



# Architecture & Dwelling

TU DELFT | FACULTY OF ARCHITECTURE AND THE BUILT ENVIRONMENT  
DEPARTMENT OF ARCHITECTURE | CHAIR OF ARCHITECTURE & DWELLING

## GRADUATION PLAN

Master of Architecture, Urbanism & Building Sciences

### A - Personal information

Son Hei Sou

4363248

## **B - Studio**

a) Name / theme of the studio:

**Global Housing Graduation Studio:  
Addis Ababa Living Lab**

b) Tutors:

Design and Research Tutors:  
Dr. Nelson Mota (Ir. Harald Mooij)

Building Technology Tutor:  
Ir. Frank Schnater

c) Argumentation of choice of the studio:

In my past academic career, I have chosen two dwelling studios, one of which the Global Housing studio in Ghana. My interest in housing amongst the diverse architectural field can be attributed to my background. Born and raised until the age of seven in Macau, and since then growing up in the Netherlands, I have experience incredibly different living environments. The way how dwellings from different cultures influence the lives of the inhabitants sparks my interest in dwelling and thus led me to choose *Addis Ababa Living Lab* as my graduation studio. Operating in a totally unfamiliar environment while answering to the common issue of the shortages in affordable housing that we are expected to face all around the world, I think this studio will help me in preparing challenges ahead of me.

## C - Graduation Project

# Making a Living

 - Integrating income generation schemes into urban-housing redevelopment as foundation for future economic growth and urban densification

### C.1 \_ Goal

#### a) Problem Statement

According to the IMF, Ethiopia is forecast to be the fastest growing economy in Sub-Saharan Africa with an averaged around 10% of economic growth in the past decade.<sup>1</sup> Partly due to this economic growth, the urban population is expected to increase significantly in the coming decades. The current urban population of Ethiopia is at 21%, one of the lowest percentages in the African continent. In the group of urban migrants, 55,4% comes from rural areas, indicating a large sum of poorly educated, low skilled workers as major part of the migrant group. These influxes of low skilled workers to the urban areas intensify the informal sector in cities like the Ethiopian capital, Addis Ababa. Due to different definitions of the informal employment in various studies, there are a wide range of numbers available. From as much as 69% of all employment in Addis Ababa is informal. This comprises those working in informal business, as well as a huge group of domestic workers, apprentices and unpaid family workers.<sup>2</sup> Other studies estimate that 25% engage in the informal sector.<sup>3</sup> This shows the overall scale of the informal sector present in Addis Ababa.

In Kolfe Keranio, one of Addis Ababa's sub-cities on the western periphery, the Federal Housing Corporation (FHC) oversees a public housing site with an organisational scheme that is a formal-informal-hybrid. The FHC is a governmental organisation with the objective to manage dwellings for the Federal Government. It is under these objectives that initiated the resettlement of the inhabitants to the Kolfe FHC site during the development of the Sheraton hotel.<sup>4</sup> The relocated inhabitants were compensated with one of the three unit-types based on the surface area of their original houses. The new plots consist of a core unit with one living room and one or more bedrooms.<sup>5,6</sup> Based on their needs, the inhabitants have incrementally extended the core unit and build new units in various ways up to a certain point where the original became hardly recognizable. This informal way of expansion would be nothing special as private initiative is still the dominant form of housing provision and maintenance<sup>7</sup>, if not for the fact that all building activities are under strict supervision of the FHC. Meaning that all informal activities are not legally accepted without permission of the FHC. This prohibition also includes setting up shops at the front of the houses. In dire need of income generation, but with no other

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<sup>1</sup> Chris Giles, "Ethiopia Is Now Africa's Fastest Growing Economy," *CNN* 2018.

<sup>2</sup> Jan Fransen and Meine Pieter van Dijk, "Informality in Addis Ababa, Ethiopia," (2008): 7.

<sup>3</sup> Elias Zewdie Hailemariam, "Challenges and Prospects of Informal Sector in Alleviating Urban Poverty in Yeka Sub-City of Addis Ababa City Administration, Ethiopia." (Addis Ababa University College of Business and Economics 2015).

<sup>4</sup> Nebiyu Baye, "The Impact of Development-Induced Urban Resettlement Schemes on Relocated Households: The Case of Sheraton Addis Hotel Project, Addis Ababa" (Addis Ababa University, 2000), 77-80.

