Small architectural interventions to provide a better quality of life in the urban villages of Cameroon

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How to improve the quality of life in informal urban villages in Cameroon based on residents needs and habits.
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INTRODUCTION

The choice of pursuing my graduation project in Explore lab was based on my interest in both African architecture and the inhuman living conditions in slum areas of this continent. I grew up in Cameroon and during that time I was not much interested in the great diversity of architectural styles. Nevertheless, during my education at the faculty of architecture my view on the built environment changed and that emphasized my passion for the country where I grew up.

During my last trip to Cameroon a visit to friends brought me to the neighborhood of Bessengue in Douala. Bessengue is known as one of the disadvantage neighborhoods in the economic capital of the country, Douala. Bessengue has many informal settlements and it is very densely populated. What stands out most, for many visiting the neighborhood for the first time, might be the poor housing with lack of adequate sanitation, openly disposed garbage, polluted rivers or the narrow spaces between houses filled with garbage. The poor living conditions in this neighborhood cannot go unnoticed. But what also caught my attention was the presence of many informal economic activities. A survival instinct that pushes everyone to find a way to get by in the big city. In fact many residents have in front of their houses a small equipment for selling various products. From selling condiments, tomatoes, fried plantain, doughnuts to small hairdressing shops or sewing machine in front of their houses, many activities takes place in the streets of Bessengue. The transition from private (house) to public (streets) is sometimes blurred. Public spaces seems to play an important role in this neighborhood especially because of the many activities that takes place in these public spaces. Next to the various economic activities, we also notice social related activities such as kids playing or neighbors sitting together and talking. This very lively atmosphere brings another dimension to the description of a slum neighborhood.

These aspects have caught my attention and makes me wonder how they can form a starting point for a better quality of life in urban villages such as Bessengue.

The fascination towards my graduation project comes from wanting to improve the above described living conditions in the slum areas of Douala in Cameroon. The current developments and living conditions in big cities of Cameroon are urgent matters requiring strategies that can help improve the quality of life of the slum dwellers. Given my background as an architecture student, I now have the opportunity, during my graduation, to search for strategies that can offer more wellbeing to the needy. This makes it crucial to understand what slum dwellers really want and need most. By finding what they prioritize in relation to improving their neighborhood, I will then be able to define a design project that aims to contribute to a better quality of life in these precarious settlements.
La valeur de toute société, de tout être humain, se mesure à la qualité de ses rêves.

- Jean Guéhenno
Figure 1: Proportion of the world urban population in percentage
Source: banquemondiale.org

Figure 2: Urban population by 2050 defined by UN-HABITAT for a city with a population of more than 10 million
Source: united nation, 2014
Since 2007, for the first time in history, the world's population is predominantly urban. In fact, according to the World Bank, the urban population reached 53.4% in 2014 (figure 1).

Figure 1: Proportion of the world urban population in percentage
Source: banquemondiale.org

The growth of the urban population defined by UN-HABITAT is shown in the scheme left, figure 2. The prognosis is that by 2050, 75% of the population will live in cities.

Figure 2: Urban population by 2050 defined by UN-HABITAT for a city with a population of more than 10 million
Source: united nation, 2014

The described urban growth shown above knows a concentration of 95% in developing countries: monthly, 5 million new inhabitants come to live in cities in developing countries (vedura.fr). This new urbanization, due to an uncontrollable migration, causes major inequalities in cities and the creation of informal settlements. In fact, those informal settlements are disadvantaged compared to other neighborhoods in the city. Very often they lack basic services and infrastructures. In many cities, especially in developing countries, slum dwellers constitute more than half of the urban population (UN human settlements, 2015). This vulnerable group of the population live in poor conditions and have little or no access to shelter, water, and sanitation. The absolute numbers of people living in slums have been continuously rising as well. Currently, UN-Habitat estimates that the number of people living in slum conditions is 863 million.

Lucci et al. (2015) discusses the several opportunities that growing urbanization brings with it. They emphasizes the increasing pressure it puts on the provision of affordable housing and access to utilities. According to Lucci et al. (2015), slums are not only a result of rapid urban population growth but it is also due to a lack of affordable housing and poor governance. The pace of urbanization sometimes surpasses the government’s capabilities to provide the framework for affordable housing. Further, urban growth often occurs in areas of the city which lie beyond administrative boundaries and are neglected by both urban and rural administrators. It also occurs that the government is unwilling to take charge of the situation as they believe that providing services and better conditions to the poor will attract more people and cause slums to grow further (Lucci et al. 2015).

Even though it is difficult to influence poor governance, architects and urban planners can play an important role in finding strategies and solutions to create a sustainable and affordable living environment. It is an urgent matter to find solutions to upgrade slums and prevent their growth. This explains the relevance of this research which seeks to understand and describe the living conditions in slums based on what people in slums are fascinated by, in the sense of improving their living. By looking at aspects that are not directly related to architecture but influences the living conditions in slums, an approach can be proposed to provide better quality of life for people living in slums despite the growing urbanization.
“Urbanization is one of the greatest transformations of the 21st century. How governments, particularly in Africa and Asia, deal with it will have economic, social and environmental consequences for decades to come.”

- Lucci, Bhatkal, Khan & Berliner in “What works in improving the living conditions of slum dwellers”, 2015.
Figure 3: Expansion city of Douala (Les ateliers, 2013)

Figure 4: Location of Bessengue in the city
2 LOCATION

As mentioned earlier, the location for this graduation project is in Douala, Cameroon. UN-Habitat (2007) states in the urban profile of Cameroon that 67% of the urban population of Cameroon lives in slums, growing yearly at a rate of 5.5%. The CAVIE survey of 2002 highlights the strong representation of slums in the two largest cities of the country: 71,6% in Douala and 62,4% in Yaoundé. (MINHDU, 2005)

Douala is the principal seaport and commercial capital of Cameroon with a population of over two and a half million habitants. With the highest percentage of slums in the country and a significant urban growth of 6,4%, Douala represents an appropriate research location. In addition, by being the commercial capital of the country, Douala is a very popular destination among the inhabitants of the rural areas who dream of developing their business activities. These economic aspects were as well observed during a first visit to the slum neighborhood of Bessengue in Douala. This fascination behind this graduation thesis defined as well the research location.

Until the 1960, the city of Douala was developed following an urban plan: plan Dorian of 1959. Since then the urban expansion of Douala has become a more mixed process: a result of planned or administered extension and spontaneous developments without any planning (Les ateliers, 2013). The map on the left (figure 3), shows the developments of the city of Douala over the years.

The city and the harbor have been developed during the colonial period. The area on the map, figure 3, hatched in red represents the old city center developed following the Dorian plan. Until today this part of the city represents the bustling city center of Douala and popular location for economic and administrative purposes. The more one moves away from the administrative center and heart of the city (yellow/brown zones in figure 3) the more the city becomes a mixture of planned and spontaneous developments lacking of adequate facilities. Most of the low income group settle in areas’s that are not always suitable for living, such as areas around rivers and swamps (Les ateliers, 2013).

But not only the outside perimeters of the city houses slum neighborhoods. Bessengue is an example of a slum neighborhood located in the center of the city (see map of figure 4).
Figure 5: Map of Bessengue

Figure 6: Pictures of Bessengue
Bessengue is located around one big boulevard (Boulevard de la Republique) crossed by the railway and delimited by two waterways. The map below, figure 5, include the delimitations of Bessengue as defined by the bureau central de recensement et des études de la population (BUCREP) of Cameroon. Two delimitations are defined by waterways.

This diversity of infrastructures within the same neighborhood makes it an interesting location for my research. The quality of life along the waterside or next to a railway or big boulevard can be studied. On the left page are a few pictures (figure 6) taken during a first site visit of Bessengue. The pictures shows the railway, one of the waterways crossing the neighborhood and an example of economical activity taking place in the streets of Bessengue.

Besides, Bessengue is a neighborhood populated by many Bamoun people and this will facilitate an introduction in the neighborhood due to a personal Bamoun background. Bamoun people originally based in western Cameroon, are people living from the crafts, trade and agriculture. This explains the interest of many to come to the city where they can develop their economic activities. In many cases the ones living in the city are supplied with goods from the village produced by family members. Having family living in a strategic neighborhood of Douala has many benefits for all small businesses.
Figure 7: Growth urban population by 2050 of Cameroon
Source: FAO (2013). FAOSTAT
3 PROBLEM DESCRIPTION

The living conditions in the slum areas of Douala, Cameroon), are described by the “Agence Française de Développement” (AFD) as shocking and unhealthy. According to their published 2014 annual report, large cities in developing countries struggle to host 5 million new habitants every month. In Cameroon, 60% of the population is expected to live in cities by 2020. The graph on the left, figure 7, illustrates the growth of the urban population of Cameroon.

