content of their lives, (...) which is the dwellers' personal attachments to other people" (both quotes are extracted from *The Death and Life of Great American Cities* by Jane Jacobs).

***Objective n.2:***
***Maintaining Synchronous Spaces***

Regarding the heritage of the neighborhood the challenge will be twofold: firstly, preserving the intangible and tangible heritage of the communities. Secondly, maintaining the synchronous spaces that the neighborhood naturally presents. A synchronous space is one where many things happen at once. Every street, cross-road and communal courtyard in Talian can be considered to be such space. Throughout a single day, dwellers can use the same courtyard to cook traditional food, eat, play games, celebrate marriages, grieve in funerals, dance, pray and many more activities.

***Objective n.3:***
***Preserving type-forms and integrating them with new denser housing***

Once a strong strategy for the historical buildings has been defined, the challenge has to be to symbiotically integrate this type-forms with a strategy of social housing of increased density, to improve the quality of life in the neighborhood bringing new inhabitants into the picture.

***Objective n.4:***
***Seed-planning***

People come to the city primarily looking for a job, then for a shelter. How can we provide a possibility for growth in terms of living quality instead of simply providing a dwelling strategy? How can the ground floor become a place for economic and income generation acitivites? How can we build a narrative for the neighborhood to attract local and foreign interest to its traditions?

# CLUSTERING AROUNG HERITAGE IN PHASES

The first phase of construction starts from a specific historical villa on the site, which is currently used as a space for Edir meetings. The idea is to transform it into a public meeting hub for sustainable tourism, where gatherings can be hosted together with a space for producing textiles. Simoultaneously, the first middle income units will be built as a prototype: this will help in setting an example for the image of a new neighborhood entirely built in earth.





*phase 1*



*phase 3*



*phase 10*



*phase 15*

# WHY IS IT IMPORTANT TO PRESERVE THE HISTORICAL PATRIMONY?

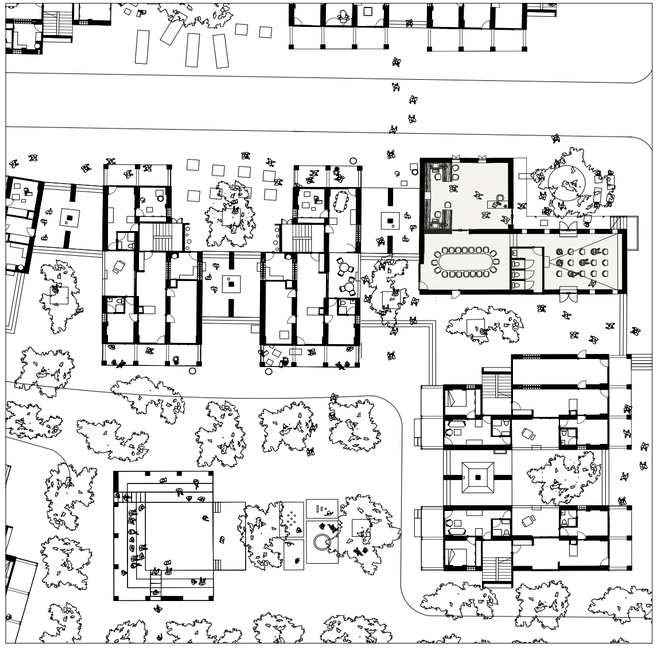


Through research, we have partially comprehended how the city grew organically through time, and how past generations lived and functioned. At this moment, the Ethiopian Government's will is to discard this historical evidence and build something that better adapts to a new business district with a top-down approach.

Addis Ababa is not the only city facing this issue: it is a common condition that historical centers in rapidly urbanizing cities of the Global South are destroyed to quickly make money out of developer's pressures. An example of this dynamic of identity destruction can be found in the annihilation of the *shikumen* in Shanghai, for instance.

This project is formulated to change the question to the issue: instead of erasing the historical and cultural traces, how can we transform these traces into the backbone of  a modern neighborhood that relies on its identity?





# THE URBAN FORM

A mix of self-contained units and co-housing schemes forms the DNA of this project, whose purpose is to cater for different economic income levels and to experiment with their co-existence. Ranging from 18 sqm to around 80 sqm, the variety of units accomodates for both the current no-income inhabitants of Talian Sefer, as well as for midlle income families who are eager to live in the city center. However, no matter the size of the unit, the attempt of this project is to understand and re-interpret the urban form of the compounds, which currently structures the fabric of Talian Sefer.








# A COMMON STRATEGY FOR THE CITY CENTER



Due to the complexity of an urban development such as that of Talian, a conventional single architect approach seems inadequate and inefficient. "The architectural design is expected not only to facilitate well-mixed functions and activities in an integrated complex, but also to achieve architectural quality (...) for the sake of the local and regional economy. The architectural quality of the project also contributes to the city's identity and thus becomes the concern of the local government. As the complexity escalates due to the complicated functionality requirements; the juridical, social, and economical constraints; the involvement of a large number of participants with often conflicting values (...) a number of highly qualified architects and specialists are called to work together in the multidisciplinary design team". (Rizal Sebastian, 2002)



*"even more important for me is the effect that occurs on a person, who leaves a room in his house, crosses the internal courtyard, arrives in the square, which is larger, but also closed, and only at last in the public area. Whether it happens in a village or in a city, this passage is quieter and sweeter than the sudden fall from the intimate collection of your room in the presses of the street or in the immensity of the countryside"* H. Fathy



# A HOME FOR WORKERS

Along the main ring road of the neighborhood, a community of workers, such as blacksmiths, mechanics and dome makers, is settled. How can we create a place for such dwellers to both practice their job and live?

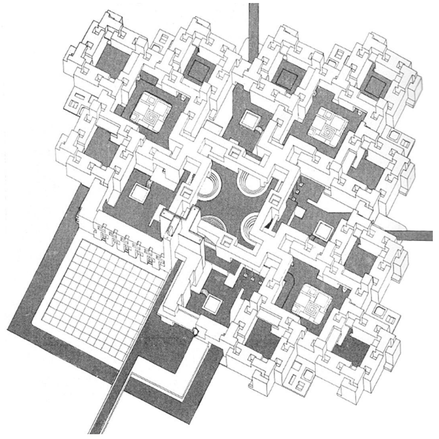


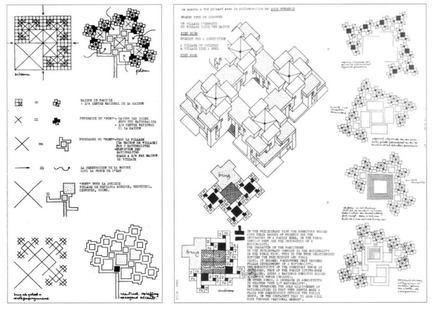

*Local dome-makers workshop on ring-road*

# CASE STUDY
## CONTRADA BELTRAMELLI



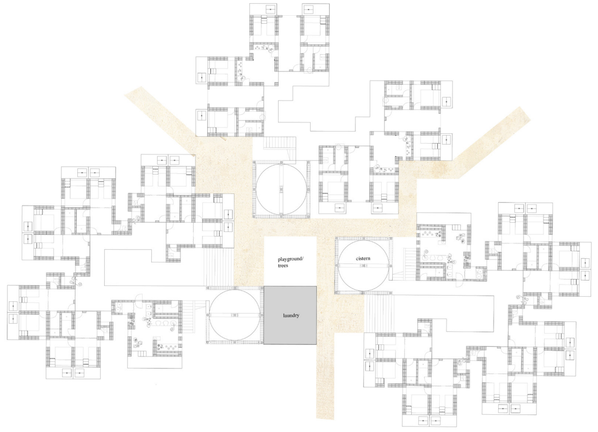




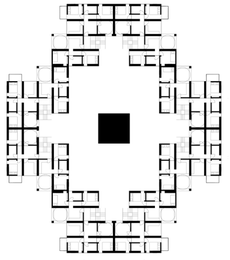


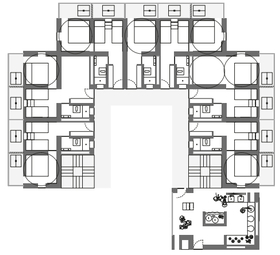
# PIET BLOM

*case study for the urban form of co-housing*





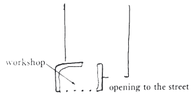



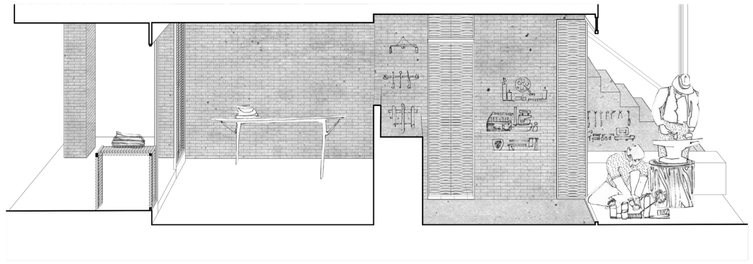


*initial sketches*

‘Make a place in the home, where substantial work can be done; not just a hobby, but a **job**”

