SOCIOTECTURE: REVOLUTIONIZING THE PROCESS
OF INFORMAL HOUSING IN EGYPT

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This dissertation is dedicated to my father Magdy Aref, my mother Nevine Moustafa, my sister Sarah Aref, and my best friend Julia Sprowls. Without you all, I would not be where I am today. I thank you for all of your love and support.
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Abstract

It is estimated that one billion people around the world live in unsanitary, destitute, and dangerous slums. Millions of these dwellers live in Egypt. Within Cairo, Ezbeet el Haggana is considered one of the world's largest “megaslum” with over one million people. There are vast areas that lack access to plumbing, electricity, roads, schools, hospitals or emergency personnel. Without the reversal of the slums, many countries will not be able to pull themselves into holistic nations and will remain bound by the poorest tier of their society. By socially rehabilitating these conditions through urban design and architecture, the restructuring of their physical environment will enhance the individual’s identity, self-worth, and social interactions. Through the understanding of the historical, political, and economic climate of Egypt, as well as the slum residents’ expectations and social needs, the design of the community is driven with the purpose of encouraging positive behaviors. With these outcomes, the design parameters inform the design project which aims to create clean, prosperous, and safe dwellings. The new urban approach aims to cultivate communal needs and nourish the social and economic development of the slums. Finally, a methodology of assessing slums was developed to promote a global approach that can serve as a framework for application across varying slums around the world. The methodology is then applied to Ezbeet el Haggana in order to illustrate the potential of the process.
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Part One

The Foundation of

Sociotecture
Chapter 1   Introduction of Problem

Architecture steers the human body through a guided journey across space and time. Careful intentions reveal composed occasions of feelings through this movement. Each moment molded enough to suggest a feeling, yet left open enough to leave it up for interpretation. As the individual traverses the moment, the physicality of their surroundings pushes and pulls at their soul quietly instilling a multitude of inner stirrings. The individual absorbs varying wordless messages as they move through place. Each message brings with it a clue for defining one’s self and for interacting with one’s society. Every message sent by the built environment is then interpreted through the human senses to create an abstract mental picture of emotions. “When the human mind organizes a body of thought, it does so almost inevitably in terms of spatial imagery.” These feelings then dictate social interactions. This process describes the concept behind the basis of sociotecture; utilizing the built environment as the primary driver through which to promote social equality. By sociologically designing place, architecture fully embodies its duty to its users: to serve the wide spectrum the human soul requires.

It is evident that there has been a rampage of inequality spreading across our planet. Revolutions have been awakening people from all countries as to the effect that this inequality has been having on the world. Those who once remained quiet felt that they could no longer stand by and allow this to ensue. The demand for fairness became apparent as an increasing number of voices made their needs clear. While the planet is capable for supplying more than enough for all of its inhabitants, the resources themselves have not been doled out equally. The gap between those who can afford it all

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and those who can afford nothing is increasing. The historical and global societal structure in which we live has written a set of possibilities within which one is bound to at birth. Time and effort may eventually loosen or, in some cases, completely break off these shackles. However, not everyone is given the same opportunities at birth or throughout life. “Whatever one’s motivation for attacking the crisis of extreme poverty – human rights, religious values, security, fiscal prudence, ideology – the solutions are the same. All that is needed is action.”

Figure 1-1 Tahrir Square, Egypt, on February 8 2011

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3 Source: http://upload.wikimedia.org/wikipedia/commons/e/e7/Tahrir_Square_during_8_February_2011.jpg
Most countries generally follow their political and financial motivations in order to advance in the world. This framework has been proven to be flawed with a growing number of people falling from in between the ever-widening cracks. The pressure is building, and the weight is getting heavier. The global population continues to grow, and yet many problems are still being approached using defeated methods. There is an essential element missing. The repetition of a problem lies in its origin of its recurrence. The successful solution begins by establishing the human connection which is noticeably missing in today’s world. While there are many organizations around the world that have begun the process of solving this crisis, the implementation of these plans has still left much room for a radically different and holistic approach. It is understood that there is a problem that needs to be solved. Yet, the potential solutions are not present.

In 1948, the United Nations issued the “Universal Declaration of Human Rights” attributing 30 articles outlining basic rights given to every human regardless of their background. Part 1 of article 25 reads, “everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control.” Part 1 of article 26 reads, “everyone has the right to education. Education shall be free, at least in the elementary and fundamental stages.”

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5 Ibid, 5-6.
6 Ibid, 6.
In 1990, the Nineteenth Islamic Conference of Foreign Ministers issued the “Cairo Declaration on Human Rights in Islam” as somewhat of a substitute for the aforementioned United Nations document. The “Cairo” version was issued as a set of principles regarding human rights in accordance with the Islamic law. Within it, article 17 section (a) “everyone shall have the right to live in a clean environment, away from vice and moral corruption, that would favour a healthy ethical development of his person and it is incumbent upon the State and society in general to afford that right. Section (b) states “everyone shall have the right to medical and social care, and to all public amenities provided by society and the State within the limits of their available resources.” And section (c) states “the States shall ensure the right of the individual to a decent living that may enable him to meet his requirements and those of his dependents, including food, clothing, housing, education, medical care and all other basic needs.”

The United Nations Millennium Project, established in 2005, established 8 global goals to be met by 2015 in order to begin the healing process. The goals were to “eradicate extreme poverty and hunger,” “achieve universal primary education,” “promote gender equality and empower women,” “reduce child mortality,” “improve maternal health, combat HIV/AIDS, malaria, and other diseases,” “ensure environmental sustainability,” and “develop a global partnership for development.” They have shown initiative in establishing a thoroughly thought out plan as well as updates on the progress of implementation.

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1.1 Informal Housing Globally

According to the United Nations, there are over one billion people on Earth living in slums. This means that one out of every seven people today live in decrepit conditions beyond their control. This number continues to grow and there is a lack of holistic solutions to suspend this indignity surrounding the everyday reality of a large portion of the global population. At the current rate of global population growth, it is estimated that by 2050, one out of every four people will live in slums. While there are slums in most countries in the world, potential solutions often tackle this problem by trying to produce the most efficient number of housing units from an economical point of view rather than a sociological perspective. This produces temporary results that often fail after a few decades and return to their previous decrepit conditions. This in fact ends up costing more in the long run since the solution was not stable enough to last past a couple of generations.

![The Locations and Intensities of Slums Worldwide](http://www.aucegypt.edu/newsatauc/Pages/story.aspx?eid=1004 (accessed April 12, 2014)).

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10 Source: http://upload.wikimedia.org/wikipedia/commons/d/d0/Principaux_Bidonvilles.png
The general approach towards solving the housing crisis is geared to trying to provide as many units as possible with the smallest financial output. While the economy is definitely an important factor in this equation, it should not be the primary driver in solving the overall problem. Building a number of units that only serve to shelter humans is a stagnant fix to a much larger break. Historical experience has shown that this problem cannot simply be patched up. The global population continues to grow, while the economic disparity continues to widen thus breaking open this wound repeatedly. This economic gap causes the slums to be looked upon as a separated hindrance upon society instead of an actual part of the society in need of assistance.

“People living in slums are largely excluded from enjoying their political, social, and economic rights. Some slums are so densely populated that it is not even possible to drive an ambulance into them.”11

What humans need from architecture is more than simply shelter. History has shown us that humans have innate needs to thrive, contribute, belong, and feel secure. The layers of complexity go beyond the vital and into the emotional. If one out of every seven humans living on Earth lives in squalor, what does this say about our global society as a whole? The place in which people begin and end each day of their lives has a great impact on their thoughts, emotions, and behaviors. By creating a space that encourages innate human needs, this will transfer to the community as well as the country in which they interact.

1.2 Breadth of Importance

Other than those living in these horrid conditions and those involved in the problem-solving process, one might wonder how anyone else would be affected by the slums. The health of the whole relies on the health of the individual. A plant that continually produces rotten fruit is not classified as a healthy plant that happens to have rotten fruit. It is wholly classified as an unhealthy plant. Thus, if a part of society is living in squalor, then society as a whole cannot be healthy. This idea is not simply alluding to health in a symbolic way, but in a literal way as well. Slums often become basins of disease and violence. Through social interactions and population growth, even the healthiest parts of a community are at an increased risk of contracting these diseases and becoming affected by the possible violent consequences. Therefore, even if considered a form of self-preservation, every global citizen should be concerned with the improvement of these conditions. This concern should not be limited to one’s own country of origin but to the entire planet as a whole. Many people have the ability of using their own individual resources to benefit specific areas within society. If a majority of those people came together and began to make an impact on those areas, the spread of the slums will transform into the spread of improvement. A forest begins with the planting of only a few seeds.
Another aspect of the communal responsibility for providing care to those in need is the economy. The more people work within a community, the more money the society will make and spend. The continuation of the spread of slums will affect an increasing percentage of the population. If more people are living in slums, less people are healthy enough to become contributing members of society. This will begin to deteriorate the economic structure of the globe thus rendering it more likely to widespread detrimental living conditions.