Early publications by the United Nations are in line with the ADF predictions above. As mentioned earlier in chapter two, 67% of the urban population of Cameroon live in slums, growing yearly at a rate of 5.5% (ONU-Habitat, 2007). Those alarming facts drive the fascination and enthusiasm behind my graduation project. It should never be forgotten that all human beings are born equal in dignity and rights [art.1 human rights]. This means that all human beings deserve a healthy and human environment. Our environment is very much defined by the “built environment” and all that is designed by man. This makes the tasks of architects, urban planners and designers crucial. As designers we have the ability to find solutions that can contribute and improve the wellbeing of slum residents. Wellbeing is defined by the United Nations Environment Programme (UNEP) as the ‘capacity and ability of individuals to live the kind of life they value most’ (UNEP,2007). Based on this definition the thoughts and considerations of local residents on their environment and what they judge important for a better quality of life must be valued.

The unhealthy, poor and sometime dangerous living conditions in slums of Douala will remain the same or even get worse in time. It is an urgent matter asking for solutions that can help improve the quality of life in those disadvantaged settlements.

The aim behind this research is to gain a broader view on what influences the quality of life of slum residents. Of course as an architecture student, the focus could obviously be put on purely architecture and the built environment. However, there are other aspects such as happiness or the ability to live the life you value most that can form an inspiration for us architects before developing strategies to improve the living environment in disadvantaged neighborhoods.

In the following chapters, the problem addressed in this thesis will be further developed and investigated.
Based on the problem described above and the experienced situation of Bessengue in Douala, the topic of the research question is as follows:

“How can priorities of slum residents in Douala, Cameroon; in terms of improving their living environment; contribute to a better quality of life? “

In order to better understand the research question and find appropriate solutions, the following sub-questions will be answered:

1. What is quality of life?
2. How can we measure quality of life?
3. How will quality of life be evaluated in this research?
4. How is quality of life related to the living environment of slum dwellers in this research?
5. Which elements of the neighborhood are prioritized by the slum dwellers of Douala for improvement?
6. How do the slum dwellers evaluate the contribution of public space to more wellbeing and happiness in their neighborhood?
7. What type of activities can contribute to more wellbeing and happiness in their neighborhoods?
8. How do dwellers of Douala evaluate their happiness in the city in comparison to the rural areas?
   a. What was missing in the rural area?
   b. What is missing now in the urban area?
9. Besides what is prioritized for improving the dwellers quality of life, how could pride, dreams and wishes further improve the quality of life?
Cities are not just brick and mortar: they symbolize the **dreams**, aspirations and **hopes** of societies. The management of a city’s human, **social**, **cultural** and intellectual assets is, therefore, as important for harmonious urban development as is the management of a city’s physical assets.

3.2 RESEARCH GOAL

It can be discussed why quality of life became the focal point for a thesis within the field of Architecture rather than an aspect such as affordable housing that would be presumed more appropriate or obvious for an architecture student. The goal of this research is to look beyond the scale of architecture and try to understand how quality of life, perceived from a broader point of view can be improved for slum residents of Bessengue in Douala. By looking into priorities set by residents, though some can be sometimes intangible and not directly visible as an possible architectural problem, this research aims to develop another approach towards slum upgrading. These approach could be applicable to other slums but results from this research will be applied specifically for Bessengue.

In the end, the research goal is to understand how the various priorities of slum residents are related to each other and can contribute to a better quality of life in Bessengue. This will result in finding out what types of interventions can be implemented in the neighborhood of Bessengue and what people lack the most in terms of public spaces, activities (recreational, scholar, commercial, and cultural) or basic needs (drinking water, roads etc). The outcome will be a design project (of public use) that will truly contribute to a better quality of life for the slum residents of Bessengue.
Many inhabitants of Douala come from rural areas and move to the city searching for a better life (Cameroon tribune, sept 2015). Most of them tend to settle, together with others from their original villages. They continue their lives in the new urban surroundings that can be described as a blend of rural and urban living conditions. In many cases these “urban villages” are not well developed and integrated with other districts of the city. Many of those earlier “urban villages” have parts that can be compared to slums given the state of the living conditions.

The growth of migration from rural areas to the cities contributes also to the development of slums. Hossein (2008) explains how these additional people coming to the city create a huge pressure on the urban life. This results in an adverse effect on the urban environment where a large number of people settle in slums and precarious settlements.

It would be foolish to pass from one distortion - that the slums are places of crime, disease and despair - to the opposite: that they can be safely left to look after themselves.
Jeremy Seabrookl in Planet of slums p.70, 2006

Above quote illustrates how slums, with their visible aspect of unhealthy habitat, are still too often considered only in terms of “social ill” and “national disgrace” and in many cases associated with crime. Previous observations made in the neighborhood of Bessengue showed another side to life in slums. Next to the extreme unhealthy and poor living conditions there is this will of residents to survive in the big city. In fact, the various informal economic activities in the streets of Bessengue are examples showing how slum residents manage to get by every day. Women are selling various products in front of their house or providing services like hairdressing, dressmaking or beauty salon.

Many residents of Bessengue left their native villages seeking better life in the difficult world of the city. So, slums are not necessarily a symbol of retrogression and can also be seen as the first step from homeless to shelter or from extreme poverty towards hope. Most important to notice is that those steps are not taken by the government but by the will of the people themselves. In fact, slums can also be considered as neighborhoods of hope. It is a proof of the determination of those migrants and their ability to adapt in a new environment but also to build a shelter themselves and make it a home. All the women selling all kind of products in front of their houses in Bessengue is an example of their determination to survive in the city.

UN-HABITAT data shows that a slum resident in Cairo can be better-off than a non-slum dweller in Lagos, Luanda and many other cities in sub-Saharan Africa in terms of indicators such as health, education or environmental conditions (UN-HABITAT, State of the World’s Cities ,2008).
Figure 8. Steps towards a research framework

First site visit - Bessengue, Douala

Observation & interest - Use of public space
- Transition between house (private) and street (public space)

Define research themes - Which aspects are relates to the observed living situation in Bessengue?
- Framework parameters of quality of life

Relation to quality of life - How are those themes relates to quality of life?
- Various concepts on quality of life and its parameters

Frame work research
In terms of development, it can be stated that none can contribute to more wellbeing of an individual without the will of this individual. Athavankar (2013) discusses the success of participatory design as an approach for slum upgrading projects. Experience has shown that people’s action-centered approach ensures continuation of their interventions, retains the existing community networks as well as economic activities (Athavankar, 2013).

An exemplar approach is the urban slum health and sanitation program for Tiruchirappalli, Tamil Nadu in India. Here, the responsibility of managing and maintaining a set of more than 160 community toilets was handed over by the Tiruchirappalli City Corporation to a group of women. A post-program field survey of 803 households revealed that the community participation had resulted in the public toilets being far better maintained, with improved community hygiene, reduced open defecation and an increased number of toilet users. In this project the number of toilet users was higher than in similar public toilets elsewhere (Thillai Rajan A, 2015).

This example shows the importance of working with the residents to better understand their needs. Moreover, it seems essential to know how slum dwellers experience living in their neighborhood, as lessons can be gained from the current living situation before proposing solutions for improvement.

This research intends to find out which aspects of quality of life residents prioritize for the development of their living environment. A researcher and outside observer might not see what really matters in a neighborhood. This could be achieved by objectifying various efforts as much as possible. The intention is to evaluate what residents like about their neighborhood and which potentials for an improved quality of life they perceive. This increases the credibility of analyses and interventions argued in this research. Objectivity is vital, however, Roos & Vos (2005) explain the difficulties for an outside person to remain objective during research. They describe a few aspects that can be taken into account to increase the objectivity of research results. First of all impartiality of the researcher is necessary as well as avoiding of fast interpretation of research results. These interpretations should not be based on personal opinion. Finally a standardization of the research situation is advisable in order to minimize uncontrolled influences.

3.4.1 DEFINITION RESEARCH FRAMEWORK

As discussed previously in the introduction, a first site visit has led to the discovery of a specific living situation in the slum of Bessengue in Douala whereby, the use of the public space by the residents and especially the transition between house and street played an important role. Those first observations formed an interest point for this graduation project and defined the research themes. The scheme on the left page, figure 8, gives a brief illustration of the various steps towards the frame work of this research.

Obviously, the first two steps ‘first site visit’ and ‘observations & interest’ where completed prior to the start of the actual research and served as a kick-off for the graduation thesis. The results of the two first steps helped defined a few research themes that will be further discussed in the next paragraph.
RESEARCH THEMES:

The following six themes will help to define how quality of life can be measured and evaluated in the slum neighborhood of Bessengue. Before elaborating on various existing concepts on quality of life and their parameters, the research themes will be shortly described and especially how they apply to this specific context.

1. Housing
In the context of this research, the theme housing is not about the details of housings like the materialization or the organization of plans but rather a focus on the interaction of the housing with its immediate surroundings. This research will look into the location of the house in the neighborhood and the transition zone between house and street. Is the transitional zone as much used by day as in the evening hours? To get an overview on residents priorities for improvement of their quality of life, a global evaluation on their residential satisfaction will be made. The idea is to understand how people live and the role of the position of their house in the neighborhood. Do residents prefer to spend their time inside the house or outside? Are residents mostly renting their houses or are they owners? This can help understand how people are willing to invest in their neighborhood.

