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UNIVERSITY OF TECHNOLOGY



Development Plan for Sub-centres in Kisumu

– A Conceptual Proposal for Sustainable Urban Development in Kisumu, Kenya

Master's Thesis in the Master's Programme Design and Construction Project Management

FRIDA BARD
JOHANNA LENNMALM

Department of Civil and Environmental Engineering
Division of Construction Management
CHALMERS UNIVERSITY OF TECHNOLOGY
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Department of Civil and Environmental Engineering
Division of Construction Management
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone: + 46 (0)31-772 1000

Cover:

Photo of Kondele Market in Kisumu, and its surroundings from above.

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ABSTRACT

Kisumu is the third largest city in Kenya, located on the east shores of Lake Victoria. Urbanisation is a prominent trend in the city and the population grows at a high pace. The city centre is congested since it is undersized and most services are only found there, while more than half of the population live in informal settlements outside of the city centre.

An Integrated Strategic Urban Development plan, the ISUD-plan, was recently developed and includes strategies for the development of Kisumu. It proposes, among other interventions, to develop six so-called sub-centres at already existing nodes for trade and transport as a complement to the congested main city centre.

The thesis is focused on three of the suggested development nodes with the aim to support a structured and sustainable urban development of Kisumu. The objective was to create a conceptual development plan including proposals for the three sites, with focus on strategic planning, spatial organisation and land use.

The main research was performed as field studies in Kisumu, comprising of site analysis, qualitative interviews with experts and officials as well as community participation through interviews and workshops. Study of official documents, theoretical literature and study visits was also an important part of the thesis.

The conceptual development plan was handed over to the administrators of the department of city planning in Kisumu County with the aspiration that the result of this thesis will influence the decisions on future urban development of Kisumu City.

Key words: Developing Countries, Strategic Planning, Sub-centres, Sustainable Development, Urban Planning

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Preface

This is a master thesis report produced by the Swedish students Frida Bard and Johanna Lennmalm in the field of sustainable urban development and planning. The thesis is performed as a field study in Kisumu, Kenya in collaboration with *Mistra Urban Futures*, a worldwide research institute within urban development, *UN-Habitat*, *Kisumu Urban Project*, an urban development project financed by the French development aid organisation (AFD), *Kisumu County* and *Maseno University*.

The thesis project is financially supported by the scholarship program *Minor Field Studies, MFS*, which is financed by the governmental organisation Sida, Swedish International Development Cooperation Agency. The MFS-program included a three day course about international development aid and field work in developing countries at Sida's head quarter in Härnösand. The course took place prior to departure and was useful throughout the project.

The idea to base the master thesis on studies in Kisumu started in the spring of 2014 when Frida participated in a field-based course as a part of her master studies. The course is called *Reality Studio* and is carried through yearly in Kisumu. Frida established contacts in Kisumu and discussed ideas of topics for the thesis. In September Johanna joined the project and the final topic was established.

We are most thankful for the help, encouragement and support we have received throughout the work with this thesis. We would like to thank UN-Habitats local coordinator in Kisumu, Silas Maujih and our contact person at Kisumu Urban Project, Patrick Nyamita. At the County Administration we would like to thank the City Planner, Everlyne Otieno, and Deputy Director of Environment, Belinda Nyakinya, who early contributed to the discussions on thesis topic and has been sounding board through the project. The professors at Maseno University have been helpful throughout the work and we would like to give our special thanks to PhD student Jennifer Otieno. Furthermore, we would like to thank the researchers at Mistra Urban Futures and our supervisor Chalmers University of Technology, Göran Lindahl, for all their help and support throughout the project.

Last but not least, a big thanks to all wonderful people we have met through our thesis, who have taken their time and contributed to the work through interviews and workshops. We wish you all the best and hope to see you again.

Göteborg June 2015

Frida Bard and Johanna Lennmalm

List of Abbreviations

AFD - *Agence Française de Développement (French development aid organisation)*

CBD – *Central Business District (main town centre)*

CBO – *Community Based Organisation*

ISUD-plan – *Integrated Strategic Urban Development Plan*

KeNHA – *Kenya National Highway Authority*

KIWASCO – *Kisumu Water and Sewerage Company Limited*

KRC – *Kenya Railway Corporation*

KUP – *Kisumu Urban Project*

NGO – *Non Governmental Organisation*

PPP – *Public-Private Partnership*

SKL – *Sveriges Kommuner och Landsting (Swedish Association of Local Authorities and Regions)*

UN-Habitat – *United Nations Human Settlements Programme*

Description of Words

Chief – *Handles security matters and mediations between inhabitants*

Densification – *Increasing the density in built environment*

Grey water – *Waste water from washing and showering*

Hotel – *Small simple restaurant with Kenyan food, serving only one or two dishes*

Informal settlements – *Unplanned residential area that lacks adequate infrastructure*

Jua Kali – *Handcrafters such as carpenters, welders, cobblers often working outdoors*

Matatu – *Minibus for public transport with seats for 14 passengers*

Murram road – *Road made of laterite soil, more persistent than regular earth roads*

Peri-urban – *Area between sub-urban and rural area*

Permanent structure – *Stable building often made of concrete or bricks*

Semi-permanent structure – *Simple, unstable structure often made of metal sheets*

Slum area – *Residential area that lacks basic services for human well-being*

Temporary structure – *Simple structure of wood, sometimes also with iron sheets*

Urban sprawl – *Spreading of low density urban areas*

1 Introduction

The subject that this thesis concerns is described in this chapter, it includes global trends as well as specific issues that are prominent in Kisumu City as well as current plans for future urban development of the city. Further, it is presented how this thesis relates to the existing plans and the specific topic that is treated in this study. Finally, the aims and objective, method and limitations for this thesis are described.

1.1 The Context of this Thesis

Urbanisation is a major trend all over the world and a process which is occurring at a high pace, especially in many developing countries. In the beginning of the 20th century only 10% of the world's population lived in cities and by the beginning of the 21st century it had reached 50% (UN-Habitat, 2015a). Furthermore, it is expected that 75% will live in cities by the year 2050. The urbanisation implies job opportunities for people and increases the access to societal services, but it also brings many challenges regarding the use of physical environment and urban development.

The high speed of urbanisation gives rise to many informal settlements and often large, unplanned slum areas lacking access to relevant infrastructure such as fresh water, sanitation, electricity, roads and transport, but it also brings problems such as deficient solid waste management and pollutions (UN-Habitat, 2015a). According to UN-Habitats estimations made in 2015, more than half of the world's urban population will live in sub-human conditions in the future, and in sub-Saharan Africa that number is already approximately 60% today.

Slum areas tend to grow in unplanned physical directions and are often not making efficient use of the land that is occupied (UN-Habitat, 2015a). There is no planning for the spatial organisation and the housing mostly consists of one or sometimes two-storey buildings. Unplanned territories seldom have areas for recreation and agriculture leading to problems such as starvation, social- and environmental problems.

1.1.1 The Context of Kisumu City

Kisumu is situated in western Kenya as shown in the map in Figure 1. Kisumu County has approximately 970.000 inhabitants according to the latest census in 2009, and the population in Kisumu City is about 410.000 (Nodalys Conseil, 2013). The urbanisation pace in Kisumu City is high and the population is expected to reach 722.000 inhabitants by year 2030. The population has grown fast the past years, resulting in a sprawling city with large areas of informal settlements surrounding the city centre. More recently, the sprawl has also come to include formal constructions for middle income and upper class inhabitants. The development of built environment that has taken place in Kisumu the past decades have been unplanned and partly uncontrolled.

The town centre of Kisumu is small for being a city with such a high number of inhabitants and the infrastructure outside the city centre is poorly developed (Nodalys

Conseil, 2013). More than half of the population lives in informal settlements in the outskirts of the city (UN-Habitat, 2006). The town is centralized where major functions are situated in the city centre; hence these functions are not easily accessed by a large part of the population.



Figure 1. Map identifying the location of Kenya (white field) and Kisumu (black dot) in Africa.

1.1.2 Plans for Future Urban Development of Kisumu

In 2010 a new constitution was established in Kenya where the country was divided in counties instead of the former system of provinces. This was a step towards a more decentralised distribution of power and financial responsibilities within Kenya. Since the formation of Kisumu County, there has not been established a strategic plan for urban development of the city (Nodalis Conseil, 2013). Through development aid from the French Government (AFD) an integrated strategic development plan, referred to as the ISUD-plan, has been created and is now proposed to be implemented by the County Government of Kisumu.

The ISUD-plan was created in 2013 and 2014 by a French consultancy firm named Nodalis, who won the tendering process for the project. Nodalis set up a team to work with the development of the ISUD-plan, which consisted of both external consultants as well as local professionals from the department of urban planning at Maseno University. In general there are many international firms involved in the urban development in Kisumu, consultants as well as contractors and financiers.

The ISUD-plan contains proposals for urban development in Kisumu City and it concerns several aspects such as urban densification, planning for recreational areas, water front development and slum upgrading etc. (Nodalis Conseil, 2014a). It also contains a proposal to develop so-called sub-centres, which is the main focus of this thesis.

Six places in the outskirts of the city are identified for sub-centre development; all placed at already existing commercial- and transportation nodes. It is described in the ISUD-plan that the development of these nodes is an opportunity to decongest the urban city centre, as well as steering the development of the city towards desired physical directions. This is also something that can contribute to increased accessibility to the city centre and providing adequate services and infrastructure to the peri-urban areas.

Some of the facilities that are described in the ISUD-plan to be included in the sub-centre development are retail, primary health care, pharmacies, dispensaries, primary education, food, decentralised County services, housing, parks and recreational areas (Nodalis Conseil, 2013). This would ease the daily life for a large part of the population and hopefully increase the quality of life and support social and financial sustainability in the peri-urban areas.

The locations for the proposed six sub-centres are decided, but no further investigation or planning concerning the development has been done. The aspiration is that this thesis will contribute to the start-up of the process and be an inspiration for future development.

Three of the identified nodes are more urgent to be planned for according to the City Planner at Kisumu County Administration, Everlyne Otieno. Therefore are these three: Nyamasaria, Otonglo and Kondele, focused on in this thesis and marked with an extra ring in the map of Kisumu in Figure 2.

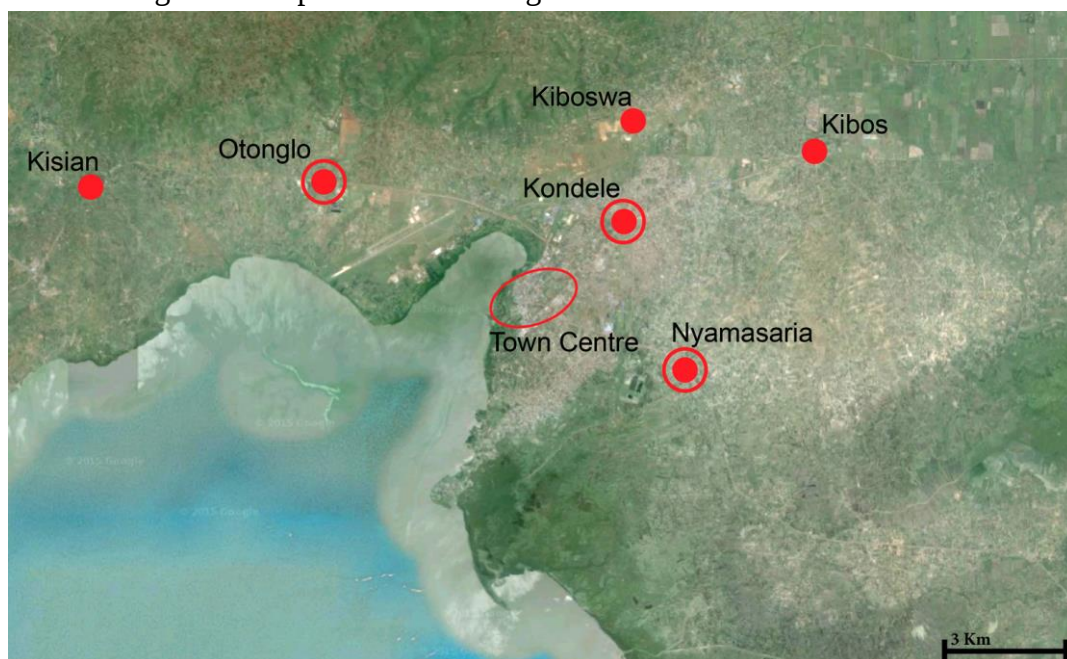


Figure 2. Map of Kisumu and the identified sub-centres, the three chosen sites are marked with an extra circle.

The time frame of the ISUD-plan is based on the fact that Kisumu will be highly urbanised by 2030, and it is also related to the national development plan called Kenya Vision 2030. Kenya Vision 2030 is a long-term development plan that is aspiring to turn Kenya in to a modern country with a high quality of life for all citizens (Nodalis Conseil, 2013). Kisumu is one of the flagship cities for this program and will receive public investments as a part of the national development.

1.2 Aims and Objective

The aim of this study is to support a structured and sustainable urban development of Kisumu and thereby an increased quality of life for its inhabitants. The objective is to create a conceptual plan for how to develop the already identified locations for sub-centres in Kisumu.

The aim and objective are fulfilled through answering the following research questions:

- How can the already identified sites for sub-centres be developed in order to support a sustainable development in Kisumu?
- What challenges need to be addressed to achieve this?
 - What social, cultural and economic structures affect the sites?
 - What functions are crucial for the use of the new centres?
- What are the functions and purposes of the sites today?
 - How will the functions and purpose change with a future development of the area?
 - How will the sub-centres complement the main city centre?

1.3 Method

The main part of this master thesis was performed as a field study in Kisumu City, Kenya. The field study comprised of site analyses through site visits and interviews with the community, qualitative interviews with officials and professionals, study of official documents and workshops involving the communities. The fieldwork was supported by a literature study as well as study visits to interesting and inspiring project sites in Kenya. Extensive preparatory studies combined with administrative preparations were a crucial part of the work with this master thesis. The complete work process of this thesis is illustrated in the timeline in Figure 3 and is further described in the following sections.

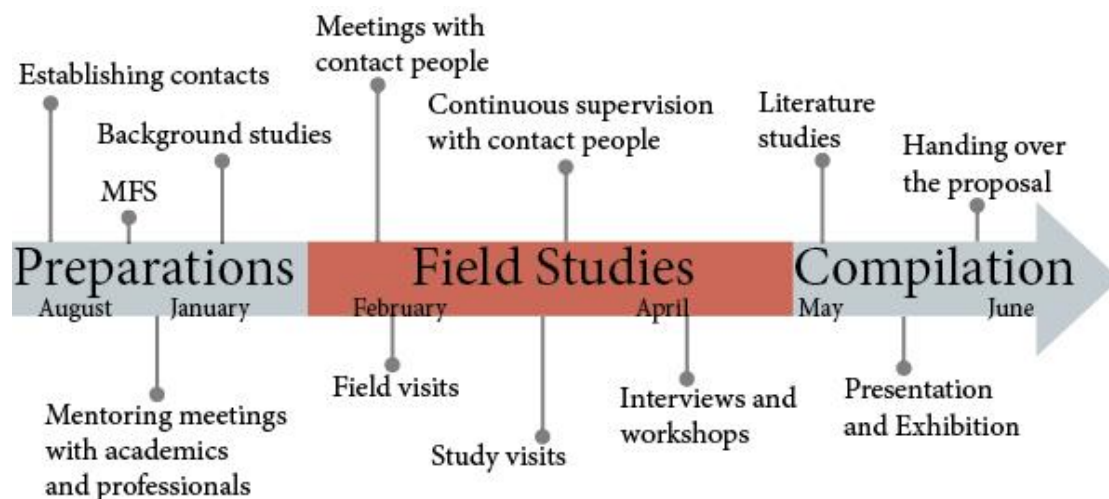


Figure 3. The complete work process of this master thesis illustrated in a timeline.

The three different sites, Nyamasaria, Otonglo and Kondele, were studied in parallel to make sure they all get the same attention and to get inspiration and ideas from one site that could be applied on another. The information gathered through the site analyses were used to perform a SWOT-analysis and create development objectives and development strategies. Further, the strategies were supported by the theoretical framework. The strategies in combination with the theoretical framework were used to create development proposals for the three sites which together form a base for the conceptual plan that was delivered to the County Administration in Kisumu.

1.3.1 Preparations Prior to the Field Study

The initial work with this thesis contained establishment of contacts and discussion of topics with officials from the County Administration in Kisumu, professors and supervisors at Maseno University in Kisumu and at Chalmers University of Technology in Gothenburg.

The final topic was decided in late October 2014 and during this period the main focus was on applications for financial support for the field studies. Later on, the authors of this thesis received a grant from the Swedish International Development Corporation Agency, Sida, through the Minor Field Studies program (MFS).

In January 2015 a three day long preoperational course held by Sida was attended. The course concerned development aid as well as field studies in developing countries and is a compulsory part of the MFS program prior to departure. Furthermore, the main focus in January was on preparations of the field work as well as collecting background information.

The preparatory literature studies included several reports from UN-Habitat that describes the history of urban development in Kisumu as well as the current challenges and opportunities that the city faces. The proposed strategic document for urban development, the ISUD-plan, which is mentioned in Section **Fel! Hittar inte referenskölla**. (The Context of this Thesis), and further described in Section 2.4 (The

ISUD-plan - Proposed Development of Kisumu) was also an essential document in the preparatory studies.

Many investigations as well as academic studies and research on urban development have been performed in Kisumu previously. Examples of some of the engaged actors are UN-Habitat, various NGOs, Maseno University, Jooust University, Mistra Urban Futures and Chalmers University of Technology. It consists of investigations, research, theses, student projects and development proposals. Several of these studies have been a good source of information and inspiration for the work with this thesis. Many of them were used to create a deeper understanding of the context of Kisumu and others were used as reference material for this thesis.

Prior to the departure, contacts were established with Mistra Urban Futures and UN-Habitat. Mistra Urban Futures is an international research centre with its head office in Gothenburg, Sweden, and has a local interaction platform located in Kisumu (Mistra Urban Futures, 2015). Mistra does research concerning sustainable urban development with its focus on development of fair, green and dense cities. Currently there are two on-going projects in Kisumu; one regarding how to develop and strengthen the market places, and one concerning eco-tourism in Kisumu. UN-Habitat is currently doing extensive research and proposals on the urban development of Kisumu. Contact was established with a leader at the Urban Planning and Design branch at the UN-Habitats headquarters in Nairobi, Laura Petrella. Another very useful resource was the UN-Habitat local coordinator in Kisumu, Silas Maujih.

1.3.2 Site Analyses

The field work started in the middle of February and initially site analyses were performed through observations at different times of the day and different days of the week. It included walking around in the area; talking to people; using different facilities; trade in the market; sitting still at a hotel to observe people's behaviour, activities and movements; using the public transport available etc. The site analyses resulted in maps and descriptions of the current situation and functions of each site. The following aspects were analysed:

- *Physical environment*: How the buildings are arranged in relation to each other, to surrounding structures and to the surrounding environment. Density of the built environment, if there is greenery inside or around the site. Types of settlements, if there are permanent and/or temporary structures and in what condition the buildings are. The geological conditions at the sites and how that can influence future development.

- *Available infrastructure*: Existing roads and their current condition. Availability of water, management of sewage, storm water and solid waste.

- *Available services*: What services that are available, what commodities and leisure facilities that can be found in the area, what kind of shops and markets there are. Locations of schools and health care facilities as well as possibilities for creative and social activities.

- *Activities and movements in the area*: What people do within the area at different times of the day, activities such as trade, play, cooking, washing and socialising. What types of vehicles that move around in the area, where the vehicle stops, where people walk and where they idle, whether animals and livestock move around in the area.
- *Land tenure*: What land that is available and ownership of the land; public land, leased or privately owned.
- *Safety*: What the safety situation is like concerning, traffic, risk of disease, thieves, lighting, criminal behaviour and what the situation is like for children.
- *Demography*: What social groups people living and working within the area as well as visitors belong to, income levels, unemployment levels, population density, health situation and tribe belongings.

1.3.3 Community Participation

Within the past decades it has become increasingly important to use community participation in urban planning (Lyons, et al., 2001). It is a measure for achieving citizen empowerment and ensuring that new interventions are well anchored in the community in order to secure long-term sustainability. The residents of a community are also important sources of information when understanding a new area. These factors have been the base for choosing to collaborate with the inhabitants of the communities in the work with this thesis.

Interviews were performed with people from diverse groups living and working at the sites. Through the interviews, peoples' perception of the places and their thoughts about the future development was established, as well as a deeper understanding of potentials and challenges of the sites.

In this study, 15 interviews have been conducted with inhabitants and other actors from the different sites. The process of finding the interviewees started in collaboration with UN-Habitats local coordinator in Kisumu, Silas Maujih, who provided contact with three different key persons, one at each site. These key persons are all active in their communities through volunteering and other community involvements; hence they have good relations with most inhabitants within the area. These key persons were used for finding appropriate interviewees among inhabitants and other active people at the sites.

When selecting interviewees at the three sites it was important to find persons who can represent larger groups which are active in the area. The following list presents the roles of the people that were interviewed at all three sites. Some of the words in the list are further described in Description of Words at page XII.

- Chief or assistant chief of the area
- Chairperson of the market place
- Chairperson of a public transport group
- Chairperson of a Jua Kali group
- Head teacher of the main school in the area

The chosen individuals were official representatives of a certain group, but could also be seen as unofficial representatives of other groups. It is for example common that most people involved in the transport sector are young, hence they could also function as representatives for the youths. The traders at the market places are mostly women and when involving them it was possible to get input from the female perspective. This was useful to keep in mind while performing the interviews since the limited amount of time did not allow for a high number of interviews.

Many interviews in this study were held as key group interviews with people from the same community groups. This was done when the interviewees did not feel comfortable speaking to the interviewer alone, sometimes due to language barriers but also because the interviewees were unaccustomed to talk about the type of topics. This approach is supported by Ranger & Westerberg (2004) who claims that there are many advantages in gathering interviewees in homogenous groups. People that share experiences and have similar life situations often feel more comfortable in such situation and thus discuss more freely.

The initial interviews supported to create relationships with more people who are active in the area. This was useful when visiting the sites on other occasions since it created opportunities for spontaneous conversations and discussions. These informal meetings were also important for the information gathering because it lead to upbringing of topics that were not part of the interviews but also important for the analyses.

Later on during the field studies the community was involved in workshops further described in Section 1.3.8 (Processing the Conceptual Development Proposal).

1.3.4 Interview Study

To get a deeper understanding of the officials' and professionals' view of the urban development in Kisumu in general and the sub-centre development in particular, in-depth interviews were performed.

A qualitative method was chosen for these interviews to ensure a deep understanding of the topics and the interviewees' field of expertise (Brayman, 2008). Unique questions were developed for each interview with the purpose to make sure that each interviewee could present and share their expert knowledge in a good way. A semi-structured approach was used, enabling the interviewers to switch order of the questions and add follow-up questions to get a deeper understanding of the challenges and issues discussed during the interviews (Hedin, 1996). Follow-up questions were considered important since the thesis was performed in a rather unknown context and many cultural differences and assumptions from both parts could emerge.

Initially Professor George Mark Onyango, from the department of Urban Management at Maseno University and co-author of the ISUD-plan, was interviewed regarding the development of the ISUD-plan and urban development in general in Kisumu. The City Planner at the County Administration, Everlyne Otieno, was resourceful in order to get a deeper understanding of how the county works with

urban planning and the plans for development of the sub-centres. Those interviews were followed up by more specific interviews on complicated planning issues in Kisumu.

The Deputy Director of Environment at Kisumu County Administration, Belinda Nyakinya, was consulted regarding solid waste management issues. Jennifer Otieno, PhD-student at Maseno University and Mistra Urban Futures, was consulted about her focus areas market places and gender issues. Project Manager at Kisumu Urban Project (KUP), Patrick Nyamita, has been interviewed about implementation issues and KUPs work in Kisumu.

To get a deeper understanding regarding development of roads and infrastructure in Kisumu, a representative from Kenya National Highway Authority (KeNHA), Michael Ngala, was interviewed, as well as Highway Engineer, Charles Omwenga from Sheladia Associates Inc.. In addition, an interview was made with a representative from Kenya Urban Roads Authority, Kevin Were.

1.3.5 SWOT-analysis, Development Objectives and Strategies

The current situation at the different sites was analysed through a SWOT-analysis using the information gathered during site visits and interviews with the community members as well as the officials and experts. The SWOT-analysis is a tool to analyse Strengths, Weaknesses, Opportunities and Threats which was used for the three different sites Nyamasaria, Otonglo and Kondele. The situations at the sites are similar in many ways and in order to be comprehensible, the analyses are therefore presented in one common table.

The SWOT- analysis was used to evaluate the current situation at the sites in relation to a vision of sustainable development. The tool is commonly used in urban planning when working towards a long-term vision as well as supporting decision making (Mobaraki, 2014). This tool is useful for identifying strategic approaches in a project and it is commonly used within strategic planning. A SWOT-analysis is an appropriate tool for gaining a comprehensive analysis of a situation as it includes both internal and external aspects. The situation at the three different sites is complex and there are several internal and external factors of different character that influence and affect the current situation as well as the possibilities for future development. Therefore it was considered that a SWOT-analysis could be an appropriate tool to use for this study.