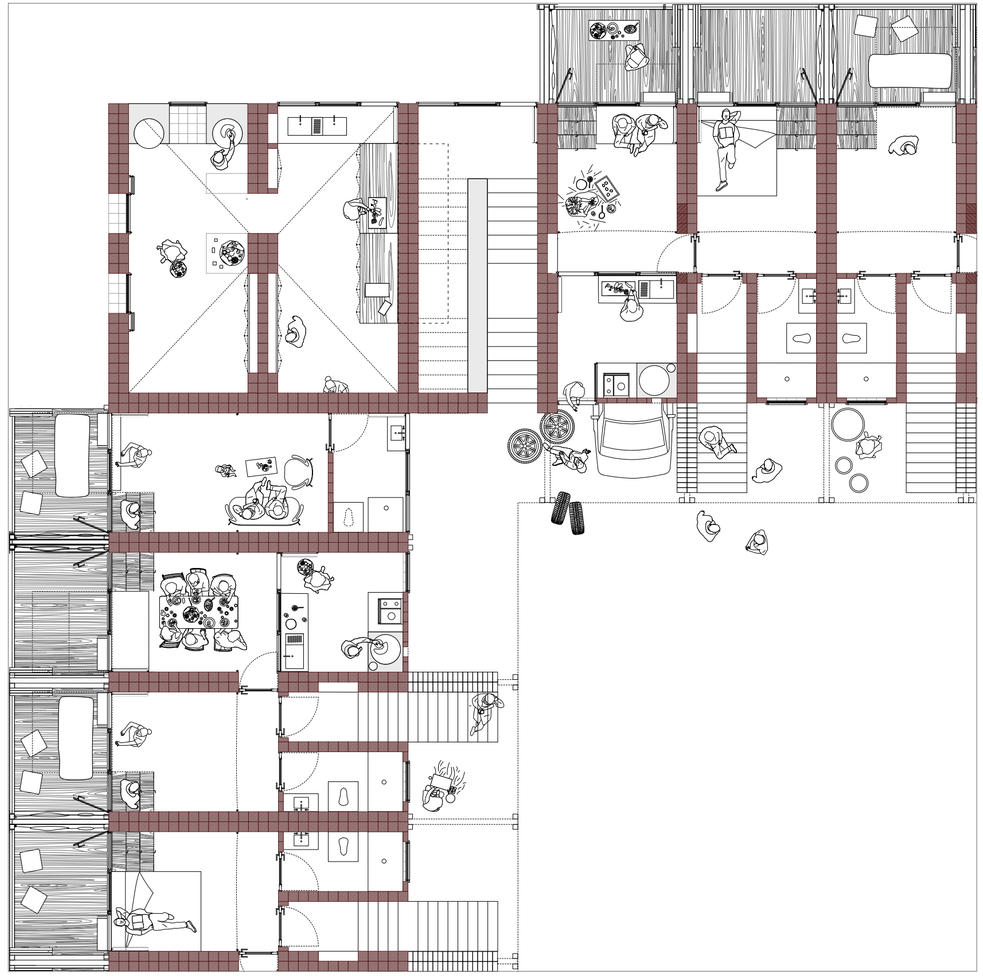
*C. Alexander*



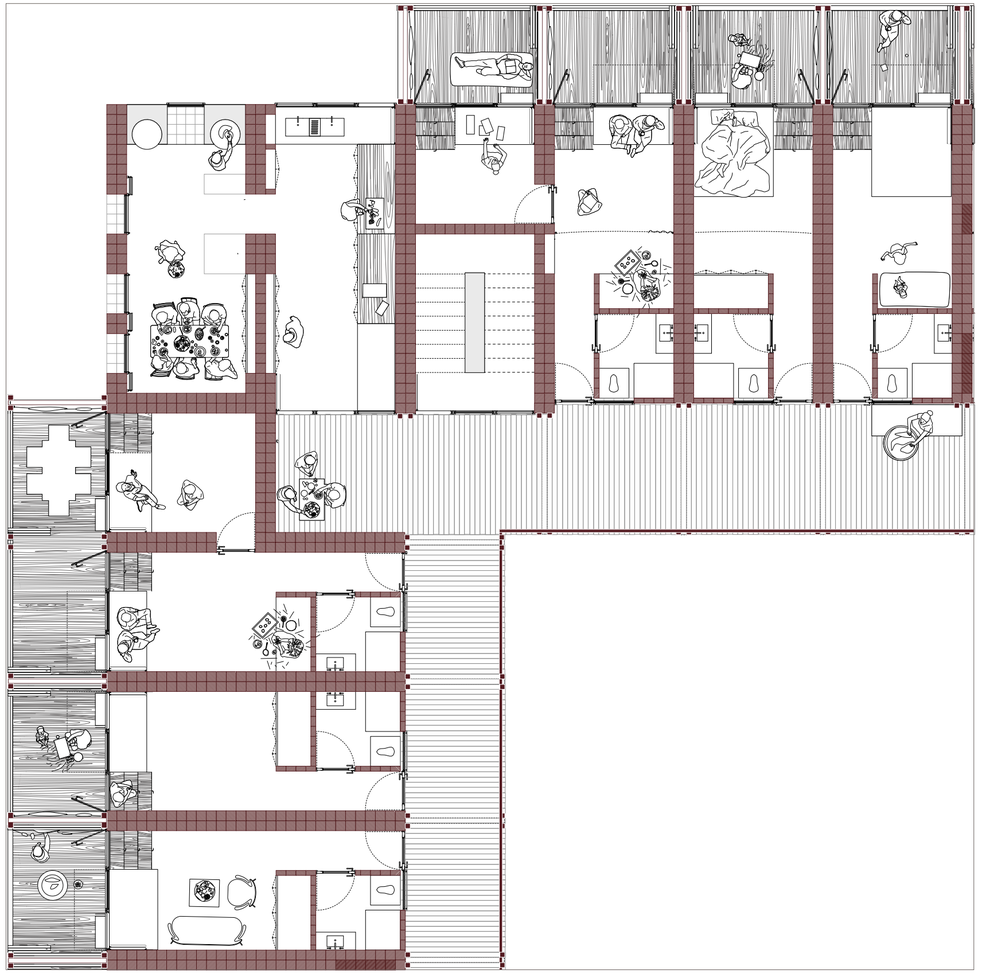



PUBLIC STREET | PORTICO | SHOP | INDOOR WORKSHOP | OUTDOOR WORKSHOP | COURTYARD



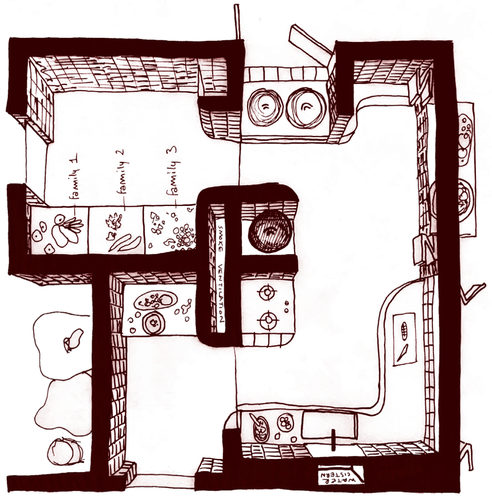


*first floor*



*second floor*

# THE KITCHEN



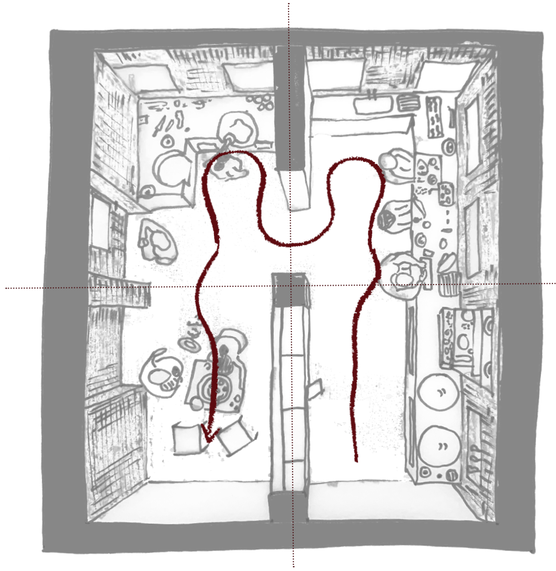

*first sketch*

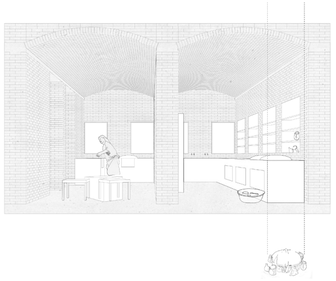


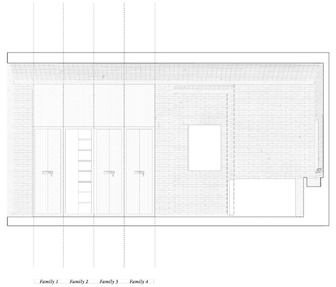
*Tigray Kitchen by Rod Waddington*

*traditional kitchen*

*food preparation*







*Family 1 Family 2 Family 3 Family 4*

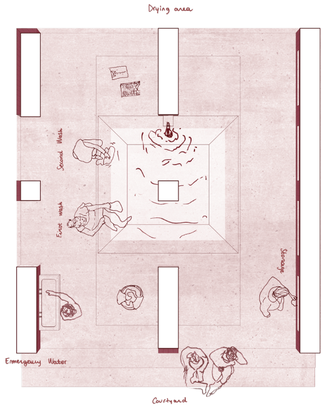
*eating + socializing*

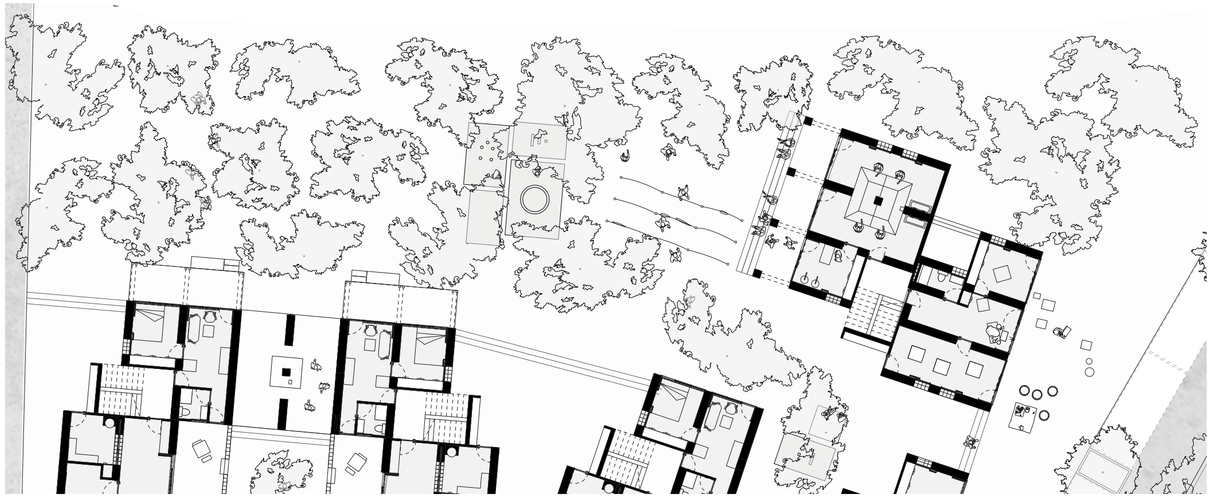
*storage*
*(both private and communal)*



*Final Communal Kitchen in project*
*(both pages)*

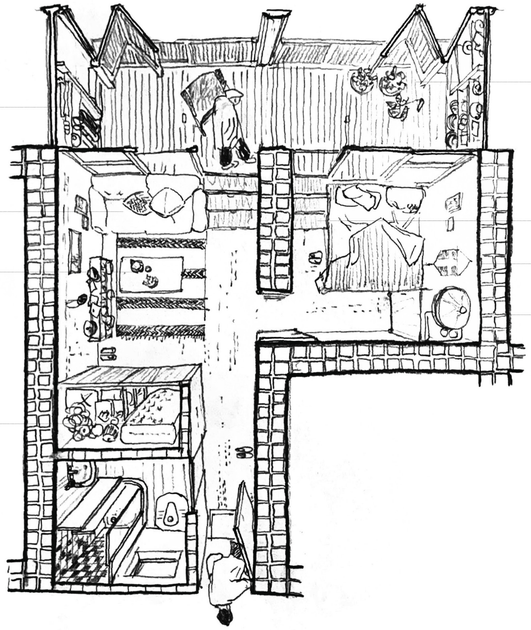
# THE WASH-PLACE





# THE UNIT



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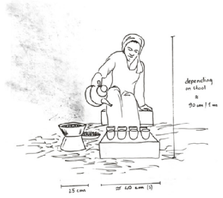
*(iniera makino)*



ማጠብ
*(washino)*





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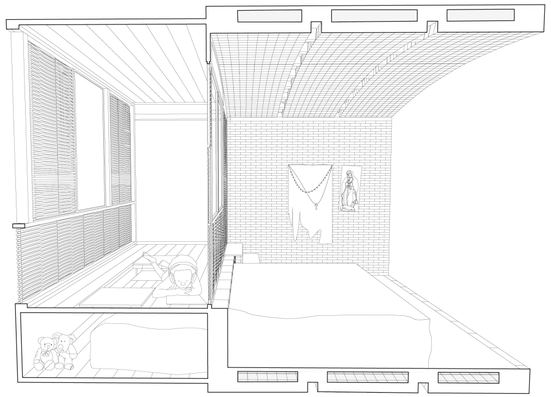
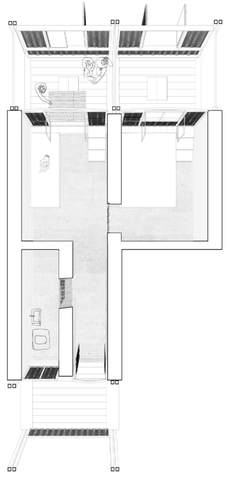
*(coffee ceremony)*