2. Recreation/Leisure
This theme is about the use of space for leisure and recreational purposes and the quality of available space. How do residents evaluate the availability of recreational space and the quality of it? Are there spaces where kids play in the neighborhood and residents meet or participate in recreational activities? The kind of recreational activities that takes place in the neighborhood or are most popular or desired among residents will also be subject of research.

3. Basic services
As described in the introduction, what would strike most in a slum neighborhood is the lack of good basic infrastructures or services. In the scope of this research the theme basic services will be limited to the following aspects: water and waste (management), sanitation, security/safety and accessibility (streets/roads). In order to define a design brief, it is important to find out which aspects are most lacking or in poor conditions in the neighborhood and what residents prioritize in terms of improvement. Which basic services are most important for contributing to a better quality of life in the neighborhood of Bessengue? And why is that so?

4. Social contacts
Previous observations on site made raised question on the transition between public and private. How are relations among neighbors and does it have an impact on their quality of life? What is the result of living so close to each other? It is a theme that may overlap with all the themes for this research. In fact it is closely related to the theme -recreational/leisure- as people usually entertain in groups. But also to the theme of –housing- as people live very close to each other and are well acquainted.
Figure 9. Research themes based on a first site visit
5. Economical activities
This theme focuses especially on the various informal economical activities that takes place in front of houses and in the streets of Bessengue. It is interesting to understand how important this informal economy contributes to a better quality of life. What aspects of this informality are crucial to take into account in an upgrading project? How can the neighborhood contribute to a better turnover?

6. Dreams & pride
Dreams and pride is a theme that focusses on intangible aspects of quality of life. Most of these residents came to the city with certain ambitions or dreams and are determined to survive in the big city. What do they take pride in and how can these contribute to a better quality of life?

The scheme on the left, figure 9, gives an overview of the above defined research themes.

To facilitate the understanding of how quality of life is related to the living environment of slum residents in this research, the color codes of figure 9 will be used in the next paragraphs of this paper.
The best way of approaching quality of life measurement is to measure the extent to which people’s ‘happiness requirements’ are met – i.e. those requirements which are necessary (although not sufficient) condition of anyone’s happiness – those ‘without which no member of human race can be happy’.

In this paragraph the objective is to look into existing concepts related to quality of life that have common ground with the themes discussed in the previous paragraph. What is the relationship between the observed aspects of the living environment of slum dwellers in Bessengue and existing parameters describing quality of life?

The same color code as in figure 5 will be used to associate parameters describing the quality of life with the defined themes for this research.

‘In order to measure quality of life, one must have a theory of what makes up a good life’ (Cobb, 2000 in Noll, H-H). Even though the term ‘quality of life’ has meaning for everyone and every academic discipline, it is challenging to measure, as every individual or group can define it differently. Health is an example of an important domain of overall quality of life but they are many other domains that form key aspects when defining quality of life. The brief version of World Health Organization Quality of Life (WHOQOL) is a self-report generic quality of life (QOL) inventory of 26 items, including four domains (Simonelli, 2013):

- Physical health
- Psychological well-being
- Social relationships
- Environment

It is necessary to first find out which parameters defining ‘quality of life’ are related to the living environment of the slum residents of Bessengue.

A previous research on the quality of the environment (residential environment) was made by the ‘Sociaal en Cultureel Planbureau’ (SCP) in 2005 whereby a few indicators, according to the so called ‘Lemon’ tool; were used to map the quality of the residential area (Knol,F 2005):

- Housing
- Greenery and playgrounds
- Services
- Social and economic structure
- Ethnical composition
- Neighborhood nuisance
- Waste management
- Undesirable activities
- Safety (criminality)
Figure 10. Relation various concepts on quality of life
If we now look at the parameters described by the fourth domain of the WHOQOL, namely environment, there are some similarities. This domain contains the following items:

- Financial resources
- Freedom
- Physical safety and security
- Health and social care: accessibility and quality
- Home environment
- Opportunities for acquiring new information and skills (work related)
- Participation in and opportunities for recreation/leisure activities
- Physical environment (pollution/noise/traffic/climate)
- Transport

In the context of this research not only the physical aspects of the neighborhood (built environment) but also the social aspects play an important role. In fact, to find out how dwellers of Douala evaluate their happiness, how pride, dreams and wishes can further improve the quality of life it is necessary to understand which parameters of quality of life contribute to those aspects. The so-called Engaged Theory (James, P & Scerri, A (2012), suggests four domains in measuring quality of life: ecology, economics, politics and culture. The domain of culture forms an interesting domain for this research because it covers social aspects. This domain includes the following subdomains of quality of life:

- Identity and engagement
- Creativity and recreation
- Memory and projection
- Belief and ideas
- Gender and generations
- Enquiry and learning
- Wellbeing and health

Even more related is the concept on the topic of welfare and quality of life of ‘capabilities’, developed by Amartya Sen. An approach based on a view of living as a combination of various ‘doings and beings’, with quality of life measured in terms of the capability to achieve valuable performances. These performances or competences represent parts of the state of a person: in particular the various things that he or she manages to do or be in their lifetime. Some performances can be very elementary, such as feeding, good health, while others may be more complex, such as achieving self-respect or socially integration (Robeyns, 2003).

This approach on quality of life by Amartya Sen seeks to put the focus on what people can do themselves to improve the quality of their lives (Robeyns, 2003). This again brings back to the importance of researching what people are good at, what makes them proud and what they dream of.

The on the previous page scheme (figure 10) shows the relation between above discussed various theories; qualifying the concept of quality of life; and the six themes related to the living environment of the slum dwellers of Bessengue.
Figure 11A: Quality of life and its parameters (D. Felce & J. Perry 1995)

Figure 11B: Quality of life and its parameters (with own adjustments)
To better understand what is meant by various aspects defining the living environment of slum dwellers, the following scheme (figure 11A) describing quality of life will be introduced and discussed. The first-scheme on the left (figure 11) is a representation of five domains related to the quality of life.

**RESEARCH FRAME-WORK**

This research is seeking for aspects of the quality of life that are related to the living environment of slum dwellers. How can the quality of living in the neighborhood of Bessengue be assessed? The terms highlighted in grey in the previous scheme (figure 11A) describes this combination of activities that takes place in the slum neighborhood. In fact, many residents of Bessengue live and work at the same place and find opportunities for spending their leisure time in their neighborhood. This scheme describing the quality of life and its parameters has been adapted and developed according to the previous six defined themes.

The research frame-work is very much defined by the interrelation between earlier mentioned parameters of the quality of life and the role of public spaces in contributing to a better quality of life for slum residents. It could be questioned how these parameters are related to each other. For example, if the possibility of participating in sport activities with neighbors can influence a person’s satisfaction and is in this way related to both emotional and social wellbeing. Possible interrelation should come forward during the research. Finding out what residents prioritize for a better quality of life and why, should help understand which aspects are strongly interrelated.

The different research methods that will be applied will cover all previous mentioned aspects on quality of life. This will be further developed in chapter 4.
Figure 12: Steps towards research methodologies
4 RESEARCH METHOD

In order to understand and find out what aspects of their neighborhood slum residents of Douala prioritize to improve, it is crucial to gain this information from the dwellers themselves. The research aims to get a varied representation of residents and will work with respondents with different ages and occupations. From high school students to retirees and grandparents. This will provide more objective data based on actual facts and problems seen from various perspectives (housewife’s, students, working mothers, grandfather etc.). The same range of respondents will apply for all research methods.

4.1 RESEARCH METHODOLOGIES

Appropriate research methods are needed in order to collect the data in the right way. The choice for the research methods was based on the steps of figure 12.

LOCATION AND PROBLEM

As mentioned earlier in the introduction this thesis, the theme for my graduation project derives from the poor living conditions in the slum neighborhoods of Cameroon. After a first visit, the living atmosphere and use of the public space in the neighborhood of Bessengue intrigued me. This defined the location of the project and this means that during the research it will be necessary to take into account the Cameroonian cultures. In other words, to get information from local residents in the neighborhood of Bessengue a proper way of communicating with them will be needed. With a Cameroonian cultural background, most of these cultural and local habits are more or less self-evident. Even though a few examples of aspects that will be considered will be mentioned:
- Adjust the language as much as possible to the respondent because some might speak English, French or Bamoun only (Bessengue is populated by many Bamouns).
- The French or English accent also needs to be local to put the respondents at ease.
- Use as much as possible local expressions.
- Show great respect to the respondents, especially with all people older than yourself. This defines as well the way of greeting (single hand shake or two handshakes).

WHAT?

The main idea behind finding possible research methods was to seek for ways of getting information from the slum dwellers of Bessengue themselves. Especially as the research targets to find out what residents prioritizes in term of improvements of their neighborhood. This immediately led to the idea of having conversations with residents or handing out questionnaire where any could specify his or her priorities to improve their neighborhood. To better specify the methodologies of interviews and questionnaires within the framework of this research, similar research projects were used as reference. The purpose behind the use of reference projects was to verify if the intended research methods are suitable and if there are other methods that can be use in addition.

Methods:
- case study based methodology, which involved face-to-face interviews and literature review
- several visits and observation were made to slums

Study aim: explore slums to understand their impact on sustainable urban development.