With a starting point in the SWOT-analysis, development objectives were created. The development objectives aim to clarify our visions regarding the future development of sub-centres in Kisumu and are formulated based on a vision of sustainable development. Further, development strategies were created based on the development goals. In order to generate a plan of action for the future development; each of the development strategies were connected to one or more of the development objectives. The strategies were, as well as the development objectives, formulated in a way so that they would be applicable to all three sites considered in this thesis.

1.3.6 Theoretical Literature Study

The theoretical framework in this report is divided in two parts, one part dealing with current trends in Sweden and one part aimed to directly support the development strategies.

The part including Swedish trends concerns two different concepts that are frequently discussed; *social sustainability* and *mixed-use cities*, and it investigates how the concepts are used in Sweden. It was of interest to find ways of how to connect concepts that are successful in the Swedish context with the context of Kisumu.

The second part concentrates on supporting the development strategies and has its base in recommendations from UN-Habitat, where the main focus is on developing countries. Their publications are based on international research and contain recommendations as well as examples from successful projects in similar contexts.

1.3.7 Study Visits

In order to get inspiration for the development proposals several study visits to successful, interesting and functioning projects were done. One study visit was to Kounkuey Design Initiative, working with slum upgrading of public spaces through community participation in Kibera. Kibera is one of the largest slum areas in Africa and located in Nairobi. It has similar challenges and opportunities as the sites considered in this thesis, thus making this study visit helpful.

With the aim of finding inspiration regarding women emancipation, a study visit was made to the CBO City of Hope in Kisumu which educates young, single mothers in handcrafts and entrepreneurship. Their goal is that the women will be able to start their own businesses and earn an income. Kibuye waste management CBO was visited to get insight regarding solid waste management and composting in market places and public spaces. Another CBO called Zingira was visited to see alternative use of different waste materials for making handcraft and empowerment of poor youths. To get inspiration regarding biogas as a cooking fuel, a study visit to the NGO Friends Pioneer in Kisumu was made. However, that particular project had unfortunately not yet come up with well-functioning solutions.

1.3.8 Processing the Conceptual Development Proposal

The conceptual development proposals for the three sites were created in accordance with the development strategies, by support from the theoretical framework and reference projects. The development proposals have a long-term sustainability perspective taking ecological, economic and social aspects into account. The interviews with people at the sites were essential in order to gather knowledge for creating the development proposal. These sources were equally important later on in the process when revising the drafted development proposal together with the previously interviewed people. The work process of creating the development proposal is illustrated in the diagram in Figure 4.

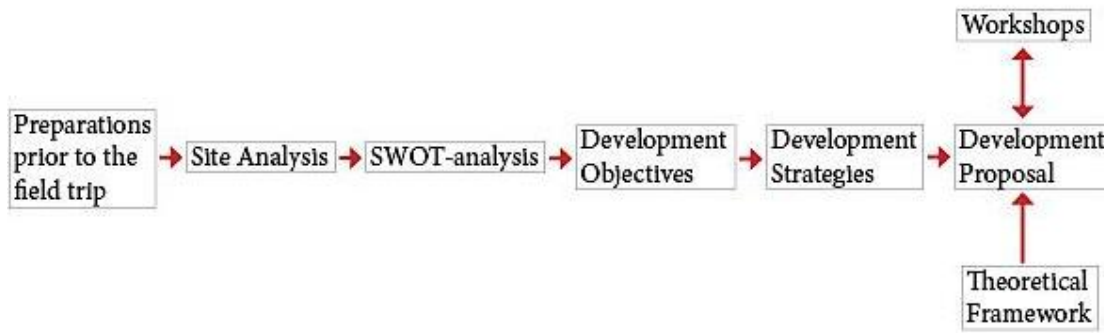


Figure 4. Illustration of the work process of creating the development proposal in this master's thesis.

The people previously interviewed during the site analyses as well as the local coordinator from UN-Habitat were invited to participate in workshops with discussions regarding the draft proposals for development of the sites. The interviewees were also allowed to invite additional colleagues who are interested and engaged in the urban development.

To enable a good communication at the workshops, thorough preparations were necessary. Through earlier meetings and discussions it was clear that many inhabitants were not used to reading maps and analyse future changes. Therefore, the maps brought to the workshops were designed to be simple and pedagogic, and smaller details were left out. Symbols already known by the participants were used to support orientation on the maps. Furthermore, photos of reference projects were brought to the workshops to have something exemplifying our visions for the sites. It was a strategic decision that the maps and photos did not look perfect so that the participants should not get the impression that the material represents definite proposals, rather material to discuss and improve together.

1.3.9 Result

The result of this thesis is a development proposal comprising of three different conceptual development plans that, together with the material that it is based on, are delivered to Kisumu County Administration and to Kisumu Urban Project. The conceptual plans include a proposal for spatial organisation, implementation strategies and descriptions of how a future development will complement, as well as have an impact on the current functions.

The aspiration is that the development proposals will be used by the County Administrators and that it will affect decisions on urban development in Kisumu. The proposal is to be seen as an initial work and investigation for the development of the sub-centres. Further work needs to be done in order to develop an in-depth plan which also includes design of the interventions on a detailed level. The maps used when creating the proposals are kept in the same simple design, in order to facilitate future dialogue about the development between the officials and the community.

1.3.10 Relevance

It is important to plan for development at these sites in order to push the physical development towards desired directions and prevent urban sprawl. These sites are already active and there are current plans for future development at the sites, both from the County and private developers. In order to prevent spontaneous development and the short sight considerations related to it, it is important to intervene and provide guidelines for the development at these sites before new development takes place.

Continuous discussions and supervisions with the County administrators involved in the urban development of Kisumu has been an essential part of the work with this thesis. This was important in order to develop a plan that can be relevant and realistic for the County to make use of when planning for the development of the sub-centres.

1.4 Limitations

This master thesis is focused on three of the six suggested urban development nodes for sub-centres found in the ISUD-plan. The choice of focusing on only three of them is mainly based on the time limitation that the work with this thesis implies. The three sites were chosen based on level of priority through discussions with the City Planner of the County Administration in Kisumu. Further it was chosen to focus on the central parts of the three sites and not include the whole areas, which was partly decided due to the time limitations of the work process. It was also based on the fact that the central areas include public land, where there is more possibilities for the County to affect the development, than the peripheral areas which mostly have private land.

The focus is on the spatial planning and sustainable urban development of the areas rather than the design of buildings and structures. The proposal is comprised of a conceptual area plan with additional strategies for implementation, hence the development proposal is a strategic document rather than a design proposal.

The conceptual development proposal includes what is aimed to be achieved until the year 2030 since it is the time frame for the ISUD-plan as well as for Kenya Vision 2030, aiming to turn Kenya in to a modern country (Nodalís Conseil, 2013). With the current pace of population growth it is expected that Kisumu City will have a population number around 722.000 inhabitants by the year 2030, compared to the current number of 410.000 inhabitants in the city. Hence, the expected population increase also makes it urgent to plan for a sustainable development of these sites.

With the conditions given at the selected sites in Kisumu and the level of development in Kenya, it is not viable to create a proposal that is fulfilling the sustainability requirements on all levels. Some compromises had to be done where social and financial aspects are prioritised above the ecological aspects. This is chosen since it is considered by the authors to put higher priority in fulfilling basic needs for the inhabitants before fulfilling ecological sustainability requirements.

2 Background

The following chapter contains background information about Kenya and Kisumu where, among other things, history, politics, population, economy, infrastructure, environment and land tenure are described. This is followed by a summary of previous research on urban development in Kisumu and future plans for urban development in Kisumu (the ISUD-plan).

2.1 Kenya

Kenya is located in East Africa bordering the Indian Ocean, Ethiopia, Somalia, South Sudan, Tanzania and Uganda, which is shown in Figure 5. The country lies on the equator and the climate varies within the country from tropical along the coast to arid in the interior (Lonely Planet, 2012). There are two rain periods during the year, March-May and October-November. Most of the rain falls in the highlands in the west and on the coast, and thereby is only 10% of the land suitable for agriculture (Utrikespolitiska Institutet, 2011).



Figure 5. Map of Kenya, its neighbouring countries and water bodies.

2.1.1 History

East Africa is known for being the place of the earliest development of human species and archaeologists have found fossils dating 20 million years back in the Kenyan rift valley (The Library of Congress - Federal Research Division, 2007). Ancestors of the modern human began to populate the region around 2000 B.C. In the 19th century European colonists came to the region and in 1885 Kenya became a British colony,

after the Berlin Congress where European powers divided East Africa into areas of influence. During this period, starting in 1895, the colonists started to build a railway from Mombasa at the coast to Kisumu at the shoreline of Lake Victoria to enable trade with the interior of the country and Uganda, which also borders the lake.

In 1920 the British Government made Kenya a British crown colony and the colonists seized most of the fertile land which led to dissatisfaction among the natives and later uprising against the British (Utrikespolitiska Institutet, 2013a). In 1963 Kenya was declared independent and the hero of liberation, Jomo Kenyatta, became the country's first president and ruled until his death in 1978 (Central Intelligence Agency, 2014).

Since then, Kenya is characterised by political instability and widespread corruption (The Library of Congress - Federal Research Division, 2007) which holds back the economic growth and the country's development (Sida, 2014). The political situation intensified during the post-election violence in 2007-2008 when approximately 1100 people were killed (Amnesty International, 2014).

The turbulence during the post-election violence dampened the economic growth, caused humanitarian crises and starvation (Utrikespolitiska Institutet, 2014a). The situation was urgent and many feared a civil war but several international players acted rapid and responsibly which calmed down the situation, according to the Swedish Institute of International Affairs, an independent public service organisation.

2.1.2 Politics

Kenya is a republic and in the most recent elections in 2013, the former president Jomo Kenyatta's son, Uhuru Kenyatta, became the new president. Kenya's political system has been characterised by a far-reaching presidential power (Utrikespolitiska Institutet, 2014b), but in 2010 Kenya approved a new constitution, highly influenced by the British system (The Library of Congress - Federal Research Division, 2007), with the aim to limit the presidential power.

The new constitution is not yet fully implemented and it is a process expected to take several years (Utrikespolitiska Institutet, 2014c). With the new constitution, the two-chamber parliament has a stronger position than before and the judicial system becomes more independent. Furthermore, the power is decentralised and transferred to 47 new counties with elected governors and regional assemblies.

2.1.3 Population

The total population of Kenya is approximately 45 million people according to projections made in 2014 and the growth rate is estimated to 2.11% (Central Intelligence Agency, 2014). Among these were 24% living in urban areas 2011 and the urbanisation rate was estimated to approximately 4.4% during the years 2010-2015. The average age of the Kenyan population is 19.1 years old and only 2.7% are older than 65 years.

Kenya is one of the most diverse countries in Africa, in terms of ethnicities and religions. There are 42 different ethnic groups in Kenya where the largest ones are

Kikuyu (22%), Luhya (14%), Luo (13%), Kalenjin (12%) and Kamba (11%) (Central Intelligence Agency, 2014). Additionally immigrants from Asia, Europe and Arabic countries represents 1% of the residents. The largest religious group in Kenya is Christians, approximately 80%, and among these are 47% Protestants, 23% Roman Catholics and 11% have other Christian beliefs (Central Intelligence Agency, 2014). The Muslim group is equivalent to 11% and traditional religions to approximately 1.5% of Kenya's total population, respectively.

Authorities have made several efforts to reduce the mortality rate in Kenya, where improvements in housing, education, sanitation and nutrition have given strong results (Encyclopedia Britannica, 2015). However, there are still several health issues present in the country today, e.g. bacterial- and diarrheal infections, as well as malaria and HIV/AIDS are highly present among the population.

2.1.4 Economy

Kenya is East Africa's largest economy much due to a more varied industrial sector than their neighbours (Utrikespolitiska Institutet, 2013b). Agriculture is the main occupation in Kenya and employs, according to estimations in 2007, almost three quarters of the labour force of which the majority is small scale and family farming (The Library of Congress - Federal Research Division, 2007). The fourth quarter of the residents works within industry and the service sector, where also tourism is of importance. The main export goods are tea, horticultural products, coffee, petroleum products, fish and cement; while the main import goods are machinery and transportation equipment, petroleum products, motor vehicles, iron, steel, resins and plastics.

The Kenyan economy and development is hindered and held back by lack of democratic governance, a high level of corruption and inefficiency in the public sector (Sida, 2014). Around 40% of the population was unemployed in 2012 (Central Intelligence Agency, 2014) and it was estimated that around 29% are living below the poverty line (Open Data, 2009).

2.1.5 Infrastructure

The most important transport mode in Kenya is road transport, which connects the urban areas with the rural areas (Encyclopedia Britannica, 2015). After the independence in 1963 the main roads were upgraded from earth to bitumen, but the roads are today damaged and deficient due to lack of maintenance and repairs. However, several of the major highways in Kenya are currently under reconstruction and upgrading through financing from international development aid (Nodalis Conseil, 2013). The major road system was originally planned to be a complement to the railway between Mombasa and the western parts of the country.

The East African Railway was constructed by the colonists and covers large parts of the country, but lack of maintenance and investments has resulted in some parts of the railway currently not being in use (Nodalis Conseil, 2013). The operator, Kenya Railway Corporation, has recently created a new railway master plan in order to

provide the country with modern, reliable and efficient railway transport (Kenya Railways Corporation, 2015).

The railway master plan includes a new railway line of higher standard from Mombasa to Malaba in Uganda with a branch line to Kisumu, and one line in northern Kenya from Lamu Port to South Sudan and Ethiopia providing these countries access to the sea (Kenya Railways Corporation, 2015). The project should be finished by year 2050 and funding is identified for the section Mombasa-Nairobi where the construction already has started (Nodalys Conseil, 2014a).

Since the trains are not operating at the moment of writing, roads are the most commonly used transport mode for both cargo and passengers, but planes are also widely used for domestic transport (Nodalys Conseil, 2014a). Kenya has two major domestic airports in Malindi and Kisumu, and three international airports located in Nairobi, Mombasa and Eldoret (Encyclopedia Britannica, 2015). Additionally, there are numerous smaller airfields throughout the country.

Mombasa is the main sea port of Kenya handling import and export of goods not only for Kenya, but also for the adjacent countries Burundi, Rwanda, Uganda and some parts of the democratic republic of Congo (Encyclopedia Britannica, 2015).

2.2 Kisumu

Kisumu is the third largest city in Kenya, placed in the western part of the country on the shore of Lake Victoria (see Figure 5), the largest fresh water body in Africa (Nodalys Conseil, 2013). The city is located 1146 meters above sea level and is surrounded by fertile plains. Figure 6 shows a map of Kisumu and its location by the lake, the urban footprint where red indications for the CBD and slum areas are marked in the map. The natural environment with mountains north of the city, wetlands in the south and fertile plains surrounding the city are shown in the map. Kisumu has a long history as a centre for commerce, with agricultural goods and fish as the main export products. The city still possess a position in the country as a trading node but the region is generally underdeveloped compared to other large cities in the country.

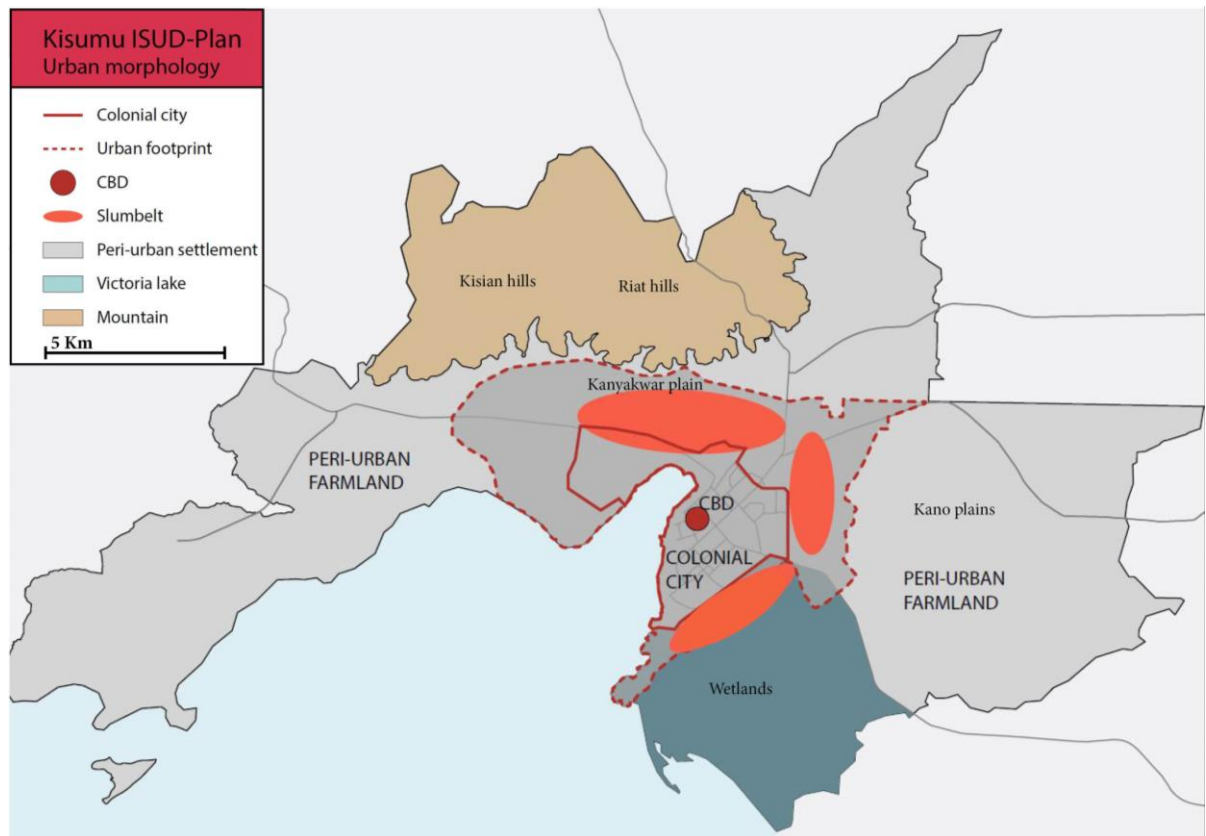


Figure 6. Map of Kisumu and its surrounding environment (Nodalis Conseil, 2013).

2.2.1 History

The importance of Kisumu as a centre for trade and commerce grew when the railway terminus and lake port was established in 1901 (UN-Habitat, 2006). This gave Kisumu a strong position in the region and important relations with Tanzania and Uganda which also border the lake. The economic potential of Kisumu has decreased significantly since the national economic decline in the 1980's and 1990's; industries have shut down and the railway has deteriorated due to lack of maintenance.

2.2.2 Politics

Kisumu has for a long time been the base of political opposition in Kenya, which have had negative impact on the development in the region (UN-Habitat, 2006). This lead to that Kisumu and the region were neglected by the government until the implementation of multi-party democracy in Kenya in 1992.

During the post-election violence in 2007-2008, extensive vandalism and destruction took place Kisumu, the situation resembled a civil war and there were riots occurring in most parts of the city¹. Many buildings, infrastructure and cultural items were destroyed during this period. The effects of the post-election violence have contributed to underdevelopment of the city and traces of the vandalism are still visible today.

¹ Patrick Nyamita, Project Manager, Kisumu Urban Project, Interview 2015-03-20

2.2.3 Population

Kisumu City has approximately 410.000 inhabitants and Kisumu County has about 970.000 (Nodalis Conseil, 2013). The average population density in the urban areas of Kisumu is 1 390 persons per km² (UN-Habitat, 2006). However, the density varies largely in different areas of the city. Kisumu is in general a segregated city where different income groups live in geographically separated areas. Approximately 60% of the urban population live in informal settlements where the density varies between 6 000 and 21 000 persons per km².

Urbanisation is prominent in Kenya and the population of Kisumu is growing fast, with a pace of 4% per year (Nodalis Conseil, 2013). The population is expected to reach approximately 722 000 by year 2030 and one million by 2050. The area around Kisumu and along the north shores of Lake Victoria is one of three places identified as the fastest growing urban areas of Africa, and the population density in these areas is expected to become extremely high. The illustration in Figure 7 shows how certain parts of Africa are expected to be urbanised by the year 2030. The fast increase in population and density could lead to a large extent of unplanned areas and ill-planned development if the local authorities do not meet the needs of the population in terms of housing and services in the same pace as the population growth is demanding it.

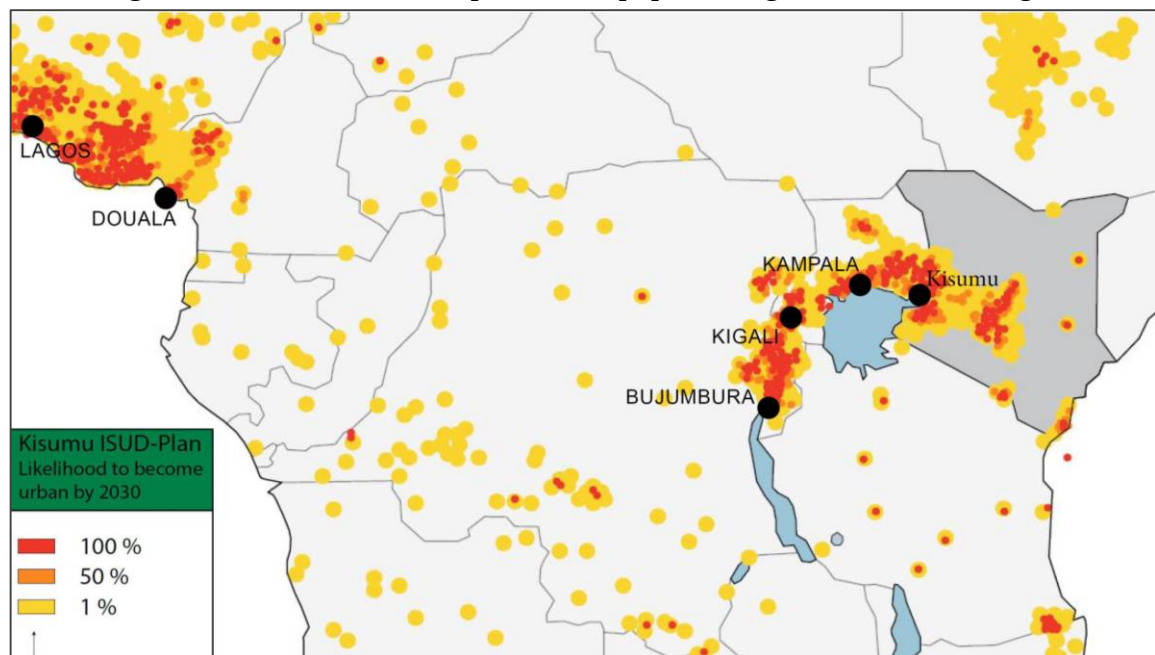


Figure 7. Map showing parts of Africa that are expected to become urbanised by year 2030. It is visible that Kisumu is expected to merge with other urban areas along the shores of Lake Victoria (Nodalis Conseil, 2013).

2.2.4 Economy

Poverty is more prevalent in Kisumu than other large cities in the country; poverty rate in Kisumu is almost 50% compared to Mombasa, the second largest city of Kenya, which has 38% and the capital, Nairobi which has 22% (Open Data, 2009). National average of poverty is 29% in Kenya. The food poverty rate is among the highest in the country (53%) despite the fact that urban agriculture is widespread in Kisumu.

More than half of the population in Kisumu is working in the informal sector, mostly within trade, transport, carpentry and other small scale businesses (UN-Habitat, 2006). The decline of industries in the region has affected the local economy badly and the official unemployment rate is 30%.

Markets play a key role in the trade that takes place in the region; there are a large number of markets with locations all over the Kisumu and they vary in size, supply and formality. Most people in Kisumu depend on the markets for their daily supply of groceries and the markets are one of the most important sources of income in Kisumu (Folkesson & Skarp, 2012). Figure 8 shows the market hall at Jubilee Market as well as an open air-market, Kibuye Market, and the trade taking place there.



Figure 8. The photo to the left shows Jubilee Market hall and to the right is the open air-market Kibuye.

2.2.5 Infrastructure

The availability of adequate infrastructure varies widely within Kisumu, where the poor in the informal settlements have the least access and the town centre and other richer areas have good access (Nodalís Conseil, 2013). For example, only 10% of the households in the informal settlements have access to piped water, and 40% of the total population have access to piped water. Over 60% of the inhabitants within the slum areas get their water from unsafe sources which leads to high prevalence of waterborne diseases (UN-Habitat, 2006). Unsafe water sources are often polluted rivers or boreholes where people collect water due to inability to pay for, or absence of access to, clean water from water points.

Most parts of the informal settlements are covered by water from public water points while other more developed areas in the city have access to piped water inside the buildings (Nodalís Conseil, 2013). The local water supplier, KIWASCO, is currently expanding the capacity of the water distribution system in order to meet the demand for clean water in Kisumu.

The sewerage network covers the city centre, industrial areas and some parts of the informal settlements. In other areas pit latrines are used, or direct discharge to surrounding water bodies (Nodalís Conseil, 2013). Only 10% of the waste water is taken care of by the sewerage system. The waste water treatment plants have exceeded their capacity which means that the water released from the treatment plants

is not sufficiently treated. The pit latrines and direct discharge is damaging the nature through eutrophication as well as contributing to the spreading of diseases.