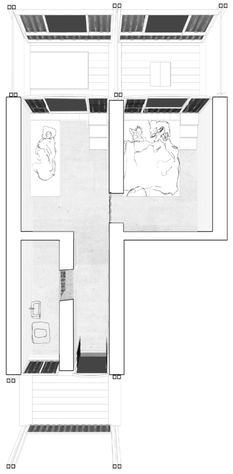


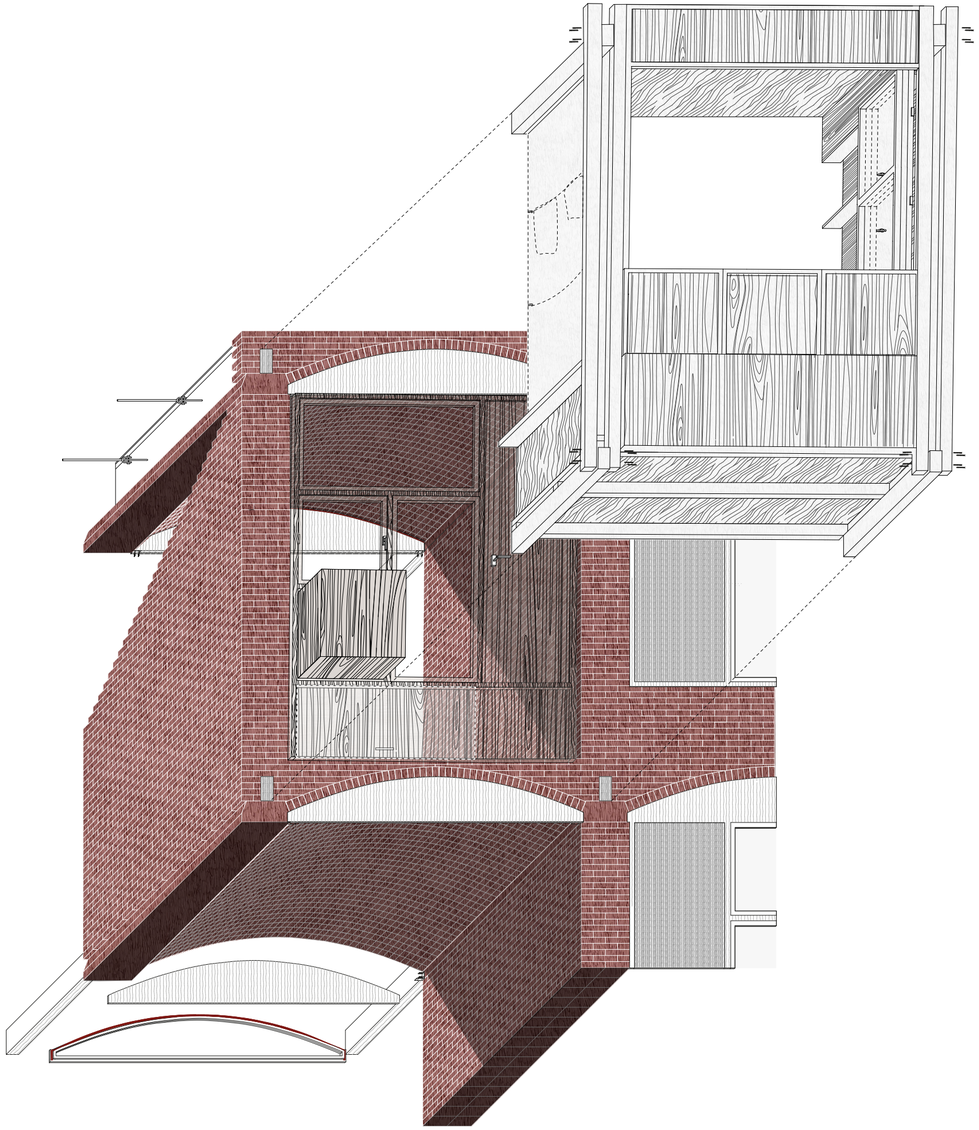


# CLIMATIC BEHAVIOUR







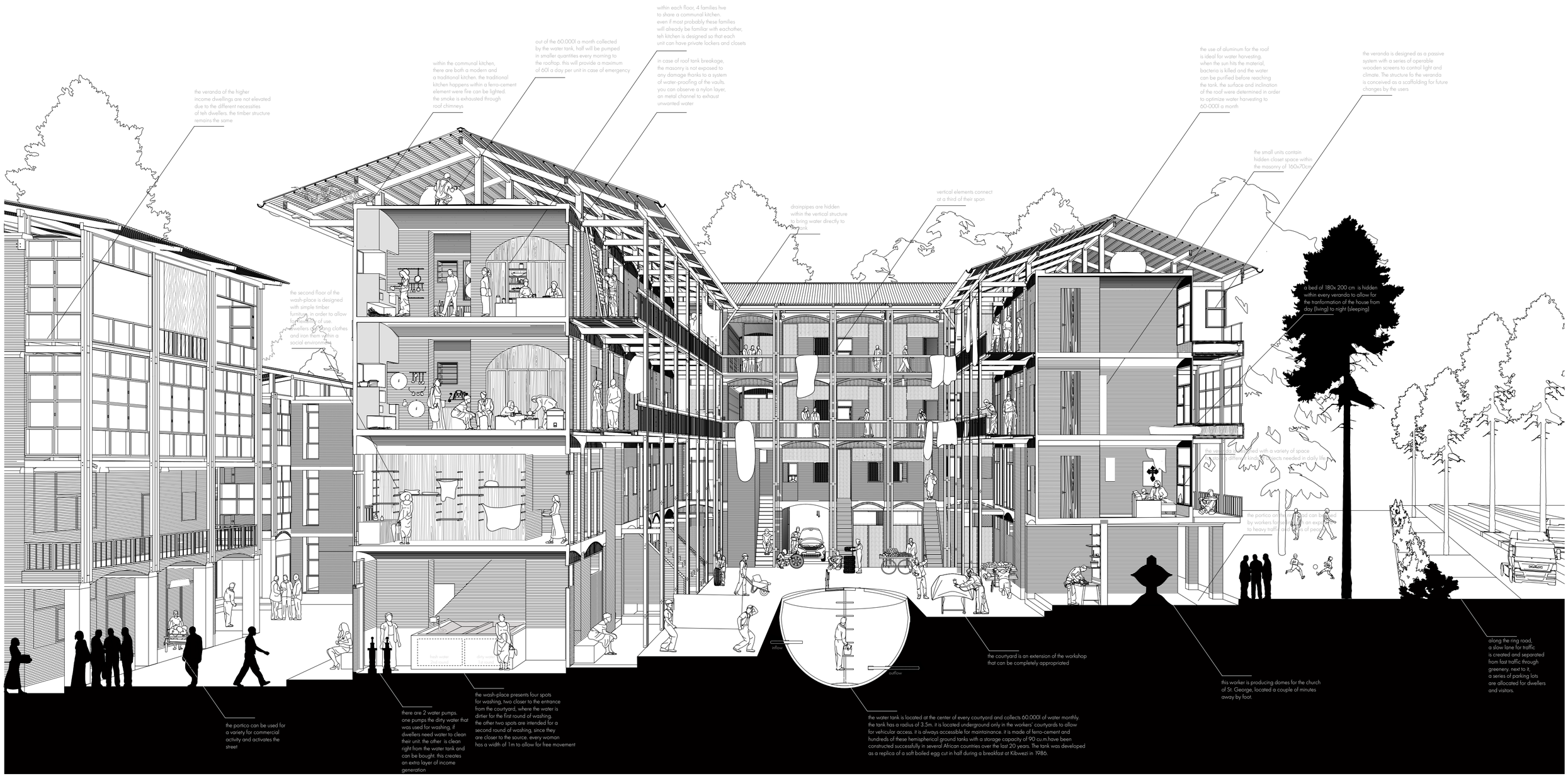


During the day - 26 degrees

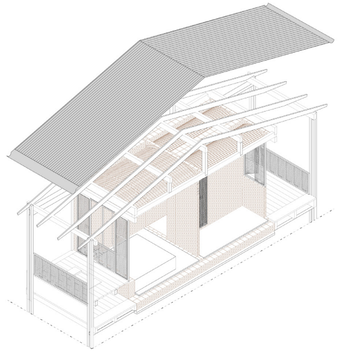
VERANDA VENTILATES THE SPACE THROUGHOUT THE DAY

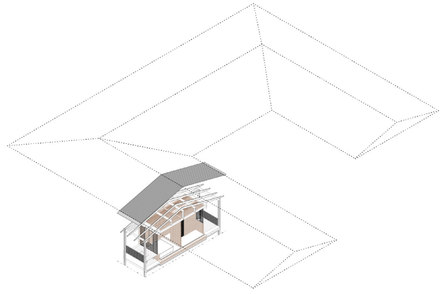
At night - 15 degrees

EARTH WALLS RELEASE HEAT ACCUMULATED DURING THE DAY

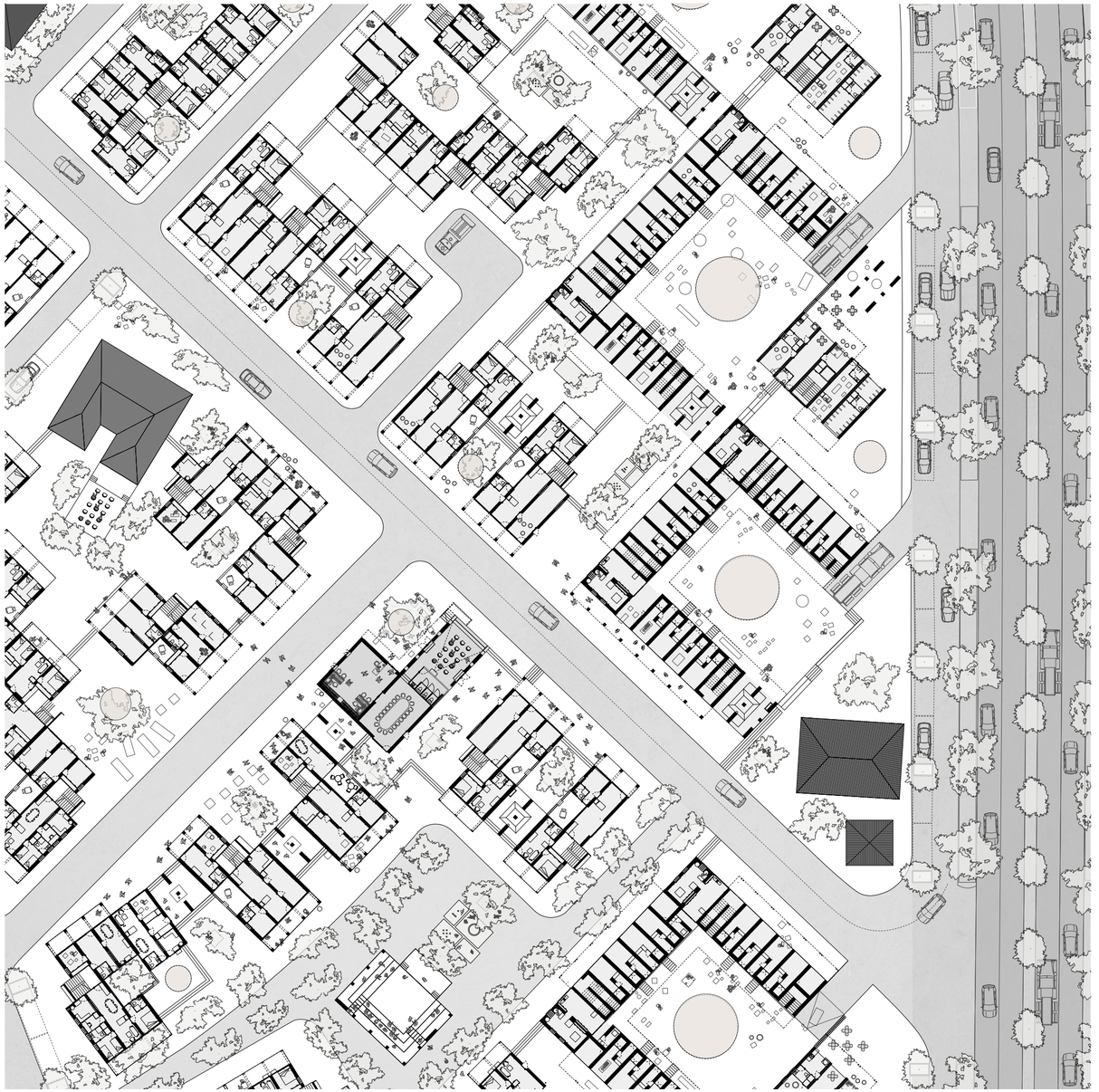

the veranda of the higher income dwellings are not elevated due to the different necessities of teh dwellers. the timber structure remains the same
within the communal kitchen, there are both a modern and a traditional kitchen. the traditional kitchen happens within a ferro-cement element were fire can be lighted. the smoke is exhausted through roof chimneys
out of the 60.000l a month collected by the water tank, half will be pumped in smaller quantities every morning to the rooftop. this will provide a maximum of 60l a day per unit in case of emergency
within each floor, 4 families live to share a communal kitchen. even if most probably these families will already be familiar with eachother, teh kitchen is designed so that each unit can have private lockers and closets
in case of roof tank breakage, the masonry is not exposed to any damage thanks to a system of water-proofing of the vaults. you can observe a nylon layer, an metal channel to exhaust unwanted water
drainpipes are hidden within the vertical structure to bring water directly to the tank
vertical elements connect at a third of their span
the use of aluminum for the roof is ideal for water harvesting. when the sun hits the material, bacteria is killed and the water can be purified before reaching the tank. the surface and inclination of the roof were determined in order to optimize water harvesting to 60-000l a month
the veranda is designed as a passive system with a series of operable wooden screens to control light and climate. The structure fo the veranda is conceived as a scaffolding for future changes by the users
the small units contain hidden closet space within the masonry of 160x70cm
a bed of 180x 200 cm is hidden within every veranda to allow for the tranformation of the house from day (living) to night (sleeping)
the second floor of the wash-place is designed with simple timber furniture, in order to allow for flexibility of use. dwellers can bring clothes and iron them within a social environment