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12 Source: 
http://upload.wikimedia.org/wikipedia/commons/8/81/M%C3%BCllegebiet_Ezbez_Al_Nakhil.jpg
1.3 Important Distinctions

Some important distinctions that must be noted are both linguistic in nature as well as political. The issue of housing has had many faces and delineations. And even amongst the several terms used to address this issue, the way with which each source defines it varies. Historically, the place in which one lives usually suggests the financial position within which resides within society. “Public housing has become synonymous with the idea of a ghetto, a place in which people of a particular ethnic or economic group live in relative isolation from others.”13 Housing in general has gone past the basic need for shelter and evolved into a place that holds one’s memories, belongings, families, and identity. “Over the years, its owners have returned from periods away and, on looking around them, remembered, who they were.”14 “Social housing” often refers to the general idea of housing those that do not reside within the financial realms of “upper” or “middle” class. Social housing can be provided to the community at lower costs by private developers or by the government. “Public housing” falls within that category as that which is generally only provided by the government. “Affordable housing” is another way of describing public and/or social housing as it directly communicates the distinction of needing a residence that is labeled as such. “Informal housing” are those that were not commissioned by the private sector, non-governmental organizations (NGOs) or by the government. These are usually self-built and self-sustained. They generally are not legally owned by the dwellers and are in a constant state of flux. “Slums,” “shanty towns,” and “squatter communities” fall within this category. While some believe that a “slum” is synonymous with an area primarily inhabited by criminals, this is not a universal truth. A slum is often “characterized by overcrowding, poor or informal housing, inadequate

access to safe water and sanitation, and insecurity of tenure.”15 Another important term is the “megaslum.” These “arise when shanty-towns and squatter communities merge in continuous belts of informal housing and poverty, usually on the urban periphery.” 16

The financial tiers of society carry great implications. While there are varying opinions on which term is the politically correct way of addressing this issue, it is crucial to note that this project is attempting to bridge past these lingual discrepancies and reach the core of this problem. Rather than walk around the issue and make unattached observations, the objective of this quest is to pursue the fundamental origin that is breeding this problem and then socially reconstruct it through architectural rehabilitation. “The attention paid to doing the right thing in modern ethics has, in turn, found its reflection in modern architecture, whether it be the utilitarian emphasis on function and efficiency in many commercial and industrial buildings, or the focus on our duty to others in the creation of public parks or public housing, or the embrace of a social contract in our adherence to building and zoning codes and in our respect for the property rights of others.”17

Within Cairo, Egypt, “illegality refers to two main situations: either settlements located on privately owned agricultural land… or on public desert land, which belongs to the state domain (so called squatting). Squatting consists of appropriation and occupation of a plot… by an individual (inhabitant or entrepreneur) or, more rarely, a group, without the authorization of the true owner, in this case, the state.”18

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15 Mike Davis, Planet of Slums, London: Verso, 2006, 23
16 Ibid, 26.
18 Myrian Ababsa, Baudouin Dupret, and Eric Denis, Popular Housing and Urban Land Tenure in the Middle East: Case Studies from Egypt, Syria, Jordan, Lebanon, and Turkey (Cairo: American University in Cairo Press, 2012), 93.
Figure 1-4 Slum in Cairo

19 Source: http://upload.wikimedia.org/wikipedia/commons/3/33/Slum_in_Cairo.jpg
Chapter 2  Background

In order to attempt to find an alternative way with which to approach the problem of informal housing community design, all possible background motivations should be made clear as they may be mistakenly regarded as biases. By providing a clear explanation of the author’s incentives, the foundation of the project’s goals is better communicated. The following background information is meant to serve as a basis for the reader in understanding the author’s process of thought throughout the research.

2.1 Personal Background

The author was born and raised in Egypt until the age of eight. As she grew up in the United States of America, she has kept in contact with family and friends thus instilling a sense of communal responsibility to both countries; her roots as well as her new branches. This has in turn become a source of motivation and personal investment for this project. In an attempt to improve the lives of those who are less fortunate, it is important to note that choosing Egypt as a starting point is because of the personal connection, unique understanding of the country, and the opportunities presented in the utilization of existing networks of contacts. By fully taking advantage of all available resources within the country, the change proposed can turn from a theoretical idea to an actualized reality. Once one change is planted, the growth of improvement can flourish in other parts of the world as well. It is also important to note that the approach of this project is not to eliminate the slums or offend their residents. The general approach of this endeavor is to remove the associated stigma of inequality and to provide the residents with a socially-conscious built environment that will improve the quality of their lives. This localized improvement will contribute to the overall health of the country. From the
author’s point of view, the slums are not seen as a blight on society, but as a part of society that must be given assistance. The focus of the project is not that the slums are a problem, but rather that the previous approaches to remediating the slums is the problem. The solution is to redefine the way with which the slum communities are improved.

Figure 2-1 Map of Egypt

2.2 Theoretical Framework

If one part of the human body is ill, then the whole body is ill. Everyone is connected and should be provided with equal opportunities for living. A person’s identity (thoughts), self-worth (emotions), and social interactions (behaviors) can all be encouraged through architecture. Through the study of the relationship between sociology and space, one can begin to design architecture that directly affects social interactions. “The physical layout of a situation has been considered important through the ages for all ceremonial occasions. It not only influences the behavior of the participants, it also defines their social status.”\(^{21}\) “Belief in the significance of architecture is premised on the notion that we are, for better or for worse, different people in different places – and on the conviction that it is architecture’s task to render vivid to us who we might ideally be.”\(^{22}\) Alain de Botton continues, “what works of design and architecture talk to us about is the kind of life that would most appropriately unfold within and around them. They tell us of certain moods that they seek to encourage and sustain in their inhabitants.”\(^{23}\) Using sociology as the main driver for architecture will provide the necessary framework for the social rehabilitation of informal housing. A designer must instill a multi-disciplinary approach when it comes to problem solving because the problem is never of simply one origin. This idea of integrated connectedness can be found in the problem itself as well as the solution. Since the problem contains aspects of architecture and sociology, so must the solution. And since the problem stems from sociological inequalities and architectural disparities, so must the design. “Liberty without

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\(^{23}\) Ibid, 72.
some sense of belonging to a larger vision is one of the tragedies of modern individualism as well as modern design.\textsuperscript{24}

Architecture quietly surrounds most moments of most lives. Its presence silently and tirelessly performs in the background; an invisibly apparent backdrop to most activities. To most, architecture’s existence is an obvious fact that is essentially overlooked. Gone unnoticed, architecture continues to provide us with practically every aspect of our lives from identity, shelter, socialization, education, healthcare, governance; from birth until death. Most people in the world are born within some form of a built environment. From the very first second of birth, humans have been instinctively benefiting from architecture at every turn throughout time.

Whereas basic needs used to simply span the fundamental elements of survival, humans have evolved to yearn for more than to solely survive. History shows us the development of the arts and sciences as means of explaining our world and justifying our existence. Putting aside any opposition between science and religion, it is clear that most of humanity has been progressing towards a more refined set of holistic desires that can be contrasted to our previously primitive needs. Within the context of this project, evolution is the concept of the marriage between flexibility and revision. Revision, here, is not to actually attain perfection. Perfection is stagnant, whereas evolution is a constant strive towards collaboration with a changing environment. It replies to the apparent relationship between humans and nature, where one cannot be without the other as we are one and the same. If our homes define us, and we are our homes, then our shelters should also evolve with us. Adaptation to the ever-changing environment of our society and of our planet is the primary motivator for design.

\textsuperscript{24} Fisher, \textit{Architectural Design}, 186.
2.3 Personal Interests

While there is a personal interest in this project from a cultural and communal perspective, there is a grander interest in instilling social change, especially to those who are less fortunate. To provide social justice on a global level has always been a motivator. By providing inspiration for small changes on a local level, these minor shifts can encourage a wider spread of change to eventually reach a global level. An architect should be a staple in the community who works side-by-side with sociologists, ecologists, politicians, historians, and economists, just to name a few. Each of these disciplines must be considered in depth in order to achieve a holistic and successful outcome to any problem-solving endeavor.

By learning about all of these varying disciplines, one can utilize the newly learned attributes of design from these many perspectives. Learning how to care for the most vulnerable parts of a society will not only contribute a unique perspective to the field of knowledge, it will re-order the critical and fundamental priorities of a design to become aligned with social interests. These essential attributes will protect future design efforts from missing crucial elements.

By breaking these presupposed social barriers and creating a sense of community both in and out of the slums, society can begin to redefine its social expectations and face the segregation between the underprivileged and the luxurious. While social rehabilitation often comes with heavy-handed police force, one of the objectives for socially redesigning the slums is to do it internally with reason and without force.

Not only are slum dwellers literally disconnected from the rest of their country, they are also ironically completely dependent upon it. This relationship of being dependent but rejected has propagated a general perception of disorder and emotional
illness. By addressing these issues, it will ensure a proper understanding of the many aspects necessary in successfully guiding this new community towards a fruitful future for generations to come. This not only should be addressed to the literal providing of shelter but to providing a place that speaks to the inner soul of the human past the physicality of the built environment. “Our sense of beauty and our understanding of the nature of a good life are intertwined.”  

Other than the basic five senses, there is another dimension. “Aesthetics are fundamental to both culture and nature, and if sustainability refers to the graceful interaction between them, it must have a sensory dimension.”  

What must be given to the slum dwellers is more than the basic. “Even the most intangible human and natural treasures are social or environmental in origin, so the triple bottom line must include even the emotional and the spiritual – love, family, faith, and, yes, beauty.”

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27 Ibid, 23.
28 Source: http://placemanagementandbranding.files.wordpress.com/2012/04/2012_02_18_koptische-bergkirchen-11-best-of1.jpg

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Chapter 3  Approach

3.1 Initial Hypotheses

When this project’s research first began during the proposal phase, the concentration and approach of the problems were primarily geared towards studying the relationships between the economy, financial buildings, government buildings, and their political implications. This produced a largely unattached report of numerical equations, statistical data, and theories of governance and political power. While this removed approach provided a basic understanding of the result and underlying mechanics of the slums, it was unable to dive past the facts and figures into the social core of the problem. This inspired the project to shift its focus from a scientific approach to a humanistic one.

The initial hypothesis of the project’s core has remained similar. The initial hypothesis stated that when exposed to negative spaces, it affects the user in such a way that it becomes translated into their social interactions. The visual cues of a person’s surroundings would make an impression upon their personality. The concept was that by walking through a socially-geared space, a person would enter with a certain set of emotions but exit that space with a different set of feelings. The place in which a person resides has a dramatic effect on their daily lives. The exploration here is geared towards using architecture as a form of encouraging positive behavior and a means of discouraging negative behavior. This idea is still being explored within the project.