Evaluation et impact du Programme d’appui à la résorption de l’habitat insalubre et des bidonvilles au Maroc (Toutain, O & Rarchmuhl, V 2014)

Methods:
- a qualitative approach conducted through observations and interviews on the field
- a quantitative approach consisting of a household questionnaire

Study aim: assess the impact of the PARIB slum upgrading operations among the targeted families.

Towards sustainable sanitation in slum areas: A field study in Mumbai (Larsson, E & Nilsson, M 2013)

Methods:
- A field study in India was made in order to get a deeper understanding about the current situation.
- interviews were held with potential users for a sanitary system, and
- observations were made of their current sanitary situation.

Study aim: investigate the possibilities to implement a sustainable sanitary system in slum areas of Mumbai.

Figure 13: Examples of projects related to slum neighborhoods
REFERENCES
There have been several studies and research on slums regarding various topics. In the scheme left (figure 13), three examples of studies related to slums with their aim, objectives and used research methods have been listed. Two of the projects were carried out in the context of a study at the universities of Loughborough, UK and Linköping, Sweden. The third project is an evaluation on the impact of a slum rehabilitation project in Morocco by the Agence Française de Développement (AFD).

All 3 examples made use of interviews and observations on site to gain some qualitative data. It shows that next to the interviews and questionnaires, observations on the field can contribute to gain a deeper understanding of the situation.

HOW TO OPERATE
From a theoretical point of view, a research method that involves the collection of information from a sample of individuals through their responses to questions is the survey research. (Check, J., & Schutt, K. 2012) ‘Survey research is known as an efficient method for systematically collecting data from a broad spectrum of individuals’. An example of use of this method was made by the 2000 National Survey to gather a representative national picture of math and science instruction who sampled 5,765 mathematics teachers across the United States. For this research a mixture of methods were applied: interviews and questionnaires of teachers, principals and program directors but also on-site observations in classrooms (Check, J., & Schutt, K. 2012). Even though this example does not discuss a research on slum neighborhoods, it shows how various methods can be used to complement each other to gather both quantitative and qualitative data.

To get a clear picture of what slum dwellers in Douala prioritize, it is necessary to get a representative amount of feedback. Given the limited time for graduation, a high number of sampling such as in the previously discussed examples will not be achievable.

The questionnaire is a survey instrument containing the questions in a self-administered form. This makes it a simple tool for collecting and recording information about a particular issue of interest (Kirklees, 2015). One of the advantages of the questionnaire is the fact that one can rapidly contact a large number of people. The purpose of using the questionnaire as research tool is to get information from a larger group of slum dwellers in Douala. This will give quantifiable data as proof that a specific -theme or problem- is prioritized by slum dwellers in Douala but also an overall overview of residents’ satisfaction on their living environment. But why is a certain theme or problem more prioritized by the residents?

The addressed themes in this questionnaire are defined by the previous mentioned parameters of quality of life that are related to the environment:

- Comfort of the dwelling
- Infrastructures in the neighborhood such as roads, public space etc.
- Activities in the neighborhood & social contacts
- Pride, dream and wishes
Figure 14: Research methods related to research questions
Questionnaires are not recommended for use to explore topics or problems in great depth (Kirklees, 2015). In order to understand the “why” behind gained information, an additional research method for more qualitative data will be necessary.

Interviews are among the most familiar strategies for collecting qualitative data. There are many formats of qualitative interviews. ‘While some researches are designed to test a prior hypotheses, others seek to explore meaning and perceptions to gain better understanding and/or generate hypotheses’ (DiCicco-Bloom, B & Crabtree, B 2006). This latest research format requires a form of qualitative interviewing which encourages the interviewee to share rich description of the situation or phenomena.

As this thesis research is seeking for what is most needed and important to improve in the living environment of slum dwellers in Douala, it is important that the research method used results in a good reflection of the dwellers meaning. This form of interviewing will provide more qualitative data on the priorities of slum residents in Douala. Information gained from the interviews will hopefully help to understand the –why– behind preferences resulting from the questionnaires.

So far, gained information for my research will mainly be based on the meaning and perception of the local residents. Another form of qualitative research consists of participatory observation. In this research method, the researcher observes in the field and tries to get better and/or more valid information (Lindeman, L & Reulink, N 2005). By using this research method as well, personal observations can be compared with the gained information from questionnaires and interviews.

A trip to Cameroon will create the opportunity to meet the dwellers of Douala and to be physically present in the field for observations and collection of data under everyday circumstances. The questionnaires will be distributed and a selection of the dwellers in Bessengue will be interviewed.

Observations on site will hopefully help find out how the public (or open/possibly even abandoned) space is used and if it can contribute to more welfare. In addition, it is desirable to understand how the economic activities take place in or around these public spaces and which existing potentials can improve the quality of living in the slums. The last step of this research will be a design exercise with a few local residents. This exercise aims to find out what people dream of or what people would most like to see at a certain location. The possible outcomes will be a design of public use. The scheme below, figure 14, summarizes the different research methods that will be used in this research.

In the next paragraphs, the different research methods will be further elaborated one by one and the way of operating will be described.
Initial considerations

Questions content, phrasing and response format

Questions sequence and layout

Pre-test (pilot) and revision

Final questionnaire

Figure 15: Stages questionnaire design (Kirklees.gov 2015)
The first research method will be the use of a questionnaire to get quantifiable data as proof. What aspects of their living environment do slum residents of Bessengu prioritize for improvement? The questions will cover all aspects of quality of life that are needed for this research. These aspects have been previously discussed in paragraph 2.3.1.

As mentioned earlier, questionnaires are used to collect factual information but also to measure the satisfaction of a group of people and to look at the opinions of this group of people related to a particular issue. (Kirklees, 2015) In this case the studied group of people represents the slum dwellers of Douala. Participants will be randomly selected in the neighborhood. A selection of different categories (men, women, young and old) will be made in order to have a representative image of the neighborhood. The “particular issue” studied is the satisfaction on their residential environment and where improvement is prioritized.

A well designed questionnaire fulfills a number of requirements and it is generally developed through a number of stages. On the left page, figure 15, is an example of scheme of design stages for a questionnaire.

First of all it is important to be clear about the type and nature of information that need to be collected and know who the target population is. It has already been mentioned above that the slum dwellers of Douala forms the target group.

The second essential characteristic of a questionnaire’s design relates to the posed questions themselves. All hope for achieving measurement validity is lost unless the questions in a survey are clear and express intended meaning to respondents (Check, J. & Schutt, K. 2012 p.166). Below, a few features are listed that are important for the questions content:

- each question must add value
- each question is clear, easy to understand and does not cause confusion
- questions must be understood in the same way by people who differ in many ways
- questions should ask what one thinks it is asking, because one will not be there to rephrase if respondents do not understand.

An attractive questionnaire, clear, clean and spacious is more likely to be completed and less likely to confuse respondents. An example of attractive and simple-to-use questionnaire is a multipage questionnaire in booklet form. (Dillman, 2000 pp80-86 in Check, J. & Schutt, K. 2012)

By numbering questions and ordering them in a logical, the questionnaire becomes more comprehensible. The technique known as “funneling” begins with general questions before focusing on to more specific questions. Simple questions are begun with to put the respondents at ease. Questions which may need ‘routing’ (for example: if no, go directly to question 5) should not be too complex, and clear instructions needs to be included for respondents (Kirklees.gov 2015). Some questions require a frames of references to provide specificity about how respondents should answer. A common used frame of reference is given below:

- Excellent
- Good
- Average
- Poor
Figure 16: Questionnaire design with a few remarks

Figure 17: Relation questionnaire and sub-questions research
By using a ‘table format question’ a series of questions concerning a common theme can get the same response choice. This makes it possible to shorten the questionnaire and make the layout more clean and spacious.

Several techniques and important aspects of designing a questionnaire have been discussed above, but usually good questions are pre-tested questions. So before relying on a question in a research it is necessary to have evidence that respondents will understand what that question means (Check, J. & Schutt, K. 2012). Questions can be tested on a few people, ideally individuals that reflect the proposed survey population. Required adjustment can be made before finalizing the questionnaire.

**QUESTIONNAIRE RESEARCH**

Most of the questions of the questionnaire are multiple choice questions whereby it will be mentioned if more than one choice can be made. They are a few open questions to give respondents a chance to express themselves but mainly on what is positive (by example what do you like the most in your neighborhood?). In fact some types of questions are best left to the respondents to answer the question without framing a possible response. Responses can be biased when response alternatives do not reflect the full range of possible sentiment on certain issues (Check, J. & Schutt, K. 2012).

Left, (figure 16) is a scheme of the questionnaire (two of the four pages) and how it is designed.

The content of the questionnaire is limited to a few questions investigating the level of satisfaction of the residents of urban villages in Douala. The themes of quality of life that are related to the environment of dwellers determine the content of the questions. The focus for this research is on the role of public space for better quality of life; even though it can be questioned if public space even exist; and it’s relation with economic, recreational and cultural activities.

Ten questions will be to gain general information on the respondents, five to assess their general level of satisfaction on their housing and five on their neighborhood.

The scheme bottom left indicates the relationship between the sub-questions of the research and the questions of the questionnaire.