the veranda is designed with a variety of space creating different levels of privacy to meet the needs of daily life
the portico on the ground floor can be used by workers for the sale of an exposed to heavy traffic and lot of people
fresh water
dirty water
inflow
outflow
the portico can be used for a variety for commercial activity and activates the street
there are 2 water pumps. one pumps the dirty water that was used for washing, if dwellers need water to clean their unit. the other is clean right from the water tank and can be bought. this creates an extra layer of income generation
the wash-place presents four spots for washing, two closer to the entrance from the courtyard, where the water is dirtier for the first round of washing. the other two spots are intended for a second round of washing, since they are closer to the source. every woman has a width of 1m to allow for free movement
the water tank is located at the center of every courtyard and collects 60.000l of water monthly. the tank has a radius of 3.5m. it is located underground only in the workers' courtyards to allow for vehicular access. it is always accessible for maintainance. it is made of ferro-cement and hundreds of these hemispherical ground tanks with a storage capacity of 90 cu.m.have been constructed successfully in several African countries over the last 20 years. The tank was developed as a replica of a soft boiled egg cut in half during a breakfast at Kibwezi in 1986.
the courtyard is an extension of the workshop that can be completely appropriated
this worker is producing domes for the church of St. George, located a couple of minutes away by foot.
along the ring road, a slow lane for traffic is created and separated from fast traffic through greenery. next to it, a series of parking lots are allocated for dwellers and visitors.

# FROM THE ROOF TO THE CISTERN

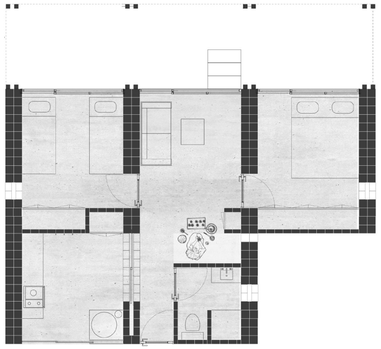




680 sqm of alluminum roof collects 61.200 l of rain monthly. The choice of the material is linked to alluminum's ability to kill bacteria. After being gathered, this water is sent to the 90 cubic meter ferro-cement tank. 30.000 of those liters are used monthly for the wash-places. The rest is pumped every morning on the roof for daily use.