Other hypotheses included discovery of varying elements of a city and their potential effect on society. These elements included financial architecture, as well as governmental architecture such as capitol buildings and police stations. The premise of the initial proposal was to re-design the essence of the slums past the housing units
themselves and add some of these previously mentioned elements in hopes of having those buildings internally affect the slum residents’ perception of themselves. The idea was that providing a neighborhood with an iconic or socially-important building such as a large bank or a governmental building would instill a sense of patriotism, connection to state, protection, progression, and pride. By providing an economic center within the community, the intention was to drive financial fruition from within. Throughout the research process this approach addressed the systematic consequences resulting from the crisis as well as targeting the true source of the social inequality. This became an important discovery in shaping the project.

3.2 Given Assumptions

This task seems to have brought about more problems than solutions at a first glance. However, there are certain aspects to these problems that must be addressed by other parties outside of the immediate scope of this research. There is a set of given assumptions that must be presented here that fall outside of the extent of this project. Once the project is completed, and a design for the slums is proposed, the Egyptian government as well as the varying groups within the United Nations and UN-HABITAT will be in charge of the development phase. While the financial calculations of this project will not be detailed for construction purposes, those who take the plans laid within this project will be responsible for taking the recommendation of contracting funding from the follow suggestions: the government, private funding, non-governmental organizations, investors, and donations.

The current political state of affairs in the country at the moment creates an impediment for immediate application of this project. However, this obstacle could be maximized in the sense that affairs are being restructured at the moment. The
constitution has been undergoing many changes and this may be the perfect time to implement new ideals concerning social inequality and the right to housing.

As far as the plans laid out by the United Nations discussed earlier, “Egypt has made substantial economic, social and development gains over the past two decades, achieving many of its Millennium Development Goals.” This shows promise of a global collaboration towards achieving a common set of goals benefiting the population worldwide.

As far as any issues with the legalities of land transfer, registering a property, or contracts exchanged between citizens and the government, Marion Séjourné discusses the varying aspects regarding acquiring land tenure from slum residents in detail. She discusses the procedures necessary for registering a property in order to receive full protection against forced evictions or demolition. This legal aspect of the project will be the government’s responsibility. Eric Dennis also addresses this vital part of the problem through the discussion of Hernando de Soto’s economic proposal of “formalizing so-called ‘illegal’ popular ownership” so that “these secured ownership acts allow for more transparent transactions and popular and generalized access to mortgage loans aimed at stimulating a more inclusive economy.” In other words, it is “the rehabilitation of dead capital.” It addresses the main problem, where “in the end, land is made available. This is the major issue of these reforms: to fill the market with land investment opportunities

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30 Myrian Ababsa, Baudouin Dupret, and Eric Denis, Popular Housing and Urban Land Tenure in the Middle East: Case Studies from Egypt, Syria, Jordan, Lebanon, and Turkey (Cairo: American University in Cairo Press, 2012), 91-110.
and through the simplification of regulations, to favor those who own capital, while creating higher fiscal revenues.”

3.3 Goals

When narrowing down the goals of this project, a few items became immediately apparent. In order to attempt to solve this large issue, it had to be broken down into smaller manageable parts. As previously mentioned in the given assumptions, while the economic aspect of this project will not be directly addressed in detail, there will be an effort to minimize costs and render the realization of this project into a simple outcome.

The main goals are as follows: to transform the slums from a community that is solely a country’s resource consumer to one of the country’s resource providers. Second is to design indoor and outdoor space that encourages positive behavior and discourages negative ones. For example, eliminating narrow alleys will decrease the use of cramped, unlit, and hidden spaces for negative behaviors. Third is to create a repeatable prototype and framework methodology to be applied globally. This framework will then be given to government officials and/or any necessary organizations for application. This framework will change the way with which designers approach aiding those pushed aside by society. It will provide architects with a design philosophy and the social framework necessary to use architecture to as a means of shaping social outcomes. History has shown that our environment shapes us, and yet, when attempting to solve the problem of the slums, results have been proven to mostly ineffective because they do not take into account the social touch. What is globally missing here is the necessary shift of society’s focus from the monetary wants to the communal needs. Fourth is to communicate the essence of this project with all appropriate audiences using an interdisciplinary approach ranging from

31 Ibid, 227-258.
architects, urban planners, sociologists, slum dwellers, politicians, and anyone else interested in this subject. Instead of seeing the slums as an affliction cast out onto the outskirts of the country, socially rehabilitating the community to be included within the protection of the country is crucial. As mentioned earlier, the place in which one lives has a great impact on who they perceive themselves as to themselves and to the world.

Figure 3-1 Comparison of Two Areas Within Cairo

Chapter 4  Focus

Government-funded housing is minimal and even if provided rarely follow codes and are very unsafe. The general approach to the slums is that they are a dangerous problem thrust upon society. It is as if the country is a boat and the slums have caused a hole in it triggering an apparent leak. Many of the proposed solutions often mask the problem by attempting to plug that hole. However, as the boat takes on more passengers, the weight increases, causing greater pressure upon the structure, therefore prompting more holes to pop up. “Ending extreme poverty also requires ensuring a productive urban environment, improving the lives of slum dwellers, and providing alternatives to the formation of new slums.”

4.1 The Slums of Egypt

Informal settlements in Egypt are those that are hand-built out in the desert out of desperation. Most are off-grid using any materials available within their surroundings; even trash. The growth of the population cannot be accommodated by the government, so residents literally take the matter into their own hands. While some may consider them homeless, they in fact consider the slums their homes and they have been passed down within families for generations. In Egypt, the slums are called ashwa’eyat which “actually means ‘random’ on the basis that these areas are unplanned and illegally constructed.” However, most of these ashwa’eyat have no plumbing, electricity, roads, phone lines, or easy access to emergency personnel. While many of them already lack a

33 United Nations Millennium Project, Investing in Development, 72
sense of security within their homes, government officials as well as large-scale developers often forcibly evict slum dwellers from their homes. While this brings about the issue of land ownership, the unethical treatment of the slum dwellers leaves nothing to question.

Figure 4-1 Informal Settlements Compared to Formal Settlements

Source: http://3.bp.blogspot.com/-Cj9R5r1XZDU/UCGqIL_JwDI/AAAAAAAABng/VQpf7TyYI/s1600/Informal+sector+map.png
4.2 Ezbet El Haggana

When looking at all of the slums in Egypt, it became apparent that in order for the sociotecture framework to have its full effect, a megaslum needed to serve as the primary example. Ezbet el Haggana is one the largest slums in Egypt with over one million residents. It is ranked as the 14th largest megaslum in the world. It is also one of the most isolated slums thus promoting the implied sense of independence mentioned in the projects goals. It is also one of the most destitute which renders it with the largest need for assistance as well as the most potential for affecting change. Being able to affect Ezbet el Haggana will allow other areas to follow its example. Since it is one of the most troubled areas, other slums’ needs will be less than Ezbet el Haggana and therefore more manageable.36

Figure 4-2 Ezbet El Haggana37

36 Davis, Planet of Slums, 28.
37 Source: http://4.bp.blogspot.com/-a1_FpSpHUyc/TxqLVrtDfkI/AAAAAAAAAGA/mCXFNyRJUmk/s1600/haggana.gif
Chapter 5  Research Overview

The global population growth is increasing past the availability for proper housing. As the need for housing increases, people with no other financial alternatives head towards the outskirts of the megacities to build their own solution. While the fundamental need for shelter may be temporarily somewhat met, the deeper need for a socially balanced life is clearly not. These social imbalances create a myriad of problems within the new slum societies that only perpetuate the growth across space and time. Generations of slums embed themselves in the land, creating difficulty for change. Even if a viable change is presented, the economic toll it would take on the country somehow becomes outweighed by the social-equality opportunity it would be provide. This in turn increases the isolation of the residents, creating a higher percentage of inadequate education for the children of the slums. Without proper education, the social rejection and continual population growth relentlessly regenerates as the availability for proper housing continues to overwhelm the country.

5.1 Overarching Concept

Architecture inspires thoughts, which are the basis of emotions, which dictate behaviors. Thus, the design of a successful unit of informal housing will result in positive social interactions. When referring to behavior, the concept reaches past the literal directionality of movement that is structured by architecture. In this context, behavior is referencing social behavior; the interaction between humans.
5.2 Social Needs to Be Instilled

When asking about how the slum residents themselves felt about their conditions, it was necessary to be more specific in that question. How do they feel about their condition, the label, the country, each other, and themselves? There is a very heavy importance upon the social tiers that make up Egypt. There is a clear division of social classes. The middle class is slowly disappearing as the gap between the upper and lower class continues to grow. This imbalance in money and space has spilled over into an imbalance of rights and basic survival needs.