Given the limited time for this research the aim is to get at least a total of 100 to 150 completed questionnaires with the help of two to three persons. The assistants will be asked to distribute the surveys to all age categories. Targeting on different age categories will hopefully help to get a clear image on what dwellers dream of and how wellbeing can be improved for both young and old.

Forms will be printed and distributed with a pen to respondents in Bessengue. The survey will hopefully give enough data and proofs on people’s satisfaction with their neighborhood and which aspects need more attention for improvement.
4.3 INTERVIEWS

To converse is a common and basic way for people to interact with each other (Roos, E & Vos, P 2005). Daily conversations can vary from friendly talk, to sharing daily news up to formal conversations. Interviews held in the context of a research are also based on conversation such as in daily life (Roos, E & Vos, P 2005).

The goal of an interview is to collect information from communications to respondents in order to find a response for an earlier formulated research question. For a qualitative research it is important that the researcher can flexibly respond to the situation and the information given by respondents (Reulink, N & Lindeman, L. 2005). They are different types of interviews (Reulink, N & Lindeman, L. 2005):

- Fully structured interviews are not flexible, and thus, are not appropriate for qualitative research.
- A half structured interview is a type of open interview whereby the interviewer has a few topics to ask about. Normally the topics will follow each other in a logical order. In addition there can be a few structured questions about personal information's.

The half structured type of interview seems appropriate for the research especially because prior to the interview a questionnaire will already have provided a guideline for further elaboration during the interviews. The questionnaires will provide a general idea on dwellers perception of their residential environment. A list of questions will be constructed to help the interviewer keep in mind the different topics that needs to be addressed. The same design strategy as discussed for the questionnaire will be used for the interview. Especially the pre-test on individuals that reflect the proposed survey population will be important.

It is important to mention that the answers gained from an interview are always subjective. These answers can also be seen as an expression of cognizance. This means that they are based on peoples knowledge like needs, feelings, wishes, opinion etc. It is important to be aware of several factors that influence the objectivity of answers. There are three main sources of influence on the objectivity of interview results (EURIB 2010): the interviewee, the situation and the interviewer.

Standardization of the interview situation is an important facet of interviewing. In fact standardization means the interviewer should avoid unexpected and uncontrolled effects that could influence the results of an interview (Roos, E & Vos, P 2005). Besides, to be as objective as possible, the interviewer must avoid judging gained information and stay very neutral.

The biggest problem regarding the interviewee is their ability to express their thoughts (EURIB, 2010). This means that the way of formulating questions plays an important role as well.

INTERVIEW RESEARCH

The interviews for the research are designed based on knowledge gained from previously discussed theory on interviews. Questions will be formulated and asked on a very informal way, adapting the language, vocabulary, accent to the respondent. If necessary communicate can be carried out in French, English or Bamoun (a local language) especially because Bessengué is populated by many Bamouns. Again, the questions on the form are mainly a guide in order not to forget any aspects.
Interview

Votre quartier :

1. Ça te fait longtemps que vous habitez à Douala ?
2. Avec votre travail, il y a du temps, vous avez des vacances ?
3. Pourquoi avez-vous choisi de habiter ce quartier ?
4. Quel est le temps que vous passez le plus dans votre quartier ?
5. Qui pense que la vie en général est dans votre quartier ?
6. Comment vivez-vous d’autres fonctions ici dans ce quartier ?
7. Comment sont vos relations avec vos voisins ?
8. L’existe-t-il des actions ou projets entre voisins pour la prévenir du quartier ?
9. Si oui, quels projets ?
10. Parlez-nous que les gens du quartier sont prêts à travailler ensemble pour améliorer le quartier ou pour le rendre mieux ?
11. Qu’est-ce qui vous manque le plus dans votre quartier ?
12. Si vous pouviez quoi que ce soit que vous manquez ici dans un autre quartier, accepteriez-vous de d'identique ? oiseau, pavillon.
13. Quels sont les aspects suivants ne sont pas le plus dans le quartier selon vous ?
14. Comment évaluez-vous la sécurité dans le quartier ?
15. Quels types d'activités nécessitent selon vous d'être plus développées dans votre quartier ?
16. Lesquelles de ces types d'activités manquent dans votre quartier ?
17. Avec qui vous menez-vous des idées comment améliorer le quartier ?
18. Si oui, lesquelles ?
19. Personne-les-vous que les autorités locales pourront vous aider et si oui, comment ?

Loisir et contacts sociaux :

1. Quelle est votre fréquence de vos activités sportives et des activités culturelles dans le quartier ?
2. Quel est votre niveau de pratique ?
3. Que pensez-vous de la qualité de vos relations ?
4. Comment est-ce que votre quartier vous offre des espaces pour vous détendre avec votre famille ou vos amis ?
5. Quel est le temps que vous passez dans votre quartier ?
6. Pourquoi vous et vos amis des espaces et du temps à vous ?
7. Pouvez-vous indiquer et expliquer dans le quartier où vous avez été ?
8. Une photo de vos espaces et du temps qu'il est possible.
9. Si vous avez des photos ou des vidéos d'activités sportives et culturales dans le quartier, qui les pensez-vous qui les pensez-vous et quels sont vos espaces et du temps ?
10. Quel est le temps que vous passez dans le quartier ?

Votre habitat :

1. Quelle est votre situation actuelle ?
2. Quelle est votre occupation actuelle ?
3. Quel est votre niveau de salaire ?
4. Quel est votre niveau de satisfaction au travail ?
5. Quel est le temps que vous avez été dans votre maison ?
6. Quel est le temps que vous avez été dans votre maison ?
7. Quel est le temps que vous avez été dans votre maison ?
8. Quel est le temps que vous avez été dans votre maison ?
9. Quel est le temps que vous avez été dans votre maison ?
10. Quel est le temps que vous avez été dans votre maison ?
11. Quel est le temps que vous avez été dans votre maison ?
12. Quel est le temps que vous avez été dans votre maison ?

Informations personnelles de l’interviewé :

Pour conclure, soumettez avec une information générale de votre situation familiale et, quelques informations sur vous-même et vos valeurs les plus importantes.

Figure 18: Relation interview and sub-questions research
In Buenos Aires, Argentina, a research was made to evaluate the effect of a housing transition on sleep quality and the quality of life of slum dwellers participating in a slum upgrading program. Semi structured interviews were used to expand and nuance quantitative data obtained from a poorly educated population. The interviews took place in person at participants’ houses. Three main themes were explored during the interviews with open ended questions: changes in life with the new housing, differences in sleep before and after moving into the new housing and finally, sleep organization in the new housing (Simonelli et al, 2013).

For my interview the questions are structured following five main themes:
1. Neighborhood
2. Leisure activities and social contacts
3. House
4. Self and reflection (for migrants only)
5. Personal information’s

These five themes will cover needed information for the sub-questions 5 to 9 (see paragraph 3.1) of this research and so all aspects that defines the quality of life in my research. The scheme on the left (figure 18) illustrates how questions for interviews are related to the sub-questions of the research.

The selection of the families will be based on how willing and interested people are to cooperate. The interviews will take place in the neighborhood at participant’s houses or where they are at that specific moment in the neighborhood.

It is important to mention that the interview tries to be as less negative as possible. The interview mostly starts with questions on what people like most and not directly what goes wrong. Next to this, the interview aims to get step by step closer to the respondent. First questions are on their neighborhood (public level) followed by leisure activities and social contacts with neighbors. The interview ends with some questions about their current working situation (or activities), a reflection on their current life and their family situation. A picture can be made if possible, to remember the interviewee.

The interviewee can also be asked to point out in the neighborhood what they like most of a place? Where do they spend most of their spare time with family or friends etc.? A map (sketch) of the neighborhood can be made in advance on site to facilitate the respondent to point out where important spots in the neighborhood are for them (commercial? recreational? social with neighbors etc.)

Enough copies of the interviews forms will be printed in advance and the interviews will be recorded. By recording, the interviewer can pay more attention to the interviewee. But the interviewer should be aware that not taking notes at all can make him/her less focused (EURIB, 2010).

The interviews will be held as well by an assistant. This will allow comparison from personally carried out interviews results and results of another interviewer. There is a chance that people might react differently to a more local person than to an European student with a Cameroonian background. Therefore, it is necessary to make sure that other interviewers understand well the questions and what the intentions are behind the interviews. The assistant will assist first in one to three interviews to see how to proceed.
Figure 19: Relation observations and sub-questions research

Priority of slum dwellers

Observations to gather information on:

5. Which elements of the neighborhood are prioritized by the slum dwellers of Douala for improvement?

6. How do the slum dwellers evaluate the contribution of public space to more welfare and happiness in their neighborhood?

7. What type of activities can contribute to more welfare and happiness in their neighborhoods?

8. How do dwellers of Douala evaluate their happiness in the city in comparison to the rural areas?
   a. What was missing in the rural area?
   b. What is missing now in the urban area?

9. Besides what is prioritized for improving the dwellers quality of life, how could pride, dreams and wishes further improve the quality of life?