# SELF-CONTAINED UNITS









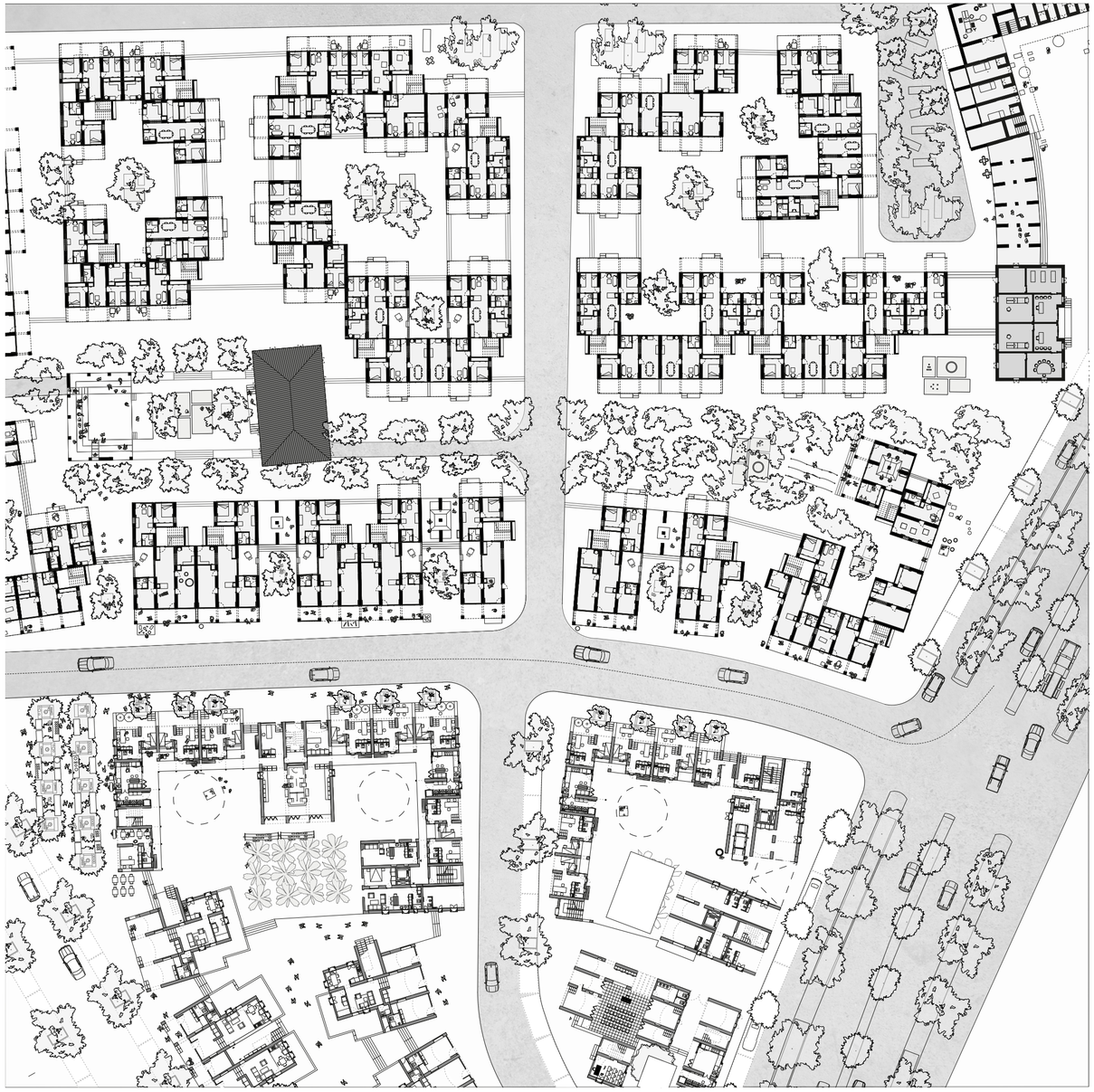
*Kitchen to generate income*

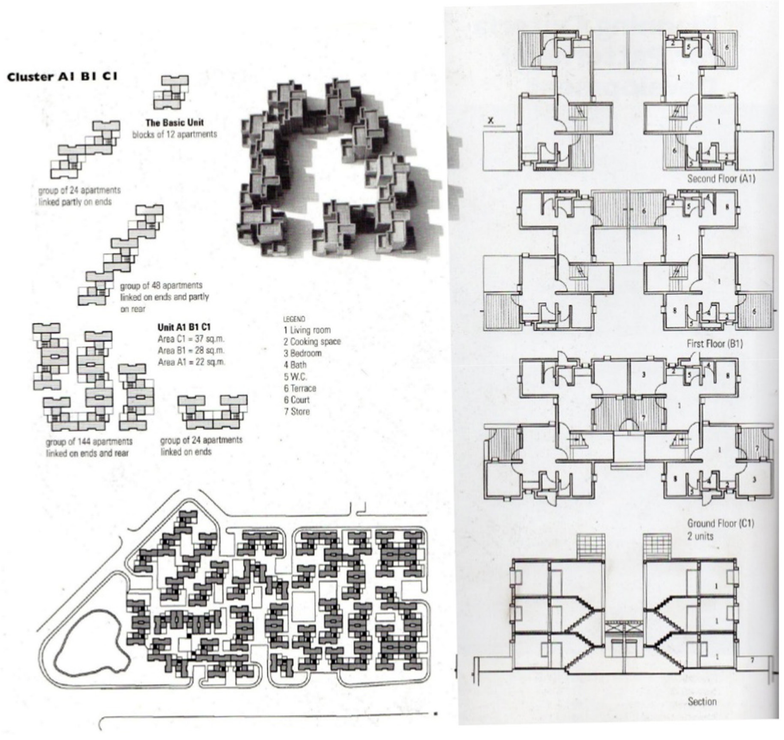


*Laundry*



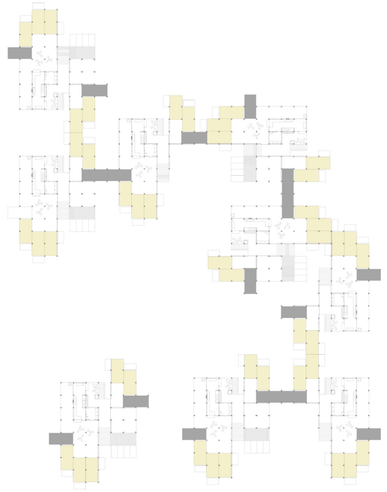
*Office*

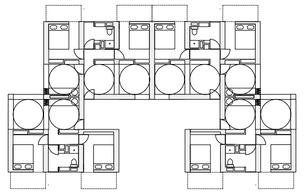





# RAJ REWAL

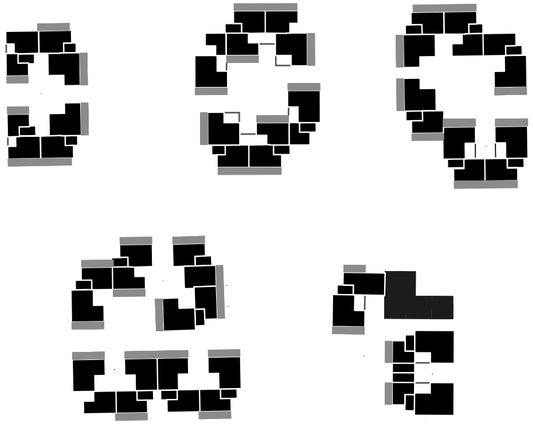
*case study for the urban form of self-contained housing*



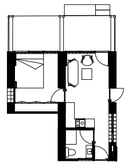


*initial sketches*

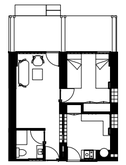
# CLUSTERING STRATEGY



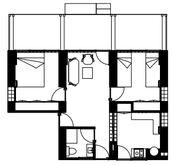
24 sqm +
12 of veranda



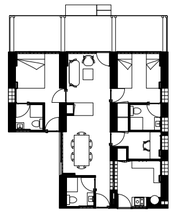
30 sqm +
12 of veranda



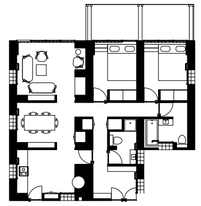
35 sqm +
16 of veranda



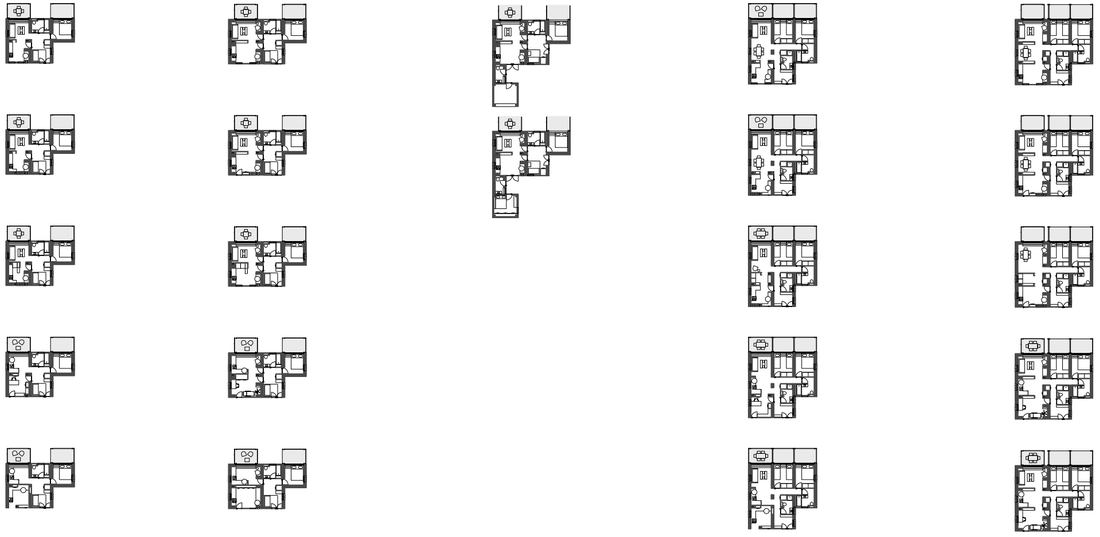
60 sqm +
16 of veranda



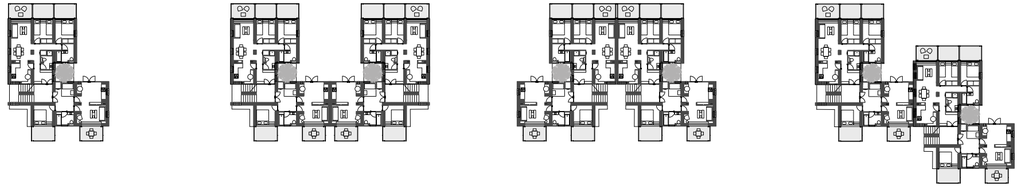
70 sqm +
16 of veranda



other possible variations to accomodate for different necessities:



examples of possibilities of clustering:





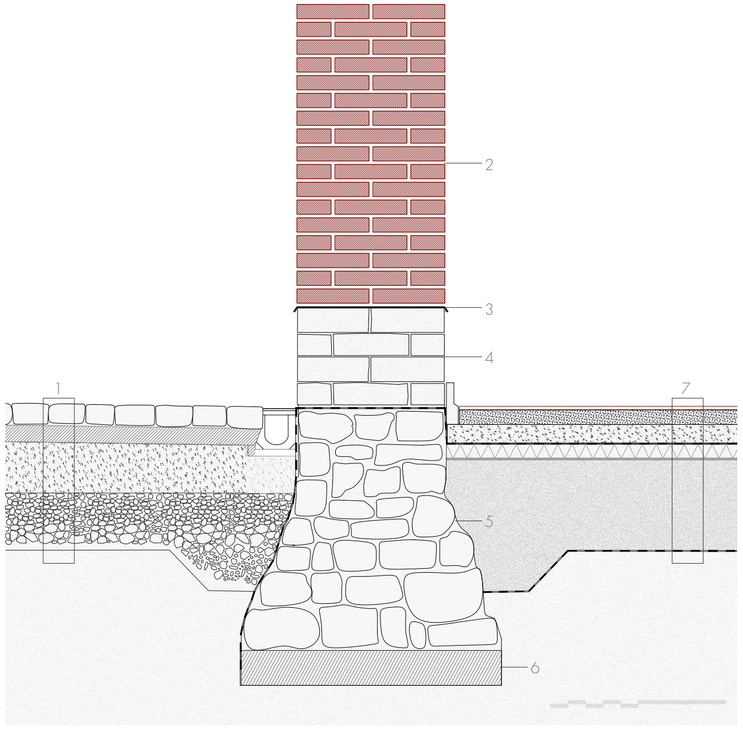


*Once the project is first constructed*



*One year later*

# FOUNDATIONS



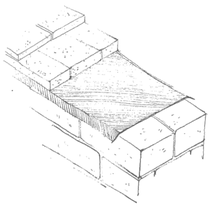

1. soil - gravel - compressed soil
- cement - stone paving
2. CEB 5% cement
3. zinc plate
4. fine-cut natural stone
5. rough natural stone
6. cement
7. soil - waterproofing - sand - insulation
- waterproofing - compacted earth screed
- fine earth screed - clay flooring



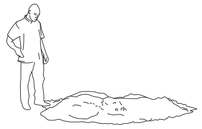




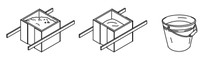






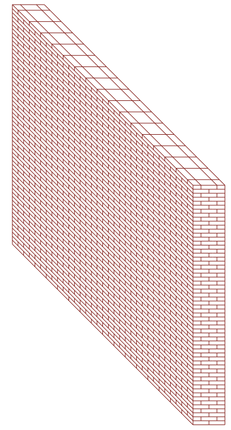




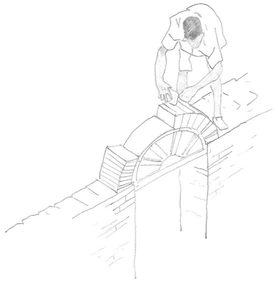


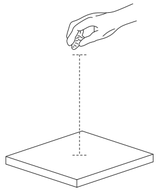


# MASONRY



The finished blocks are either 20x20x5cm or 10x20x5cm in order to allow for a maximum weight of 6/7kg. This was designed to allow all workers, including women for example, to easily lift the single module and participate in the construction process. The building unit was chosen on the example of architect Nader Khalili.