Other than the obvious call for a more patient, understanding, and fair approach to social equality, what is more striking here is the ability to apply these changes rather than just point the problems out.
Part Two

Informal Housing in Egypt:

Ezbet El Haggana
Chapter 6   The History of Egypt

Slums began because of the lack of affordable housing available within the country. People left the major cities, in search of far off areas that might cost less to live on. Life in the slums usually brings about two options. One is to stay in the slums and continue living in dangerous conditions upon the outskirts of the desert. The other option is to leave and attempt to live without shelter. Many dwellers use their homes as a source of work as well. Therefore, relocation may cause more problems than solutions. Unless provided with a holistic alternative, most residents prefer staying where they have grown accustomed to. But even then, staying within the slums does not mean that there is any sense of security. Other than the physical danger brought on by their surrounding environment, they are also always worried about being forcibly evicted from their homes with no alternatives. 38 As the population rises, the need for a sustainable community becomes dire. “In 2010, the population was estimated at 84.5 million people – more than double the population just 30 years previously.”39

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6.1 Political History and the Revolution

On January 25th, 2011, millions of Egyptians took to the streets to demand more rights to the country. Many of the demands were targeted towards the social injustice that the people living in the slums had to face on a daily basis. They had been treated with disgust and disregard over the years and people had had enough. Even with their detrimental living conditions, they would often be forcibly evicted which rendered their meagre possessions lost forever. Before the revolution, many forms of protests were repressed and threatened with violence and imprisonment. “Protesters called for democratic reform; for the authorities to respect human rights; and for grievances over working and living conditions to be addressed.”\textsuperscript{41} The United Nations Development Programme’s “evaluation was already underway when social unrest in Egypt peaked from

\textsuperscript{40} Source: http://afewdaysabroad.files.wordpress.com/2011/01/january-25th-protests-253.jpg
\textsuperscript{41} Amnesty International, “We Are Not Dirt,” iii.
25 January to 11 February 2011, bringing down the previous government. The Evaluation Office opted to delay completion of the evaluation pending a new government, consistent with the UNDP management decision to delay completion of a new country programme. While the political transition in Egypt has not yet ended, it is nevertheless time to complete this exercise.\footnote{42}

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\includegraphics[width=\textwidth]{Figure_6-2_Tahrir_Square_February_18th_2011.jpg}
\caption{Figure 6-2 Tahrir Square, February 18th, 2011\footnote{43}}
\end{figure}

\section{6.2 Cultural Identity}

Some major cultural attributes that most Egyptians identify themselves with are (in no particular order), Islam, Ramadan, soccer, cotton, steel, cafes, tea, hookah, food, food trucks, movies, television shows, comedies, dramas, music, belly dancing, the internet, Facebook, mobile phones, and of course their historical architecture. Jones

\footnote{42 United Nations Development Programme, Assessment of Development Results: Egypt. xi.}
\footnote{43 Source: http://msnbcmedia.msn.com/j/MSNBC/Components/Photo/_new/pb-110218-cairo-da-03.photoblog900.jpg}
points out that “architecture has been an important cultural expression of collective identities, with states often using landmark buildings to reflect ‘their’ national identity and to supplement the historical narrative of collective memory.”\textsuperscript{44}

\begin{figure}[h]
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\includegraphics[width=\textwidth]{Figure6-3_Egyptian_Women.png}
\caption{Figure 6-3 Egyptian Women\textsuperscript{45}}
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\textsuperscript{45}Source: http://upload.wikimedia.org/wikipedia/commons/b/bb/Women_in_Egypt.jpg
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Chapter 7  Slums of Egypt

“Due to high land prices, increasing population density, and shortage of affordable housing, the poor were forced to move out of inner Cairo.”46 By the year 2006, more than 10.5 million inhabitants were living in the slums – 65% of the total population of the Greater Cairo Region.47

Much of the slum land used to be military settlements that were later divided and given as gifts to soldiers and their families during the 1960’s. Make-shift homes were then built using any materials around with the primary use of mud. While the land properties were not specified with detailed dimensions, the boundary began to spread and the land was sold to varying owners. This trend continued until it the slums expanded into what they are now. Small agricultural areas became subdivided by farmers in a completely informal way.48

7.1 Major Issues

The major issues apparent within the slums require a policy change. There is no clean water, plumbing, roads, public transportation networks, access to emergency personnel, electricity or an alternative sustainable source of energy, hospitals, post office, police force, work opportunities, or schools. Amongst these conditions, additionally, there are major problems with pollution, floods, structural integrity and collapsing

buildings, forced evictions, spread of disease, and the formation of gangs and violence. There is also much internal conflict within the community between families.

Within the Greater Cairo Region, “planning, infrastructure and service delivery have not managed to keep up with very rapid urban growth over the past four decades during which GCR’s population more than tripled between in what amounts to an average annual growth rate of over 2.5%, making the GCR the 13th largest mega-city in the world today.”49 Originally, “the aim of the successive master plans for Cairo was to divert population growth away from the arable land in the west (Giza), north (Qalyobiya) and south of the GCR towards the desert fringes to the east and the southwest, relying on new towns in a poly-nuclear approach modeled after Paris and London.”50 However, “one of the critiques of former master plans for GCR was their top-down formulation.”51 And yet, “GCR is the prime engine of economic growth and the main population center in Egypt.”52

![Image of Egyptian slums](http://i.imgur.com/vBwyN.jpg)

*Figure 7-1 Major Issues in Egyptian Slums*53

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50 Ibid, 7.
51 Ibid.
52 Ibid, 5.
53 Source: [http://i.imgur.com/vBwyN.jpg](http://i.imgur.com/vBwyN.jpg)
Chapter 8    Ezbet El Haggana

8.1 History

Ezbet el Haggana was a small settlement for families of coast guard soldiers to live in back in the 1950’s. Soldiers were stationed nearby and were given rights to establish homes in that area. Converted from a military zone the land was permanently given to the soldiers and their families. What started off as originally around 10 houses, built from stones, bricks, and mud, began to spread across land with new generations. The spread continued and land was sold in order to make money to rebuild the existing homes with iron. Once the spread began, land ownership began to be questioned but at that point, it was beyond the government’s control. In 1978, a bus station was built which continued the expansion of the settlement. While the oldest parts of the slums do have some services, the further out from these parts, the less services, control, and resolution is present. The only source of water for those parts is by purchasing it from a truck.\textsuperscript{54}

Figure 8-1 Location of Ezbet el Haggana

55 Source: http://studentprojectegypt.files.wordpress.com/2012/07/map-ezbet.jpg
8.2 Current Efforts

There are many organizations that have taken a number of initiatives in attempting to tackle this issue. One of which is Al Shehab Institution for Promotion and Comprehensive Development. They are a non-governmental organization that has targeted Ezbet el Haggana since the year 2000. They believe in the right to housing and are against the forced evictions and resulting violence, arrests, and destruction of the slum dwellers’ homes. One of their main initiatives is for the government to address their responsibility in providing adequate housing to its residents.56

Another initiative has been “launched by Shadow Ministry of Housing, a blog owned by the Egyptian blogger and urbanism research Yahia Shawkat, in association with Mosireen, a citizen-journalism collective, and the Arab Digital Expression Foundation, ADEF.” They produced a documentary series showing the slum dwellers’ experiences titled, “Slums? No sir, these are self-built communities.” The documentaries highlight the impact of the absence of the right to housing that should have been carried out by the government. In the documentary, an organization called “Schaduf” is presented. Schaduf is “a social enterprise launched in 2011 by two brothers, Sherif and Tarek Hosny where they aim “to move low-income families out of poverty by providing them with the opportunity to own urban rooftop farms, also known as micro gardens, that produce healthy and sustainable crops.” Loans for these systems are repaid “through a small portion of their monthly produce sales.”57

8.3 Preliminary Site Analysis

Ezbet el Haggana “is located on the Cairo-Suez road, east of the Nasr city district” and “is approximately 3.15 square kilometers.” It is located “between two affluent residential districts, Nasr City and Heliopolis.” It consists of “four areas, only one benefits from basic services, while the other three areas have very few or no services at all.”

The social implications of the knowledge of living in sub-standard conditions is reflected upon the individual from within. “The house is fully conscious of its social status, too; as the man knows who are his betters and whom he may look down upon, so

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58 “Slums? No sir, these are self-built communities.” Cairo from Below.
59 Ibid.
the house takes a site that fits its station, and displays in the size and the luxury or poverty of its fittings a most delicate adjustment to the stratification of society.  

Some quantitative findings include: bread shortage, food insecurity, drug addiction, unemployment, insecurity, violence (fights, beatings, police), high prices of apartments and its connection to late marriages, absence of social protection, child labor, and high divorce rates. Qualitative findings include lack of clean water, sanitation, poor housing quality, lack of work opportunities, poor quality and unaffordable health services, lack of garbage disposal services, high voltage wires, racism and lack of protection for refugees and asylum seekers.  

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Figure 8-3 Ezbet El Haggana, Sanitation and Safety

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8.4 Application to Final Design

One of the most apparent social needs that must be addressed is that of dependence. Slum dwellers rely on their livelihood mostly from donations. By instilling a sense of independence, self-resilience, and self-sustenance, these attributes will be reflected within themselves and create a sense of security and resourcefulness. Abo El Ela agrees with this sentiment proclaiming that one of Al Shehab’s goals is “to change the attitude of dependency common among Ezbet El Hagana residents.”63 He continues “a focus on equity and rights during efforts to improve living conditions also strengthens social cohesion and personal security.”64

![Figure 8-4 Ezbet El Hagana, Inactivity](http://studentprojectegypt.files.wordpress.com/2012/07/dscf0371.jpg)

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63 Ibid, 10.
64 Ibid, 15.
65 Source: http://studentprojectegypt.files.wordpress.com/2012/07/dscf0371.jpg
Part Three

Revolutionizing the Process:
The Seed
Chapter 9  Research Methodology and Documentation

During this project, many types of research methods were used. Interpretive-historical research was used to look at case-studies around the world as to how they approached their housing problems. Qualitative and correlational research were also used to produce logical argumentations within the theoretical framework. This produced the concept of investigating the root of the problem to reach the seed.

*Figure 9-1 Principal Parts of a Vascular Plant*66

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66 Source: http://ag.arizona.edu/pubs/garden/mg/botany/images/p3large.gif
Chapter 10  Case-Studies

During the investigation of the housing problem, it was crucial to observe some existing potential solutions around the world and assess which aspects were successful and which did not alleviate the social problem. Many countries have attempted to tackle their problems of insufficient housing using various methods. The projects chosen were The Million Homes Programme in Sweden, the PREVI project in Peru, and the Belapur Housing project in New Bombay, India.