Most parts of Kisumu are covered by the power grid but the electricity supply fluctuates and blackouts are common. Many households don't have electricity due to the high initial costs when connecting to the grid, and thereby do only 18% of the households have access to electricity (Nodalis Conseil, 2013). The households without electricity mainly depend on kerosene lamps for lighting, which is an outdated type of open-flame lamp giving out toxic fumes damaging both health and environment. Street light is only provided in a few of the main roads within the city core. Some public spaces, such as market places around the city, are provided with so-called flood lights, a huge set of lamps making the area very light during night.

2.2.6 Solid Waste Management

Solid waste is a major problem in Kisumu as well as in many other developing countries and cities. 436 tonnes of solid waste were produced every day in 2008 and among it were 65% organic². Around 20% of the solid waste is collected by the local authorities while 27% is collected by private entrepreneurs and 53% is uncontrolled, meaning that it is either left on the ground or burned at site. The plastic disposed in open spaces often blocks storm water drains which causes flooding.

The waste collected by Kisumu County is brought to the official landfill, Kachok dumpsite, which is located along Nairobi Highway, about 5 km from the CBD (e-cue associated limited, 2014). At the landfill all types of waste is found: paper, plastic, scrap metal, glass as well as industrial-, medical- and electronic waste. The landfill was established in the mid-1970s and occupies an area of 2.7 hectare. It is hazardous and toxic, thereby potentially harming the environment as well as the public health.

Private entrepreneurs collect and sell recyclable materials, especially plastic, to earn an income. There are two companies in Kisumu that buy plastic for recycling while metals are sold to companies in Nairobi (e-cue associated limited, 2014). Paper and glass is not yet successfully recycled. The recyclers collect waste everywhere in the city, both at the landfill as shown in Figure 9 and on the streets. The collectors expose themselves to risks such as bacteria's and HIV from used needles in the medical waste. Some people are also collecting organic waste from the landfill for food.

² Belinda Nyakinya, Deputy Director of Environment, Kisumu County Admin., Interview 2015-03-09



Figure 9. Children at the official landfill collecting material for recycling (e-cue associated limited, 2014).

Officials at Kisumu County have identified a number of challenges concerning the solid waste management and is presented in the list below³. The black points are the ones that could be treated in the proposal presented in this thesis, while the grey ones are outside of this scope:

- Weakness in implementation strategy
- Insufficient resources for SWM (financial, human, equipment, competence)
- High number of areas with difficult or non-existing access to the service
- Insufficient waste collection and transport equipment
- Insufficient working conditions due to insufficient protection
- In-efficient charge collection system
- Lack of proper dumping sites
- No separation of waste at source
- Poor enforcement of solid waste management regulations
- Attitudes of residents, “waste is a council responsibility not mine”
- Medical waste disposed in municipal facilities poisoning health hazards to staff

An adequate design in the waste facilities and education in solid waste management are among the factors found within the scope of this thesis and are therefore to be considered further in the report.

2.2.7 Transport

Kisumu is well connected to the national road network with major roads leading towards Nairobi, Uganda and other parts of the Kenya. Some of the national roads are currently being upgraded in order to serve a higher number of vehicles and support a more efficient transport system (Nodal Conseil, 2013). Additionally, a bypass road

³ Belinda Nyakinya, Deputy Director of Environment, Kisumu County Admin., Interview 2015-03-09

is being constructed around the city core enabling traffic to drive around the city in order to avoid congestion and high speeds within the town centre.

As previously mentioned, Kisumu has evolved around the railway terminus and the railway has long been important for the economic growth of the city. However, the lines to Kisumu are not operating since a few years back due to lack of maintenance of trains and rail (Nodalis Conseil, 2013). The government is currently investing in a new railway which will include high speed trains.

Transport within the city is mainly based on public service vehicles and individual cars, where the public service vehicles are operating both formally and informally (UN-Habitat, 2006). Additionally, there is a high number of people that rely on walking long distances daily.

Matatus are minibuses, shown in Figure 10, that follow designated routes and provide collective transport for a low fee. Most matatus have seats for 14 passengers but many of them serve much higher number of people, which means that more than one person occupies one seat (Nodalis Conseil, 2013). There are designated areas for drop off and pick up which currently are under-dimensioned, hence the buses currently operate in a disorganised manner. Public service vehicles in general stop anywhere on the road upon passengers' request, causing traffic jam and road accidents.

Other levels of the public transport are tuk tuks, a vehicle on three wheels with space for 3 passengers, as well as the so-called boda bodas - the bicycle taxi and piki pikis - the motorbike taxis, also seen in Figure 10 (UN-Habitat, 2006). They provide a more flexible mode of transport. The operation of these activities is informal and the drivers have occupied undesigned spaces along the roads at numerous locations all over town (Kisumu City Council, 2004). The drivers are often accused for driving carelessly and the highest number of road accidents includes these vehicles. The people occupied in public transport are often young and from the poorer areas of the city. They rely on this opportunity for earning an income since their chances to get access to employment within the formal sector is very low.



Figure 10. A typical street view where matatus, piki pikis and boda bodas are present.

2.2.8 Urban Structure

The town centre emerged when the railway terminus was established in Kisumu in 1901. Since then, there has been little development of the road grid and the shape of the city remains almost the same (Nodalís Conseil, 2013). The railway runs along the shoreline and functions as a barrier between the town centre and the lake. A high end residential area called Milimani is located south of the town centre. A few other middle income residential areas are surrounding the city centre. The rest of the development in Kisumu has happened spontaneously and in a more or less un-planned manner. Informal settlements stretches along most of the outer borders of the formal city.

The demand for higher standard dwellings has increased the past years, and these types of settlements have been built in peri-urban areas (Nodalís Conseil, 2013). The developments in the outskirts, combined with an increased urbanisation of rural poor, has led to the sprawling of Kisumu where the settlement areas has low density and are located mostly along the stretches of the main roads.

Most of the formal buildings in Kisumu are low level structures, with an average height of three stories, where the city core has some buildings exceeding that height (Nodalís Conseil, 2013). Slum areas consist almost consistently of one-storey buildings and are shown in yellow in Figure 11 while formal residential areas are shown in red.

As previously mentioned, more than half of the urban population in Kisumu live in slum areas and informal settlements. Slums are defined as households characterized by lack of at least one of five basic services such as potable water, hygienic sanitation facilities, sufficient living area (not more than three persons per room), structural quality and durability of dwelling and security of tenure (UN-Habitat, 2013). The term informal settlement is more difficult to define, but generally refers to unplanned areas with lack of adequate infrastructure such as street grids and access to health care etc. Informal settlements are sometimes referred to as shanty towns or squatter settlements.

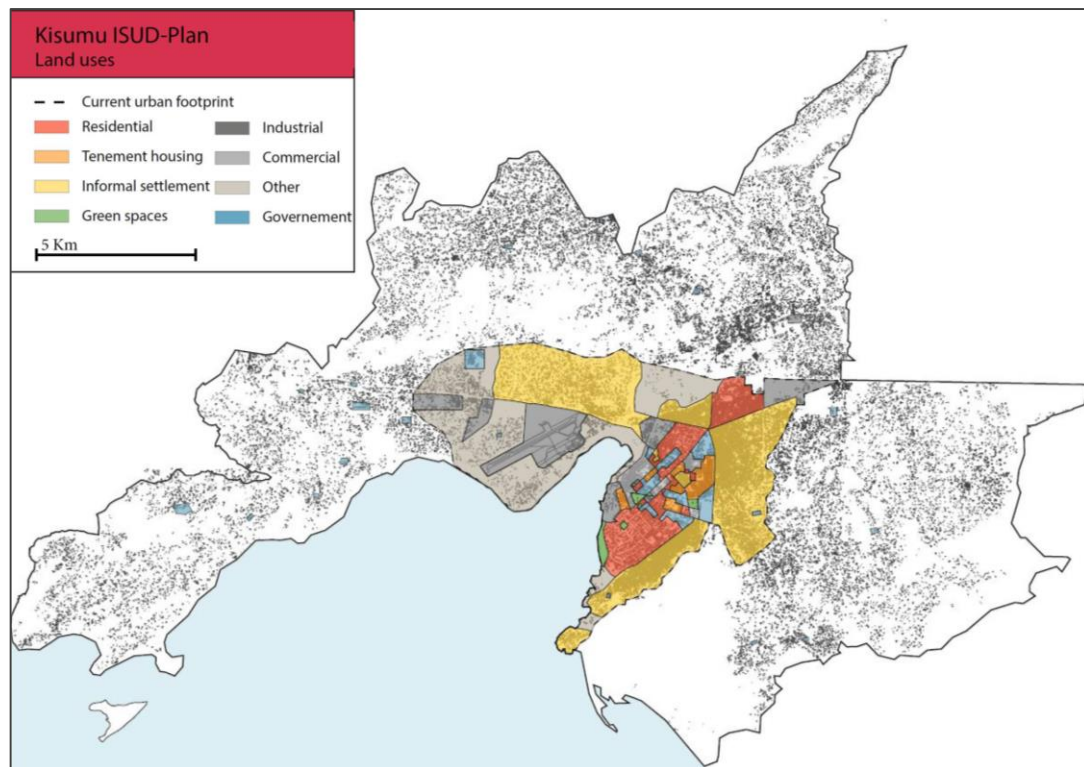


Figure 11. Map of land uses in Kisumu where yellow shows informal settlements and the red represents residential areas (Nodalis Conseil, 2013).

2.2.9 Environment

The Environment around Kisumu is generally lush and has a rich bio diversity (Nodalis Conseil, 2013). Additionally, large areas of the land outside the city are used for agriculture. There are two main plains in Kisumu; Kano Plain in the south-east which consist of fertile soil and Kanyakwar Plain in the north which is less suitable for agriculture. North of the city there are volcanic mountains; Kisian Hills and Riat Hills, which despite their steepness is slowly being developed for housing communities. A large wetland which is very rich in biodiversity and thereby also vulnerable, spreads out on south side of the city border. The map in Figure 12 illustrates the main characters of the nature in Kisumu.

Most parts of the shoreline of Lake Victoria consist of wetlands, and the most extensive one is south of the city. The wetlands have an important and vulnerable ecosystem which hosts a rich flora and fauna (Kisumu City Council, 2004). The existence of wetlands is threatened by land grabbing and illegal development along the shorelines, which also threatens the public access to the shoreline.

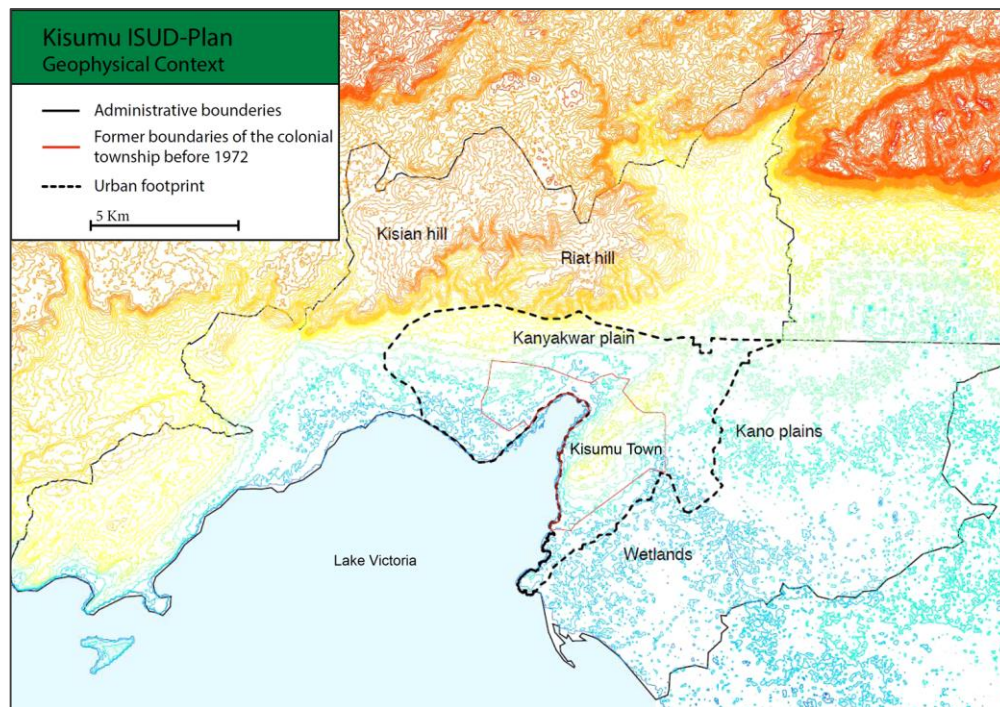


Figure 12. Map of the geophysical context in Kisumu (Nodalis Conseil, 2013).

Lake Victoria is a predominant feature of the environment within Kisumu's territory and important for fishery as well as tourism. However, there are several environmental threats affecting the status of the lake (Nodalis Conseil, 2013). Water pollution and eutrophication due to direct discharge of grey water and solid waste from both domestic and industrial sources is a growing problem in the area. This is causing decreased quality of the water, harms the bio-diversity and diminishes the fish resources. The water quality is also being affected by the increased prevalence of land erosion, which is caused by extensive logging that takes place because of the dependency of fire wood.

2.2.10 Land Tenure

Availability of land is a major challenge in Kisumu and the land tenure situation is complicated. There are three different land tenure forms in Kenya, public land, private land on leasehold and freehold.

The public land is owned by the Kenyan Government or the County Government and stands for approximately 6.4% of the total land in Kisumu County (Nodalis Conseil, 2013). This land should be used for infrastructure, administrative and social facilities.

Private land on leasehold is leased for 99 years, and could after that be extended further (Nodalis Conseil, 2013). It is used both for individuals, companies, organisations and cooperative societies. This land tenure form stands for approximately 25% of the land in Kisumu County, mainly in the colonial parts of the city. Freehold land, also known as private land, is the dominating land tenure in Kisumu County with above 50%. It is land owned by individuals, companies, organisations or cooperative societies.

There are a few identified problems concerning land in Kisumu, and one of them is the land ownership. It often seems to be more than one person claiming to hold legal papers proving ownership of the same plot which give rise to conflicts and pending court cases⁴. The problem, referred to as land grabbing, have unknown reasons but is said to be a consequence of the widespread corruption in Kisumu.

The influence and power of authorities is not as high as sometimes desired for the public good in order to fulfil a sustainable usage of the land⁵. Therefore it is common that private developers tend to claim their right to develop whatever they want on their own land. It is also difficult for the officials to deny developers the right to build what they want since there is no current detailed development plan restricting certain types of development.

A sustainable development with optimal densification in Kisumu is also limited since most land is privately owned or leased (Nodalis Conseil, 2013). It implies that the public sector needs to do compulsory acquisition of land for almost all major infrastructure development, such as new schools, health centres, markets and roads etc. Furthermore almost all publicly owned land is already developed with social and public infrastructure.

2.2.11 Governance Structure in Kisumu

The Kenyan national government consists of three parts, the legislative of parliament, the national executives and the judiciary (National Council for Law Reporting, 2010). The governance structure of Kenya and Kisumu is illustrated in Figure 13, where the governance structure for the project of sub-centre development is indicated in black.

The national government governs the sub-centre development through rules and regulations which need to be followed through all construction projects, mainly through the *Planning and Building Regulations* and the *Planning and Building Bill*, both authorised by the National Planning and Building Authority of Kenya.

The County Government comprises of the County Assembly, which consist of elected members, and the County executives, which are led by the governor, and can be maximum one third of the County Assembly (National Council for Law Reporting, 2010). The governor appoints the other executive committee members (The County Government of Kisumu, 2015). The City Manager is found in the next hierarchical level, who is employed by the County Government and functioning as the head of the County- and City administrative structure (Kisumu Urban Project, 2015). The City Manager is responsible for the continuous work of the City and is the supervisor of the different heads of administrative departments.

Kisumu Urban Project (KUP), is a temporary pilot project organisation financed by AFD (Kisumu Urban Project, 2015). KUP are responsible for the planning and

⁴ Silas Maujih, Sociologist and Coordinator, UN-Habitat in Kisumu, Supervision 2015-02-09

⁵ Patrick Nyamita, Project Manager, Kisumu Urban Project, Interview 2015-03-20

implementation of urban development projects in Kisumu, and thereby the planning and implementation of the sub-centre development. KUP is governed both by the City Manager and a board with members from the County- and City administrative departments.

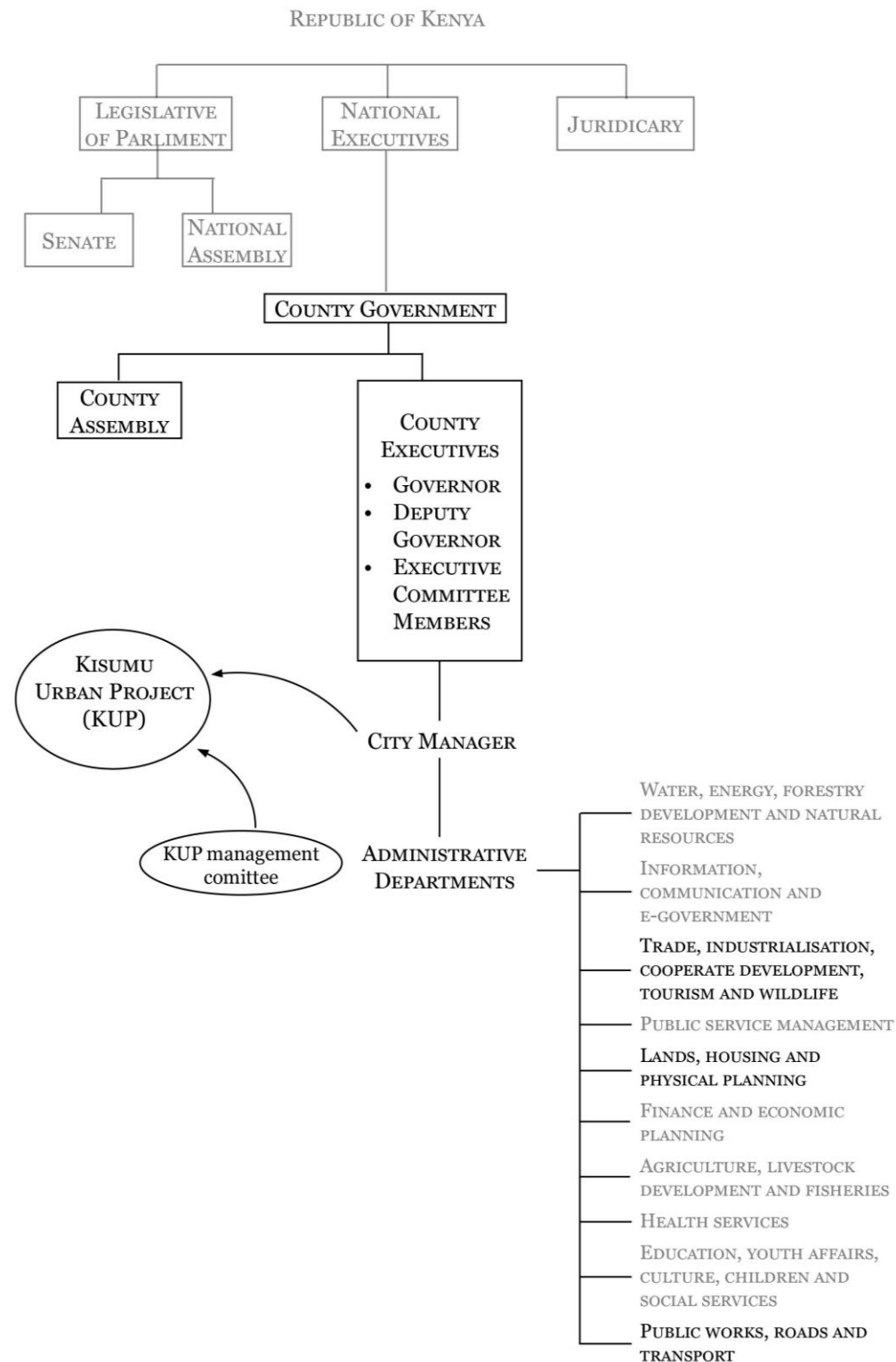


Figure 13. Governance structure in Kenya and Kisumu that affects the sub-centre development project.

2.3 Previous Studies on Urban Development in Kisumu

As mentioned earlier in the report, there is an extensive amount of research and studies on urban development which has been performed in Kisumu. UN-Habitat uses Kisumu as a pilot project city to test new concepts and ideas, as well as to find out efficient and viable methods for generating sustainable urban development⁶. UN-Habitat collaborates with the County Government in order to push the development forward at a higher pace. As previously mentioned, the international research institute Mistra Urban Futures is focusing on market places and eco-tourism in Kisumu.

Two universities in the area of Kisumu County are working with urban development: Maseno university; located in Kisumu City, and Jooost university; situated in the town of Bondo a few kilometres west of Kisumu City. Both universities has educational programmes on spatial and urban planning, hence there has been extensive academic research performed concerning the urban development of the region. Both universities are local partners to Mistra Urban Futures' platform in Kisumu.

Master students from Chalmers University of Technology visit Kisumu every year in March and April for a course in urban development called *Reality studio*. It is held in collaboration with Mistra Urban Futures and the local universities. In 2014, a group of students made research at Otonglo Market and developed a design proposal for the market, which has been particularly useful in this thesis.

2.4 The ISUD-plan - Proposed Development of Kisumu

Since the implementation of the new constitution in 2010 and the formation of Kisumu County, there is, as mentioned earlier, no official strategic plan for urban development in Kisumu⁷. The international development aid organisation of the French government, *Agence Française de Développement* (AFD), has cooperated with the local authorities in Kisumu for many years and decided to create an Integrated Strategic Urban Development plan for Kisumu commonly referred to as the ISUD-plan.

The ISUD-plan is developed by a French consultancy company, Nodalis Conseil, who won the tendering process for the task. Nodalis Conseil in turn included three local professionals from Maseno University in the project. The ISUD-plan is an extensive document divided in three parts which presents a proposal for how the urban environment of Kisumu City should be developed in a sustainable way. Part one contains an inventory of the built environment and a city analysis; the second part includes a strategic plan for the development of Kisumu City and the third document includes a capital investment strategy with implementation guidelines. The documents

⁶ Silas Maujih, Sociologist and Coordinator, UN-Habitat in Kisumu, Supervision 2015-02-09

⁷ George Mark Onyango, Professor in Urban Management and co-author of the ISUD-plan, Maseno University, Interview 2015-02-13

have been handed over to the County Government and is in the process of being approved as an official strategic document for development in Kisumu⁸.

The first part of the document consists of a thorough analysis of the current situation in Kisumu City. The city is analysed concerning morphology, land uses, population, settlement patterns, urban grid, transport, housing, social infrastructures, utilities, economic activities and markets (Nodalis Conseil, 2013). The same document presents general recommendations on how to address the situation within the different fields and finally recommendations for strategic development in Kisumu in general.

The following document, part 2, contains the actual strategic plan for physical development of the city (Nodalis Conseil, 2014a). It describes how the development and growth of the city should be controlled and guided in order to be more efficient, where existing areas need upgrading and new areas need thorough planning. Further, the ISUD-plan presents four special planning areas identified as areas with high priority and special needs for development. These areas are the lake front, the historic town core, the two slum areas most adjacent to the town centre, and the shoreline along the whole bay where Kisumu is located.

The sub-centre development that this master thesis concerns is presented in a chapter of the second part of the ISUD-plan, where the six identified locations are briefly described. It is highlighted that the purpose of the sub-centres is to direct the development of settlements towards desired directions, as well as decongest the city centre by providing sufficient services in the surrounding areas.

2.4.1 Financing of the Implementation

In part 3 of the ISUD-plan, various ways to finance the implementation of sub-centres and other urban development interventions in Kisumu are identified. It contains a Capital Investment Strategy which has its base in a 40 million euro funding from AFD (Nodalis Conseil, 2014b). The financing strategies are governed by the Public Finance Management Act 2012.

The ISUD-plan highlights that only 32% of the County revenue is currently generated by own revenue sources, which is approximately the national average (Nodalis Conseil, 2014b). Other revenue comes from Kenyan governmental sources, other governmental development aid agencies and NGOs.

The Capital Investment Strategy identifies alternative funding such as public funding and private sector funding (Nodalis Conseil, 2014b). The public funding includes, except from the County Government tax, funding from various national governmental funds and capital from different authorities. The ISUD-plan defines that the pre-study of the sub-centre development should be financed by public funding, while funding of the implementation phase is not yet decided.

⁸ Silas Maujih, Sociologist and Coordinator, UN-Habitat in Kisumu, Supervision 2015-02-09

Private sector funding has previously been used in Kisumu when implementing street lighting in the city core, where a large global company financed the installations in exchange for having their advertisement on the poles (Nodalis Conseil, 2013). This is a simple example of Public-Private Partnership (PPP), which is further described in Section 4.3.7 (Financing Strategies). The street light project is the only project in Kisumu where a PPP system is used and there are currently no established standards or recommendations on the application of PPP systems in Kisumu⁹. However, in part 3 of the ISUD-plan it is suggested to implement more complex PPP projects for the future (Nodalis Conseil, 2014b).