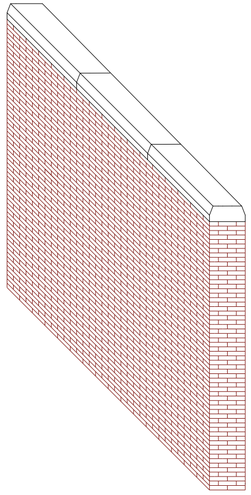


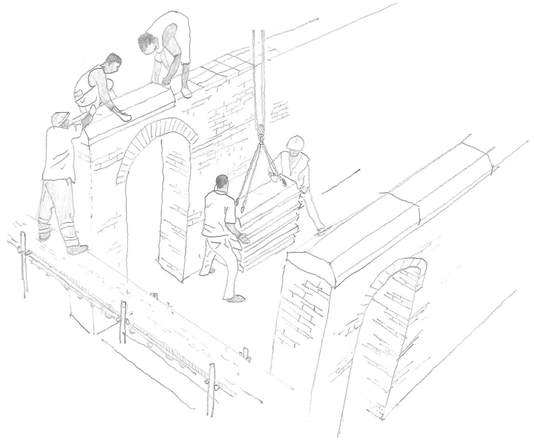






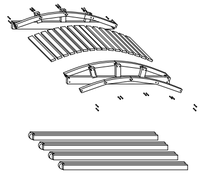
## PRE-FAB CONCRETE RING BEAM

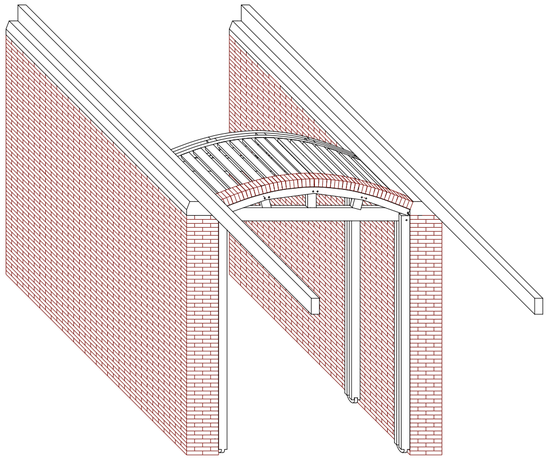




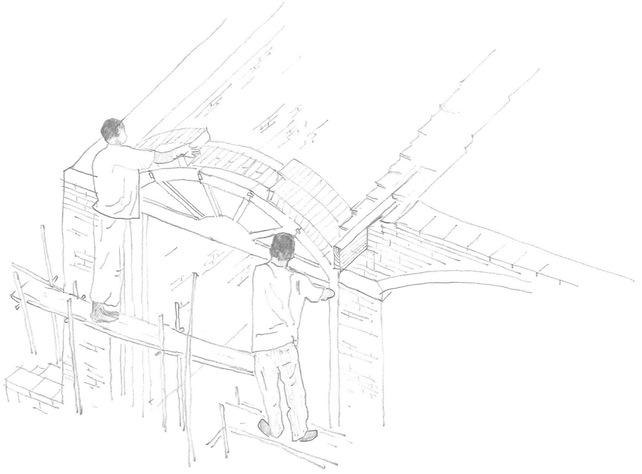
To support the vaults, a pre-fabricated concrete impost beam of 1m of span is located on top of the masonry walls. Each element weighs around 80 kg.