10.1 Sweden

The Million Homes Programme was established from 1965 to 1974 by the Swedish Social Democratic Party. It aimed at making housing affordable for everyone. The objective was to construct one million residences in 10 years. The program was established to create “good democratic citizens” with services such as schools, nurseries, churches, public spaces, libraries, meeting places for varying groups all within 500m of transit. They aimed to mix and integrate different groups through spatial mixing of tenures which proved to be unsuccessful. Even though it reduced overcrowding from 34% to 5%, the social stigma of the aesthetic quality of the housing worsened the exclusion of the boring concrete structures. While it turned a housing deficit into a surplus, the human touch was missing. There was minimal environmental integration and public

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spaces were always abandoned and never used. Residents complained of how harsh, impersonal, and uninviting the large-scale project was.⁶⁸

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⁶⁹ Source: http://remixedcity.files.wordpress.com/2013/11/acc8alidhem__openstreetmap.png
The plan specified buildings that would be three floors or less for a model family (two adults and two children). Each apartment unit would be 75 meters squared and have three rooms. Each house would be terraced for the same model family. It increased the housing stock by 650,000 new apartments and houses which was an over 30% increase. While it provided better quality housing than what was already available, they were condemned for being much less aesthetically pleasing than the previous housing.

The concept was inspired by Vällingby, an independent city within a suburban district that was modeled to follow a Labor-Housing-Center core by building a transit center within the city. Before construction, in 1953, it was considered a rural area with 2000 people. After construction, in 1954, it became a central metro station with 25,000 people. Most people were able to work elsewhere and conveniently commute back to their homes. 70

Even though the project holds the record for the most homes built in 10 years, many see it as too fast and therefore gave the impression of being unnatural. It created the opposite effect with the surrounding neighborhoods and caused gentrification from within.

10.2 Peru

A competition was held by the United Nations in 1968 to address the housing situation in Lima, Peru. It called for a do-it-yourself element for low-cost housing. Many Peruvian architects as well as 13 international architects were invited to compete. Whether the architect won or not, 15 units of each proposed project per architect was built in 1972. The winners were Atelier 5, Kikutake-Kurokawa-Maki, and Herbert Ohl. There was a split jury with Christopher Alexander. The concept was to create a space with maximum freedom of individual choice with the fewest standard components. They

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wanted to provide residents with a maximum variety and choice of solutions. Local materials were used to create a cell-like structure. \(^72\)

\[\text{Figure 10-3 PREVI, United Nations Competition in Lima, Peru}^73\]


\(^{73}\) Source:[http://iqbalaalam.files.wordpress.com/2012/12/lifecam-files-0012.jpg](http://iqbalaalam.files.wordpress.com/2012/12/lifecam-files-0012.jpg)
Residents said that it was tranquil, welcoming, safe and enjoyed the fact that roads remained on the periphery of the site so that there were no cars in the middle of the neighborhoods. This was important because it allowed children to roam freely and safely. It housed 1000 families, most of which took their homes and individually strayed past the project’s parameters by adding more floors and painting them unique colors. Some residents were concerned with ownership where their own homes were considered owned by the government which rendered their houses public property. Some families owned their homes as private property which increased the country’s overall economic value.  

![Figure 10-4 PREVI, One of the Unique Homes](http://justinmcguirk.squarespace.com/storage/work/previ1.jpg)

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75 PREVI/Lima. Low Cost Housing Project.” Harvard Archives.  
76 Source: http://justinmcguirk.squarespace.com/storage/work/previ1.jpg
10.3 India

In New Bombay, India, Charles Correa designed the Belapur housing, an incremental housing project for low-income families from 1983 to 1986 that were low-rise and high density. The squatter housing clusters of 4 units were put under one roof that were organized to progress from private to public. He insured privacy by designing the joined homes in a way that no two houses shared the same walls. Any walls built along the private side had no windows. These along with other rules were given to the squatters as a framework for further building and development of their community.77

![Figure 10-5 Belapur Housing](http://www.e-architect.co.uk/images/jpgs/india/belapur-housing-r270313-2.jpg)

He approached the design geometrically by dividing each hectare up for 500 people. Seven units were grouped into 8x8 meters to form a cluster. Three clusters (21 houses) were grouped into 12x12 meters. Three modules interlock to define a community

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78 Source: http://www.e-architect.co.uk/images/jpgs/india/belapur-housing-r270313-2.jpg
space of 20x20 meters that was open to the sky.\textsuperscript{79} Within the squatter community, he divided the housing typology to reflect the income group of those living within it but to maintain similar plot sizes so as to increase the sense of equity.\textsuperscript{80} He then grouped the squatters and the upper income residents together around shared courtyards through varying schemes that were around 45-75 meters squared per plot.\textsuperscript{81} Each house, however, had a piece of land that provided a sense of space, an opportunity for residents to eventually add extensions to their homes independently, and job opportunities for local masons.\textsuperscript{82}

![Seven Houses Around a Courtyard, Belapur Housing](http://www.architecture.com/LibraryDrawingsAndPhotographs/Collections/Recentacquisitions/CharlesCorrea/BelapurHousing.aspx#U3NziPldWSo)

\textit{Figure 10-6 Seven Houses Around a Courtyard, Belapur Housing}\textsuperscript{83}

\textsuperscript{79} Ibid.
\textsuperscript{80} Belinda Torus, “Charles Correa’s Housing Language,” (paper presented at the 2nd International Conference, Archi-Cultural Translations through the Silk Road, Mukogawa Women’s University, Nishinomiya, Japan, July 14-16, 2012), 209.
\textsuperscript{82} Correa, “The Blessings of the Sky,” 22.
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Belinda Torn | belindatorn@yahoo.com

This page is based on the presentation "The Analysis of Correa's Housing & Music" and "The Functional Analysis of Correa's Housing" for the "Home Typologies in Marath" in Yolka Technical University - Department of Architecture in the College of Engineering.

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Figure 10-7: The Grammar of Charles Correa

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84 Source: http://betterarchitecture.files.wordpress.com/2013/10/charlescorrea.gif
Chapter 11  Outcome: The Seed

The product of this project will include an array of suggestions geared towards the social redevelopment of the slums. Just as a plant's growth is affected by the energy given to it down to its cellular level, our cells are continually affected by the energy of our thoughts and emotions being emitted by us into us and out into the environment. The built environment is not solid or static. Its energy is greatly affected by the energy of the people residing in it. If there is any discrepancy within the plant, the best way to understand the source of the problem is to look at the root. If the problem can be isolated and transformed down at the point of existence that began at the seed, then the whole plant will eventually thrive. Multiply the cure across a field, and the strongest will continue to prosper and flourish across space and time.

When observing a plant, its path of origin begins from the seed, through the dirt, into the roots, past the dirt and out into the world through the stem, and finally, all of these steps consequently product the flower. If this were to be translated into sociotecture, the seed would represent the budding framework of development, the dirt would represent its foundation and best-fitting environment for growth, the roots would represent the cultural background, the stem would represent the growth support against gravity, and the flower would represent the living outcome. Just as an unhealthy seed will never be able to produce a vibrant flower, an unfitting framework of development will never be able to produce a thriving community. Also, if the plant is placed in an incorrect environment, it will never be able to survive. The seed of the attitude of the slum residents is because of who they were and how they lived as children.

Taking this model further, the seed essentially remains the catalyst; that without which the survival and evolution of the whole is impossible. The foundation is essentially
the local community as well as the ecological country within which it resides. The roots focus it into the culture and the site characteristics. The stem represents structural support as well as protection for growth. And finally, the flower is the result; the human; the dwelling.

The application of multiple theories, experiments, projections, and intentions could all point towards planting the perfect seed, but if none of the other aspects are also taken into consideration, the flower will never bloom to its fullest potential. However, while each of the elements are crucial, they all follow the seed. The seed contains all of the necessary information for the optimal result. It does not initially have within it any of the other elements. It begins its journey with the supposition that these other aspects of the trip will correctly appear and help it to grow. Through space and time, the seed intermingles with the other elements until they become one. As each feature grows they all respond to each other in order to best thrive. There is no set way with which all roots grow. There is not a formula of perfect measurements and right angles inscribed within. And yet, the randomness we see in the web of the invisible structure beneath the dirt is not random at all. It searched for the best circulation with which to take in order to find the sunlight. “we must not waste our energy on the construction of buildings which, however smart or striking they may be, will be as sterile and unproductive as artificial flowers.”

Each plant grows according to the environment in which it resides. One would not blame a cactus for growing thorns just because it was born in the desert. Slum dwellers adapted to their environment in order to survive. However, they were treated inhumanely because of it. Furthermore, unlike plants, humans are self-aware with the ability to consciously change and improve their conditions when given the opportunity.

85 Fathy, Architecture for the Poor, 119.
11.1 Children, Elders and Animals

When declaring the term “poor” towards slum dwellers, this is not merely a distinction of a lack of wealth. The poorest people within the less fortunate tier of the Egyptian society are poor in their rights. The basic and desirable needs of the human are rarely met within these neighborhoods. This is a problem even for those that try to make a difference in their world; the reasonably healthy young to middle-aged adults. However, the children, elderly and the animals have an even worse share of the squalor. Their ability to make a difference is brought down to almost nothing.

![Image: Animals, Children, Sanitation](http://breakawaybackpacker.com/wp-content/uploads/2012/02/DSC04781-1.jpg)

*Figure 11-1 Animals, Children, Sanitation*

The elderly rarely have access to the health care they require, nor the socialization of a wide array of ages that they often crave. The animals become victims trapped within

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the confines of the slums, with no other source of nutrition; no other hope for survival. The way with which animals live within a society says a lot about the society.

It seems that the children may be the worst off. However, this simply means that this is where the greatest potential resides. By following the inspiration of the seed, the children are the kernel within the seed that initiates the entire generational process. If the design is geared towards the children, the seed of the evolution of the housing settlements, then those children would grow into healthier adults, thus producing a thriving community.

Often, when facing an unpleasant condition, being able to internalize it and deflect opposition from oneself is feasible. However, for most parents, when the threat of despair and ongoing squalor is going to be a continuing reality for their children, it becomes more difficult to accept. The vision for this project stretches far into the future so that it may not have an immediate effect on current dwellers but it will have a major effect on the children’s adult lives later on.