⁹ George Mark Onyango, Professor in Urban Management and co-author of the ISUD-plan, Maseno University, Interview 2015-02-13

3 Analysis of Proposed Sites for Sub-centre Development

The existing proposal for the sub-centre development is described in Section 1.1.2 (Plans for Future Urban Development of Kisumu) and the origin of the proposal is described in Section 2.4 (The ISUD-plan - Proposed Development of Kisumu). Its purpose can briefly be described as transforming Kisumu City from a mono-centred city to a polycentric city (Nodalis Conseil, 2014a). This will prevent urban sprawl, make the town centre less congested and improve the service provision to its inhabitants. Another function of the sub-centres is to act as urban outposts making services more accessible for residents from rural areas in the County.

As previously mentioned, six different locations for development of the sub-centres are identified, which are shown in the map in Figure 14. They are all located where market places already exist today and where national highways are present (Nodalis Conseil, 2014a). In the ISUD-plan, it is also described typical activities and functions that the sub-centres should have, such as retail, primary health, primary education, food, industries, delocalised County services, housing, parks and recreational areas.

According to the City Planner Everlyne Otieno, three of the six locations: Nyamasaria, Otonglo and Kondele, are in more urgent need of planning. This thesis is therefore focused on these three nodes, marked with an extra ring in Figure 14.

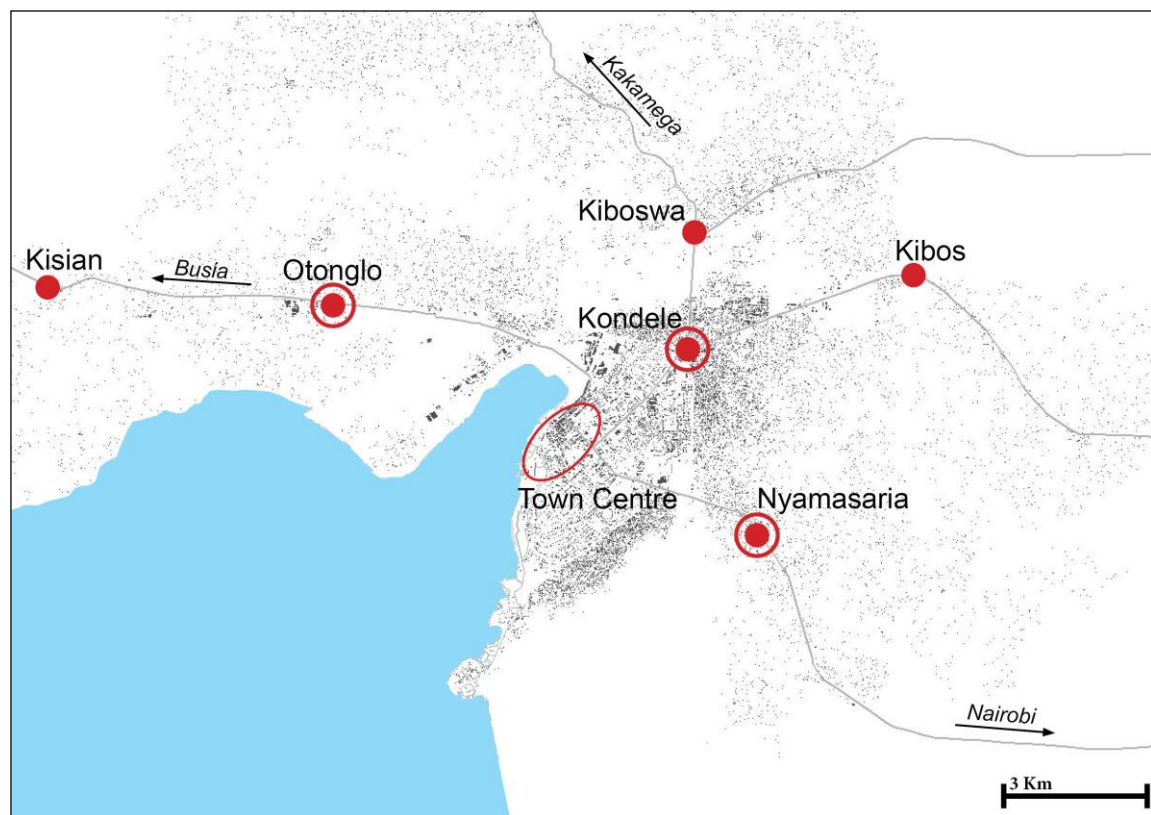


Figure 14. Map showing the locations of the identified sites for sub-centre development (Nodalis Conseil, 2014).

The following chapter contains descriptions of the three sites where physical environment, infrastructure, services, activities, land tenure, safety, demography, current relation to the CBD as well as plans for future development are described. There is no hierarchy in the order that the sites are presented. Most of the information found in this section is based on a mix of material from interviews and discussions with people that are active in the areas, interviews with county officials and other relevant professionals, as well as own observations made on site. However, the source of information is clarified in some parts.

After the description of the sites follows a presentation of general findings; stakeholder analysis; SWOT-analysis of the sites; and finally the objectives and strategies for the sub-centre development, proposed by the authors.

3.1 Nyamasaria

The small business- and trade centre of Nyamasaria is situated south-east of the city core, along the highway leading to Nairobi. The existing business centre is small and placed on both sides of the highway. The area is peri-urban, located just outside the urban areas of Kisumu, and the outskirts of the Nyamasaria area can be classified as rural.

3.1.1 Physical Environment

Nyamasaria was initially a location for trade by the roadside, where people from different parts of Kisumu and its environs gathered for barter trade. In 1962 it was officially assigned as a market place by the local authorities and around that time it also existed some small structures for shops and hotels. One of the oldest women in Nyamasaria, who was a fish trader when activities started there, recalls that it was four small shops and one hotel initially. It gradually grew and several shops, hotels and eventually handcraft activities emerged in the area along the road.

Nowadays, the urban centre of Nyamasaria consists of buildings placed along both sides of the Nairobi Highway, as illustrated in Figure 15. The spatial arrangement of the buildings in the area is densest along the highway and sprawls further away from it. A river is passing Nyamasaria in the south-east part of the area, running from the mountains in the north, through Kibos to Nyamasaria, before reaching Lake Victoria. The built environment in Nyamasaria is not dense, and just behind the first two rows of buildings along the highway the area has a rural character which increases further away from the highway. The rural character is emphasized by the greenery in the area, except from the centre along the highway.

Most of the buildings in the area are permanent one-storey structures made from concrete, but along the highway some buildings have up to three storeys. There is an open air-market consisting of temporary stalls built of wood or metal sheets. Furthermore, there are semi-permanent structures made of metal sheets hosting different kinds of craftsmen businesses and small shops. North-west of the market is a fenced empty plot.

On the north side of the highway there is a bread factory in a large concrete building just next to the highway. On the east side of the factory is a line of several semi-permanent structures built of metal sheets, hosting several kinds of smaller businesses and handcrafters. On this side of the highway there are also concrete buildings, mostly consisting of one storey, which host other shops and services. Further to the east there is a large building containing a supermarket, followed by a long two-storey building called Dubai Complex, a hotel and conference facility, and lastly a small police station.

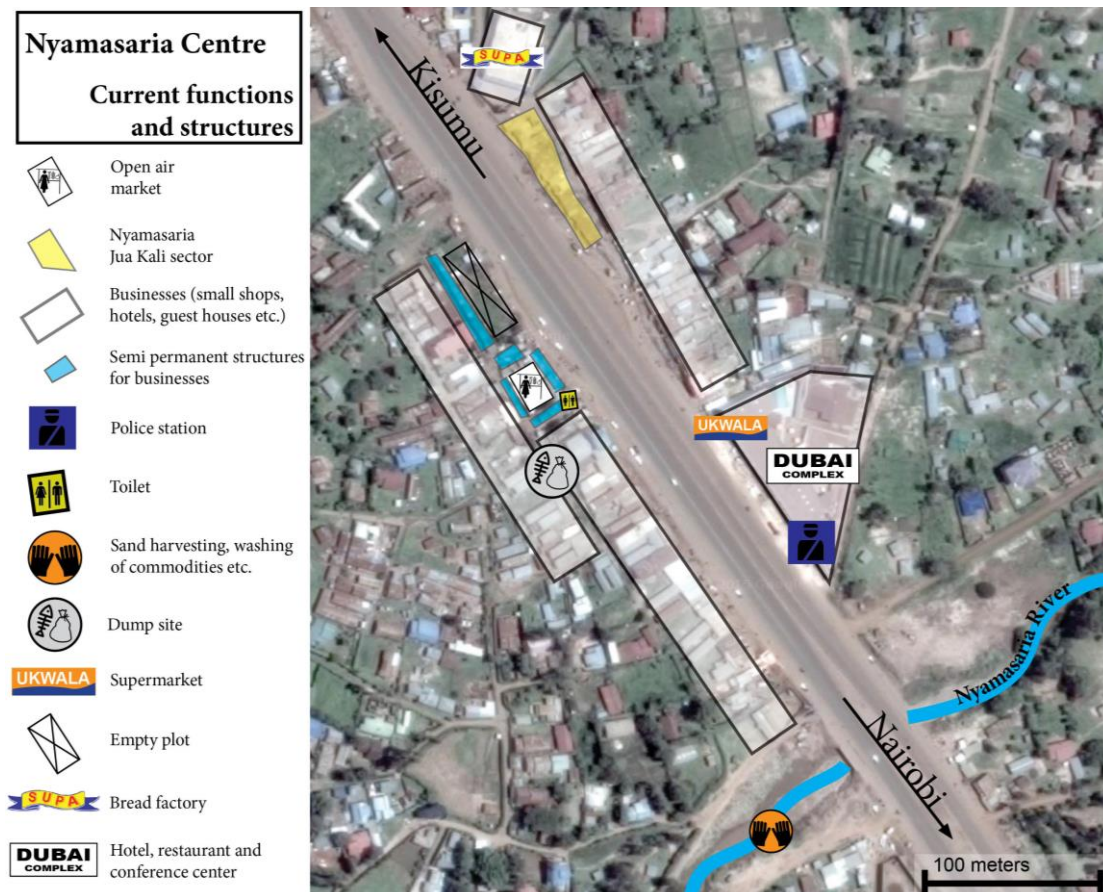


Figure 15. Map illustrating the current functions and structures in Nyamasaria Centre.

Nyamasaria is a flat and swampy area, but most of it dries up during the dry period. During the rainy period it is flooded and the river brings large amounts of water from areas of higher altitude and the mountains in the north.

In the central area of Nyamasaria, there is no greenery apart from some small trees planted in front of Dubai Complex, expected to grow big within a few years. The Nairobi Highway, passing through the area is large and reflects much heat, which contributes to making the area very hot most of the time.

3.1.2 Available Infrastructure

The availability and standard of infrastructure services in this area is similar to most peri-urban areas in Kisumu that are inhabited mostly by low income groups. This

means that some infrastructure services are sufficient and some services are not meeting the needs of the inhabitants.

The Nairobi Highway which passes through the area has recently been upgraded to a two lane highway; previously it was an obsolete country road that dated back to the colonial times. It is a dominant feature in the area since it has large dimensions in comparison to surrounding structures and the traffic is passing through at a high speed.

The highway has a width of 60 meters after the expansion was completed, but it is not completely finished yet: road signs and crossings for pedestrians are still not in place. The highway is shown in the photo in Figure 16. Smaller earth roads are leading to the surrounding neighbourhoods, these roads are generally in poor condition and easiest to access by motorcycle.



Figure 16. *The highway passing through Nyamasaria. The supermarket is visible to the left and the tall building to the right hosts a small shop and a guesthouse.*

The area is served with piped water along the highway, where some of the upscale buildings have piped water inside. There are also KIWASCO water points available – tap water points where the residents and business owners can come and collect water for a fee of 20 KSh per 20 litres. The outskirts of the area consisting of rural settlements also have water points, but there is rarely any water available in those since the water pressure usually is not high enough at distant locations.

The area is not connected to the sewerage network. Waste and storm water is directed into open sewage dikes. Flooding is a major problem in the area during rain seasons according to all interviewees in Nyamasaria. Water flows from the mountains to the flat land in Nyamasaria, and the newly upgraded highway increased the problem since the drainage system is not sufficient, and the amount of paved surfaces increased. According to the interviewees the water level is approximately half a meter in the area during rainy periods.

The area is well covered by the power grid which also reaches the rural areas of Nyamasaria. There is no public lighting on the highway or surrounding public spaces, but there is one large floodlight at the market place, which illuminates the whole

market and its surroundings during darkness. It was built in 2014 and enables trade in the evening.

3.1.3 Available Services

Most services can be found in the centre of Nyamasaria. There are several small shops, bars, hotels, guesthouses, handcrafters, a supermarket and the open air-market. There are many small-scale businesses and only a few larger businesses.

There are three small health cares and clinics which are operated by the private sector and are therefore not accessible by many people in the area, due to the high charges. The closest public health care available is in the outskirts of Nyamasaria, about 5 km from the centre. That is, according to all the interviewees, a long distance to walk if you are sick and many people cannot afford transport to the health care centre. Pharmacies are also highly available in the area.

There are both a primary- and a secondary school in the northern Nyamasaria area, in addition to one primary school in the southern part. They are all located far from the Nyamasaria centre. The northern primary school has been rebuilt three years ago with financial support from German development aid and has now spacious and modern facilities. Neighbouring the primary school is the secondary school, which has less modern facilities. The rural school south of Nyamasaria Centre is currently being upgraded with an additional building containing four new class rooms.

There is a local police station in Nyamasaria Centre where people can come if they need police support or want to report criminal behaviour. For minor disputes among the inhabitants there is one chief and two assistant chiefs in the area, responsible for minor security matters and mediation between inhabitants.

3.1.4 Activities and Movements in the Area

At the open air-market, mostly groceries such as fruits, vegetables and staple goods are sold. Additionally there are hair dressers, hotels, supermarket, hardware shops and various Jua Kali activities such as carpenters, welders, cobblers, tailors etc..

There are numerous motorbike and bicycle taxi drivers based in the area. They have certain locations used as gathering points, where people who need a ride can find them. The bikes enter the rural areas, which have rough roads, very easily. Matatus and other means of public transport pass by on the Nairobi Highway and have a point for dropping off and picking up of passengers, but generally they stop anywhere along the road where people request them to do so.

In the south-eastern end of Nyamasaria Centre the river passes by. North of the highway there is a drain from Dubai Complex which leads in to the river. On the south side of the highway the river is used by people to wash themselves, clothes, vegetables, motorbikes etc. as shown in the photos in Figure 17. A growing activity that also takes place in the river is collection of sand which is sold for construction works. According to the interviewees, some households collect water from the river

and use it for drinking if they cannot afford buying water from the water points, which sometimes causes diseases.



Figure 17. Examples of activities that take place in Nyamasaria River; washing of vegetables and bikes as well as water collection.

The interviewees described that for leisure they for example like to go to town to visit parks, watch TV or go to rural areas with their animals and just relax. They highlight the absence of public spaces in Nyamasaria and explain that either you have to go to town or sit at a hotel, but both alternatives include a cost.

On the highway running through the area all sorts of vehicles pass, there are regular cars, matatus, busses, trucks, motorbikes, bicycles etc. The vehicles pass at a high speed since the road is wide. Smaller vehicles such as motorbikes, bicycles, and cars enter the settlement areas on the smaller earth roads.

On both sides of the highway there is space for pedestrians, which is used for walking but also for trading. There is no designated place for pedestrian crossing over the highway, so people cross anywhere they can when they need to get to the other side.

Since there are rural areas adjacent to the centre there is not much livestock moving around in the most central parts of Nyamasaria, as it can be in other more urban parts of Kisumu. The green areas behind the front rows of buildings are more attractive to livestock than the asphalt and high speed road. In the morning and afternoon, however, there are many farmers bringing their livestock from one side of the highway to the other, resulting in all vehicles having to stop and wait for the herds to cross.

3.1.5 Land Tenure

The open air-market is placed on public land, shown in blue in the map in Figure 18, and many of the businesses in permanent buildings are under lease hold, shown in orange in the map. On the north side of the highway, there is also a piece of public land which is allotted for the Jua Kali sector and some other smaller businesses. The rural areas are privately owned land.

Next to the market place is a fenced plot which has no physical structures, though one part of the plot is used for exposing bricks that are for sale. It is supposed to be owned and managed by the County for public use, but it is uncertain whether a private developer has been given authority to use it. This plot is shown in red.

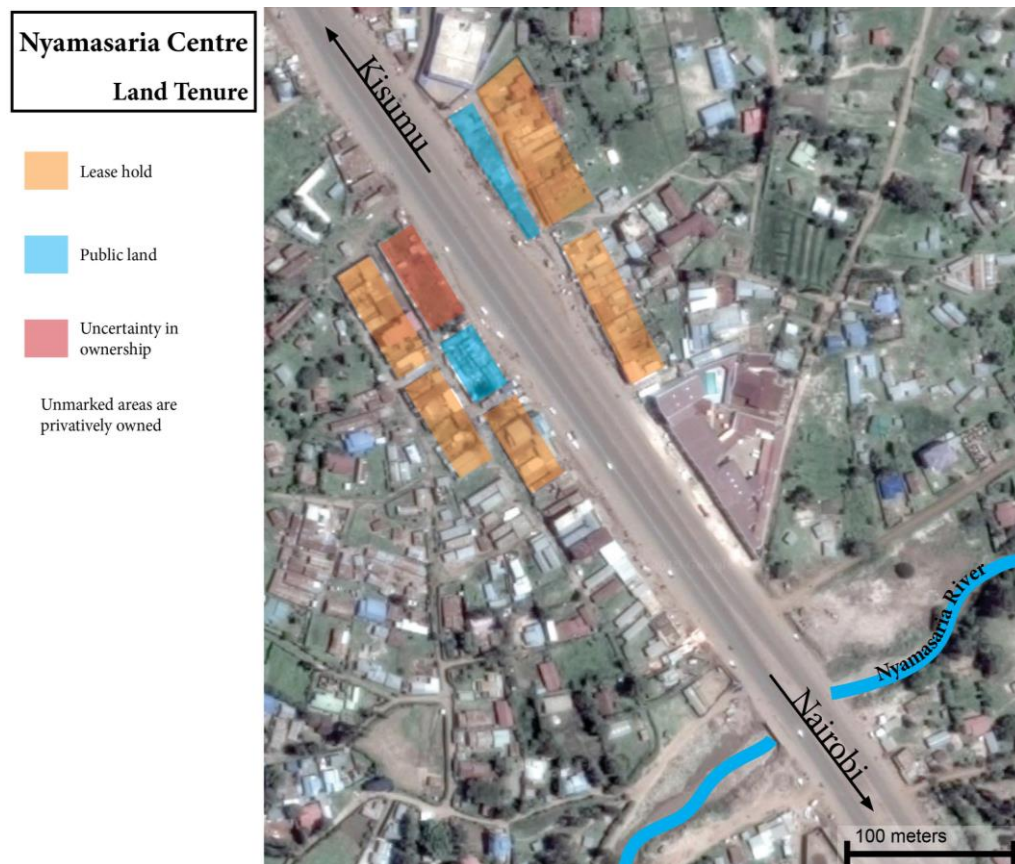


Figure 18. Map of land tenure situation in Nyamasaria.

3.1.6 Safety

The recently extended highway is a safety issue in the area. In the new design there was an attempt to increase the traffic safety and therefore a traffic refuge was placed in the middle of the highway. About one km north of Nyamasaria, there is a flyover highway under construction, which is currently stalled¹⁰. The flyover (shown in Figure 19) is supposed to lead vehicles from the Nairobi Highway to the bypass, but the flyover is not completely finished and still not opened.

The current situation of uncompleted road works has resulted in a bypass which is difficult to access. According to the temporary plan, the driver should go to the next coming roundabout and then turn back in the oncoming lane. This means that the drivers need to go far distances in order to come to drive in the desired direction. In turn, this leads to them often choosing to drive on the wrong side of the road, as the red arrows in Figure 19 shows, creating dangerous situations. It seems to be unclear to

¹⁰ Charles Omwenga, Highway Engineer, Sheladia Associates Inc, Interview 150319

the drivers how the lanes are intended to be used and there is an unwillingness to use it in the proper way, since it forces them to drive long detours.

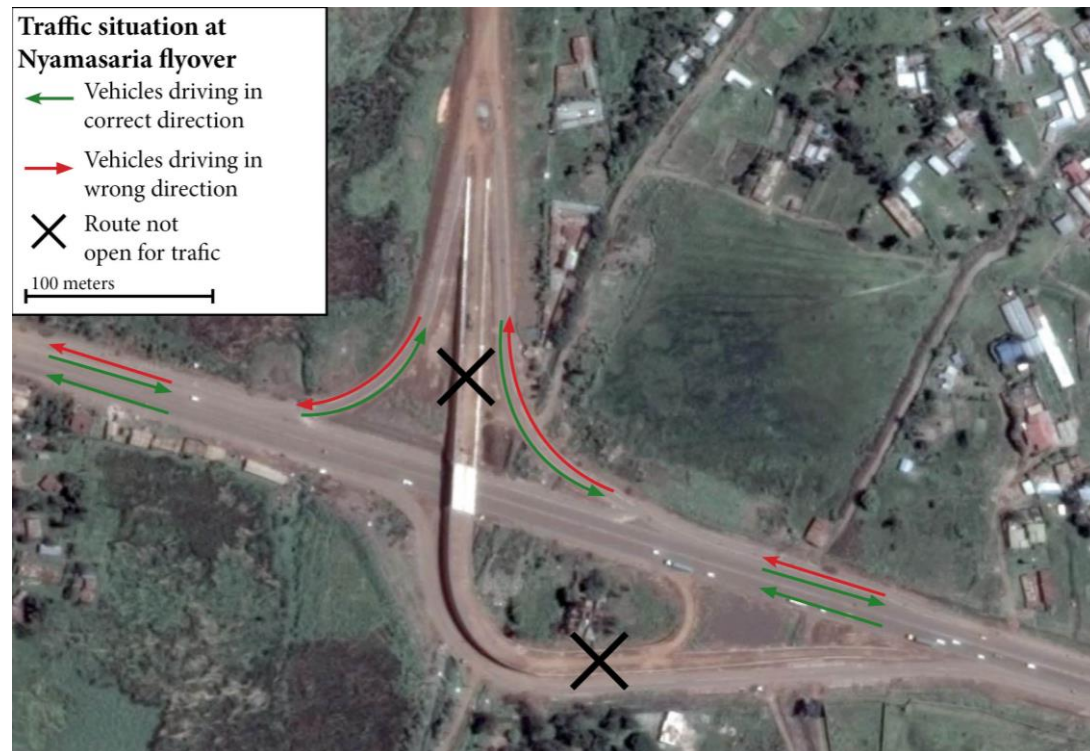


Figure 19. The Nairobi Highway and the not yet finished flyover that enables access to the bypass.

All the interviewees in Nyamasaria has described the highway as dangerous, and explained that four people had died while crossing the highway the past three days before the interviews. Normally, it is approximately one pedestrian per week dying on the road while trying to cross it. The interviewees request a footbridge or a zebra crossing combined with speed bumps that allows a safe crossing over the highway. According to consultant and highway engineer Omwenga, a footbridge is planned for, but there is no place decided for it and there is no finances for that part of the highway project.

The widespread unemployment in the area is often mentioned during interviews and according to the interviewees this lead to low safety and high prevalence of crimes. People are afraid to get their belongings stolen and they mention that the poor lighting increases the feeling of insecurity, especially in public spaces.

There are no places designated for children to play so they play in open spaces along the highway. They can be surveyed by other adults there but it is generally not safe to play near the traffic. Additionally, the space is not designed for children's play which makes it generally unsuitable and dangerous for them.

The environment is generally littered and there is a lack of proper waste and sewage management which creates an unhealthy environment. During flooding, litter and human waste from flooded pit latrines is spread with the water and creates a hazardous environment.

3.1.7 Demography

Most of the population in Nyamasaria is considered either poor or as low income groups. The population density in this area is approximately 1000 – 1390 habitants per km², which is slightly below average of the urban areas of Kisumu (Nodalis Conseil, 2013). It is an area that has emerged from urbanisation and contains people from various tribes that migrated here from adjacent rural regions of the country. Therefore, most people living here have rural lifestyles where agriculture and livestock keeping are major activities.

In Nyamasaria, most women are involved directly or indirectly in the market trade and hotel businesses. Many men work in the Jua Kali sector while mostly male youths are involved in the public transport sector. Many of these jobs are not formal employments giving a secure, monthly income.

3.1.8 Current Function in Relation to the CBD

The basic needs of everyday life can be met within the area and the inhabitants can purchase their groceries and other essential goods there. The range of societal services is not wide and therefore inhabitants need to travel to other parts of the town for example in order to seek more advanced health care. Sometimes the pharmacies in the area lack the required medicine, thus forcing people to travel to town to get it. Other services unavailable locally include post office and some banking services, although there are a couple of banking agents in the area. Birth certificates and other authority matters can only be issued in the CBD.

3.1.9 Existing Plans for Future Development

A trailer park will be implemented in the area, and the County is currently dealing with the plans for giving it approval¹¹. The trailer park is intended to be used by truck drivers needing to park their trucks and spend the night while transporting goods across the country. It will be placed just outside of Nyamasaria Centre, coming from the Nairobi direction. It is expected that the arrival of this trailer park will boost the business in the area since the number of people staying in the area will increase. There will be a higher demand for food and leisure but also for health care or other services that the drivers might need as they stay overnight in Nyamasaria.