Survey research
- questionnaires (5to9)
- interviews (5to9)
- observations (5,6,7,9)

What is the state of the neighborhood’s basic infrastructure? And how is it used by residents?

What are hotspots of the neighborhood? (Where do people like to stay most)

How daily activities takes place in the neighborhood and what type of activities?

How is the public space used by residents?

Where do kids play?

How is the ambiance in the neighborhood? (understand the relations between neighbors)
4.4 OBSERVATIONS

Participatory observation is a way of collecting information’s for qualitative research. Hereby the researcher observes on site and collects data by participating to daily activities (Reulink,N & Lindeman,L, 2005.) Actually participatory observation consists not only of observing but also interviewing and collecting of documentations. This research method is used to find better or more valid information’s. The observation period can be divided into three stages (Reulink,N & Lindeman,L, 2005):

- A descriptive stage whereby the researcher describes the actors, situations, specific location, activities and happenings time bounded.
- An interpretation stage whereby the focus lies on the interpretation of facts within the context of the research.
- An explication stage whereby the researchers seeks for possible reasons behind an observed phenomena.

An observer can chose a specific role in the field whereby they are less involved. Or an observer can be very involved in the field happenings and daily situation, and become closer to the problem in the research area.

Besides the operation aspects during the observation period, it is necessary to find a way to be introduced into the field. Generally it is handy to get an authorization for being in the field and doing research (Reulink,N & Lindeman,L, 2005).

Before the start of this research an authorization was asked from the Douala city council for operation in the city and the neighborhood of Bessengue. This authorization facilitated an introduction to the chief of Bessengue and from there on being introduced to local residents.

The scheme left explains how the observations are related to the sub-questions if this research.

Interesting points mentioned during interviews can be a starting point to define a suitable observation spot. The aim is to disturb as less as possible the residents in their daily activities. Nevertheless an interaction with residents can become an introduction for a -semi-interview-.

To get a clear picture of the ambiance, it is crucial to notice what kind of people (elderly, young or whole families) are mostly around during a certain time (morning or evening) of the day.

Observations will not be pursued during the evening for security reasons. To learn more about the place by night and in the evenings and especially what people then do, a conversation with residents can help. Does any activity take place in the evenings? This question can also be mentioned during interviews.

Pictures of interesting areas in the neighborhood will be taken to help describe how activities take place around those concentration points.

Therefore, these will be needed:

- printed maps that can be adjusted on site
- sketch book for notes
- A camera for pictures
- Sound recorder
Sound recording can give a good impression of the place. It is preferable to avoid as much as possible filming, because people will be intimidated or will react too fast on the observers presence and that has effects on the results of the observations.

The results and conclusions from the observations will be presented in the form of schemes and sketches. Each scheme of sketch aiming to illustrated a certain happening or typical phenomena that best describes the neighborhood and relevant aspects for the research. For example the movements of residents in the neighborhood along a selling point and how residents sell their products in front of their house. The sketches will be complemented with a short text summarizing what was relevant.
Figure 20: Design game in zanzibar, setting and exemple. (Chauvin,A & Papadaki,A. 2014)
4.5 THE DESIGN EXERCISE

Based on the first outcomes of the interviews, survey and site observation; a list of possible solutions that might be suitable for a specific location in Bessengue can be defined. Based on a picture, a few people will be asked one by one to describe or even draw what they think can be designed on the specific location. The design should be for public use. For the less creative, a selection of possible design solutions will be presented to respondents. They will then be asked to indicate which design they prefer and why.

This method was previously used during a project in Zanzibar aiming to find out how people thought about the presence of an old monumental building (Chauvin, A & Papadaki, A. 2014). This building was the house of the first president Karume. The goal of the design play was to trigger people to think about the presence of the building and express their thought for a possible design to replace it. A big painting based from a picture of the house in its surroundings was made by an artist (see figure 20). On the painting the building was removed and only the contours where drawn. This gave participants the possibility to express their feelings about the place, for example, one of the participant's drew a hospital on the spot of the old presidential house (figure 20). This showed that there are other needs in the neighborhood prioritized by residents instead of keeping the monument.

For this design exercise, sketching paper, or A3 blank sheets will be needed for sketching by people. The background of the A3 sheets shows the contours of the site, but the specific location is erased. Therefore in advance, a given picture will be prepared and printed a few times.
This chapter will discuss how the research actually took place in Cameroon and the data gained from the various research methods used.

Before the start of the field research, an introduction to the city council of Douala, C.U.D, was organized to get an official authorization for conducting a field study in the city of Douala. This authorization was not only to facilitate an introduction to the residents in the neighborhood of Bessengue but also to avoid misunderstandings. In fact it worked as a proof that this research is for study purposes but also that the results could be taken into consideration by the city council of Douala for future upgrading projects of the neighborhood.

In Cameroon, it is a fact that an observer will be taken more seriously once official papers of the government are held.

Next to this authorization, a personal cultural background and network facilitated the research on site. My father is Bamoun and knew the chief of Bessengue who is a Bamoun as well and introduced me to him. Thanks to the chief, some help for the handing out of the questionnaires in the neighborhood was organized. His assistant also introduced me to different residents for interviews.

Two friends, Ibrahim and Fadil who lives in Bessengue also helped with the questionnaires and interviews. It has to be mentioned that being half Bamoun and being able to speak the Bamoun dialect as well, really facilitated this research because many residents where proud to see one of their “sisters” doing research in their neighborhood. Other residents were also very cooperative as well because they saw the official authorization of the C.U.D. This doesn’t mean they were afraid of the government and provided only a selected amount of information. Experience on site showed that people were not afraid to mention their great disappointment in the government and all the broken promises to upgrade the neighborhood.

In the next paragraphs, the results of the various research methods will be discussed.
Figure 21. General information respondents of questionnaires.

Figure 22. Results from questionnaires
5.1 QUESTIONNAIRES RESULTS

As mentioned before, the distribution of questionnaires among the residents of Bessengue took place with some assistance. The first step was to be sure that the assistants understood well the questionnaires themselves in case any respondent would have questions about them. The only request was to distribute the questionnaire among different categories of residents: men/ women and different age ranges (as indicated on the forms).

At the end, 122 questionnaires were collected but not all of them were well completed. Some questions were left open or incorrectly filled. The following results are based on the 110 questionnaires that were correctly completed.

On the left page (figure 21) are some general information’s on the respondents.

We can see from the results of the questionnaires that the neighborhood is almost equally populated by migrants and non-migrants. But even though almost half of the dwellers originate from Bessengue, 62% of them are renters. This shows that not many of the residents invest in the neighborhood.

The majority of the respondents (44%) indicated that in comparison to their previous living situation, there have been no improvement. So what can be changed in this neighborhood to offer a quality of life at least better than where they are coming from?

The following graphs (figure 2) shows an evaluation on residents satisfaction and wishes for improvement.

It seems that even though people judge the comfort in their housing as poor (45%), they prefer to spend their leisure time at home. In fact only 34% of the respondents indicated spending their leisure time outdoors. This can be a result of the quality of the public and leisure spaces of the neighborhood.

Based on the data from questionnaires, the majority (57%) qualify the public and leisure spaces in the neighborhood as in ‘poor state but still much used’. From this information it can be conclude that some people tend to use the available public space despite its poor quality. It might be interesting to upgrade those spaces to give residents a more pleasant public space for leisure time. These public spaces could be developed to facilitate sport or cultural activities in the neighborhood. Especially because these activities were indicated as most necessary to develop in the neighborhood.
Figure 23. Evaluation on the quality of various elements in the neighborhood

Figure 24. Priorities for improvement.

1st: Sewerage/water drainage is clearly the priority for improvement.
2nd: After safety, leisure/recreational spaces are often chosen as 2nd priority for improvement.
The following graph, figure 23, is an illustration of residents' level of satisfaction on various basic needs in their neighborhood.

It is clear to see from the histograms top left (figure 23) that sewerage and water drainage are rated most poorly in Bessengue followed by the leisure/recreational spaces. This information confirms the previous findings on the state/availability of leisure spaces in the neighborhood. Respondents were asked in the questionnaire to indicate which two aspects; in order of priority; they judge most important to improve. The results of this question are illustrated in the graph bottom left (fig. 24).

Sewerage and water drainage was chosen by most respondents as first priority for improvement in the neighborhood. Even though security/safety appears as second priority, we can see that many respondents indicated that leisure and recreational spaces are also needed in the neighborhood. It is clear that most of the data gained from the questionnaires are quantitative and require a further research. During the interviews, more qualitative information were gained on these results of the questionnaires. For example, some interview questions attempted to find out what the problem with water drainage exactly consisted of or what people meant by more security.

Based on the questionnaires results, the following list of priorities for improvement can be made:
1. Sewerage and water drainage
2. Safety/security
3. Leisure/recreational spaces
4. Drinkable water
5. Develop sport and cultural activities

The color codes refers to the themes of the research described in paragraph 2.3.1.
Figure 25. Places of interviews in Bessengue.

3 zones most studied

- Introduced by the Bamoun chief.
- Introduced by two friends who live here and knows many residents.
- But also zones close to the water because water drainage was the biggest problem raised by residents (questionnaires).