## EARTH VAULTING

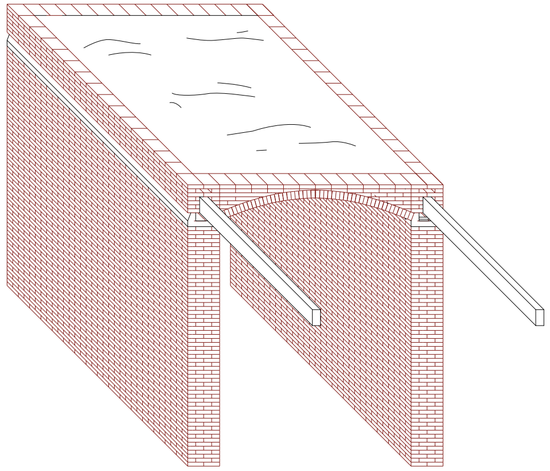






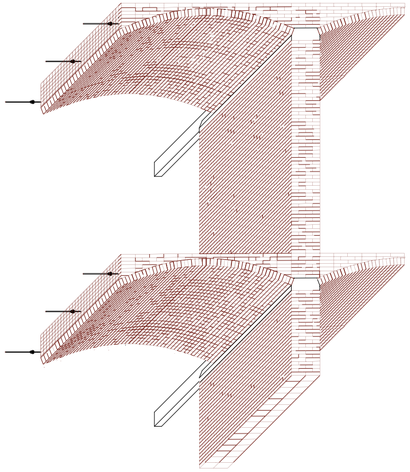


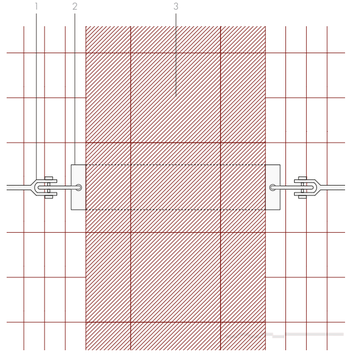
# FLOORING AND FINISHING





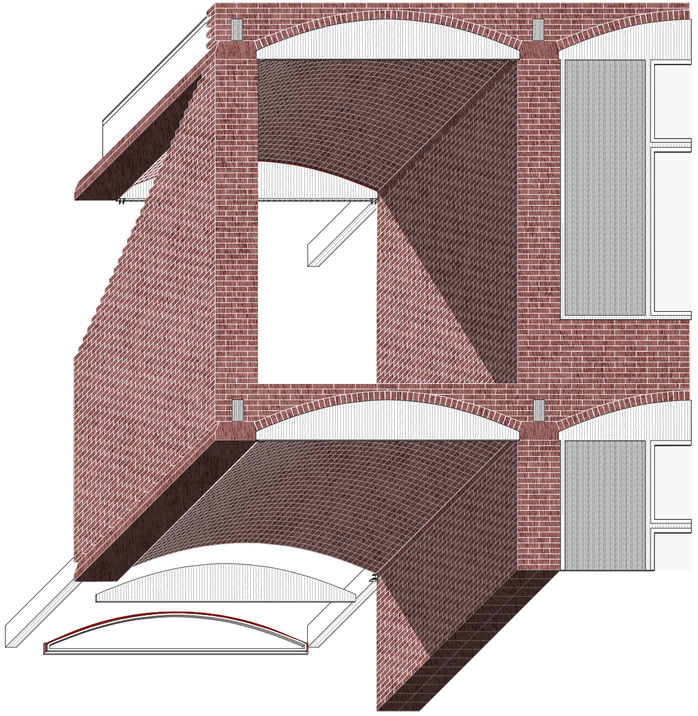
# TIE-ROD

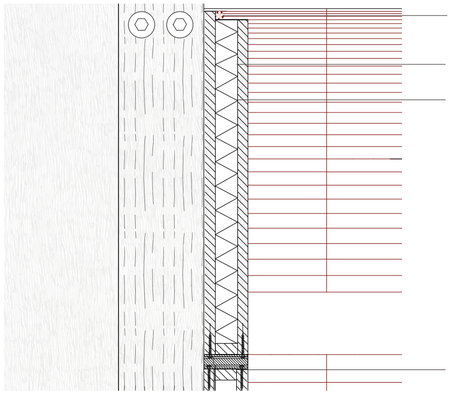


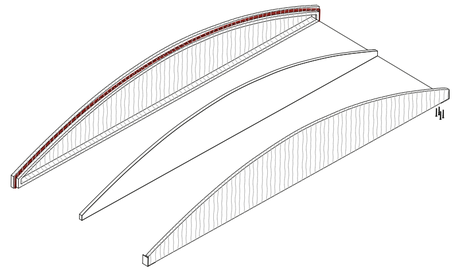


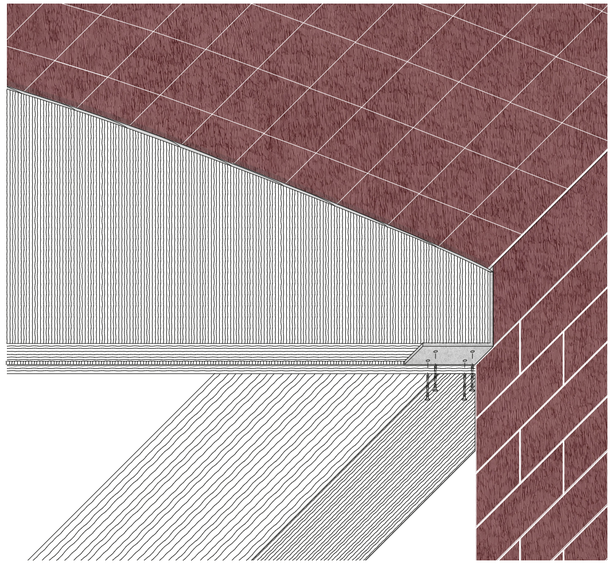

1. metal tie-rod
2. metal plate
3. load-bearing brick wall

# WOODEN PANELS



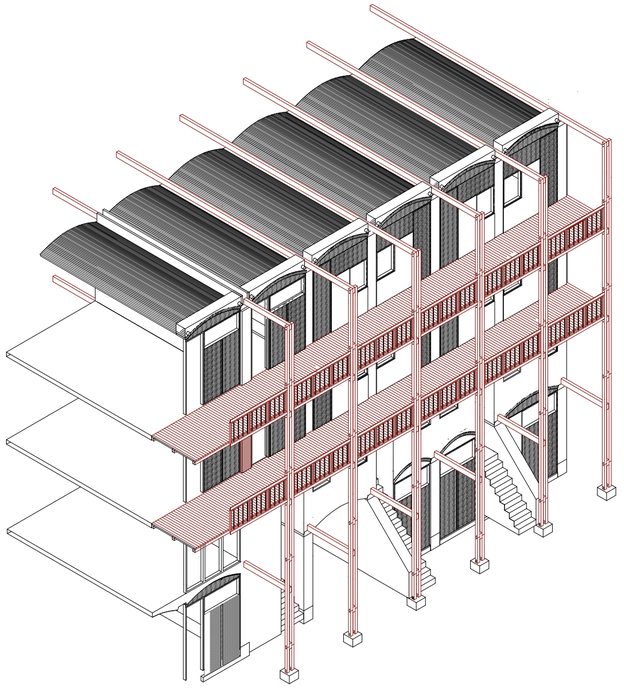


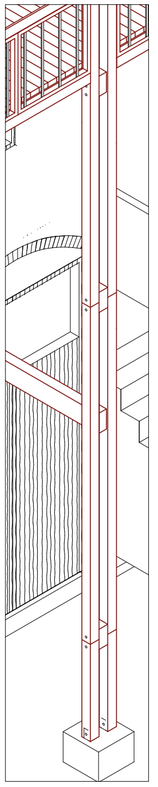


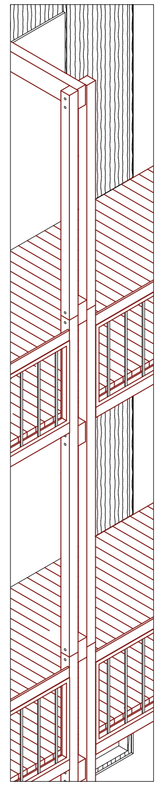


1. rope
2. wooden panel
2. rock wool insulation - 4cm
3. metal L profile

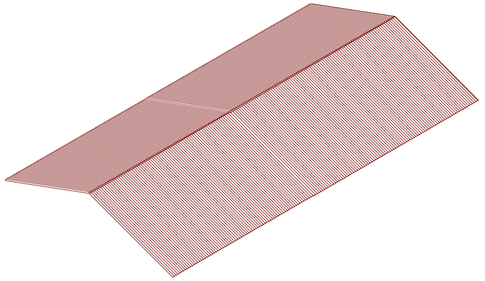
# TIMBER STRUCTURE

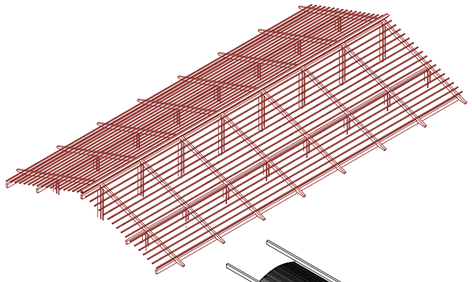


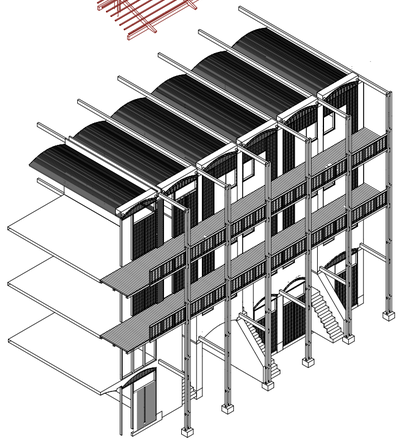