By creating a child-centric design that mends the division and restructures the generational multiplying of these communities, the core of this project will continue to flourish in the correct direction. By generating educated generations, not only will it eventually drive the local economy forward, it will extend further throughout the neighborhood to produce a more well-rounded and resourceful community.

On February 23rd, 2010, Al Shehab coordinated a national day for street children naming it “Street Children is a Society’s Responsibility.” They had over 15 Egyptian NGOs gather for the event where the discussed issues regarding the children and their collaborative efforts in solving these problems. One of the main issues brought up was the
lack of safety for the children. With Al Shehab’s help, there are over 90 organizations now participating in the gathering of information and organizing of discussions.\footnote{Street Children is a Society’s Responsibility 23 of February is a National Day for Street Children.” Al Shehab Institution for Comprehensive Development, http://www.alshehab.m2014.net/article83.html (accessed April 12, 2014).}

Al Shehab has also established an illiteracy unit that is self-funded and run by volunteers. Their objective is to prepare “a group of children culturally, psychologically and social to be a rather advanced group.” They believe that this will create the proper environment for children to socially develop and join the community “to enhance its resources and potentials.”\footnote{“Children: Our Future.” Al Shehab Institution for Comprehensive Development. http://www.alshehab.m2014.net/article2.html?artsuite=0#sommaire_3 (accessed May 03, 2014).}

\textbf{Figure 11-2 Children of Ezbet El Haggan}\footnote{Source: http://hebdo.ahram.org.eg/Media/News/2014/2/17/2014-635282450009565905-956.jpg}
11.2 Analysis of Outcome

One might wonder how far the individual can go in their ability to truly manipulate the world in the same effortless way that nature can. The objective here is not to mimic nature but to draw inspiration from it by encouraging the built environment to be guided by it. Just as there are those who find inspiration in gently shaping and guiding a budding living tree with wires as it grows into structure and art, one can find inspiration in this same idea on a larger conceptual scale. By encouraging the growth of the slums to be guided through the framework laid out in the design parameters, it can draw inspiration from nature in order to best serve the evolving needs of the social human.

11.3 Design Parameters

In order to bridge the slums back together with the rest of the country, the isolation must be severed. Not only are they literally removed from the rest of the basic infrastructure of the country, they are also metaphorically excluded from many aspects of the country’s revitalization. This can be remedied by including a layer of major transportation from within Ezbet el Haggana to central Cairo. Not only will this initiative begin to rebuild the trust between the public and the state, but it will also instill a sense of connection and belonging. This relinks the social discontinuity that is apparent within the country today.

“Upgrading housing and retrofitting infrastructure for water supply, sanitation, transport, and energy services are critical for improving the lives of slum dwellers.”\textsuperscript{90} Instead of attempting to solve the problem of basic infrastructure the costly and dated way, the design will call for a self-sustainable community where water and energy are

\textsuperscript{90} United Nations Millennium Project, \textit{Investing in Development}, 73-74
created internally. By avoiding major excavation and construction, this will cause the least amount of disruption to their current living conditions. The incentive for both water and independence are great here. However, ensuring that residents receive safe access to clean water and electricity as soon as possible is vital.

Instead of demolishing existing functional homes and re-designing the major circulation of the community, the slums main arterial lines of circulation will be preserved and surrounding homes at risk will be rebuilt in phases. The circulation within the community “acts as a map for the direction of movement; in a broader sense it can serve as a general frame of reference within which the individual can act, or to which he can attach his knowledge. In this way it is like a body of belief, or a set of social customs: it is an organizer of facts and possibilities.”\textsuperscript{91} Creating stages of development that instill progress will reiterate the progress of generational phasing. This phasing will evolve congruently alongside the growing population as well as the projected prosperity from within the slums. The value of memory can be greater and more important than the value of money. So that a child’s memory of walking around a certain corner to reach his best friend’s house is undisturbed. The natural growth of the site has been previously shaped through the hands of man out of desperation. With this initiative, it will be reshaped through the hands of man and nature out of collaboration.

Instead of importing materials, resources needed for the rehabilitation will be grown and sourced locally. Not only will the implementation of agricultural land around the community benefit the site with natural beauty, the agriculture will also provide an opportunity for work, income, and local resources for building safe sociotecture. “The landscape plays a social role as well. The named environment, familiar to all, furnishes

material for common memories and symbols which bind the group together and allow them to communicate with one another."\textsuperscript{92}

Other than the previously mentioned major issues, some important elements of the urban design must include agriculture, parks, cafés, water filtration center, ecological sewage treatment facility, bakery, solar power, healthcare centers, and animal shelters. The focus here is not simply eradicating the unhealthy, but to nurture the health back in. “Health, a fundamental human right, is also a key input to economic development because it raises the productivity of the work force and increases the attractiveness of the economy for investors, domestic and foreign.”\textsuperscript{93}

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure11_3.jpg}
\caption{An Egyptian Child in School\textsuperscript{94}}
\end{figure}

\textsuperscript{92} Ibid.
\textsuperscript{93} United Nations Millennium Project, \textit{Investing in Development}, 77.
\textsuperscript{94} Source: http://savethechildren.typepad.com/a/6a0120a608aa53970c01348598bab0970c-pi
Some inspiration of the parameters come from The Smart Growth Manual such as that “every neighborhood should include a plaza, green, or square as its social center.”<sup>95</sup> Another aspect mentioned is the installation of “xeriscape” which are “gardens of native and locally adapted plants, typically drought-resistant, that require little attention to flourish.”<sup>96</sup> The third concept to be utilized in the design project is the concept of universal design which “acknowledges that most of us, at some time in our lives, will need to get wheelchairs and strollers onto sidewalks and into buildings.”<sup>97</sup> This furthers the importance of concentrating much of the urban design efforts on the children and the elders.

Utilizing Christopher Alexander’s A Pattern Language as a provider of a valuable set of ideals, the following design parameters will be met:

- “People need an identifiable spatial unit to belong to.”<sup>98</sup> It is crucial that the design allow for some flexibility so as to provide a unique setting for each neighborhood according to their immediate surroundings.
- For the children, it would be best “to decentralize the process of learning and enrich it through contact with many places and people all over the city: workshops, teachers at home or walking through the city, professionals willing to take on the young as children, museums, youth groups traveling, scholarly seminars, industrial workshops, old people, and

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<sup>96</sup> Ibid, 13.10.
<sup>97</sup> Ibid, 14.5.
so on.” In this way, the old-fashioned method of having a structured school as the sole source of education is broken up among the city.

- It is essential “that each community include a balance of people at every stage of the life cycle, from infants to the very old; and include the full slate of settings needed for all these stages of life.” In this way, neither the children nor the elders will feel as if they are not a valuable part of the community. They should always have a space that is inclusive of their specific needs.

- In order to minimize deviance, “knit together shops, amusements, and services which are open at night… well-lit, safe, and lively places that increase the intensity of pedestrian activity at night by drawing all the people who are out at night to the same few spots in the town.” By enlivening the dark and dead spaces within the community, it will decrease the chances for negative behavior to happen in those areas.

- Even amongst quieter areas in the community, it is important to create “degrees of publicness,” because “people are different, and the way they want to place their houses in a neighborhood is one of the most basic kinds of differences.” In this way, there is “a clear distinction between three kinds of homes – those on quiet backwaters, those on busy streets, and those that are more or less in between.” This not only creates a variety of housing personalities, it also suggests a movement of varying interest throughout the community.

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99 Ibid, 102.
100 Ibid, 145.
101 Ibid, 182.
103 Ibid, 195.
• It is important to directly cater to the elderly. This is why it is important to “create dwellings for some 50 old people in every neighborhood... in such a way that the 50 houses together form a single coherent swarm, with its own clear center, but interlocked at its periphery with other ordinary houses of the neighborhood.”104 In this way, it ensures that they will be provided with any necessary care should they find themselves without any direct family members.

• Instead of concentrating on hospitals, which are areas of diseases, “a system of health care which is actually capable of keeping people healthy, in both mind and body, must put its emphasis on health, not sickness.”105 This correlates with the original intention of approaching this rehabilitation from the seed of the situation by planting health not just eradicating disease.

• A great way to incorporate the vigor of children throughout the city is to develop “childrens’ bicycle path, within the larger network of bike paths. The path goes past and through interesting parts of the city; and it is relatively safe.”106 This aspect can be incorporated with the idea of turning the city into an opportunity of learning so that as the children ride, they see and learn around every corner.

• An important aspect of creating a sense of community is to create small areas for people to congregate. “A town needs public squares; they are the largest, most public rooms, that the town has. But when they are too large, they look and feel deserted... As a general rule, we have found that they

105 Ibid, 252.
106 Ibid, 295.
work best when they have a diameter of about 60 feet – at this diameter people often go to them, they become favorite places, and people feel comfortable there.”  

Not only will this create a sense of communal connectivity, the activity happening from within the square will foster companionship, friendships, familial connections, and overall positive behaviors.

- While it is apparent that water is a vitally missing need for survival within the community, it is important to address the other aspects of water that affect people. “We came from the water; our bodies are largely water; and water plays a fundamental role in our psychology. We need constant access to water, all around us; and we cannot have it without reverence for water in all its forms.”  

Through the implementations of water-filtration facilities throughout the site, water can turn from one of the scarcest commodities to one that securely surrounds their daily activities.

- As stated earlier, the treatment of the stray animals is an opportunity for development. “Animals are as important a part of nature as the trees and grass and flowers. There is some evidence, in addition, which suggests that contact with animals may play a vital role in a child’s emotional development.” In this way, not only is the community benefiting from providing care for the animals, so are the animals, and so are the children interacting with the animals.

- Another way to engage children is by providing shopfront schools. “Around the age of 6 or 7, children develop a great need to learn by doing, to make their mark on a community outside the home. If the setting is

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107 Ibid, 311.
108 Ibid, 323.
right, these needs lead children directly to basic skills and habits of
learning.\textsuperscript{109} This is another aspect of the learning/biking city that will be
integrated in the urban design.