Figure 26. Water situation: dry vs rain season.
The interviews were held in two phases. In the beginning a more elaborated interview with in depth questions on people’s economic activities, their housing situation and future plans were prepared. After the first five interviews, the range of questions where adapted and more focused to a fewer themes as define in paragraph 4.3.

The goal of the interviews was to get a better understanding on the current living situation in the neighborhood of Bessengue and how the public space can contribute to a better quality of life. At the end, 22 interviews were conducted in the neighborhood of Bessengue. For almost all the interviews an introduction was provided to interviewees by either friends living in Bessengue or through the assistance of the chief. Many residents were interested and came to ask to get an interview. The scheme left (figure 25) gives a brief overview of where the interviews where held in the neighborhood and why.

The results of the interviews have been divided into positive and negative aspects.
What people like most in their neighborhood:

1. **Solidarity** and good relations among neighbors (15 out of 22)
2. What makes most people proud is their **family** (children, grandchildren etc.) and when they are able to **work** and earn their money (16 out of 22).
3. What people like to do most is (14 out of 22) related to their **work** or **economical activity**. A sport or hobby comes in second position (7 out of 22).
4. Bessengue is very **centrally located** in the city of Douala and as soon as you get to the asphalt you can get everywhere you want. From there shops, markets and other facilities are easier to reach (7 out of 22)
5. Being healthy and to see those around them **happy and healthy** is also a reason of pride for many (6 out 22)

Negative aspects of the neighborhood (by order of priority):

1. The biggest problem that needs to be addressed is the **water drainage** (20 out of 22 interviews): in the rainy season the neighborhood is poorly accessible, it becomes dangerous for children (they can drown), and all the dirt carried by the water enter the houses.

Left (figure 26) is an illustration of residents description of the situation due to the poor water drainage.
**Tchuikeke:**

The biggest problem is this water you can see. We need a good water drainage. There are no public spaces or recreational spaces where I can spend time with my grandchildren. Sport facilities are welcome, even for old folks like me.

- Peace in the neighborhood
- Solidarity among neighbors (together we repaired few streetlights)
- No good drainage of water
- No playgrounds for my grandchildren
- Waste management is very bad

1. Activity: retired
2. Pride: my family, beign grandfather
3. I like most: driving car, small jobs at home
4. Before and after: does not apply
5. Activity to develop in the neighborhood: playground for children to play and sport facilities

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**Mr et Mme Bounga:**

What is really urgent here is the water drainage! And a better road will bring more passersby that can buy anything we sell in front of our house.

- Good neighboring, despite the different tribes and religions
- No aggression in the neighborhood
- Too much floods in the rainy season, bad water drainage
- Bad roads and it's dangerous in case of evacuation/emergency
- No good waste management so people throw garbage in water

1. Activity: retired, Mrs sells food
2. Pride: our children and grandchildren
3. I like most: be with our neighbors and share food
4. Before and after: does not apply
5. Activity to develop in the neighborhood: first the water drainage and then the road can facilitate commercial activities

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Figure 27. Summary interview with Mr. Tchuikeke

Figure 28. Summary interview with Mr. and Mrs. Bounga
2. The quality of the public spaces, where people meet or for recreational purposes, are of very poor quality (19 out of 22). People prefer to spend time outside the neighborhood, even just at the asphalt is better because you get more fresh air.

3. There is no space where children can play, it is preferable if they can have a playground or activities nearby their homes instead of going out of the neighborhood (16 out of 22).

4. The state of the roads in the neighborhood is very poor. Better roads will contribute not only to better accessibility but also to better turnovers for traders, more safety and liveliness in the neighborhood (12 out of 22).

5. Sport activities are very welcome (11 out of 22), but also spaces that can be multifunctional and used for cultural/recreational purposes (9 out of 22) such as traditional dances, meetings, relaxing with friends etc. This allows any individual or group to use it in accordance with their preferences.

6. The neighborhood is populated by people with various beliefs and backgrounds. If any activity needs to be developed it should be taken into consideration and be something that can be of use for all, despite beliefs and backgrounds (3 out of 22).

To give a brief image of interviewees with their main conclusions a selection of interviews will be showed below. The following examples, figure 27 and 28, of interviews emphasizes the problem of water drainage. They are also an example of respondents that indicates that solidarity and good relations among neighbors are what they like most in Bessengue.
Anette:

What I miss is the road. If there was a good road, the neighborhood would be more crowded and I would have more customers passing by.

Good neighboring
Public tap (water)

Not easily accessible
Insecurity

1. Activity: trade, selling bread and doughnut
2. Pride: my children and my family
3. I like most: my commercial activity
4. Before and after: my previous neighborhood was more accessible
5. Activity to develop in the neighborhood: cultural activities for my children and myself as well

Marie Asta:

If the neighborhood was better equipped and more accessible I would have a better turnover. I prefer to sell here from my home so I can watch my children play.

We need a solution to floods.

I feel safe here
It’s an active neighborhood
Solidarity among neighbors

Too much floods in the rainy season
Streetlights are not working
No sport facilities

1. Activity: trade, selling tomatoes and various condiments
2. Pride: my family
3. I like most: my commercial activities
4. Before and after: better living conditions in the village but I sell more here
5. Activity to develop in the neighborhood: Sport activities and space for children to play
The following two examples, figure 29 & 30, emphasizes the role of the road for a better turn over. Both ladies like the solidarity amongst neighbors and suggest to develop recreational spaces in the neighborhood.
Observations

The “Boulevard” is always crowded, from 6 a.m in the morning, there is music, traffic, commercial activities and people doing sport (running/or group exercises).

Figure 31. Zones of observations

Figure 32. Sketches observation zone 1 in plan and 3D
After spending a few days in the neighborhood of Bessengue and the first round of interviews completed, it became possible to define interesting observation points. This was based on the characters of the spaces in the neighborhood. In fact the studied zones showed a good representation of issues that emerged from interviews but were also typical for the six defined research themes (paragraph 3.4.1). Both zones were crowded during the day and have different relations with the waterfront. The map on the left, figure 31, indicates where the observations took place (fig. 31).

Next to the observation zones it is important to notice that the main boulevard plays an important role for the residents. In fact it is the most crowded zone in the neighborhood, and the place to be for various activities for many from the neighborhood. For both of the observation zones, sketches were made to remember the most important aspects of the use of space that were relevant for the research. Results for each of the studied zones will be discussed and divided into positive and negative aspects.

**Zone 1 (in the neighborhood)**

It is a popular spot in the neighborhood because of the small shops around, but also because it is the way to the “asphalt” and on their way neighbors stop for a conversation or ask what neighbors need from the market.

Positive aspects:

- Women use the street in front of their house like a common courtyard. They like to be outside with the other women, it creates a lively ambiance.
- The solidarity among neighbors facilitate the baby sitting of children, creates a pleasant working ambiance during the day, many conversations and they help each other.
- Having their small shop in front of their houses is an advantage: they can stay home, watch their kids play outside and in the meantime do household activities.
- Other women are sewing in front of their houses. Passersby can see where to find a seamstress.

Negative aspects:

- Water of the laundry remains for a long time on the ground, the state of the road (not paved) will deteriorate more easily.
- Kids play in the dirt, there is no space for them except the street. The older ones after school tend to leave the neighborhood again.
- During the day time there is not much going on in the neighborhood. Many are going in the direction of the “asphalt”.
- Most women throw domestic waste into the river that runs behind the houses. There are not many waste bins in the neighborhood.
- With all the trash thrown in the water, the canals gets congested and the water cannot flow properly.
Figure 33. Typical section along the water.

Figure 34. Installations made by residents for recreational purposes.
Zone 2 (along the river)
On the entire length of the water there are commercial activities taking place. From small shops to bars and cafés. The section below (figure 33) shows the organization along the water.

During the day residents like to sit together, discuss and play cards or ludo in a bar or on the streets. Again it's remarkable how people like to be outside and interact with neighbors or passersby. The waterfront is involved in various activities and uses. An example of use is shown in the sketch below, figure 34.

Positive aspects:
- People are mainly outside, it creates a **lively ambiance**. Besides they all know each other, none passes by without stopping for a chat.
- Lot of movement of residents from one side to the other of the water.
- Many **small shop** (most are on the left side of the water) in front of the houses, or cafés: it offers enough commercial activities for the residents.
- Some installations are made by residents for **recreational purposes**. By day used by children, and by night by the adults.

Negative aspects:
- The existing bridges are sometimes **dangerous** especially for small children. But the bridges are very much used, **all day residents cross them** to get to the other side.
- Most activities (commercial, recreational) are most developed on the left bank of the water.
- There is a lot of **trash** thrown into the water. The only waste container is located close by the main boulevard and it is always full. People throw their waste everywhere due to the poor waste management.
Figure 35. Sketch of Mounic in Bessengue.

Figure 36. Sketch of Mounde Amed in Bessengue.
5.4 DESIGN PLAY RESULTS

The design play didn’t work out as planned. Looking back, this research method was probably not clear enough for the residents to participate. Most of the respondents had no inspiration, neither to draw a sketch nor describe what they would like to see on particular sites. Those who were asked to choose from various possible solutions did not express clear preferences. All solutions were good as long as there would be a change of the current situation. In case this part of the research would be re-done, it is advisable to take more time to design the various design solutions to show to residents.