<sup>5</sup> 83-84.

<sup>6</sup> Demissachew Shiferaw, "Self-Initiated Transformations of Public-Provided Dwellings in Addis Ababa, Ethiopia," *Cities* 15, no. 6 (December 1998): 438. [https://doi.org/10.1016/S0264-2751\(98\)00039-0](https://doi.org/10.1016/S0264-2751(98)00039-0).

<sup>7</sup> 439.

legal alternative when the permissions are denied, the residents have no choice but to resort to illegal, informal street markets. The power of formal institution is, despite its beneficial effect, challenged by the informality of the inhabitants.

The multi-dimensional character of the formal-informal dichotomy illustrate the inability to see the informal as purely the opposite of the formal, and definitely not as synonyms of good and bad. Many examples have shown that the formal institution is not always as efficient or even economically sound as the informal. "One of the most striking features of the Addis Ababa cityscape today is the extent of buildings under construction. The first impression is of a construction boom that suggests a positive dynamic momentum. At a closer look, however, many of these construction sites are half-finished office and apartment buildings that do not exhibit any signs of construction activity."<sup>8</sup> On the other hand, the negative characterisation of the informality has led to the neglect of the beneficial effects within the developing economy including lowering the cost of consumption and increasing the purchasing power of the urban middle class; allowing poor households to make their ends met; and providing formal capitalist enterprises with a subsidy that allows them to keep wage costs lower than it would be.<sup>9</sup> Like other governments elsewhere in the developing world, the Ethiopian government initially followed anti-informal activity policy. Later on, an increased international recognition of the sector's contribution to poverty reduction led to the Ethiopian government's change of attitude.<sup>10</sup> But this attitude change has yet led to changes in the FHC controlled Kolfe site.

The general problem is that some of the formal institutions like the FHC still overlook informal activities while making planning for the future, mainly due to the negative image of informality. This is an underestimation of the power of informality. Informality can be divided in two forms: *exclusionary* and *voluntary* informality. The former refers to informal practice that is due to exclusion from affordable legal opportunities. It is generally associated with poverty, vulnerability and low labour productivity. People in this form of informality are victims of discriminatory processes of markets and institutions, pushed into a state of exclusion with informal jobs, housing, and access to service. The voluntary informality offers a brighter view on informality, where people are not forced into, but rather opt for the informality. This is mainly to circumvent the regulatory burdens.<sup>11</sup>

As McFarlane and Waibel noted, there is "a need to move away from dichotomous approaches and to rethink both the very notion of the formal-informal divide and the implicit idea of formality as the norm and informality as a deviation"<sup>12</sup> This means that the dichotomy of formal-informal cannot be seen as a suitable way of interpreting the organization of a community if it is under the pretence of being an antithesis to one another.

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<sup>8</sup> Elena Givental, "Addis Ababa Urbanism: Indigenous Urban Legacies and Contemporary Challenges," *Journal of Geography and Geology* 9, no. 1 (2017): 31.

<sup>9</sup> Chalachew Getahun Desta, "The Urban Informal Economy in Ethiopia: Theory and Empirical Evidence," *Eastern Africa Social Science Research Review* (2018): 42-43.

<sup>10</sup> 44-45.

<sup>11</sup> Franssen and Dijk, 6.

<sup>12</sup> Colin McFarlane and Michael Waibel, *The Informal-Formal Divide in Context* ed. Colin McFarlane and Michael Waibel, *Urban Informalities: Reflectionson the Formal and Informal* (United Kingdom: Routledge, 2016), 2.

The specific problem is that disconnection between the formal institution and the informal lifestyle of people makes both formality and informality to become a source of problems instead of a solution. The formal institution which is the FHC repels any sort of commercial activities in the area, which is detrimental to the possibility of economic growth for some of the poorest inhabitants. From interviews with local inhabitants I have learned that some of them are not even able to afford a piece of eucalyptus wood that is commonly used in local, low cost construction. The lack of financial power among the residents also has many side effects. Lack of financial resources means that housing expansion are not able to go vertically, which led to the saturation of horizontal expansions. This has led to the situation that no outdoor space is left for activities such as food preparation, washing and drying of clothes.<sup>13</sup>