In the ISUD-plan it is described that the sub-centre of Nyamasaria will be mostly a centre for retail and services and serve the population of the south parts of Kisumu. Since it is placed just outside the urban parts of Kisumu and along a major highway, it can also be seen as one of the gateways for entering the city of Kisumu.

3.2 Otonglo

Otonglo is a peri-urban area located north-east of the city, close to Kisumu Airport. The centre is placed along the national highway leading from the town Busia by the

¹¹ Everlyne Otieno, City Planner, Kisumu County Administration, Supervision 2015-02-19

Ugandan border, through Kisumu and continues to Nairobi. The strategic location lead to the emergence of Otonglo Market. It was officially established as a formal market in 1945 but the market was actually operating long before that. The community has slowly developed around the market which has made it to become an important trade- and social centre in the area.

3.2.1 Physical Environment

Otonglo is a green and beautiful area with the Kisian Hills overlooking the community from the north and Lake Victoria bordering the area in the south. The main highway from Nairobi and Mombasa to Busia and Uganda passes through Otonglo, and the railway line runs parallel to the highway on the north side. Adjacent to Otonglo Centre are some larger industries, on both the east and west sides of the community.

Otonglo has a small business centre, located south of the highway, with an open air-market at its middle, as illustrated in the map in Figure 20. The market consists of temporary stalls, and surrounding it are semi-permanent structures hosting different services and businesses of the Jua Kali sector. The outer circle in the Otonglo centre is made of permanent, one story buildings, which also hosts small shops, services and varying Jua Kali activities.



Figure 20. Map of the current functions and structures in Otonglo Centre.

Outside of the Otonglo centre are rural housing made from concrete or clay. A few kilometres north of the highway is the Kodiaga prison located, the larger of Kisumus two prisons. Adjacent to the prison are timber and metal workshops found, as well as accommodation for the prison employees and their families. There are also informal

and unplanned housing on the north side of the highway, between the prison area and the highway.

Otonglo business centre has some greenery within, giving shade to the area as well as providing it with a relaxed and welcoming character. The surrounding neighbourhood also contain much greenery, making the area suitable for livestock and farming.

During rainfall, the mountains in the north bring high volumes of water down to the flat land where people live and do business. Some of the water goes in the nearby creek, passing from the mountains through Otonglo in the direction of Lake Victoria. The ground is mostly sandy silt, which is a material suitable for construction of housing and other structures.

3.2.2 Available Infrastructure

The area is currently highly affected by the on-going expansion of the highway passing through the community. After the expansion, the road will become a two lane highway, affecting the neighbouring businesses that recently had to move to make space for the expansion. Furthermore, in order to reduce congestion in the central parts of Kisumu, a north-bound bypass is to be constructed which will connect Otonglo with towns north of Kisumu. This will imply that traffic doesn't have to pass the CBD on the way from Busia to the northern areas. Other roads in the area consists of murrum and earth.

The railway runs parallel to the highway, approximately 25 meters north of it, but the trains are currently not operating. The interviewees claim that they have not seen any trains passing by the last three or four years. The reconstruction of the railway which is currently taking place in Kenya, and is planned to reach Kisumu in 2018, might pass through Otonglo on the way to western parts of Kenya. However, these plans are not established yet.

The drainage system contains three newly built, large viaducts passing under the highway to bring water from the mountains past the road. Furthermore, open dikes are to be constructed along the road, draining the area. The community hopes that this new dike will reduce the frequent flooding of the area, which currently is a large problem. Flooding of the market and the community happens every rain period, making trade impossible and hinders children from going to school etc. The photo in Figure 21 shows the market place after a rainfall when it is abandoned due to the mud, and Figure 22 is a photo of traders who have moved out from the market to trade on the ground instead.



Figure 21. Otonglo Market after a rainfall when no one can trade in the area.



Figure 22. The permanent structures with shops in Otonglo and vendors exposing their goods on the ground due to the flooded market area.

There is no existing sewerage system in Otonglo. In the market place there are one old pit latrine which is now full and cannot be emptied, and one new that the traders can use for a small fee. Additionally, there is no solid waste management available, so most garbage is placed on a dump site south of the market place and later burned.

The area is partly covered by KIWASCO piped water which can be collected from water points, complemented by boreholes in the area. The water point at the market is shown in Figure 23. Piped water has been distributed to Otonglo since 2014 and makes a large improvement for many people living in the area, who now can afford clean water. Previously clean water was sold by vendors who brought it from the

town at the price of 20 KSh per 20 litres, the water now available at the water point only costs 3 KSh per 20 litres of water. The water in the boreholes is in risk for contamination since they often are located close to pit latrines. Previously, some people collected water from the nearby creek, which is highly polluted due to emissions of sewage water from the prison. However, this is not a big problem anymore, since the price of clean water from the water point now is low.



Figure 23. The water point in Otonglo Market where people buy water in buckets.

Electricity is available in the area for those who can afford the fee of connecting to the grid and the consumption costs. The marketplace has recently been provided with a flood light similar to the one in Nyamasaria, a tall light pole that efficiently illuminates the whole business area of Otonglo.

3.2.3 Available Services

In the business Otonglo Market you can find fruit, vegetables and cereals etc.. Furthermore, the small businesses include kiosks, hairdressers, barbers, welders, carpenters, tailors, bank agents, mills, cobblers and hotels etc. Hence, most commercial services are available within the centre.

There are two public health care facilities in the area: one dispensary four km from the market and one health centre which is located in the prison area, approximately 1.5 km from the market place. The closest pharmacy is approximately 1.5 kilometres away, but it does not have a wide range of products so people often have to go to town to buy medicine. Several primary schools are located in the area.

3.2.4 Activities and Movements in the Area

On the currently upgraded highway between Kisumu and Busia, many trucks are travelling with goods heading to Uganda. Imported goods arriving by ship to Mombasa with the direction of Uganda passes through here. There are also many smaller vehicles passing through Otonglo, personal cars, matatus and motorbikes etc.

On the murram roads in the housing area many people are walking, but also cars and motorbikes are passing frequently. There is no space for pedestrians when the vehicles are passing and people have to step in the dikes to avoid vehicles passing by. The vehicles also bring up dust affecting eyes and bronchus of the pedestrians.

Since Otonglo is a rural area a lot of livestock is moving around, both in the area of housing as well as in the business centre of Otonglo. The same areas are used by children playing since there is no playgrounds or public spaces available for them. For adults, social activities take place in open spaces, bars and hotels, but no night clubs are available.

3.2.5 Land Tenure

Most land in Otonglo is privately owned, but there is a small plot where the market is located which is public land. Around the market place there is also public land allotted to shop owners, which is shown in Figure 24.

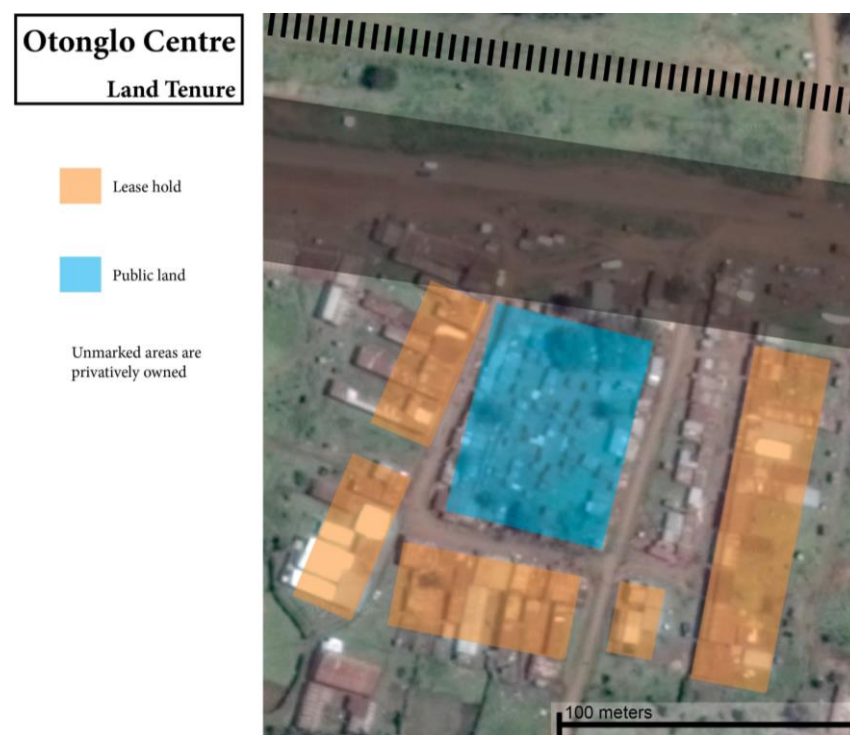


Figure 24. Map showing the land tenure situation in Otonglo.

Along the highway there is a road reserve of 60 meters that is owned by KeNHA. Similarly, the land along the railway line is owned by Kenya Railway Corporation (KRC). The national government of Kenya owns a large piece of land where the prison is located, which is not yet developed. The landownership affects the future development in Otonglo since the County only owns a small piece of land where the market place is today. In order to be able to develop the area further, the County would have to acquire more land from private owners. Figure 25 shows a photo of the official map of the land tenure situation in Otonglo, and plot number 2322 is the public land and the other plots on the map are private land.



Figure 25. Photo of an official map from the land office in Kisumu. It shows the land tenure situation in Otonglo where plot number 2322 (marked with the red circle) is public land.

3.2.6 Safety

The traffic safety used to be better when the highway was narrower and vehicles' speed where lower, and many inhabitants in Otonglo are worried about the traffic safety when the road works are finished. The road will be 60 meters wide with two lanes in each direction, but there is no current plan for a pedestrian crossing. Many children have to cross the road daily when walking to school.

The interviewees discussed the importance of people learning and understanding the new traffic situation that the upgraded highway implies. A politician also discussed the possibilities to apply for permission to build speed bumps to reduce the speed of the vehicles through the community. It is indicated that the number of vehicles increase during weekends and at that time many drivers are drunk.

The newly installed flood light in the market area lightens up Otonglo business district during night. This has improved the feeling of security according to the interviewees, but the situation is still not safe. The prevalence of unemployment and poverty is high which leads to high amounts of thefts and other criminal behaviours.

The situation for children, especially girls, is not very safe and many parents are worried when the children go to and from school. The head teacher in Ngege Primary school points out that this area is more unsafe than others due to the closeness to the shore, where fishermen come from other places to Otonglo. Therefore, they prioritise to release the children from school in time in order to be home before it gets dark.

3.2.7 Demography

Due to the proximity to the lake, many people living in Otonglo used to be fishermen or involved in the fishery business. However, since the fish stock decreased significantly, it is no longer a trustworthy source of income. Nowadays the unemployment and poverty rate in the area is high. Otonglo is a peri-urban area and there is not much people from the outside moving in, which makes it a homogenous place in terms of tribes. There are not many tribes represented in the area and most people belong to the Luo tribe, which is the dominating tribe in the regions of Kisumu. The population density is 1390 – 2000 habitants per km², which is slightly above average of the urban areas in Kisumu (Nodalis Conseil, 2013).

3.2.8 Current Function in Relation to the CBD

Generally, people living in Otonglo try to make most of their shopping and other businesses close to home, but many things are cheaper in the town centre and some people go there to do their purchases. The distance to the CBD is approximately 10 km which most habitants in Otonglo consider as far, since many people cannot afford public transport. It takes approximately 40 minutes to go to the CBD with public transport. Hence Otonglo Centre has an important role in the area; people from surrounding rural areas come here to meet their daily needs.

3.2.9 Existing Plans for Future Development

Otonglo is, according to the ISUD-plan, identified as the most important and most urgent location to develop among the sub-centres (Nodalis Conseil, 2014a). In the ISUD-plan it is recommended to relocate the nearby Airport, affecting the development and growth of Otonglo severely. According to the City Planner, Everlyne Otieno, it is currently not a viable solution to relocate the airport and all plans for developing Otonglo should presuppose that the airport will remain in its current location.

There is currently a plan for an upgrading of the market. The project is managed by Kisumu Urban Project and will start approximately within a year. The more long-term development projects that will take place in Otonglo is, as mentioned above, the reconstruction of the railway and the possible relocation of the airport. Another possible development mentioned by the City Planner is to build a trailer park in connection to the business area to boost the businesses in Otonglo.

3.3 Kondele

The centre of Kondele is situated approximately 3 km north-east of the CBD and is, among the six sub-centre nodes, the one which is closest to the city centre. It is located at a large road junction where roads lead to several important destinations. Kondele Centre is placed where three different residential areas intersect; Manyatta A, Migosi and Nyawita.

Historically, Kondele was a rural area but it started to grow due to urbanisation, and in the 70s the market place was established. Today Kondele is a crowded urban area

both in terms of population and the built environment. The high density of people has caused the area to become increasingly polluted and littered. People who were interviewed in Kondele describes that the area has had a positive development and it is less chaotic and dangerous today than it was a few years ago, when it had nicknames such as Bagdad or Darfur.

3.3.1 Physical Environment

The urban centre of Kondele consists of a mix of different types of structures and many of them are painted in various colours, giving the area a vibrant character. The simplest structures are temporary wooden stalls, but there are also semi-permanent structures made of metal sheets and permanent structures made from concrete. The semi-permanent structures host activities such as shoe polishing, pool tables, hotels, hairdressers etc.

Along two of the roads leading east towards Kakamega and Kibos, shown in Figure 26, permanent buildings are found that hosts hotels as well as Jua Kali activities and two different supermarkets. A bypass highway cuts through the area on a newly constructed flyover. The market place consisting of wooden stalls, is located near the bypass, as illustrated in Figure 26. North of the market place are small shops, hotels and other social activities hosted in semi-permanent structures, mainly built out of metal sheets.

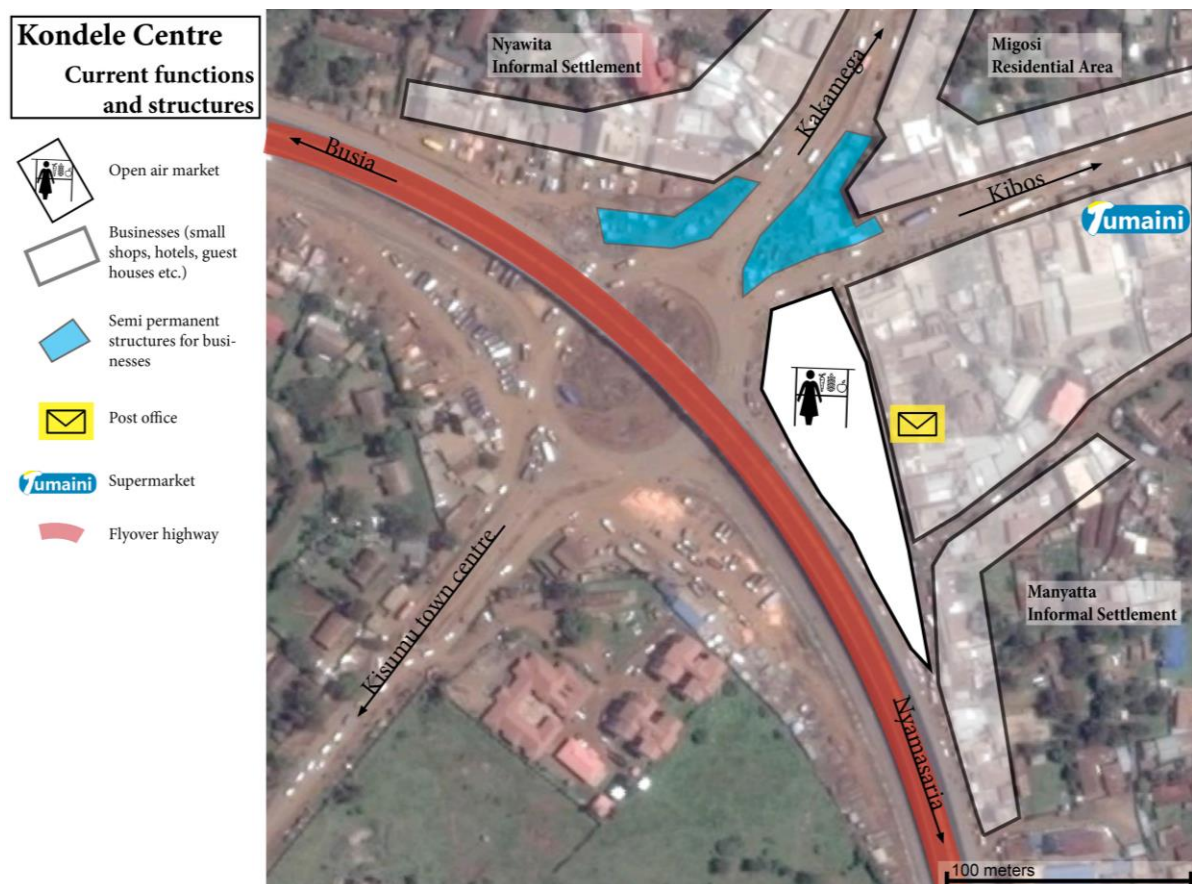


Figure 26. Map of the current functions and structures in Kondele Centre.

Housing is located behind the businesses along the roads, also shown in Figure 26. Manyatta A, east of the junction, is one of the largest and most congested informal settlement areas in Kisumu (Nodalis Conseil, 2013). Migosi, located between Kakamega Road and Kibos Road, is a residential area where the dwellings have a higher standard. Many of the buildings there have three or four storeys and indoor access to piped water. Nyawita, between Nairobi-Busia Highway and Kakamega Road, consist of lower standard buildings similar to Manyatta A, but this area is less crowded than Manyatta A.

The area in Kondele is flat and the geological conditions are a combination of rocky ground and sandy silt. Within the residential areas that surround Kondele Centre there is some greenery, mostly in forms of scattered trees and occasionally open grass lawns on private properties. However, within Kondele Centre there is no greenery.

3.3.2 Available Infrastructure

Kondele is a place where important roads are passing through, among one is as previously mentioned the newly constructed bypass highway, indicated with red in Figure 26. It connects the Nairobi Highway with the Busia Highway, without passing the city centre. Where the bypass crosses Kondele Centre, it is elevated on a high overpass road with solid access ramps made from blocks. The middle of the overpass is supported by pillars and there is a large roundabout placed underneath it. The broad access ramps give a wall-like impression. The impact of it on the townscape is shown in Figure 27. However, the solid ramps are also reducing traffic noise. The area is identified as one of the city's main gateways (Nodalis Conseil, 2014a).



Figure 27. Kondele Market with the newly constructed wall-like flyover bypass highway in the background.

The three main roads that pass through Kondele are marked with arrows in Figure 26, all these roads are made in bitumen material but are in bad condition. Some of the other smaller roads in the area are earth roads, whereof many are narrow and also in

bad condition. The earth roads create dust in the air, making both eyes and bronchus irritated.

The availability of water varies in Kondele. In the residential areas, KIWASCO water points are available and some houses in Migosi also have piped water. However, within the business area there are no water points available. Entrepreneurs make business out of the water situation and bring water from the CBD to Kondele Centre for selling it to the business operators there.

Electricity is available in the area, as long as you can afford the connection cost and to pay for the usage, but there is no electricity at the market of Kondele. There are some light posts along the roads in the area but in general it is poorly illuminated and the marketplace has no lighting.

Kondele is not connected to the sewerage system of Kisumu, meaning that people either use pit latrines or septic tanks. These are often shared among many people in the area, and often subject to a charge of 5 or 10 KSh. From interviews it was also understood that if you cannot afford this service you use what is called a flying toilet, meaning that you simply do your needs in a plastic bag and then throw it away or dispose it somewhere in the open space.

The storm water in Kondele is partly handled in open dikes and partly not handled at all, meaning that flooding of the area is common during rainy periods. One major problem is also that the dikes often are filled with solid waste which increases the risks of flooding in the area.

3.3.3 Available Services

Kondele is a bustling business area and almost all services are available; supermarkets, hotels, bars, night clubs, guesthouses, open air-markets, small shops, tailors, hairdressers etc. There are also more specialised businesses like a wedding dress tailor, a pipe joint shop and coffin makers. The area has its own post office, bank and bank agencies, photocopy facilities and a police station. According to the interviewees, you only need to go to the CBD to get official documents such as birth certificates and to see the officials. In the photo in Figure 28 some of the retail available in Kondele is shown.



Figure 28. To the left there are stalls that are part of the market place, to the right are some small shops.

There is one major primary school in the area serving approximately 2100 pupils, currently hosted in temporary facilities. A new school with access to water and electricity is under construction and should be finished in year 2017 according to the plan. The project is financed by development aid from the German government, and is part of the same program as the primary school in Nyamasaria. There are also two smaller primary schools in the area.

Public health care is available in the area with one health care centre in Migosi and one under construction in Manyatta A. Furthermore, there are several private clinics in the area but they are not accessible by all habitants due to the high charges. A public hospital, Jaramogi Oginga Odinga Teaching and Referral Hospital, is located close to Kondele, just on the other side of the bypass in direction of the CBD.

3.3.4 Activities and Movements in the Area

Before the overpass highway was constructed, Kondele had a large, open air-market. It was an important source of income for many traders and an important place where the inhabitants could buy fruit, vegetables, second hand clothes and textiles, etc. The market place was informal and had no legal rights to occupy the land and it was therefore demolished to make space for the bypass highway. Nowadays, the market is on a much smaller space and it is still operating informally, but it is frequented and busy during afternoons and early evenings.

The fact that the market is informal means that it is not recognised as a legal market by the authorities and they have not been assigned to operate on the land that they are using. Therefore, the vendors at the market does not receive any services from the authorities such as lighting, piped water or solid waste collection. Though, the traders pay revenue to the County anyway which gives double messages to the traders.

The current location is on a road reserve and it is uncertain whether the authorities will evict them from this location within a near future. There are also three smaller but formal markets within the residential areas of Kondele, one in each settlement area. These markets are less active since they are far away from the movement of people compared to the midpoint location of the informal market in Kondele Centre.

The roads from the city centre to Kibos and to Kakamega are frequented by a high number of vehicles, matatus, motorbikes and several other means of public transport. Informal footpaths are shown in Figure 29 which are not spaces designated for any type of movements. There are many pedestrians moving around within Kondele Centre and the lack of footpaths and sidewalks causes them to walk anywhere along the roads and cross them on any place, causing many traffic accidents involving pedestrians. According to discussions with Samwel Orek, a community policing volunteer in Kondele, the traffic safety has increased since the overpass highway was built and less traffic passes through the community.

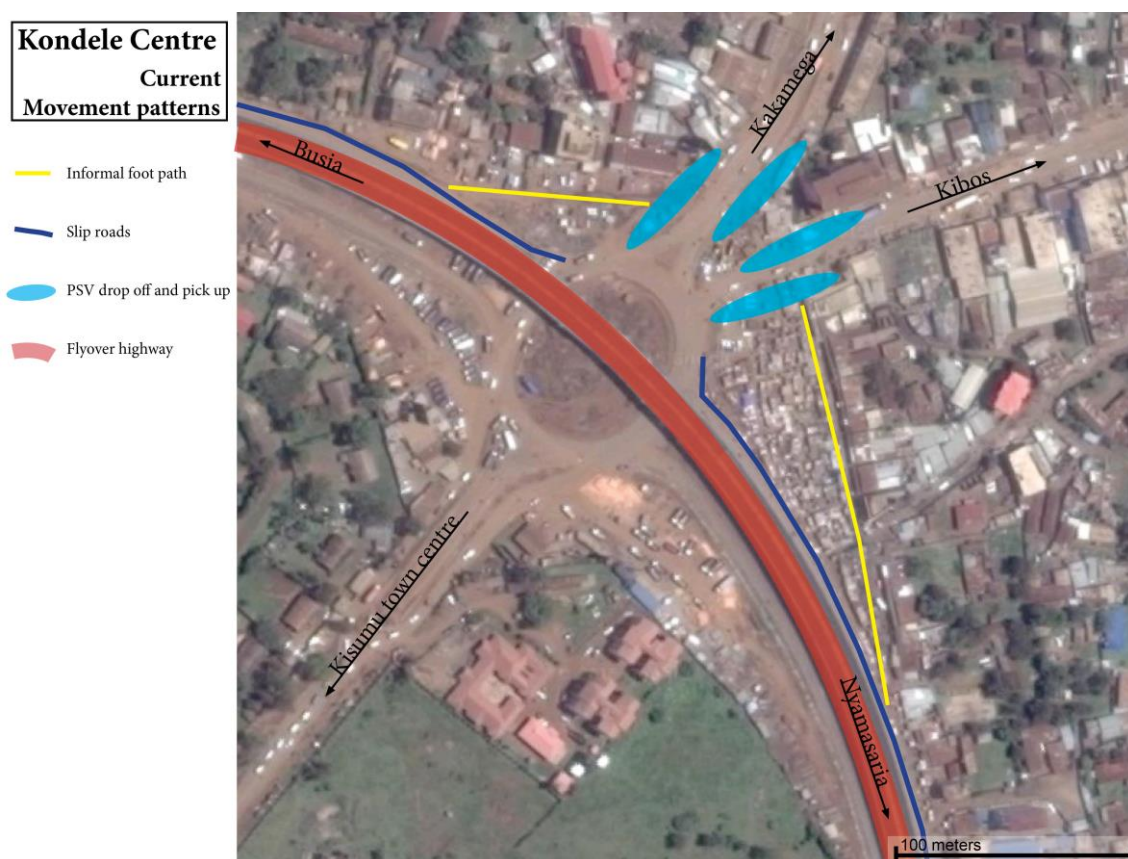


Figure 29. Map showing movement patterns within Kondele Centre.