- “In every neighborhood, build a children’s home – a second home for
children – a large rambling house or workplace – a place where children
can stay for an hour or two, or for a week. At least one of the people who
run it must live on the premises; it must be open 24 hours a day; open to
children of all ages; and it must be clear, from the way that it is run, that it
is a second family for the children – not just a place where baby-sitting is
available.”\textsuperscript{110}

- Within a certain district of the new urban design, certain homes will want
the opportunity for “the development of individually owned shops.”\textsuperscript{111}
This will instill a sense of independence, self-sufficiency, and additionally
it will enhance the economic value of the community.

- As coffee and tea are valuable social vitals, “the street café provides a
unique setting, special to cities: a place where people can sit lazily,
legitimately, be on view, and watch the world go by.”\textsuperscript{112} These cafes will be
central to the community.

- Another part of the socializing within the community has to do with food.
Having “food stands where cars and paths meet – either portable stands or
small huts, or built into the fronts of buildings, half-open to the street” will
continue the vitality of the neighborhood.\textsuperscript{113}

\textsuperscript{109} Ibid, 421.
\textsuperscript{110} Ibid, 430.
\textsuperscript{111} Ibid, 434.
\textsuperscript{112} Ibid, 437.
\textsuperscript{113} Ibid, 456.
• When analyzing the urban design in terms of figure-ground, it is
important to design the negative space intentionally because “outdoor
spaces which are merely ‘left over’ between buildings will, in general, not
be used.”114

• “Surround public gathering places with pockets of activity – small, partly
enclosed areas at the edges, which jut forward into the open space between
the paths, and contain activities which make it natural for people to pause
and get involved.”115

• These common areas will foster the connectivity within the community.
“No social group – whether a family, a work group, or a school group –
can survive without constant informal contact among its members.”116

• Another way to engage the children is to connect their play from the
streets to the home. By creating a children’s realm “in a separate position
toward the back of the house, and in such a way that a continuous
playspace can be made from this cluster to the street,” it will bridge the
individual to the community and vice versa.117

• As mentioned earlier with fostering the development for home workshops,
it is important to “make a place in the home, where substantial work can
be done; not just a hobby, but a job.”118 This will continue to foster the
economic development of the community and provide individuals with a
sense of personal accomplishment and contribution.

114 Ibid, 518.
115 Ibid, 601-602.
116 Ibid, 618.
117 Ibid, 654.
118 Ibid, 739.
• It is essential to “connect the building to the earth around it by building a series of paths and terraces and steps around the edge. Place them deliberately to make the boundary ambiguous – so that it is impossible to say exactly where the building stops and earth begins.”¹¹⁹ This will continue to nurture the connection between the people and their society as well as the environment.

• Finally, “wherever children play, around the house, in the neighborhood, in schools, make small ‘caves’ for them. Tuck these caves away in natural left over spaces, under stairs, under kitchen counters. Keep the ceiling heights low – 2 feet 6 inches to 4 feet – and the entrance tiny.”¹²⁰ This will further instill the fact that the children are not an afterthought in the new urban design of the city.

¹¹⁹ Ibid, 787.
¹²⁰ Ibid, 929.
Chapter 12  Conceptual Summary

In order to properly produce the desired outcome of a projected design, the source of growth must be identified. In this case, the source of this project has been identified as the social rehabilitation of the community’s cultural values by starting from the inside and branching outwards. The core here, is to design for the children; the kernel of growth throughout the community. This will tackle the problem from the inside so as to impede the generational spread of the slums. This approach varies from the typical masking of the problem that directs its efforts towards simply building the cheapest and fastest shelters. This old approach has been shown not to be able to survive. Attempting to just build in order to accommodate the growing number of slum dwellers is not solving the problem whatsoever. The problem cannot be solved by constructing a one-size-fits-all set of buildings and then walking away. Just as Dr. Hassan Fathy put it, “in designing a village the architect has need of the greatest artistic care if he is to create a unity, character, and beauty that will even approach the natural beauty that the peasants create unconsciously in their villages that have grown slowly and naturally.”①21

Christopher Alexander continues many of the concepts set forth in A Pattern Language in his book The Timeless Way of Building by establishing more ideas concerning the built environment. He claims “it is essential that the people do shape their surroundings for themselves.”②2 In this way, there is a sense of personal flexibility in the design that allows for residents to instill their own unique personalities within their homes.

①21 Fathy, Architecture for the Poor, 72.
12.1 Theoretical Development

The house does not simply house the individual. The house is a vessel for growth, rest, love, and connection. This redefines the concept of a household. This produces a house that doesn’t just hold the individual, but allows them to grow; a housegrow. The housegrow not only serves to protect and comfort its users, but acts as a catalyst in and of itself for the betterment and advancement of its residents’ lives.

12.2 Stages of Development

Upon the completion of this project, there will have been an urban design proposal outlining the various phases of completion with their projected benefits within the society. Phases will include stages of development. Each stage of construction will be mirrored with the mental readjustment of the new surroundings. Each stage will symbolize a social need and will serve as a hub of education for the children. As each stage becomes developed, it teaches the children about important social values and return to them their basic human rights. “Education is the most obstinate divide that discriminates across society between the haves and the have-nots. They only way for Egypt to regain its social strength in terms of merit-based social mobility according to education outcomes is for the entire system of basic and vocational training to be overhauled.”123

Each stage will employ the help of volunteers from within the community as well as from the outside. By instilling this sense of having the community work together to be built in stages, they gain a sense of pride in their work, and a sense of dedication to

pulling themselves up. An active community with goals and motivation is less likely to resort to negative behaviors for survival and/or entertainment. Stages will remain at a specified size that is small enough to foster a sense of connection with one another and community but big enough that it can be replicated to fit into different neighborhood’s unique site conditions and needs. Each stage will become a catalyst for the next. “Several acts of building, each one done to repair and magnify the product of the previous acts, will slowly generate a larger and more complex whole than any single act can generate.”\textsuperscript{124}

The stages will be divided into varying levels. The most detailed level will start by building one house at the end of a row that residents will then move over to as the next house becomes rehabilitated. This gradual change will allow for a calm way with which everybody can adjust to the changes. “Slowly, at every level, the arrangement of wholes becomes so dense that there are no gaps between the wholes: every part, and every part between two parts, is whole.”\textsuperscript{125} This provides a natural approach to the holistic urban design of the community in such a way that it does not feel rushed or imposed. “So, the houses get their form, both as a group, and separately, as individuals, from the gradual accretion of a number of small separate acts.”\textsuperscript{126}

\textsuperscript{124} Alexander, \textit{The Timeless Way of Building}, 475.
\textsuperscript{125} Ibid, 490.
\textsuperscript{126} Ibid.
Figure 12-1 An Egyptian Child Standing in Her Home Community

127 Source: http://urbanpeek.com/wp-content/gallery/cairo-slum/mansheitchild.jpg
Part Four

Bridging Research with Design
Chapter 13  To Realize an Idea

13.1 Student-Employee

As a part of the doctorate of architecture program at the University of Hawai‘i, students experience working in an office environment for a practicum semester. Utilizing all the firms have to offer, the students continue working on their dissertations. The author spent her practicum in Gensler Abu Dhabi. There are many moments of realization throughout the office experience. Being an intern employee asks of different responsibilities than of being a student. Yet, the intern here is still a student. So, there are many times where one set of expectations merges its way into the other. As a student, one learns the proper way of communicating an idea with their audience. As an employee, one must actually demonstrate the proper way of communicating an idea with their colleagues, superiors, clients, and owners. The way with which this communication is carried out is therefore different. The academic portion deals more closely with the preparation phases of the field such as learning, researching, understanding, and finding varying ways with which to design. The professional portion deals more closely with the
production phases of the field such as creating, designing, drawing, and finding varying ways with which to explain the design itself. While there is of course a clear area of crossover between the two, one cannot help but notice that these two distinct phases of life correlate closely with the structure of the currently followed doctoral process. The first academic semester consists of investigating the who, what, where, and why. This provides a basis of the project’s potential value. The second transitional professional phase consists of exploring the when and how. This provides a vessel with which to carry out the design. The third and final phase consists of the design outcome. This provides a thoroughly developed project.

13.2 The Bridge

![Diagram of IN, SLUM, OUT, INVEST, LEAVE]

*Figure 13-2 Preliminary Ideas of Investments*

Part Four will be focused on applying all past research into sections that will inform the design process for the final design. By using available resources from Gensler Abu Dhabi, the way in which the firm connects an idea into a realized project can be used as an inspiration to inform the project. The company provides many publications about the culture, design philosophy, and projects of the firm. Many articles offer a unique point of view discussing varying issues related to the connection between design
and the world. There is a major shift in the way with which design is approaching its communal duties. There are many discussions about the very responsibility that design holds towards the community. Cleanliness, sustainability, health, and education have become major drivers that promote a better community aimed at creating a better future.

The slums are a potential source of income both to themselves and the country. They can be utilized as a point of investment from within which the generation of jobs and produce will benefit the country’s overall economic value. The slums can stop being dependent on donations and begin to benefit the rest of the country. This would render it unrealistic not to take advantage of the potential economic value in store for the Egyptian society. This will redefine the country’s image to itself as well as to the rest of the world. This ensures a solid statement of communal comradery and economic gain as opposed to social and financial inequalities.
Chapter 14  Understanding the Site

14.1 Concept and Themes

![Diagram](image)

*Figure 14-1 Worldwide Application, Local Criteria, Specific Approach*

The framework developed can be applied by beginning with a worldwide application, focusing on local criteria, and yielding a specific approach. Any slum around the world can use this method to ensure a non-generalized approach to improving the lives of those who suffer the most. This same process can be applied to the individual unit as well as to the entire community of slums. The concept can be used to address a home or to guide an urban design project. For this project, the urban design path will be studied in depth in order to provide a holistic design outcome for the entire community of Ezbet el Haggana. Each layer calls for a level of intervention by a person or community of concerned individuals willing to apply this renewal.
Each zone will be provided with a child-centric theme. Themes such as sports, education, land cultivation, and history. Sports concentrates on the idea of collaboration and community. It also encourages teamwork and healthy habits. It can be a future source of tourism and worldwide athletic events. Education provides an outlet for arts, spirituality, and knowledge. Land cultivation will concentrate on the potential for farming, business, connection to nature, and overall health. History will ensure a connection to their past, culture, and points of pride.