Being able to participate in productive commercial activity is the first step to alleviate oneself from poverty. As Dovey noted: "High levels of informality enable micro-flows of information, goods, materials and practices that produce income and make life sustainable under conditions of poverty... Informality is no to be confused with poverty; it is indeed a resource for managing poverty."<sup>14</sup> Charles Correa also wrote: "These are desperate poor migrants, coming to towns and cities to look for work. Housing has a very low priority on their list of needs. They want to be where the jobs are. Hence their willing acceptance of life in crevices of the city, as illegal squatters and pavement dwellers."<sup>15</sup>

#### **b) Research Question**

The lack of financial resources or the uncertainty in safeguarding financial returns are the main roadblocks to (re)develop any housing projects in Addis Ababa. This is true for both the formal way of development through institutions like the FHC, or informal, bottom-up development. Hence, I propose the following research question:

**How can informal income generation schemes be integrated into urban-housing redevelopment to economically empower the low-income inhabitants, while answering to the need for urban densification and maintaining the social fabric of the existing community?**

Following sub-questions are formulated to generate a better understanding in the informal ways of income generation in Addis Ababa:

- (1) What form of informal income generating activities are present in Addis Ababa, differentiate by scale, distance from home?
- (2) How can these activities be incorporated into the design on different scales (dwelling, street, neighbourhood)?

Focussing on the design of dwellings:

- (3) What are the essential needs of different inhabitants in terms of dwelling programs (space, size, amount, usage), while taking into account the local culture and context?
- (4) What are the possibilities in dwelling schemes in the case of keeping the same density, doubling it, or even tripling?
- (5) How can the design incrementally adapt to the changing needs in the future?

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<sup>13</sup> Shiferaw, 441.

<sup>14</sup> Kim Dovey, "Informalising Architecture: The Challenge of Informal Settlements," *Architectural Design* 83, no. 6 (14 November 2013): 85. <https://doi.org/10.1002/ad.1679>.

<sup>15</sup> Charles Correa, *A Place in the Shade: The New Landscape & Other Essays* (Hatje Cantz Verlag, 2012).

(6) What are the possible material culture and technological applications in building technology, taking into account the local technological capacity and sustainable future?

Focussing on the ways of living of a vibrant community on the urban scale:

(7) What are the necessary amenities within the public realm that inspire social interaction within the community?

In the organizational process from beginning of design to inhabitation by the residents, a few essential questions need to be answered:

(8) How could the permitting of (formal/informal) commercial activities exert a positive influence on a FHC controlled public housing site?

(9) What role does the various actors (existing community, FHC) play in the redevelopment process?

### **c) Design Assignment**

Under the oversight of the Federal Housing Cooperation on the existing Kolfe site, income generating possibilities are severely limited because the FHC doesn't recognize any income generating possibilities as a justifiable part of the urban program. That is perhaps due the negative image of informal economy that is often seen as out of control, which is in direct conflict to the FHC's task to manage the site for the government. Due to the inability to practice commercial activities within the area, the inhabitants are pushed into a downward spiral of economic depravity. Especially for the inhabitant group with the lowest income, trying to earn the cost of living is already challenging, let alone trying to climb the social ladder.

In the wake of the anticipated urban population boom, the FHC is going to redevelop and densify this area which will disrupt the lives of the already economically fragile inhabitants. If the same attitude of the FHC towards income generating activities within the area is maintained, then after redevelopment the same problems such as inability to earn a living and disruption of the social fabric will likely occur as shown in other government housing projects like the condominiums of the Grand Housing Program.

The main objective in the design assignment is there for the empowerment of the inhabitants with the possibilities of income generation integrated into the design, while proving (to the FHC) that the informal economy can be an added value when placed within a formal framework. To do so, first there must be an urban transition scheme in which the inhabitants are not dislocated from the area while redeveloping the area. The main forms of income generation expected to take place within this area are producing at home or at a collective facility, providing services like clothes washing, and selling products. These kinds of income generation activities are prevalent due to the overall low skill and low level of education of most of the inhabitants. The informal nature of these income generating activities is indicating the need of a mix-use housing scheme with the residential program intertwined with commercial activities. The mix-use housing scheme need to answer to the needs of various family types and income groups. On the urban scale, although the current community is already closely tied socially since before the resettlement, the lack of communal spaces in the current neighbourhood

### **C.2 \_ Process**

In this section, you should identify the methods and processes that you'll use in your graduation project, as follows:

## a) Method description

In the preliminary research phase, there were different researches done in groups to get a first understanding about the local context of Addis Ababa. The research consists of historical research through literary review, statistical research through data published on the internet, typological research on the historical transformation of dwellings in Ethiopia, and lastly a spatial analysis of the urban territory in Addis Ababa.