The area lacks official parking and during night there are many trailers and matatus parking in open spaces in the area. There is a high amount of public service vehicles that move around in the area since Kondele functions as an interchange node for public transport. There are matatus travelling to several destinations from this road junction, and for the people who need to switch between modes of transport, it is possible to find several different means of public transport waiting for customers here. In general, there is not enough space for drop off and pick up for these numerous

modes of transport. In Figure 29 it is indicated where the matatus and motorbikes pick up and drop of customers today. Parking, as well as the drop of and pick up, are problematic since it leads to vehicles stopping anywhere they find an available place, which is shown in the photo in Figure 30. The prevalence of vehicles stopping in the road decreases the accessibility and affects the traffic safety.



Figure 30. Cars parking randomly in Kondele and to the right is a matatu bus stop.

3.3.5 Land Tenure

In Kondele the land tenure varies among the different areas. In Manyatta the land is privately owned as freehold, while in Migosi and Nyawita leasehold is the dominant form of land tenure (Nodalís Conseil, 2013). Near the road junction there are un-built land currently occupied by temporary and semi-permanent structures for the market place and shops. However, these spaces are road reserve and designated for future road development. This affects the possibilities of development since the County has to acquire the land in order to build anything. There is no public land in the central area of Kondele. The small market places within the surrounding settlement areas are placed on public land. The map in Figure 31 shows the different forms of land tenure in the area.



Figure 31. Map showing the land tenure situation in Kondele.

3.3.6 Safety

The traffic safety varies within Kondele. In the central area the congestion forces vehicles to slow down to approximately 40 km/h, while on the roads to Kibos and Kakamega, traffic is faster. There are often accidents where children cross the roads. According to the Chief, there are two to three school children each month that are killed here while crossing the roads. There are also accidents happening in Kondele junction, mostly involving motorbikes. Many of the interviewees claims that this is because many drivers do not have drivers' licences and do not know the traffic rules. There are no zebra crossings or other safe pedestrian crossing at any of the roads in Kondele.

Thieves are another safety issue present in the area, which the interviewees points out is due to the high unemployment and poverty. The problem is present both at the market and the small businesses as well as in people's homes.

Other safety issues discussed during interviews are the health issue with the lack of clean water, solid waste management, sewerage and drainage which contribute to an unclean environment and the spreading of many diseases. There is also an open land in Migosi used as a gravel pit and during the rainy seasons it is filled with water bringing many mosquitoes and thereby also malaria.

3.3.7 Demography

Kondele has mainly emerged as a result of urbanisation; hence there are people from several different tribes, originating from various regions of the country, living within the area. The unemployment rate is high and poverty is present, even if it varies widely within different parts. The population density in Kondele is 8 000 – 20 000 habitants per km² (Nodalis Conseil, 2013). However, the density varies in the

settlement areas that surround Kondele Centre: Manyatta has almost 21 000 habitants per km², while Migosi which is more developed and Nyawita which has a more rural character are less dense.

Among the inhabitants HIV is a widespread problem and prostitution is common, which makes the problem become even more severe. This also causes many children in the area to become orphans and according to the head teacher in Migosi primary school, almost 40% of the pupils have lost one or two of their parents.

3.3.8 Current Function in Relation to the CBD

Kondele has almost all services you need and people hardly ever need to go to the CBD, which is how a sub-centre could be described¹². It is located near the CBD; it takes only 10 minutes to travel there by matatu. However, the area around Kondele is densely populated and its centre serves a high number of people who meet their daily needs within the area.

3.3.9 Existing Plans for Future Development

It is described in the ISUD-plan that Kondele Centre should be developed with additional high-rise buildings and with mixed-use (Nodalis Conseil, 2014a). The high-rise buildings are described to be suitable since the newly constructed overpass is very high and is presently dominating the impression of the area. The location near the CBD also implies that eventually this area will merge even more with the town centre.

The City Planner described the area as a very active 24-7 centre and it already functions as a sub-centre in practice¹³. However, it lacks planning and it is currently very chaotic, hence it needs a detail plan that enables the City authorities to steer the development to become more sustainable, safe and efficient.

3.4 General Reflections from the Site Analyses

The three sites have different character but many of the challenges and opportunities are similar in the three areas. Figure 32 summarises issues that were brought up during interviews when asking about the most important things to improve at the three sites. The number of dots in front of each matter indicates how many of the interviewees that saw these issues as most important, some of the interviewees mentioned only one thing while others named up to three interventions.

¹² Patrick Nyamita, Project Manager, Kisumu Urban Project, Interview 2015-03-20

¹³ Everlyne Otieno, City Planner, Kisumu County Administration, Supervision 2015-02-19

HIGHEST PRIORITY FOR DEVELOPMENT
ACCORDING TO INTERVIEWEES

NYAMASARIA	OTONGLO	KONDELE
● ● Upgrade market place ● ● Prevent flooding ● ● Safe road crossing ● ● Sufficient health care ● ● Provision of tap water ● ● Improve the smaller roads ● Upgrade Jua kali facilities ● Empowerment of unemployed & youth ● Increased security ● Implement sewerage system	● ● ● Build a social centre ● ● Upgrade market place ● ● Improve the smaller roads ● ● Increased security ● Introduce a bus stop ● Safe road crossing ● Establish a hospital ● Upgrade water network ● Provide more job opportunities	● ● Implement sewerage system ● ● Upgrade market place ● ● Introduce solid waste management ● ● Prevent flooding ● Provide more job opportunities ● Trustworthy police officers ● Improved traffic safety ● Modern housing ● Prevent establishment of malls ● Introduce banks ● Provision of tap water ● Increased environmental awareness ● Stop corruption
ADDITIONAL FREQUENT COMMENTS - Build a park - Provide a playground - Build a social centre - Provide toilets	- Preserve the greenery - Sufficient sanitation facilities - Decontaminate the river	- Build a social centre - Provide a playground - Provide toilets - Introduce more greenery - More available health care - Improved security - Possibilities for fire trucks to enter

Figure 32. Summary of development interventions with the highest priority according to the interviewees. The number of dots in front of the assertion indicates the number of interviewees having that particular opinion.

There are some general observations made which are prominent in the three areas, but also in most areas of Kisumu. These issues are brought up in the following sections since they are important to keep in mind when planning for the future development of Kisumu in general and the sub-centres in particular.

3.4.1 Gender Differences in the Public Spaces

In the three centres there is currently no space designated for public use in terms of charge free leisure or recreational activities. Groups of people, mostly only men, usually gather in the open spaces to discuss politics and socialise, which they often do in the bars and hotels as well. Male youths are often seen idling in the open spaces since there is a lack of creative alternatives for entertainment. These youths are often unemployed which is the reason why they are idling and young men are not expected to assist in household tasks in the same extension as female youths are.

Women also meet to discuss their interests in groups but more often they socialise where they work or live. It is mostly women working in the market places and this is also where you see women gather and mingle. The women are most often responsible for taking care of the children; hence there are also many children where the women are. They sit by their care taker or play in the area around with whatever interesting they can find.

In evening hours the atmosphere in the sub-centre areas change from calm and relaxed environments to more bustling and vibrant places. People gather to eat, drink and socialise as well as make their daily purchases on the way home from a long day of work. The market places often become more active in the late afternoon and evening, since that is the time when most people do their shopping. Thus, many women work and sell at the market places until several hours after sun has set.

There are also many women involved in prostitution in Kisumu, which becomes highly visible during the evening hours in Kondele. This is one of the effects of the high unemployment rate as well as the burden and responsibility that many women carry for supporting their families, since many men are absent or take little responsibility¹⁴. These women often chose a dark location which is a separated from the most active places of the area, and wait for customers there.

Another issue regarding prostitution is that the women often are unaware about the risks that they put themselves in¹⁵. The sexual education in Kenya is often given by the grandparents and due to the high level of urbanisation and that people move away from their families, this education is neglected. The women are not aware of how to protect themselves from sexual transmitted diseases like HIV nor how to prevent pregnancies.

3.4.2 Community Involvement

The lack of support from authorities has led to that the inhabitants mostly have to rely on themselves or each other for their survival and development. This has resulted in a high presence of community based organisations (CBOs), which varies widely in purpose and operation.

Most types of business operators form CBOs where people working within the same sector or same geographical area unite. Some of the purposes that the business CBOs fulfil is to enable the involved actors to agree on common rules for operation; allow new entrepreneurs to establish in their area; support and lift each other in order to create more business opportunities; and to have a stronger voice together towards authorities. Examples of these business CBOs can be groups of market place traders, Jua Kali workers, motorcycle taxi drivers, hotel owners, shop owners etc.

Other types of CBOs that are prevalent all over Kisumu are organisations involved in social support and community development. These organisations are based on volunteering for contributing to the community good. HIV is common in this part of Kenya and there are several small and local community organisations that work on HIV awareness, as well as care giving to HIV positive and their children. Other CBOs focus on for example women and youth empowerment, spreading environmental awareness or local waste management, only to mention a few.

¹⁴ Jennifer Otieno, PhD Student, Maseno University and Mistra Urban Futures, Interview 2015-04-14

¹⁵ Jennifer Otieno, PhD Student, Maseno University and Mistra Urban Futures, Interview 2015-04-14

3.5 Stakeholder Analysis

The project of sub-centre development is broad and involves a wide range of stakeholders, some of them described above. Stakeholders are described as “Any group or individual who can affect, or is affected by, the achievement of a corporation’s purpose” (Olander, 2007).

A stakeholder analysis map is used in order to make a structured analysis of the stakeholders involved in the project of sub-centre development in Kisumu. The stakeholders are mapped according to the level of interest and the level of power they have in the project, all shown in Figure 33 below.



Figure 33. Stakeholder map showing the stakeholders affecting the sub-centre development project.

Stakeholders that have much power but not much interest in the specific sub-centre development project are identified and put in the category *keep satisfied*. In this category rules and regulations that govern the project are identified, and among these are the *Planning and Building Regulations* and the *Planning and Building Bill*, both authorised by the National Planning and Building Authority of Kenya.

Stakeholders with much power and much interest in the project are placed in the category *manage closely*, and are also the ones which have been the highest priority to have a close relationship to and cooperation with during the project. Among these stakeholders is KUP identified, which is also the financier through AFD. Furthermore the City Planner, head of the Urban Planning Office at the County is identified as well as the Environmental Manager of Kisumu. Land owners are also placed in the *manage closely*-category but they have not been the main focus throughout this thesis, even though it is important to include their interests later in the work with the sub-centre development.

In the category *monitor only*, stakeholders with low power and low interest is found. Kenya National Highway Authority (KeNHA), and Kenya Urban Roads Authority are responsible for road development and maintenance. They own roads and road reserves stretching through the sub-centre areas. The sub-centre development will have an impact on how the two authorities should develop their roads but they are not interested in the actual sub-centre development.

The last category, *keep informed*, is where the residents generally are found. They have indirect power through political elections for the County Government, but no direct power in the decision making regarding the development project. However, many of the residents have high interest in the development and can get a chance to speak their opinions through community participation. There is a high number of NGOs present in Kisumu who have a strong interest in urban development in general, but they do not provide money for the urban development and thereby do not have any power in the project of sub-centre development.

3.6 SWOT-analysis of the Proposed Sites for Development

The three sites, Nyamasaria, Otonglo and Kondele are all analysed individually using a SWOT-analysis and in this chapter they are presented together in one common SWOT-analysis. The SWOTs are presented in two parts where strengths and weaknesses are presented in Figure 34, and opportunities and threats are presented in Figure 35. The different points seen in the SWOTs indicates in which sites the issue is present, with green dots indicating Nyamasaria, blue for Otonglo and orange for Kondele. The common characteristics which have been identified through the SWOT-analysis for the three sites are described in this section, which is followed by descriptions of the unique characteristics of each site separately.

The strengths that all three sites have in common is that they all have major national highways passing the areas; that electricity and most services are available as well as bars, hotels and guest houses for social activities; and that there are many active CBOs strengthening the community.

The weaknesses they have in common are that they are unplanned areas with informal settlements, without any existing sewerage, functioning drainage or solid waste management systems. The market structures at the locations are in a bad condition, there are no open public spaces for leisure and no designated places for children to play. Regarding safety all the sites lack pedestrian crossing at the roads, they have poor public lighting and deficient possibilities for hygiene, which leads to risk of contaminated food. Prostitution is widespread leading to an unsafe working environment for the involved women, since they are exposed to high risk of violence, sexually transmitted diseases and social stigma. All the locations are found in low income areas with high unemployment. Lack of public land hinders the development.

Common opportunities for all the three sites are that they have flat and stable land that allows building taller constructions, the roads brings people to the sites and thereby also opportunities for businesses. The growing population at the sites increases the

demand for services and the possibilities to earn an income, and there are also plenty of human recourses available.

The threats being analysed for all three sites are the fact that there is no existing detailed development plan for the area. This makes the County unable to deny a landowner to make an inappropriate development of the land.¹⁶ If a detailed plan is not in place, a growing population can lead to expansion of slum areas. One of the identified threats is that establishment of new supermarkets can compete with the existing market places and other small scale businesses. This is problematic, as trade is the main source of income for many of the low income population.

¹⁶ Patrick Nyamita, Project Manager, Kisumu Urban Project, Interview 2015-03-20

STRENGTHS

PHYSICAL ENVIRONMENT

- Defined central area with the open air market place as the core ●
- Greenery provides shading and a pleasant micro climate ●
- Several multi storey buildings ●
- The newly constructed overpass road has reduced traffic noise ●

INFRASTRUCTURE

- National highway passing by ● ● ●
- Electricity is available ● ● ●
- Fresh tap water is available ●
- Several frequented roads passing through the area ●

SERVICES

- Most services are available ● ● ●
- Plenty of bars and hotels ● ● ●
- Several guest-houses ● ● ●

ACTIVITIES AND MOVEMENTS

- High level of activity in the area ●

SAFETY

- Vehicles pass through the central area with quite low speed ●

DEMOGRAPHY

- High number of CBOs in the area ● ● ●
- Cosmopolitic area creates an interesting environment ● ●

WEAKNESSES

PHYSICAL ENVIRONMENT

- High number of temporary structures that are chaotically arranged ●
- No greenery or shading ● ●
- The overpass construction hinders air flow ●
- Unplanned area with informal settlements ● ● ●
- The road divides the community ●
- Market structures in bad shape ● ● ●

INFRASTRUCTURE

- Poor availability of fresh tap water ● ●
- No sewerage, drainage, waste handling ● ● ●

SERVICES

- Far distance to public health care ●
- No open public space for leisure ● ● ●
- No place for children to play ● ● ●

ACTIVITIES AND MOVEMENTS

- No parking space ●
- Deficient space for bus stop ●
- Prostitution is prominent ● ● ●
- Car washing by the river ● ●

SAFETY

- No designated pedestrian crossings ● ● ●
- Lack of hygiene and risk for contamination of food ● ● ●
- Poor public lighting ● ● ●
- Unguided traffic makes vehicles and pedestrians move around randomly ●
- Market place is unofficial ●

LAND TENURE

- Small area of public land ● ● ●
- Very little land available ●

DEMOGRAPHY

- Low income area ● ● ●
- High unemployment ● ● ●

COLOUR KEY: ● NYAMASARIA ● OTONGLO ● KONDELE

Figure 34. Strengths and weaknesses for the three sites Nyamasaria, Otonglo and Kondele.

OPPORTUNITIES

PHYSICAL ENVIRONMENT

Flat and stable ground allows for taller construction ●●●

Buildings can be extended in height and still fit the areas character ●●

The river can be used for recreational space ●●

Far distance to CBD increases possibilities for the place to become an important business and service node in the area ●

INFRASTRUCTURE

The road brings people to the area ●●●

Node for public transport ●

SERVICES

Growing population increases the demand for services ●●●

ACTIVITIES AND MOVEMENTS

Upcoming trailer park can boost businesses in the area ●

DEMOGRAPHY

Plenty human resources available ●●●

THREATS

PHYSICAL ENVIRONMENT

There is no existing detail plan for development of the area ●●●

Growing population can lead to expansion of the slum areas ●●●

SERVICES

Planting of supermarkets compete with small scale trade and market ●●●

ACTIVITIES AND MOVEMENTS

Traffic congestion ●

Public service vehicles stop anywhere for drop off and pick up ●●●

SAFETY

Flooding ●●●

Low security during night ●●●

The large road passing through the area implies a traffic hazard ●●

Polluted river water makes people sick when they use it for drinking ●●

Upcoming trailer park will bring more people from outside to come in to the community ●

COLOUR KEY: ● NYAMASARIA ● OTONGLO ● KONDELE

Figure 35. Opportunities and threats for the three sites Nyamasaria, Otonglo and Kondele.

3.6.1 Nyamasaria

There are no distinctive strengths identified for Nyamasaria, but some weaknesses. The highway cutting through the community is seen as a weakness, as well as the large distance to public health care. The unique opportunities for Nyamasaria are the planned and upcoming trailer park which will bring many drivers and thereby potential customers into the community. The trailer park is also seen as a threat since many strangers coming to the place decrease the feeling of safety for many inhabitants. The highway is a threat since the traffic safety is poor. The river passing by Nyamasaria is also a threat since it is polluted and makes people sick. During rainy periods the river gets flooded and hinders activities like trade and going to school, since it makes the roads unusable. On the other hand, the river could be turned in to an opportunity and be used as a recreational space.

3.6.2 Otonglo

One of the strengths identified in Otonglo is the well-defined central area with the open air-market as the midpoint, furthermore there is lots of greenery providing shading and a pleasant microclimate. Weaknesses, on the other hand, includes disadvantageous activities going on in the creek, like car wash and sewage release, which turns in to a threat since it causes pollution and make people sick.

The creek could also be turned in to an opportunity and be used as a recreational space. The relatively large distance to the CBD is also an opportunity since Otonglo could possibly become an important business and service node in the area. Also, the highway is a threat with many high speed vehicles and no designated place for pedestrians to cross.

3.6.3 Kondele

Kondele differs somewhat from the other identified nodes. It has a high level of activity in the area, several multi-storey buildings and several frequented roads passing the area. The vehicles that passes through the community has a fairly low speed and the newly constructed overpass highway has a noise reducing effect in the community. Weaknesses on the other hand are a high number of temporary and semi-permanent structures in a chaotic arrangement. The issue of the low standard and haphazard structures is difficult to address, each structure involves a business and demolition of these without providing sustainable replacement structures will have severe negative impact on many people's livelihoods.

Moreover, there is poor availability of fresh tap water; the fresh air flow is hindered by the overpass highway; there is no place to park vehicles or for public service vehicles to stop for pick up and drop off. The traffic situation in general is chaotic, where vehicles and pedestrians move around randomly. Another weakness is that the marketplace in Kondele is not an official market recognised by the authorities, which has effects on the future market development and creates uncertainties for the people involved in Kondele Market. In general there is very little land which is not yet developed in Kondele.

The fact that Kondele is a node for public transport and a place where many people are moving around, gives it good opportunities to function well as a sub-centre. The ground conditions here are stable and buildings can be extended in height to provide more space and still fit the existing architecture and the overpass. Nevertheless, the high number of vehicles makes the traffic and congestion in general a threat for the future development of Kondele.

3.7 Development Objectives for the Sub-centres

The result of the SWOT-analysis was used for establishing 10 development goals. The goals were aimed to make use of the identified strengths and strive to eliminate the weaknesses, as well as taking advantage of the opportunities and prevent the threats that have been identified in the SWOT-analysis.

These goals describe the vision of what the future sub-centres should be like. The development objectives relate both to an overall notion of sustainable development as well as the specific preconditions at the three sites. Some of the goals are more comprehensive, while some of them are related to certain aspects or issues. The established development objectives are presented in

The development objectives are to create places where...

- ① ...long term perspectives and sustainability are the basis for development.
- ② ...there are possibilities for entrepreneurs to thrive - small scale and large scale businesses acts and operates side by side.
- ③ ...the strategic locations and the advantages they imply are utilized.
- ④ ...land is used efficiently and there is cohesiveness in the physical environment.
- ⑤ ...the environment is clean and healthy with a pleasant micro-climate.
- ⑥ ...it is safe and secure for everyone to be.
- ⑦ ...the demographic diversity and strong community engagement are encouraged and utilized.
- ⑧ ...informal and unplanned development does not occur.
- ⑨ ...social and recreational activities are available for all groups of society.
- ⑩ ...job opportunities are available for all people in the community.

Figure 36. Development objectives for the sub-centre development.

3.8 Development Strategies for the Sub-centres

The development objectives have been used for formulating a number of development strategies. These strategies describe how the objectives should be reached. They describe which approaches should be used when striving towards a sustainable development of the sub-centres. Further, these strategies are used for deciding what specific interventions are needed at each site (see Chapter 5, Conceptual Development Proposal).

The strategies for the sub-centre development are presented in Figure 37; the numbers in parenthesis indicate which of the development objectives that are addressed by the strategy.

DEVELOPMENT STRATEGIES

- Ⓐ Provide with permanent structures for small scale businesses (1, 2, 4, 8)
- Ⓑ Encourage and facilitate for people to visit and use the services that are there rather than going to the CBD (2, 3, 10)
- Ⓒ Promote densification of the built environment (4)
- Ⓓ Introduce a sustainable solid waste management plan(1, 5)
- Ⓔ Create a storm water system that prevents flooding (1, 5)
- Ⓕ Plan for greenery in the public space (5, 9)
- Ⓖ Provide with sufficient lighting (6)
- Ⓗ Create a safe traffic environment (6)
- Ⓘ Create safe and functional public spaces for all groups of the society (9)
- Ⓙ Give restrictions and incentives that will steer what type of businesses and activities that can establish in the area (1, 2, 10)
- Ⓚ Plan for a defined midpoint in the sub-centre (4)
- Ⓛ Introduce regulations on what types of structures that are allowed to be built in the area (4, 8)

Figure 37. Development strategies for the sub-centre development, numbers in parenthesis indicate which of the development objectives that are addressed

4 Theoretical Framework

The theories presented in the first two sections of this chapter: 4.1 and 4.2, include concepts that are frequently used when discussing urban development in Sweden today, *social sustainability* and *mixed-use cities*. It is relevant to investigate how concepts which are successfully used in Sweden can be adopted in the context of Kisumu and Kenya.

The chapter also includes theories that are directly aimed to support the development strategies presented in Section 3.8. This part of the theoretical framework is connected to the context of developing countries and has its base in UN-Habitats recommendations on how to build and upgrade a city in a sustainable way.

4.1 Social Sustainability in Urban Planning

According to a report from the Swedish National Board of Housing, Building and Planning (Boverket) the major barriers to achieving social sustainability in cities is the spatial separation between different functions in the city and the lack of correlation between socio-economic neighbourhoods and the rest of the city (Boverket, 2010). These are factors reinforcing the spatial segregation and in the report by Boverket (2010) various methods for dealing with these issues are presented.

The methods mentioned in the report from Boverket (2010) include maintaining a holistic approach where both physical and social measures are taken into account, as well as planning for variation in functions, housing and spatial design. This is within the scope of the concept of mixed-use city and will be treated in Section 4.2 (Mixed-use Cities). Further, it is important to enhance the cohesion by interlinking different neighbourhoods and support possibilities for residents to identify themselves in a positive way with their own neighbourhoods, these issues are treated in Section 4.1.2 (Social Inclusion). Lastly, it is described that inhabitants' opportunities to influence development of their own neighbourhoods is a highly relevant method for reaching social sustainability, a matter which is further described in the following section called citizen participation.

4.1.1 Citizen Participation

A common reference that appears when discussing participation is the article *Ladder of citizen participation* by Arnstein (1969), a North American planning researcher. The article is a vigorous description of what Arnstein sees as hypocrisy concerning citizen participation. The implication is that participation should be used in a much greater extent, and the disenfranchised groups of society have to be empowered through participation.

In the article it is presented a ladder where it is illustrated how different levels of participation can be used in planning and management (Arnstein, 1969). The article is old and from a North American context struggling with widespread racial discrimination. Despite that, it is commonly used as base for discussion on how citizen participation is used today, how it can be used as a tool for citizen

empowerment and how participation also is used by decision makers to deceive people into believing they have an influence (Castell, et al., 2013).

The concept of the ladder of participation is illustrated in Figure 38. The foundation of this concept lays on the notion that inhabitants lacking resources and privileges are supposed to be empowered through increased participation (Arnstein, 1969). The idea argued for in the article is that the aim is to reach as high as possible in the ladder. The ladder is divided in three sections, non-participation, tokenism and citizen power.