In this way, each neighborhood, district, or zone will become a source of growth to the children addressing specific aspects that will help to ensure a well-rounded environment.
14.2 Process and Schedule

The process will present a framework to follow for assessing each potential area of application. A set of values will be established to ensure a review of current conditions relating to safety and health. Once the review is done, there will be four categories with which the community is divided into percentages. “A” is to be demolished, “B” is to be fixed, “C” is to be kept, and “D” is to be newly built and replacing the “A” category that was demolished. This process will be in order of priority. The result of this will vary from one place to another. However, the outcomes may fall into similar categories.

Once a report is generated with the finalized percentages, the community’s needs will then be addressed phase by phase. It is important to note here that while land ownership plays a big part in this project, the specifics of which will be left up to those who implement this project. The “owner” of the land may or may not be the government.
or the slum residents. However, the “clients” are the slum residents. The design shall follow and respect their wishes, needs, safety, and health.

For the sake of this project, since producing a legitimate report for the proposed direction of Ezbet el Haggana, a series of 4 varying examples of different percentages will be investigated. Then, the one which seems to hold the closest potential to the realistic status of Ezbet el Haggana will be chosen and developed further.

![Hypothetical Timeline of Slum Growth Potential](image)

*Figure 14-5 Hypothetical Timeline of Slum Growth Potential*

The timeline for the phasing of this project will demonstrate what is missing, what is given, and what is therefore being grown into the future. At the moment of transformation, it is logical to see an increase in life expectancy and land value while the danger decreases. Making sure to document the existing conditions is vital. This ensures that this project is taking into consideration how this will affect the residents as opposed to keeping it as simply a construction endeavor.
14.3 Site Analysis

Historical maps were researched in order to observe the changes in the slums growth throughout the years. Data before the year 2000 is limited. Access to any information as far as existing conditions and accurate mapping was difficult to find. It is important to note that every map is oriented to the north unless otherwise noted.

Figure 14-6 Location of Ezbet el Haggana in Egypt, Google Earth
Figure 14-7 Location within the Greater Cairo Region, Google Earth

Figure 14-8 Ezbet el Haggana in Isolation from the City, Google Earth
Figure 14-9 Ezbet el Haggana, 2014, Google Earth

The site is located on Cairo-Suez at kilo 45. It is surrounded by Suez road, Tenth of Ramadan district, Nasser City and Shrouk City. It is about 315 hectares. It gradually began expanding as there was no clear delineation of land ownership. The most important priorities needed as revealed by slum residents are (in order) water, electricity, employment opportunities, education, bread, and protection.
Figure 14-10 Overall Site Context, Google Earth

Figure 14-11 Immediate Site Context, Google Earth
It is apparent that there are a lot of major attractions and developments surrounding Ezbet el Haggana, but the slums themselves are left empty and in dire need of an intervention. Even though they are suffering, there is private and military-owned land surrounding the site from every side.

From the data accumulated by Heba Adel the following is apparent for Ezbet el Haggana compared to the rest of the region:128

- Density is at the highest rate
- Street network types are irregular
- Internal migration rates are at the lowest
- Illiteracy rates are medium

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Part Five

Ezbet El Haggana El Gadida
Chapter 15  Design Development

15.1 Defining the Method

The method used for assessing the current conditions of the slums uses the process of percentages to divide the site into the four categories of areas: demolish, fix, keep, and build. However, since resources are so limited when it comes to obtaining valid information, three hypothetical possibilities were primarily investigated. Each hypothetical site has varying percentages of demolished buildings with a typology that might work for the unique outcome.

![Figure 15-1 Three Examples of Site Divisions by Percentages]

Once the percentages are calculated, the empty space becomes a potential area for design. For example, the 40% potential empty space site will have the squared grid typology applied. For the second option, having a 30% area of demolition spread out in small areas would encourage the randomized typology. Finally, the third example considers a 70% demolition and would make the centralized typology the most suitable.
Figure 15-2 Three Examples of Data Sets and Potential Typologies

Part of the overall suggested typologies were investigated individually first, then combined with the percentages within the site to illustrate the new developments in place of the demolished areas.

Figure 15-3 Three Examples of Possible Typologies

Figure 15-4 Three Data Maps Combined with Typologies
Figure 15-5 Urban Network Parti – Square Nodes

Figure 15-6 Urban Network Parti – Hub Discovery

Figure 15-7 Urban Network Parti – Centrally Radial
15.2 Decentralizing the Heart

By combining all three investigated typologies, the decentralized heart emerges. The central typology provided a sense of community as well as hierarchical organization radiating outwards. However, this model would require a heavy level of demolition. The square typology encouraged unplanned hubs of activities. However, this model would require a strong linear grid. The random typology allowed for minimal demolition. However, this model would render it difficult to intervene and build significant portions of the project. By taking the opportunities each typology provided, the decentralized heart appears.

By incorporating the conceptual piece into the site, the major arteries of the community were discovered. Breaking apart the center helps to diffuse the activities as well as provide unique areas and iconic structures within each district divided by the major axes. Branching off of the major axes are nodes of activities that would be filled in overtime based upon the needs of the community. Closest to the center of the site, the most important buildings will be built first including the wellness center, green spaces, water filtration center and shelter.

Since there was not an existing grid upon which the slums were originally built, it is challenging to create a grid for the infrastructure. Additionally, since this community will encourage the pedestrian experience, there should be a way to grid the site based on a quarter mile or 400 meter walk. This made it so that within each circle, there is a node of activity. Branching off of this are attractions that bring people in and distractions to keep them interested in everything the community has to offer.
Figure 15-8 Conceptual Hand Drawn Illustration
Figure 15-10 Establishing a Grid of Walkable Distances
Figure 15-11 Preliminary Sketch of Urban Developments
Chapter 16  Documenting the Existing Conditions

Currently, there is minimal quantitative data available in regards to the current conditions of Ezbez el Haggana. In order to produce a solution, one must first define and understand that existing conditions. Therefore, it was necessary to create a 3D model identifying the various conditions existing within the slums. This model can be used as a basis for many opportunities for development. Collecting the necessary data in order to know which buildings are a safety hazard and which buildings can remain is essential.

16.1 Data Creation and Collection

In order to properly design the new community, the existing conditions must be fully understood. Therefore, the author has created a model from scratch portraying the existing topography, plots, buildings, streets, and points of access.

16.2 Urban Observations

By drawing over single one of the over 8000 buildings, a sense of appreciation for the way the slums grew began to take shape. There were no two buildings that were alike. Every “block” had a unique quality. Every “plot” of land had a special shape. Streets and buildings grew, meshed, and were pulled apart throughout the years. There is a sense of organized chaos.
Figure 16-1 Collections of Buildings in Organized Chaos
Figure 16-2 Varying Densities Create an Organic Growth
Figure 16-3 The Pattern of Logical Progression of Open Land Over Time
Figure 16-4 The Most Recent Slums on a Grid
Chapter 17   Projected Outcomes

17.1 Applying the Method

The major axes will contain public transportation, a 5 storey limit to buildings, wide sidewalks, and landscaped areas. On the first floor of every building on a major axis, there will be shops that both serve the economy as well as become places where children are able to learn about business.

![Diagram of a street layout with trees, buildings, and sidewalks.](image)

*Figure 17-1 Conceptual Section of Major Axis Street Guidelines*

The five step approach ensures that every area of the slums becomes thoroughly studied in order to properly rehabilitate it. The first step is to clean up the existing roads. By emptying the existing garbage and debris, it makes a clearing for the new improvements to come in. The second step is to connect Ezbet el Haggana with the rest of
the city. This will be achieved by widening existing roads and sidewalks, installing basic infrastructure. The third step is to plant the freshly cleaned and connected areas. By planting landscape features and services around the site, the beauty of nature begins to make an impression on its residents. The fourth step is to harvest. Now that the first three steps have been completed, it is time to reap the rewards. Rebuilding the demolished areas with shops will drive the economic value of the community up. The fifth and final step is to grow. This step occurs when the decrepit conditions have been remedied and the community is ready to invest in themselves by managing agricultural farms, athletics, and educational endeavors.

1|CLEAN

2|CONNECT

3|PLANT

4|HARVEST

5|GROW

*Figure 17-2 The Five Step Approach*
Figure 17-3 Delineating the Existing Border
Figure 17-4 Documenting all Existing Streets
Figure 17-5 The Relationship Between Occupied Space and Open Space
Figure 17-6 Identifying the Major and Minor Axes
Figure 17-7 Applying the Walkable Grid to the Site
Figure 17-8 Identifying Areas Likely to be Demolished
Figure 17-9 Assigning Themes to Each Zone
Figure 17-10 Dedicating a Car-Free Children’s Bike Path Within Each Zone
Figure 17-11 Incorporating New Design Elements to the Urban Fabric
Figure 17-13 Close-Up View of Decentralized Heart
17.2 Final Thought

When this project began, there was a profound motivation to explore the possible ways with which to improve people’s lives through design. Throughout the research, there has been a connection made with Ezbet el Haggana. This connection showed the existing opportunities within the slums and their residents as well as the global potential to improve the lives of everyone regardless of the perceived social inequality.

Figure 17-14 Overall View of Ezbet el Haggana el Gadida
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