After trying to grasp the local context, the next phase was to conduct research on site in Addis Ababa. Through site visits there is a more in depth understanding established on the living quality of the dwellings spread throughout Addis Ababa. Also, through interview with local residents there were new information found on the local cultures and practices. During the interaction with the residents there were also participatory design conducted in the form of a design game. The focus was to acquire knowledge on the aspiration of the inhabitants in the area.

In the design process generally, a combination of typological research and architectural ethnography will be used to conduct research on the sensibility of the design within a systematic framework. The typological research is a common method used in dwelling research as it can build on the existing ways of living and the spatial qualities that is attached to it. In addition to this method, the architectural ethnography will reveal how the architectural space is (possibly) utilize. This combination creates a systematical research based on types and examined the finding from a praxeological points of view.

## b) Literature and general practical preference

Alvaro Siza - Quinta da Malagueira

Mota, Nelson. "Designed Self-Help. Producing Closed Forms for Open Buildings." In *The Future of Open Building*. Zurich, 2015.

Michel Ecochard - Planning and Building Framework in Casablanca

Avermaete, Tom, and Charlotte Robinson. "Affordable Housing as Development Aid." In *Global Housing Affordable Dwelling for Growing Cities*, edited by Frederique van Andel, Dick van Gameren and Pierijn van de Putt, 304. Rotterdam: nai010 Publisher, 2015.

Peter Barber - Hafer Road

"Hafer Road Co-Housing ", accessed 1 August, 2020, <http://www.peterbarberarchitects.com/hafer-road>.

Studio Mumbai - Saat Rasta housing

"Bombay Mix: Saat Rasta Housing, Mumbai, India, by Studio Mumbai." 2017, 2020, <https://www.architectural-review.com/buildings/bombay-mix-saat-rasta-housing-mumbai-india-by-studio-mumbai/10021888.article>.

## C.3 \_ Relevance

"These are desperate poor migrants, coming to towns and cities to look for work. Housing has a very low priority on their list of needs. They want to be where the jobs are. Hence their willing acceptance of life in crevices of the city, as illegal squatters and pavement dwellers."<sup>16</sup> Written by Charles Correa as comments on the importance of making money, so much so that urban migrants are willing to sacrifice their quality of living. Being able to participate in productive commercial activity is the first step to alleviate oneself from poverty. When formal institutions are overlooking

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<sup>16</sup> Short.

the power of informality, mostly due to the negative image of the informal, the dichotomy of formal-informal will become a source of problem rather than a solution. It is therefore necessary to showcase that informality is “not to be confused with poverty; it is indeed a resource for managing poverty.”<sup>17</sup> When the possibility of generating income in formal ways are denied, the only outcome is that the most fragile group of the population are discriminated against, and being pushed into the exclusionary informality which is generally associated with poverty, vulnerability and low labour productivity. This is exactly how the negative side of informality overshadowed the voluntary informality, which is a positive force in alleviating poverty and empowering the poor. It is thus, necessary to highlight the importance of the informal economy in this project, not as a necessary evil, but as an undeniably positive part of the solution.

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<sup>17</sup> Dovey, 85.