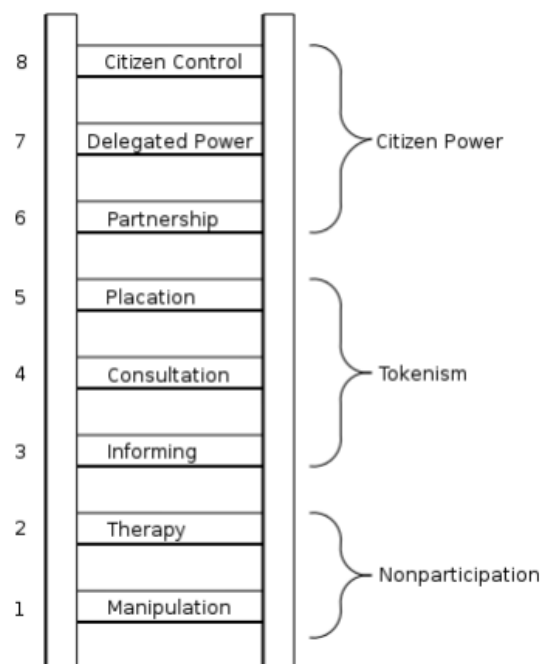


Figure 38. The ladder of citizen participation (Arnstein, 1969).

The bottom section, called non-participation, includes scenarios where citizens are involved in activities that are solely aimed to distract them or influence their perceptions (Arnstein, 1969). In the middle, where tokenism is found, are methods for giving some extent of influence to the citizens. However, according to Arnstein (1969), these methods are often situations where citizens are invited to give opinions that most commonly are not taken into consideration. It is, according to this article, only true citizen empowerment once you reach the upper section of the ladder where the citizens have formal influence and decision-making power.

Several different models for participation in societal development have been created and the famous Ladder of citizen participation by Arnstein (1969) is often an inspiration for those models. In Sweden, there are several examples of models where different levels of participation are used. The most common example is developed by the Swedish Association of Local Authorities and Regions (SKL) and it is presented in a guide book for citizen dialogue as part of the steering process (Sveriges Kommuner och Landsting, 2013). The model presented in this book is used by many Swedish municipalities as a guide when choosing level of participation and placing the different methods in a context. A major difference between them though, is that there is not any value put in the different levels of the steps, unlike the ladder by

Arnstein (1969) where the ideal is to reach as high as possible on the ladder (Sveriges Kommuner och Landsting, 2013). The model that SKL uses is shown in Figure 39, where the concept is that the different levels should be used depending on what is appropriate for different situations. Using this model, one can move back and forth between the steps throughout the process.



Figure 39. Steps of participation, a model proposed by SKL (Sveriges Kommuner och Landsting, 2013).

In the recommendations from SKL, dialogue and consultation are the major parts of the participation process (Sveriges Kommuner och Landsting, 2013). The top of these steps is about allowing citizens to be part of a planning process throughout a longer period of time, from concept idea to complete proposal. However, that is not the same as the top level of Arnstein's ladder, where the top level is focused on formal power of the citizens.

Many Swedish municipalities have developed their own models for citizen involvement and most of them are based on the model that SKL present in their report (Sveriges Kommuner och Landsting, 2013). Huddinge is a small town municipality actively working with community involvement and participation. The municipality is currently working with their own model of participation, which is formed as a table instead of a ladder as the model developed by SKL. The model that Huddinge municipality is using is called *the spectra of participation* and is to be seen as a variety of different approaches that can be selected, depending on the need for the current situation (Huddinge Kommun, 2012). Figure 40 is an illustration of how the spectra of participation is presented.

Huddinge's spectra of participation

Forms of participation	Characteristics	You get	Examples of methods
Information	One way communication. Questions and answers	Knowledge	Newspaper Internet Meetings Open house
Consultation	Gathering peoples views. Often a single occasion	Opinions	Survey Focus group Area excursion Citizen panel
Dialogue	Exchange of ideas Often several occasions	Reasoning	Activity board Dialogue seminar Open space
Collaboration	Activities are planned and carried through	Implement	Working group Future workshop
Codecision	Making decisions together	Deciding	Discussion panel

Figure 40. The spectra of participation, developed by Huddinge municipality (Huddinge Kommun, 2012).

Pål Castell is a doctor in sustainable urban planning and he discusses the role of different models for participation in the book *Framtiden är redan här - Hur medborgare kan bli medskapare i stadens utveckling*, which concerns issues of citizen involvement in urban development (Castell, et al., 2013). Castell (2013) writes that the debate Arnstein was part of concerns discrimination of the black population in USA in the 60s. The Swedish model from SKL does not mention anything from that context. The Swedish model is used for a completely different context, though it can be argued that the text of Arnstein is becoming more relevant again today. Minorities of certain ethnic groups and low income groups are being more exposed in the society and becoming more spatially segregated not only in Sweden, but all over Europe.

Further, Castell (2013) discusses that Arnstein's ideas of citizen power can have relevance in our society today and participation can be a measure for lifting disenfranchised groups of the society. If that idea is to be followed, then it is necessary to climb higher on the Ladder of participation than the proposal from SKL, just as Arnstein (1969) argued for. However, a threat might be that the representative democracy is challenged when the elected members delegate the power of decision-making to the inhabitants (Castell, et al., 2013).

4.1.2 Social Inclusion

The publication from Boverket (2010) describes that one of the key matters in reaching social sustainability in urban planning is to enhance the cohesion in the society. Different neighbourhoods should be interlinked and there has to be possibilities for residents to identify themselves in a positive way with their own

neighbourhoods. This is highly related to spatial segregation which is becoming a larger issue not only in Sweden and Europe, but worldwide.

Jan Gehl is a well-known Danish architect who is recognised as an expert in design of public spaces. He describes that social sustainability within urban planning includes an important aspect of democracy, where a key factor is equal possibilities to meet other people in public spaces (Gehl, 2010). In order to achieve this, public spaces should be easily accessible, inviting and serve as an attractive setting for different sorts of meetings and encounters.

Furthermore, Gehl (2010) discusses the notion that the city serves a democratic function, where people reach greater understanding of each other through the social diversity and by sharing the same city space. A trend that is counteracting this function is the fact that cities worldwide are becoming more segregated and the differences between rich and poor are increasing. This trend is evident especially in developing countries, where the income gaps are larger and the interaction between rich and poor is becoming less present in the city spaces. The concept of the lively city is based on social sustainability and it needs to include interaction of people from different groups of society, in order to be achieved. It endorses the idea of a city that is accessible and attractive to all.

An extensive paper on segregation, its causes and effects as well as possible solutions have been produced by Guevara (2014) in a research project connected to Mistra Urban Futures in Gothenburg. It is basically a synthesis of several research reports and publications and is meant to be used as a basis for discussions on segregation. The paper provides a broad overview of the topic, deals with many aspects of the matter, and concludes what the effects of residential segregation are. It describes that several researchers have found that people who grow up in underprivileged areas have lower socioeconomic standards, and most often continue on the same level later in life as well. Long-term effects makes it difficult for disenfranchised people to change their own living conditions. This is called the neighbourhood effect which means that people's living conditions are partly affected by neighbours attitudes and behaviours.

Professor Roger Andersson, at the institute of housing and urban research at Uppsala University, claims that there are three theories included in the neighbourhood effect (Guevara, 2014). Firstly, *the socialisation theory*, which describes that people's behaviour is affected by the behaviour of people in their surroundings. Secondly, *the network theory* defines that someone is likely to have less opportunities in life if there is an absence of a contact network with plentiful resources. Lastly, *the stigmatisation theory* implies that the inhabitants of an area are being perceived in specific ways by others, simply by residing within certain neighbourhoods. Other research findings presented in the report by Guevara (2014) also support the fact that the stigmatisation is a major issue affecting people's living conditions.

Segregation also affects the society as a whole, not only the residents of the disadvantaged areas (Socialstyrelsen, 2010). Socio-economic gaps between areas and neighbourhoods can bring up tensions in the society. The Swedish national board of

health and welfare describes the matter as not only a problem due to the situation inside disadvantaged areas, the tension emerges because the other counterpart also exists. In Sweden, there are mostly people from several non-Swedish ethnical backgrounds as well as socio-economically disenfranchised groups living in stigmatised areas and its counter opposite are the areas with high income level and a homogenous population with absence of immigrants.

The spatial segregation contributes to a general perception among residents of privileged groups of society, that people living in the disadvantaged areas are remote and almost foreign, not only ethnically and spatially but also socially alienated (Socialstyrelsen, 2010). At the same time, it leads to a perception among the residents of less privileged areas to not feel as a part of society. The gap between their own living standards and life opportunities, compared to the average of the country, is so large that they rather consider themselves as part of their own society of their own neighbourhood.

Guevara (2014) concludes what different researchers have found to be possible solutions to spatial segregation and negative perceptions of certain neighbourhoods. It is generally known that mixed tenure forms of housing within a neighbourhood can bring a social mix to the area. However, it is challenging, when developing neighbourhoods, to find a way of providing newly built rental apartments that are financially accessible by low income groups. A solution could be so-called social housing (Guevara, 2014), which is a form of tenure where apartments are let to a subsidised cost through support from authorities (Dorobantu, et al., 2008). Financial support and incentives to encourage investors to build more low-cost rental apartments is also described in the report by Guevara (2014) to be a possible measure for achieving a social mix.

As mentioned previously in this chapter, Gehl (2010) discusses the democratic function of the city as a place for social exchange and a platform enabling greater understanding for others. The issue is also brought up by the researcher Ann Legeby in the Licentiate Thesis *Urban segregation and urban forms* (Legeby, 2010). Legeby claims that the debate is too focused on categories of people living in certain areas, and that it is relevant to also look into how different areas are interlinked. It is discussed how the social sustainability of a city is affected by whether people of different backgrounds interact and meet within different contexts of the city.

The physical environment and the layout of a city can affect people's opportunities to meet and socialise (Legeby, 2010). Better conditions for social sustainability can also be put in place through provision of good public transport which interlinks areas, as well as to create neutral meeting places which encourage people of different backgrounds to meet and interact. The inhabitants' possibilities to interact can be increased through planning and development of cities with these ideas in mind, which also can decrease the effects of the spatial segregation between residential areas.

Public spaces are traditionally the platform where the inhabitants of a city have informal encounters and interactions with each other in their daily activities, such as

shopping, exchanging news, passing through, working etc. (Allen, et al., 1999). These are spontaneous activities which are shared between people from various backgrounds and from different areas of the city. The spontaneous meetings trigger an exchange and interaction between strangers that often brings an exciting asset to daily and necessary activities.

It is described by Gehl (2010) that passive interaction is a very important feature of the interaction occurring between people in the streets. The passive interaction means that people interact simply by seeing and hearing each other while moving around in the public space, apart from the active interaction when people speak to each other and do things together. Today, the interaction between people in public spaces is becoming less frequent as electronic services replace the services offered in public spaces. People also tend to isolate themselves from passive interaction by moving in private cars and listening to music or browsing their mobile phones.

It is described in the book *Unsettling Cities* (Allen, et al., 1999), when the spontaneous interactions in the public spaces decrease, these interactions also becomes even more important. Segregation and alienation between different groups can lead to prejudices, xenophobia or even violent conflicts. Natural meetings and interaction between strangers in daily life can battle prejudices and give the chance to experience common interests, which becomes an asset in a diverse society. Meeting places accessible and inviting for all groups of society can help fighting segregation and create a better understanding between people from diverse backgrounds. Hence, neutral meeting places can be part of a solution to social challenges in the society and especially in cities of today.

4.2 Mixed-use Cities

The notion of the mixed-use city is to create a vibrant city and avoid empty sleeping areas as well as limit segregation and encourage a mix of people from varying social classes, backgrounds, ages and gender. The concept and definition of mixed-use cities was adopted in Sweden when the former industrial area Norra Älvstranden in Gothenburg started to be developed for new purposes (Gustavsson, 2004). The base of the mixed-use concept is described in the first part of this chapter.

When referring to mixed-use cities, densification is frequently mentioned and the importance of having a society where many people are active in the open space (Boverket, 2005). Further, it is important to have integrated green areas in the city since it brings positive effects such as cleaning the air, providing a better micro climate, reduction of noise and enabling a richer biodiversity. Both these issues are further described in this chapter.

4.2.1 Variation in the urban environment

Implementation of mixed-use cities is a planning goal for most Swedish municipalities since it brings many advantages, such as creating a social and diverse living environment with decreased needs of travel and transport (Boverket, 2005). For example, the concept is an established part of the vision for development in

Gothenburg where the goal is to create a vibrant, safe, exciting and attractive city (Stadsbyggnadskontoret Göteborg, Översiktsplanegruppen, 2009).

The concept of mixed-use cities came up as reaction against zoning of the city, which creates distances between housing, businesses and services (Boverket, 2005).

Objectives for mixed-use cities are related to environmental effects and to limit congestion in the traffic system, and to create public spaces and greenery in the city (Gustavsson, 2004). The concept contains three different and essential parts which a city should aim for regarding mixed-use; varying functions, varying architecture and varying social groups.

Varying functions implies that the neighbourhood should be characterised by a variety of small scale businesses and other activities (Gustavsson, 2004). There should be a mix of housing, offices and services, possibly by placing businesses on the ground floor of the buildings and housing on the floors above. Besides the advantages with a vibrant city, this way of planning a city can also decrease the need for transport of people and goods, since people can work and buy groceries in the same area as they live. To create a mixed-use city it is important to work on a neighbourhood and block level, not a city level.

On the architectural level the focus is on varying structural design and neighbourhood layout, which is created through a long-term development (Gustavsson, 2004). One important parameter is also to create open and public spaces apart from housing.

A socially mixed city is achieved through provision of housing at varying price levels and different tenure forms; rental apartments, tenant-owned apartments and detached houses (Gustavsson, 2004). According to Sören Olsson, professor emeritus in social work at University of Gothenburg, the mixed-use city normally gives a richer and more varied social life to the neighbourhoods (Boverket, 2005).

Further, UN-Habitat (2013) points out strengths with the mixed-use city approach, including social-, economic-, and infrastructural benefits. The social benefits are that a broader segment of the population gets increased access to services and urban amenities, as well as a variety of housing options and different household options. Implementation of the mixed-use concept leads to an increased amount of people moving in the open spaces at most parts of the day, which increases the feeling of safety. The economic benefits include increasing business potential and thereby also more tax income from the businesses. Also, the increased property value helps in raising the tax revenue for the local authorities. Infrastructural benefits are, among others, shorter average travels, decreased commuter trips and reduced car use which in combination decreases the need of infrastructure required in form of roads and parking.

4.2.2 Densification

The rapid and on-going urbanisation, which is prominent worldwide puts pressure on cities to serve a higher number of people on small areas. This trend pushes many city leaders to rethink the usage of land within their cities and in most cases to find

solutions for densification (Sveriges Kommuner och Landsting, 2015). SKL has comprised an investigation of how Swedish municipalities work with densification and how they strive to unite it with a sustainable development and provision of attractive cityscapes.

Densification is a major trend in physical development plans and programmes of Swedish municipalities (Sveriges Kommuner och Landsting, 2015). Most cities and towns strive to develop as little as possible on virgin land, and instead plan for taller buildings and a denser city life. Densification brings several benefits; more efficient usage of infrastructure, possibilities for clustering of services and activities, concentration of retail and increased number of meeting places. However, the same report states that densification implies several challenges which needs to be taken into consideration. Issues such as poor air quality, noise pollution, congestion and stress are problems that might emerge from densification of urban areas.

Boverket has developed a vision for year 2025 with a description of how a dense city will contribute to a sustainable society (Boverket, 2015). The vision implies that a dense city is a city where all services and activities are available for everybody within short distances. Over time it is said that towns and cities will grow and merge together and that the main town centres will be complimented by smaller peripheral nodes. These nodes are described as a factor needed within the concept of densification, in order to gain efficiency in land use and transportation need.

Gehl (2010) supports the concept of densification, but he also argues that there are several essential concerns to consider when planning for densification in order not to damage the social sustainability of the city. In the book *Cities for people*, Gehl claims that densification is actually not the compact city planning and tall buildings themselves, it is rather the combination of attractive city space and a large amount of people who want to use it. A well-planned dense city will be able to host a large amount of people on a small area of land. There are several examples of cities which are planned for dense land use that are not dense in the sense that Gehl (2010) argues, since they are not attractive and hence not used by a large amount of people.

Further, Gehl (2010) describes that when planning for denser cities, it is not favourable to strive towards building as tall as possible. There are many negative effects from having too high buildings, potentially decreasing the attractiveness of the open spaces and consequently not be used efficiently by the people.

Sunlight contributes to making the open space attractive to people and increases possibilities for e.g. trees to grow along the streets (Gehl, 2010). High-rise buildings decrease the amount of sunlight that can reach the street level and needs to be considered when planning for densification. There is also evidence showing that very high buildings decrease the vibrancy of the street life, since people who live or work on the upper floors tend to go outside less often. This is due to the perception of the long distance between indoors and outdoors as a barrier.

4.2.3 Greenery

Parks and green areas in a city are of great importance for a variety of issues which could be categorised into climate and environmental effects, psychological health and physical health (Classon, 2012). It is important to incorporate greenery in the city, and according to the World Health Organisation, it is recommended to have at least nine square meters of greenery per capita and it should be located within a 15 minutes' walk for all residents (UN-Habitat, 2013).

Many benefits are identified when integrating green areas in a city, for instance increased air quality with a reduction of air pollutions from dust and smoke particles, especially from vehicles exhaust (UN-Habitat, 2013). The heat island effects, produced by solar radiation heating up pavements and streets made of concrete and asphalt, are reduced through increased air movements and humidity created from the green vegetation. In general, greenery in the urban environment functions as local climate regulators. Calculations conclude that increasing the green areas in a city by 10% reduces the energy consumption for heating and cooling by 10%.

Another important planning issue to take into account is the storm water handling, which is more easily dealt with when the amount of permeable and green surfaces is higher and non-permeable, hard surfaces like concrete and asphalt, are less (Boverket, 2014). It is important to plan for these issues in cooperation with private landowners and investors as well as the local authorities, in order to enable a functional system.

A bachelor thesis within landscaping, based on literature studies, presents an investigation on what positive effects on people's health greenery and parks in a city can bring (Classon, 2012). The results show that it improves the mental recreation and ability to focus and reduce stress, as well as having social effects and social functions. It is discussed what characteristics areas should have in order to be attractive. Several qualities are brought up, including safety; open spaces; places to sit down; playgrounds; the area is quiet and peaceful; well maintained; that it feels like a natural place and there are interesting things to look at.

The physical benefits and functions a green area or park can bring are the increased possibilities for physical activities like walking and running, but also a place for playing and do ball games (Classon, 2012). To enable this, it is important that the space is sufficient, path ways are prepared, proper lighting, good accessibility, large fields for ball activities and playgrounds.

In the same report (Classon, 2012) it is investigated whether large green areas can be replaced by smaller, more qualitative and better planed parks with a larger variety, when the cities are getting denser. The conclusions are that the larger green areas are preferred, but small parks also have important recreational value. It is highlighted that small parks and large green areas can act as complement to each other and not all parks and green areas need to fulfil all functions. Thus, it is concluded that a combination of some large green areas and some smaller parks within a city is the best solution.

The municipality of Stockholm, the capital of Sweden, is actively working on preserving green spaces within the city (Stockholms Stad, 2010). The city is constantly growing larger and the distance between its inner core and the nature outside the city is increasing. Thus, the high importance of preserving the existing green spaces within the city is recognised. Today, as many as 90% of the urban inhabitants have less than 300 meters distance to a green area anywhere within the city. The image in Figure 41 shows a mapping of the distances to green spaces in Stockholm City. The green areas include both parks as well as smaller spaces with greenery between buildings and hard surfaces. The municipality sees that the presence of the green spaces is important for both the ecological and social sustainability and its importance grows as the urban areas of the municipality grow.

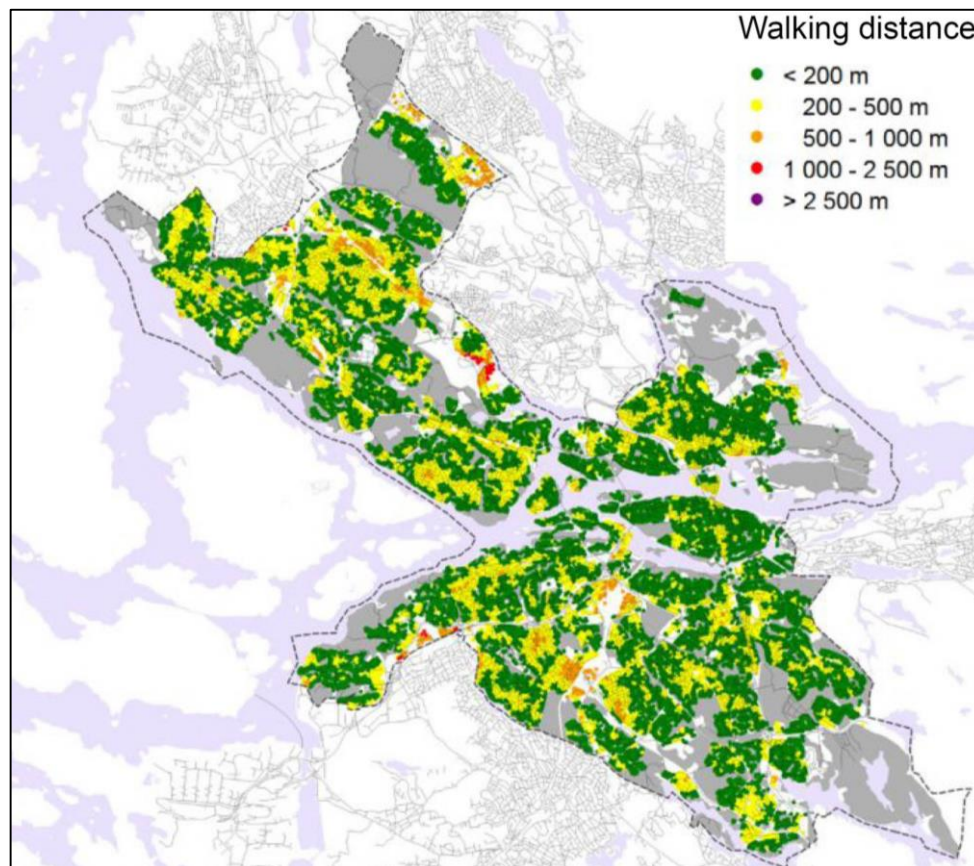


Figure 41. Map showing pedestrian distance to green spaces in Stockholm City (Stockholms Stad, 2010).

4.3 Theory Supporting the Development Strategies

The theories brought up in this section are aimed to support the development strategies presented in Section 3.8, and thus motivate the implementation of the suggested interventions in the development proposals in Chapter 5 (Conceptual Development Proposal). The different topics are chosen in order to support the development strategies and are based on several publications from UN-Habitat in combination with other relevant literature.

4.3.1 Climate Change Adaptation

Cities are one of the major contributors to climate change, and cities are also among the entities most vulnerable to climate change in today's society. The effects of climate change posing risks towards cities and their inhabitants include rising sea levels, increased precipitation, inland floods, more frequent storms and periods of more extreme heat and cold (UN-Habitat, 2015b). When the effects of climate change strike cities, it may damage important infrastructure and worsen access to basic urban services. When infrastructure such as roads and electricity is damaged due to climate change disasters, people are often cut off from daily life services but also vital economic and social infrastructure as well as governmental facilities which often are located inside cities.

The poor urban population are among the most affected by disasters caused by climate change (UN-Habitat, 2015b). The urban poor often live in slum areas in developing countries, and these areas are regularly situated on land that is inappropriate for settlements. Common for slum dwellings are location on unstable land that is prone to landslides or flooding, polluted grounds are also common locations. The structures are often unstable, hence they are vulnerable to earthquakes and storms.

When developing cities, climate risks need to be planned for in order to avoid the hazards that climate change brings. In particular, this is relevant in cities in developing countries, since they are under intensifying pressure (UN-Habitat, 2013). These areas are facing large challenges related to urbanisation and informal settlements, putting a large portion of the inhabitants in danger. According to recommendations from UN-Habitat (2013), areas exposed to annual flooding should preferably be left vacant or used for parks or sports facilities with permeable surfaces which can absorb some of the water. Further recommendations are to construct on pillars or to forbid living on the ground floor.

Other measures that are recommended by UN-Habitat (2013) are to prepare the infrastructure for climate change. This includes increased capacity of storm water drainage systems and secure water supply, as well as protection and relocation of energy- and solid waste management facilities.

Apart from increasing the resilience of the infrastructure, it is also essential to strengthen the resilience of the community. Strategies for doing so can be local economic development, early community warning systems, better dwelling options and urban agriculture that takes an altering climate into consideration. Where upgrading is not feasible, for example due to inappropriate location of dwellings, it is recommended to include community participation when planning for relocation of dwellers.

4.3.2 Safety and Gender

Safety and gender issues are combined in this section since they are interconnected in many ways, and safety is one of the major issues affecting women's possibilities within the public space.

Low level of safety has many negative effects on the development of a society. High prevalence of crime discourage investors and tourists, it constrains local entrepreneurial spirit and damages social cohesion (UN-Habitat, 2013). Crime is mainly a socio-economic issue but it has been proven that poor urban design increases the amount of crime in the urban space.

It is essential to make people feel safe and comfortable in the city, in order to fill spaces with people and make use of it in an efficient way (Gehl, 2010). It is also the people themselves that increase both the experienced and perceived safety in a space, simply by being within the open city spaces. If people do not feel safe within a public space, it is likely that it will not be used by many people and thus being deserted and decrease the perceived safety even more.