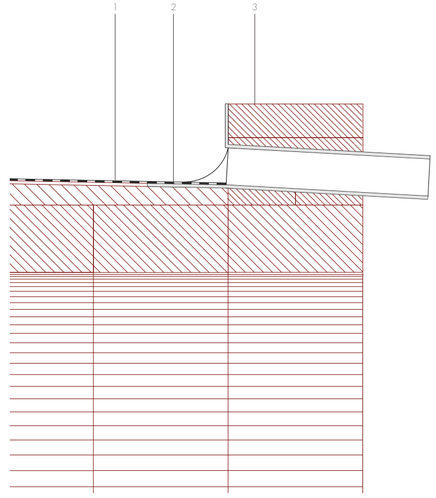


# DUO-PITCHED ROOF

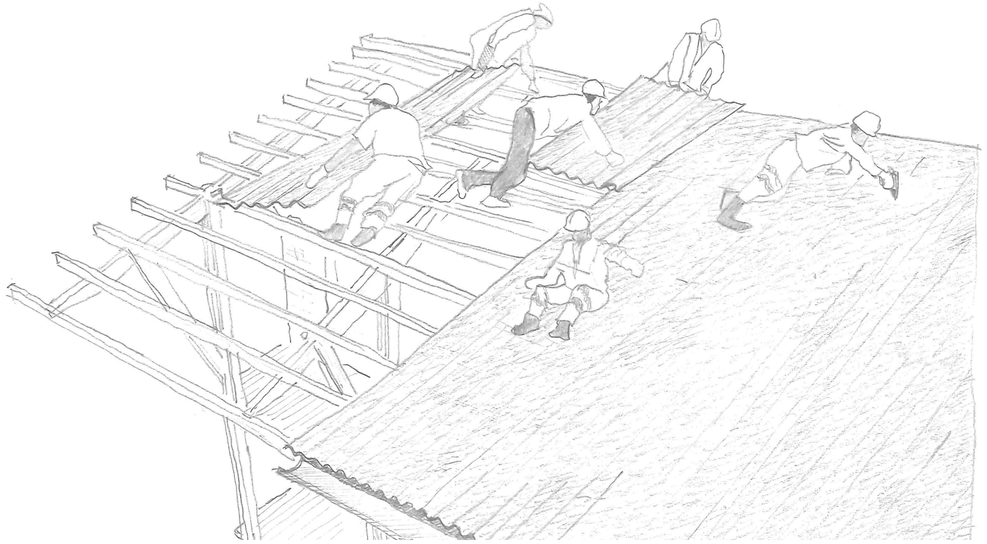




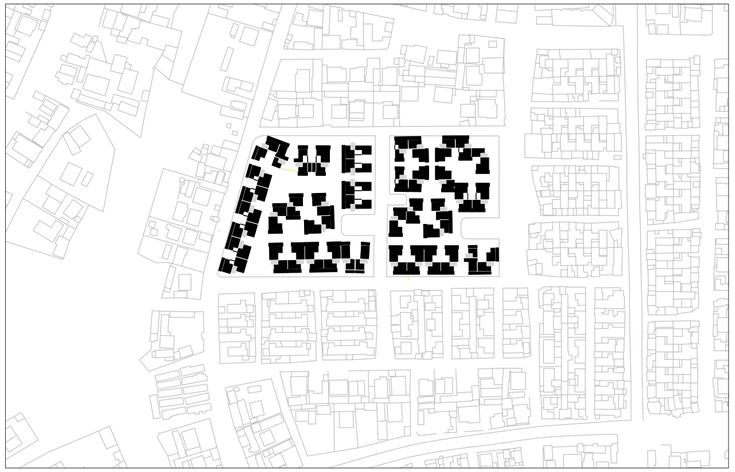





1. water-proofing: nylon membrane
2. metal draining
3. CEB



# CAN THIS CLUSTERING STRATEGY ADAPT TO OTHER AREAS IN THE CITY?



What happens if we tried to apply the same system of clustering in another area of Addis Ababa? This is an example of the same clusters in the area of Kebele 24.



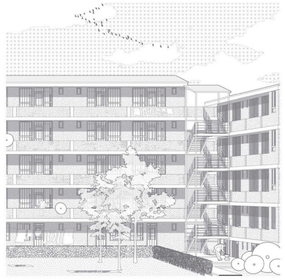






*Talian*

Surface: 27,2 ha
FAR: 0,6
inhabitants: 8676
inhabitants/ha: 319



*Mickeyleland*

Surface: 21 ha
FAR: 1
inhabitants: 7744
inhabitants/ha: 369



*Proposal*

Surface: 3 ha
FAR: 1,7
inhabitants: 2.106
inhabitants/ha: 702

*Ludovica Casalba*

*P4 Presentation*