## C.4 \_ Time planning

### PLANNING GRADUATION STUDIO

	Dates	Course Week	PRELIMINARY RESEARCH							URBAN DESIGN				ARCHITECTURAL DESIGN				BUILDING TECHNOLOGY									
			Research Briefing	Site survey	Problem Statement	Design Hierarchy	Program of requirements	Case studies	Preliminary design	Urban analysis	Urban strategy	Context design	Transition scheme	Urban program	Public space Design	Modelling (urban)	Building Design	Unit design	Public to private	Facade	Building process	Modelling (architecture)	Analysis	Building construction	Structural design	Climate design	Detailing
Sep	2-8	1.1																									
	9-15	1.2																									
	16-22	1.3																									
	23-29	1.4																									
	30-6	1.5																									
	7-13	1.6																									
Oct	14-20	1.7																									
	21-27	1.8																									
	28-3	1.9																									
Nov	4-10	1.10																									
	11-17	2.1																									
	18-25	2.2																									
	25-1	2.3																									
Dec	2-8	2.4																									
	9-15	2.5																									
	16-22	2.6																									
	23-29	Christmas																									
	30-5	Christmas																									
Jan	6-12	2.7																									
	13-19	2.8																									
	20-26	2.9																									
	27-2	2.10																									
	3-9	Spring																									
Feb	10-16	3.1																									
	17-23	3.2																									
	24-1	3.3																									
	2-8	3.4																									
	9-15	3.5																									
	16-22	3.6																									
Mar	23-29	3.7																									
	30-5	3.8																									
	6-12	3.9																									
	13-19	3.10																									
	20-26	4.1																									
Apr	27-3	4.2																									
	4-10	4.3																									
	11-17	4.4																									
	18-24	4.5																									
	25-31	4.6																									
May	6-12	3.9																									
	13-19	3.10																									
	20-26	4.1																									
	27-3	4.2																									
	4-10	4.3																									
Jun	11-17	4.4																									
	18-24	4.5																									
	25-31	4.6																									
	1-7	4.7																									
	8-14	4.8																									
Jul	15-21	4.9																									
	22-28	4.10																									
	29-5	4.11																									
	6-12	5.1																									
	13-19	5.2																									

## C.5 – List of References

- Barbero, Carolina Sanchez, Casper Pasveer, Gavin Wallace, and Son Hei Sou. "Hard Data - Ethiopia." TU Delft, 2019.
- Baye, Nebiyu. "The Impact of Development-Induced Urban Resettlement Schemes on Relocated Households: The Case of Sheraton Addis Hotel Project, Addis Ababa." Addis Ababa University, 2000.
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# PLANNING GRADUATION STUDIO

			PRELIMINARY RESEARCH							URBAN DESIGN							ARCHITECTURAL DESIGN						BUILDING TECHNOLOGY							
			RESEARCH BOOKLET	SITE SURVEY	PROBLEM STATEMENT	DESIGN HYPOTHESIS	PROGRAM OF REQUIREMENTS	CASE STUDIES	PRELIMINARY DESIGN	URBAN ANALYSIS	URBAN STRATEGY	CLUSTER DESIGN	TRANSFORMATION SCHEME	URBAN PROGRAM	PUBLIC SPACE DESIGN	MODELLING (URBAN)	BUILDING DESIGN	UNIT DESIGN	PUBLIC TO PRIVATE	FACADE	BUILDING PROCESS	MODELLING (ARCHITECTURE)	ANALYSIS	BUILDING CONSTRUCTION	STRUCTURAL DESIGN	CLIMATE DESIGN	DETAILING	MODELLING (BT)		
	Dates	Course Week																												
Sep	2-8	1.1																												
	9-15	1.2																												
	16-22	1.3																												
	23-29	1.4																												
	30-6	1.5																												
Oct	7-13	1.6																												
	14-20	1.7																												
	21-27	1.8																												
Nov	28-3	1.9																												
	4-10	1.10																												
	11-17	2.1	Field-trip (2-18 Nov)																											
	18-25	2.2																												
	25-1	2.3																												
Dec	2-8	2.4																												
	9-15	2.5																												
	16-22	2.6	Preliminary Design																											
			Christmas																											
			Christmas																											
Jan	6-12	2.7																												
	13-19	2.8																												
	20-26	2.9	Correction after P2																											
	27-2	2.10																												
Feb	3-9	Spring																												
	10-16	3.1																												
	17-23	3.2																												
Mar	24-1	3.3																												
	2-8	3.4																												
	9-15	3.5																												
	16-22	3.6																												
	23-29	3.7																												
Apr	30-5	3.8																												
	6-12	3.9																												
	13-19	3.10																												
	20-26	4.1																												
May	27-3	4.2																												
	4-10	4.3																												
	11-17	4.4																												
	18-24	4.5																												
	25-31	4.6																												
Jun	1-7	4.7																												
	8-14	4.8																												
	15-21	4.9	Finalizing drawings																											
	22-28	4.10																												
	29-5	4.11																												

P1 Presentation

Field-trip (2-18 Nov)

Preliminary Design

Hand-in Graduation Plan (8th Jan)

P2 Presentation (15th Jan)

P2 Retake if necessary (7th Feb)

P3 Presentation (3rd Apr)

Application P4 (9th Apr)

P4 Presentation (25-29 May)

P5 Presentation (t.b.a.)