Still, two sketches were collected from two residents. Both are shown below with their main message.

The first sketch, figure 35, had a clear message on how to improve the border of the river and the solidarity in the neighborhood.
The idea of Mounic was to upgrade the water drainage first and create bridges that represents the solidarity that lives among neighbors. With simple stairs along the water places could be created for residents to sit and relax. The colors indicates the themes that recur in this proposition.

The second sketch made by Mounde Amed is shown in figure 36. Mounde Amed suggests to drain the water first and put trash cans every 10m. He emphasized the lack of waste management and how people throw garbage everywhere in the neighborhood and into the water. This is how the water ways get blocked and polluted. In his sketch he also indicates that the roads needs to be upgraded and lined with trees for shading.

Both examples were very clear and showed how with simple intervention the quality of the living environment could already be improved. Even though it can be discussed if two examples are enough to be representative for a whole neighborhood, the above propositions summarize the problems and shortcomings raised by the other research methods.
Figure 37. Conclusion scheme on priorities for a better quality of life

1. Water (drainage)

2. Quality of the public space

3. Solidarity/Social contacts

- Poor accessibility (pick-up waste container)
- Health
- Waste management
- Quality for public space
- Safety
- Streets/roads (accessibility)
- Consumers (more passersby)
- Recreational/leisure spaces
  - Economical activities (existing shops/cafés-bars)
  - Sport & cultural activities
  - Work opportunity
- Happiness
- Common use outdoor spaces
- Good neighboring
- Houses (close to each other)
6 CONCLUSIONS

In this chapter the research question will be answered based on the results of this research which have been discussed previously. Below, the research question is addressed once more:

“How can priorities of slum residents in Douala, Cameroon, in terms of improving their living environment, contribute to a better quality of life?

The goal of this research was to understand how the various priorities of slum dwellers are related to one another and can contribute to a better quality of life in Bessengue. Results from the various research methods used, showed preliminary conclusions (chapter 5). Hereby, the use of color code already showed how several conclusions or observed issues were related to more than one of the defined research themes. A list of priorities was intended to be defined in order to develop a design brief contributing to a better living environment. The following priorities came forward during the research:

1. Water drainage to prevent floods
2. More safety (together with accessibility)
3. Lack of leisure/recreational spaces
4. Develop sport and cultural activities
5. Ability to develop/stimulate existing economical activities

The priorities above mainly describes aspects that needs improvement. According to the results discussed in chapter 5 of this thesis, there are positive aspects that can be seen as important for a better quality of life. First of all the solidarity among residents contributes to the quality of life. Additionally, the liveliness of the neighborhood cannot go unnoticed. The intensive use of public spaces is part of the lifestyle and needs to be kept in future developments of the neighborhood.

The conclusions of this research describes three main themes that formulates a priority for the improvement of Bessengue neighborhood towards a better quality of life:

1. Water plays an important role for the quality of life in Bessengue. Not only for the residents living along the water but also for those living away from the water.
2. A lack of space for recreational/leisure activities
3. The solidarity among neighbors plays an important role and can be use as platform to develop the neighborhood.

Of course more parameters that can contribute to a better quality of life in the slums of Bessengue were mentioned in the previous chapter. The scheme on the left page (figure 37) shows how the various priorities and wishes of residents are interrelated and are covered by the three main themes described above. The colors in the scheme indicates how these parameters are related to the originally defined themes for this research. It is interesting to mention that the theme ‘housing’ seems to become less important especially as the focus is led onto public spaces. Nevertheless the other themes that are given priority have influences on the quality of the housing as well.
1. Water management plays an important role for the quality of life in Bessengue. Not only for the residents living along the water but also for those living away from the water. Floodings are too frequent.

2. Space for recreational/leisure activities. People are mainly outside, it creates a lively ambiance. Besides, many economical activities take place in the streets.

3. The solidarity among neighbors plays an important role and can be use as platform to develop the neighborhood. The social aspect is important to build upon.
An improvement of the water drainage will form the basis for a better quality of life in the neighborhood of Bessengue. As it is shown in figure 37, waste management is strongly related to the problem of water drainage. In fact, the lack of a good waste management contributes to the problem of flooding and it becomes a vicious circle that needs to be inverted. One of the obstacles toward a good working waste management is the poor accessibility of the neighborhood for collecting the garbage. A system will be necessary to facilitate the collection and retrieval of waste containers in the neighborhood. Water drainage and waste management are not directly an architectural assignment but are the most important aspects that truly needs improvement to achieve a better quality of life according to this research. It would be unrealistic to focus only on architectural assignments aiming a better quality of life while key aspects for a better living environment are not addressed. Besides, even though water drainage belong to another field of specialization, it can be subject to research how to combine this aspect with architectural elements that could improve the living environment of slum residents.

Accessibility is strongly desired among residents because better roads will contribute to a better turnover. All the small informal economic activities that takes place in the streets of Bessengue benefit from increased accessibility that will bring more passersby and customers in the neighborhood. The economic aspect need to improve in order increase the residents quality of life not only to generate incomes, but more importantly to make residents proud. According to the results discussed in section 5.2, being able to work and be able to take care of family is a reason for more happiness among many residents.

By taking care of the floods, the quality of the public spaces will be improved and enable the development of recreational and leisure spaces in the neighborhood. The presence of spaces where kids can safely play in their neighborhood close to their houses, or where residents can organize various cultural and sport activities is very much welcome.

The strength of the neighborhood can be described by the existing ambiance and solidarity amongst residents. People prefer to be outside, with neighbors or friends in front of their houses. This is not only due to their informal economic activities taking place in front of their houses but also due to the lifestyle. So public spaces where people meet is important for both recreational purposes and the lifestyle of residents.

Looking back to the research, the essence of the findings can be concluded into the following:

Residents of Bessengue need a living environment safe from flooding where they can develop their economic activities but also spend time with relatives. Hereby the public space, currently definable as the streets in the neighborhood, are the most important places contributing to a better quality of life, not only because of the possibility it offers for working but also because of the social aspects it has. Residents of Bessengue stand together and enjoy the liveliness of being outside among others.
This research showed how various themes can play an important role in contributing to a better quality of life for residents in Bessengue. As an architect to be, my time and experience in Bessengue developed a certain vision and idea on the quality of life for those local residents. It is obvious that much improvement is needed on an infrastructural level. The flooding problems are urgent matters that need solutions not only at a local level but especially at a larger scale because it occurs in many neighborhoods of Douala. The floods are not only causing a poor accessibility in the neighborhood but they are also problematic from both safety and health perspective. In fact, what about the risks of electrocution with power cables that are often unorganized in the neighborhood? What about all the dirt carried by the water into houses and so risks of many diseases. In many slum neighborhoods sewerage does not exist and dirty water will blend with the water of floods and enter houses.

Even though this water problem is a subject for another field of specialization, as an architect, an idea can be developed in a schematic way on how to deal with water drainage. By all means it will be necessary to define a vision for an improved situation and which qualities are subject of achievement. At least, a more safe and healthier situation is needed.

Besides the water problem, poor accessibility of the neighborhood was raised by residents. It seems that many residents associate the presence of a big road to a better quality of life. But what about losing this informality where kids can play on the streets without risking traffic accidents? The city of Douala has more than 100 thousand of so called “bend-skin” that are moto taxis. They are well known as dangerous and uncontrollable in the daily traffic. (Dougueli,2015). A design intervention that will result in a very formal situation would lose the ‘poetry’ of the current situation. For most of the residents the road was important because of its association to a better and a more developed economic system.

It is a challenge to find out how to contribute to a better quality of life for residents of Bessengue without losing existing qualities and at the same time offer solutions that can answers to residents needs. For example, how to intervene in the public spaces of the neighborhood and stimulate or improve economic turnover without losing existing informal charms of the neighborhood.

The design part of this project will look into architectural interventions that reflects, at the same, time the current ways of living (which are considered as qualities) and the priorities in terms of improvement that resulted from the research. The ambition behind the design part is to create public spaces in the neighborhood that can be used by all residents especially for recreational purposes. The interventions needs to contribute to more liveliness in the neighborhood and thereby stimulate the existing economic activities. The qualities that needs to be achieved are:

1. A safe and healthy living environment both in the rainy and dry season.
2. Outdoor spaces for residents where they are protected from sun and rain.
3. A pleasant environment given the tropical climate (tropical roof).
4. Recreational spaces that can be multifunctional for both young and old.

The design part will further investigate the nature of the interventions and take into account the design of streets and how vegetation can play a role to achieve a better quality of life in the neighborhood of Bessengue.
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Ngomtienté Marie-Asta
Kpoumie Mama Bachirou
Nshare Njoya Issah
Marima
Junior (alias Messi)
Nsangou Ibrahim
Mfomouh Yiagni Charles
Njoya George Olivier
Georgette
Mr & Mme Bounga
Nchouwat Ramatou
Mboutou Dominique
Moluh Nafissetou
Mefire Moussa