Women do, all over the world, spend more time than men on providing for food and water, maintaining the household and caring for children, elders and sick family members (UN-Habitat, 2012). The unequal distribution of responsibilities between men and women lead to differences in how they interact in the city and the neighbourhoods. Men and women often have different perceptions and experiences of the public and open spaces and they use them in different ways.

Men and women use different modes of transportation, move around at different times of the day and visit different places (UN-Habitat, 2012). Women's multiple responsibilities often lead to more complex and varied journeys than men's. Women of low income groups living in insecure areas often need to commute by public transport in early hours and at late night. Those are the times of the day when less people are present within the public spaces and women thus are exposed to higher risk of crime such as sexual assaults.

Women are often the ones responsible for collecting water, an activity where many women are attacked through sexual assault, since collecting water is something often done alone in inactive spaces (UN-Habitat, 2012). The situation for women in public spaces does not only affect their quality of life in terms of risk for crime exposure; it is also a democratic issue which relates to opportunities of maintaining health, accessing education and information as well as income generating possibilities. When women do not feel safe in the public space they tend to avoid using it, hence being isolated from possibilities of gaining societal information and participating in educational activities. Women's health are often affected by urban planning in the sense that environments where mostly women work, for example market places, often are neglected during planning. In addition, these environments frequently lack sufficient facilities for sanitation, water, waste management etc.

Historically and up until today cities are planned, designed and governed without an equal engagement of men and women (UN-Habitat, 2012). Additionally, women worldwide have been marginalised concerning land ownership. These two factors lead to negative consequences for women and girls in cities.

UN-Habitat (2012) argues that women's perceptions are mostly not included in the planning and design of public spaces and it is essential to improve that matter all over the world, since females comprise half of the cities' population. Designing and managing cities for and in collaboration with women improves cities not only for women, but for all people including marginalised men.

Strategies for improving the conditions and possibilities for women consists of including them in participatory planning as well as focusing on the safety aspects of open spaces where women often are active (UN-Habitat, 2012). It is also essential to put more focus on improving the quality of the spaces that are often used by women in order to increase their quality of life to the same level as men's.

UN-Habitat (2014) has developed a toolkit aimed to guide city developers in creating public spaces. In this toolkit, a number of design principles are presented, which could be used when planning for public space in order to increase the safety. The same principles are also supported by the renowned public space designer, Gehl. The four principles are lighting, passive surveillance, avoid dead ends and visibility. The following descriptions of the four principles include motivations from both UN-Habitat (2014) and Gehl (2010).

Lighting is one of the most established measures for increasing the safety in public space. Frequently positioned light fixtures with lower intensity are preferred before a single fixture with intense luminosity. Walkways that are meant to be used in dark hours should be well illuminated, in order to allow people to recognise others moving within the space. Spaces that are recommended to have more intense lighting are car parks, building entrances, public transport stops and stations. Spaces that are not intended to be used during darkness should not be lit at all; this is a way of controlling people's movements during darkness and guide pedestrians where to move.

Passive surveillance means the fact that people feel safer when they know that several people can see them, as well as the actual risk of being exposed to crime reduces in such spaces. Factors that increase the amount of observers in a space are the orientation of buildings, placement of entrances, windows, parking areas, pedestrian networks and ground floor usages (UN-Habitat, 2014).

A strategy for increasing the numbers of eyes on the streets all day around is to implement a mixed-use of the city (Gehl, 2010). When there is day-time activities such as shops and services combined with housing in an area, there are more people present both on the streets as well as observing the streets from inside the buildings, in evenings as well. An area with only shops will be perceived as abandoned and unsafe after opening hours. People passing through will feel unsafe as well as exposed to higher risk of crime, since there are less people present. Allowing commercial

activities during night hours can be a measure for increasing the safety as well, for example all night cafés or late night shops (UN-Habitat, 2013).

Another strategy of planning for safe spaces is to avoid creating dead ends and concealed paths such as underpasses and tunnels (Gehl, 2010). It is recommended to strive towards an interconnection between all the pathways and that they connect to the main street network. Unsafe routes should be discouraged by clearly guiding the pedestrians towards the safer options, for example through signs or markings on the ground. Furthermore, Gehl (2010) argues that the comprehensibility of the space and the possibility to easily find the way is an important factor in increasing the feeling of safety in a space. The pedestrians can be guided through clear signing, lighting and well maintained spaces.

Visibility and possibility to have an overview of the space improves the perceived as well as the experienced level of crime in any public space (Gehl, 2010). The possibility to see what is ahead along a route can be increased by avoiding sharp corners, walls, pillars, fences and bushy greenery. The walkways should be well lit and public furniture should be robust structures that are resistant to vandalism. Spaces or items which are vandalised or broken in public spaces will create a perception of the space being abandoned, hence impose a feeling of un-safety which in its turn leads to discouragement of using the space.

The mentioned strategies are measures that can be used in order to prevent crime through the design of space. UN-Habitat (2013) has also composed recommendations on how to prevent crime through urban planning on a more comprehensive level. These recommendations include providing access to public transport because it reduces the negative effects of segregation, which often includes social unrest and crime. Another strategy is to keep public spaces well maintained since it develops a sense of identity and ownership. The feeling of ownership is strengthened by involving the community in planning and creation of the spaces and will reduce the risk for vandalism.

UN-Habitat (2013) also describes that crime can be reduced through urban planning, not only by preventing the occurrence of crime but also through addressing the root causes of crime. Urban planning can include strategies for increasing the opportunities for income generating activities as well as stimulating and creative activities.

4.3.3 Densification and Mixed-use Cities

Between 60 – 85% of the population in sub-Saharan cities live in informal settlements, where more or less all buildings are detached one-storey structures (Haas, 2012). This implies a low efficiency in land use. The informal settlements are today constantly densifying, which mostly happens without any control or guidance from authorities and professionals. The uncontrolled developments of these areas often lead to deficiencies in amount of outdoor spaces, air circulation inside and between the buildings, daylight in rooms etc.

A researcher in urban planning, Dick Urban Vestbro, describes in the paper *Sprawl and Urban types in Sub-Saharan Cities* that the problems which urban sprawl brings in low-income cities are similar to the situation of industrial countries (Haas, 2012). Examples of deficiencies that sprawl brings are the seizing of agricultural or virgin land, as well as higher infrastructural cost per building unit. Sprawl also leads to longer commuting distances which has a larger impact on residents of low income areas, since they generally cannot afford travelling by vehicles to for example job opportunities or societal services.

The book *Compact Cities*, which is a compilation of texts from various authors, treats the topic of urban sprawl and densification. The same issues that are described previously in this section are also supported in the book (Jenks & Burgess, 2000). Another issue that is highlighted in the book is the problem of urban heat island effect that often can emerge in dense urban areas.

The heat island effect commonly appears in areas with a high density of massive structures such as concrete and steel in combination with intense usage of heat-generating equipment, a combination commonly found in cities (Jenks & Burgess, 2000). Therefore, it is important to maintain a certain space between buildings in order to let the outside air circulate freely. Further, it is described that in order to avoid the heat island effect, it is highly important to include green spaces and if possible watercourses within the urban areas. The greenery and water contributes to lowering the temperature in the surrounding environment and creates a more pleasant micro climate. If the urban climate is kept at tolerable levels, it enables the people who are active there to gain higher quality of life and be more productive, which in return supports the economic growth of the society.

UN-Habitat has developed clear recommendations and strategies on how to plan cities for more efficient land use presented in the publication *A New Strategy of Neighbourhood Planning: Five Principles* (UN-Habitat, 2015c). The five principles are developed to be applied in the contexts of fast-growing cities, either from urbanisation or natural population growth. Other contexts that the strategies are adapted for are new urban settlements, urban renewal and urban densification. The five principles are presented in the list below.

1. *Adequate space for streets and an efficient street network* where the recommendations are to use at least 30% of the land for streets and parking, and that 15 – 20% of the land is used for open public spaces. Furthermore, it is described that services should be available within a 450 meters walking distance from people's homes.
2. *High density* which is defined as at least 15 000 people per km² and should bring economic, social and environmental benefits, such as an efficient land use to slow down urban sprawl, reduced public costs for roads, water supply sewerage etc.. A high density also supports improved community service, social equity, quality public open spaces and increased energy efficiency and thereby decreased pollution.

3. *Mixed land-use* with the aim to allocate at least 40% of the floor space to economic use with the purpose to create local jobs, promote the local economy, reduce the car dependency and encourage non-car transportation in the city.
4. *Social mix* to promote the availability of housing in different price ranges and different tenure types, meaning that there should be a mix of privately owned facilities and rental facilities. It is highlighted that 20 – 50% of the total housing supply should be low-cost housing and that not more than 50% of the housing should be of the same tenure type.
5. *Limited land-use specialisation* which aims to limit the single use blocks within a neighbourhood, and single function blocks should cover less than 10% of the land surface in a neighbourhood.

The diagram in Figure 42 shows UN-Habitats recommendations regarding sustainable land use in neighbourhood planning.

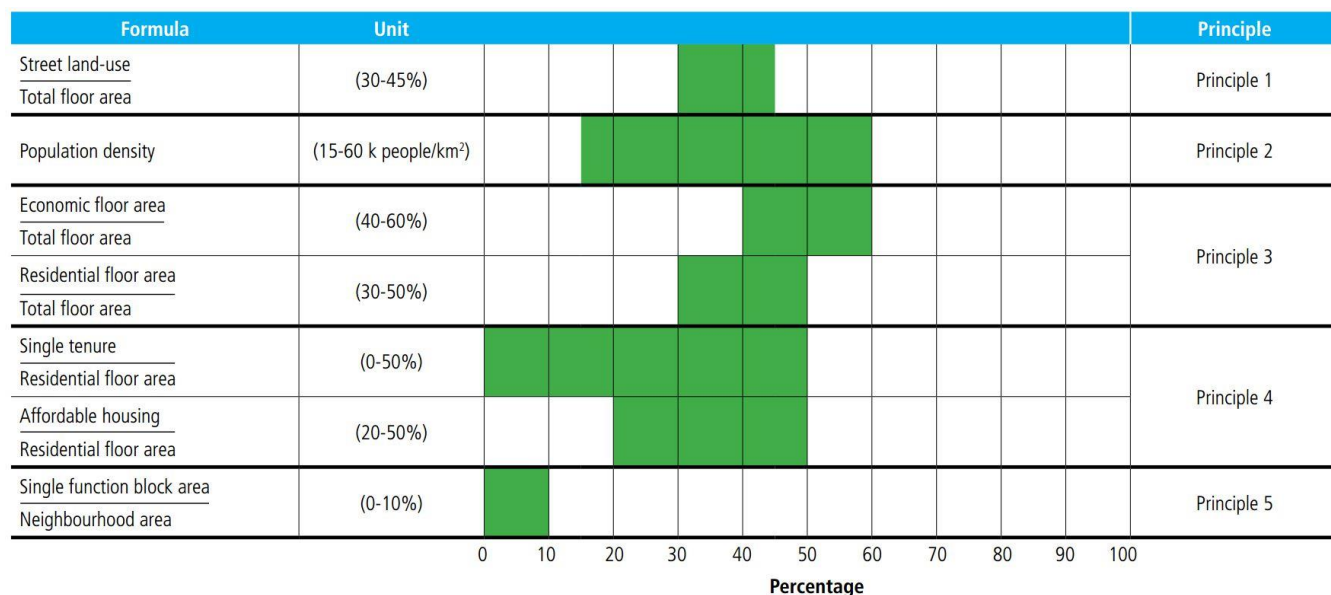


Figure 42. Recommendations on land use for sustainable neighbourhood planning (UN-Habitat, 2015c).

4.3.4 Future of Transportation

As cities grow larger, the need for transport increases and simultaneously the usage of cars is increasing worldwide, which is also the case in developing countries. However, most people in developing countries do not have access to their own car but are dependent on walking or in best cases public transport, which is often slow and under-developed (Gehl, 2010). As motorised transport increases, many people gain extended access to more parts of the cities. However, a large part of the population remains isolated and their opportunities to move around even decreases, as the cities become more adapted to motorised transport rather than walking or bicycling.

Gehl (2010) argues that developing a transport system more adapted to walking and bicycling should not be seen as a temporary solution for enabling the poor population to move around. It should rather be seen as an efficient and sustainable long-term

solution reducing pollution and traffic risks as well as allowing inhabitants of all groups in society to transport themselves within the city.

A basic function of a city is the possibility to move around and be able to reach work, education, retail and societal services. The level of ease in doing this is something that affects people's quality of life, both in the sense of possibilities for income as well as choosing where to live. In the book *Urban planning for city leaders* by UN-Habitat (2013) it is stated that improvement of accessibility should be based on facilitation of movement of people, not cars. Strategies to facilitate the possibility to reach places that people need to reach include first of all reducing people's need to travel. A need for travel will always exist and the conditions for that can be improved by providing efficient and affordable options for travelling.

Transportation flows within a city are planned most efficiently if this is done in connection to the spatial planning of the city (UN-Habitat, 2013). The infrastructural network as well as location of services highly affects the efficiency and need for travel. High density and mixed-use areas reduces the need for travel and enables people to complete several tasks in one trip, instead of travelling to different places around the city.

Planning of the street grid needs careful considerations in order to increase the efficiency of transportation. UN-Habitat (2013) has set up recommendations for distributions of major urban roads and secondary roads that are well connected with intersections. Well-dimensioned connections allow a smooth exit and entrance to the major roads, which has been proven to be one of the key factors in reducing congestion.

Compact mixed-use nodes which include public space, shopping, health and community facilities are very efficient in terms of reducing the need for transport. UN-Habitat (2013) recommends that in this type of node, streets should be designed for walking and cycling with features that reduce the speed and amount of car traffic. Car parking is to be minimised as well as the amount of wide roads. Several studies that are referred to by UN-Habitat shows that wider roads do not reduce congestion. When the options for cars are reduced, the drivers tend to change their habits and chose other alternatives for transportation.

In developing countries it is often not financially possible or viable for many inhabitants to own a car (UN-Habitat, 2013). In addition, these countries lack efficient systems for public transport, which prevents people from easily going to places they need to reach in their daily life. One effect from this is that most people living under these conditions strive to buy their own car, which leads to an increased number of vehicles on the roads. The inequality between rich and poor is being reinforced by the differences in possibilities to move around easily within the cities.

Informal transport operators are highly present in many developing countries and it is described by UN-Habitat (2013) as beneficial to integrate the informal operators in the formal transport system. The informal operators provide low-cost services in

locations where collective public transport is absent. These operators often reach more remote areas that are not reached by formal public transport, thereby they allow people without cars to live in these areas and still have access to convenient transport. Local authorities can support the informal transport sector and use it in a way that supports the public transport network, by connecting the informal operators with the formal system. For example, this could be done by using the informal sector as a feeder system to the formal transportation grids. Transfer nodes should include space for the informal transport in order to avoid accidents and congestion.

The above mentioned facts support the idea that transportation needs to be planned in a way that prioritises public transport, walking and bicycling. It is not only an environmental issue, where car traffic contributes to both global and local air pollution, but it is also an issue of democracy, equality and poverty reduction.

Bogotá in Colombia is a city that often appears as a good practice example on how the transportation issue can be solved in an efficient way for a developing country. In Bogotá, they have implemented something called Bus Rapid Transport, BRT, which is a simpler solution to implement than for example developing trains or metro lines (Hidalgo, et al., 2013). There are dedicated bus lanes throughout the city which allows the buses to pass congested car lanes and travel faster through the city. Furthermore, conditions for bicyclers and pedestrians have been improved all over the city.

4.3.5 Financial Empowerment

A society is resilient if it is able to withstand severe changes in its surrounding (Barton, et al., 2010). Often when mentioning resilience, this is done as a referent to a reduction of impact of climate change, but it also includes resilience towards other external changes such as financial crisis or political turbulence. Small communities can become more resilient through managing as much as possible of the needed services and facilities within the own community. The authorities should also support local small scale businesses in order to strengthen the financial resilience and enable more job opportunities for the inhabitants.

A strategy for increasing the resilience include local authorities supporting the community to manage for example water, waste and energy systems within the community (UN-Habitat, 2013). When managing these local services, the inhabitants will either be rewarded directly through employment, or through opportunities for gaining alternative incomes through the management of these services.

Examples of small-scale businesses include solid waste management, which is a prominent issue in many developing countries; a measure potentially leading to more job opportunities as well as reducing waste in open spaces (UN-Habitat, 2013). Informal waste collectors pick litter in the open spaces and deliver it to the local authorities and get paid depending on the amount of waste. Another solution is to encourage individual entrepreneurs to collect waste in the open spaces and sell the recyclable material. These are solutions that decrease the amount of waste in public

spaces as well as provide income opportunities. It is also common in many developing countries to reuse waste materials to create jewellery and design items.

UN-Habitat also stresses the importance of local authorities striving to include informal business operators in the formal sector (UN-Habitat, 2013). Which can be made possible by registering the businesses and charge revenue from them. This leads to empowerment of the traders as well as more financial resources for the authorities. It is also described that microcredit institutions can play an important role in upgrading of informal areas, e.g. when people are allowed to loan money for upgrading buildings or structures.

4.3.6 Land Use Policies

UN-Habitat (2013) recommends in the publication *Urban Planning for City Leaders* that land use is controlled and restricted by the local authorities through official documents and plans. The land use policies should include rules ensuring that there is affordable housing, as well as infrastructures enabling people to access income opportunities as well as community services.

A sustainable land use policy is a mean for improving social capital, promote cohesion and prevent civil conflicts (UN-Habitat, 2013). If a clear and strategic land use policy is not introduced, it can lead to congestion of physical structures as well as in traffic. Furthermore, neglecting public space most likely leads to declined land values, deteriorating infrastructure and decreased interest in land investments.

When private actors request for development permits they can be obligated to pay for development of required infrastructure of a certain standard (UN-Habitat, 2013). This is a measure of assuring adequate infrastructure to be developed in the same pace as other physical development of the area, in cases where local authorities lack own resources to expand the infrastructure. The developers will gain in the long-term perspective since the land value increases when there is high level of infrastructure available.

Local authorities are the ones in charge for assuring a sustainable development of cities and protection of vulnerable land (UN-Habitat, 2004). Often it is considered that the authorities should purchase land in order to assure an adequate development. This is a costly and slow process and UN-Habitat has suggestions on how to re-arrange land ownership in order to achieve a more sustainable and efficient land use. It implies that owners of adjoining plots are encouraged to merge their land and develop it collaboratively.

4.3.7 Financing Strategies

The ISUD-plan suggest that many of the recommended development interventions, including the sub-centre development, should be solved through a Public-Private Partnership funding (Nodalis Conseil, 2014b). In the PPP system the public authority have a contract (a concession) with a company, also called a Special Purpose Company or Special Purpose Vehicle, SPV (Bower, 2010). The SPV is responsible

for the construction, financing, operation and maintenance of the facility for the time period that the concession is valid. The PPP structure is illustrated in Figure 43.

In Kenya the advantages with such an arrangement is that the private company, which the public authority has an agreement with, have the possibility to borrow money from commercial banks. This is not possible for the public authority according to the Public Finance Management Act of Kenya (Nodalis Conseil, 2014b).

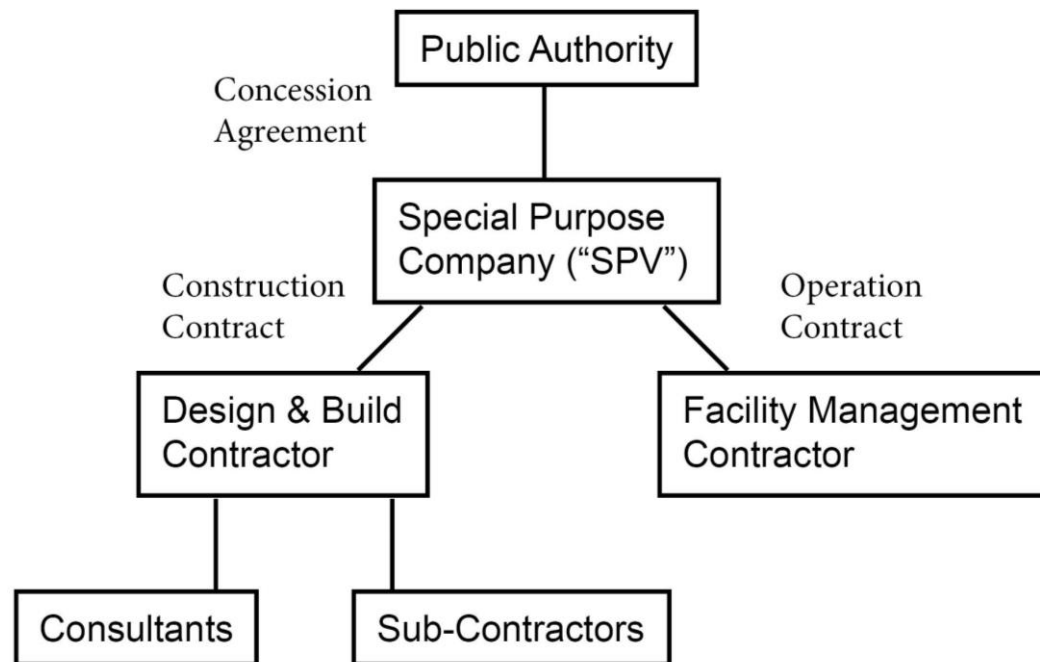


Figure 43. Illustration of how Public-Private Partnership, PPP, is structured.

Since it is the SPV that holds the personnel, the public authority needs less human resources when using a PPP solution (Bower, 2010), even though comprehensive technical, financial, economic and legal expertise are necessary within the authority (Nodalis Conseil, 2014b). It is also mentioned by Bower (2010) that the private sector often utilises more entrepreneurial skills and have higher efficiency than the public sector and thereby generate better revenue on projects.

There are also some criticisms against the PPP system which should be considered. The public authority might transfer too much risk to the SPV, potentially harming the project in addition to cause higher costs that has to be paid by the tax payers (Bower, 2010). Furthermore, there is generally a fear within this type of projects that the public sector officials are left without full control over the project, but still with the full responsibility.

According to Bower (2010) there is criticism against the public sector for being too bureaucratic and thereby complicated to cooperate with, while on the other hand the public sector have criticism against the private sector for working with too high rates of return on investments. These obstacles hinder a full-functioning PPP cooperation. Every PPP project is unique and the contracts need to be adapted to the specific project, even though standards and recommendations exists.

5 Conceptual Development Proposal

The conceptual development proposals for the three sites Nyamasaria, Otonglo and Kondele are created with respect to findings obtained from site analyses and interviews as well as according to guidelines and theories found in literature. The proposals are based on the objectives found in Section 3.7 (Development Objectives for the Sub-centres) and the strategies found in Section 3.8 (Development Strategies for the Sub-centres).

The conceptual development proposals are presented with maps and images that illustrate the development proposal. It also includes references to the theoretical framework in Chapter 4, in order to motivate the implementation.

This development proposal is aimed to be a first step in developing the central areas of these sites. It can be seen as excessive development for such small areas but this proposal is considering the estimates of a rapid growth of the city. By 2030 it is expected that these areas are urbanised in a much higher degree, with predictions on growing even larger (Nodalis Conseil, 2013). Therefore, it is also proposed that the central urban areas of these sites can be developed further than this proposal is suggesting, with expansion over time as the need for it grows.

The development proposal is based on a comprehensive idea of mixed-use cities. It includes mix in tenure, land use, commercial use etc. It also includes ideas of maintaining greenery within the cities as well as increasing the density of the built environment. Furthermore, the proposal is created with a vision of sustainable development where economic, ecologic and social sustainability influence the overall concept. However, social sustainability has been given a slightly heavier focus since that is considered to be the most urgent factor to address currently. The concept of mixed-use cities is described more carefully in Section 4.2 (Mixed-use Cities) and social sustainability in Section 4.1 (Social Sustainability in Urban Planning).

This chapter also includes general recommendations that apply for the development of all three sites which is found in Section 5.4 (General Recommendations for the Development). These recommendations concern infrastructural upgrading, land use policies and a solid waste management plan. Following the presentation of the development proposals is a summary of the proposed interventions and what strategies they fulfil.

5.1 Nyamasaria

A comprehensive plan of the development proposal is presented in Figure 44. It is created by the authors and has been revised after the workshop held with people active in the area. The community involvement performed in the creation of this proposal was an attempt to follow the theories described in Section 4.1.1 (Citizen Participation).

In order to enhance the character of being an urban centre it is important that the area is planned around a defined midpoint of the centre. In the plan for Nyamasaria, the

aim is to create that midpoint mainly around the market place, but a pedestrian bridge connecting to shops on the opposite side of the highway could also enable that side to be included as a focus point. The proposal includes a new market hall to be constructed on the site of the current open air-market. The defined mid-point is a step towards increasing the cohesiveness and strengthening the identity of the area which is a measure of improving the social sustainability, as described in Section 4.1.2 (Social Inclusion).

In the proposal for the new market structure, it is suggested that the building should have three floors, where the ground floor is an open market hall with permanent stalls and suitable facilities for overnight storage of commodities. The first floor should contain small shops, offices and day care facilities for the children of those working in the building. On the second floor, the proposal is made to place a small public health centre with laboratory, in order to provide for better access to health care for the inhabitants of Nyamasaria.

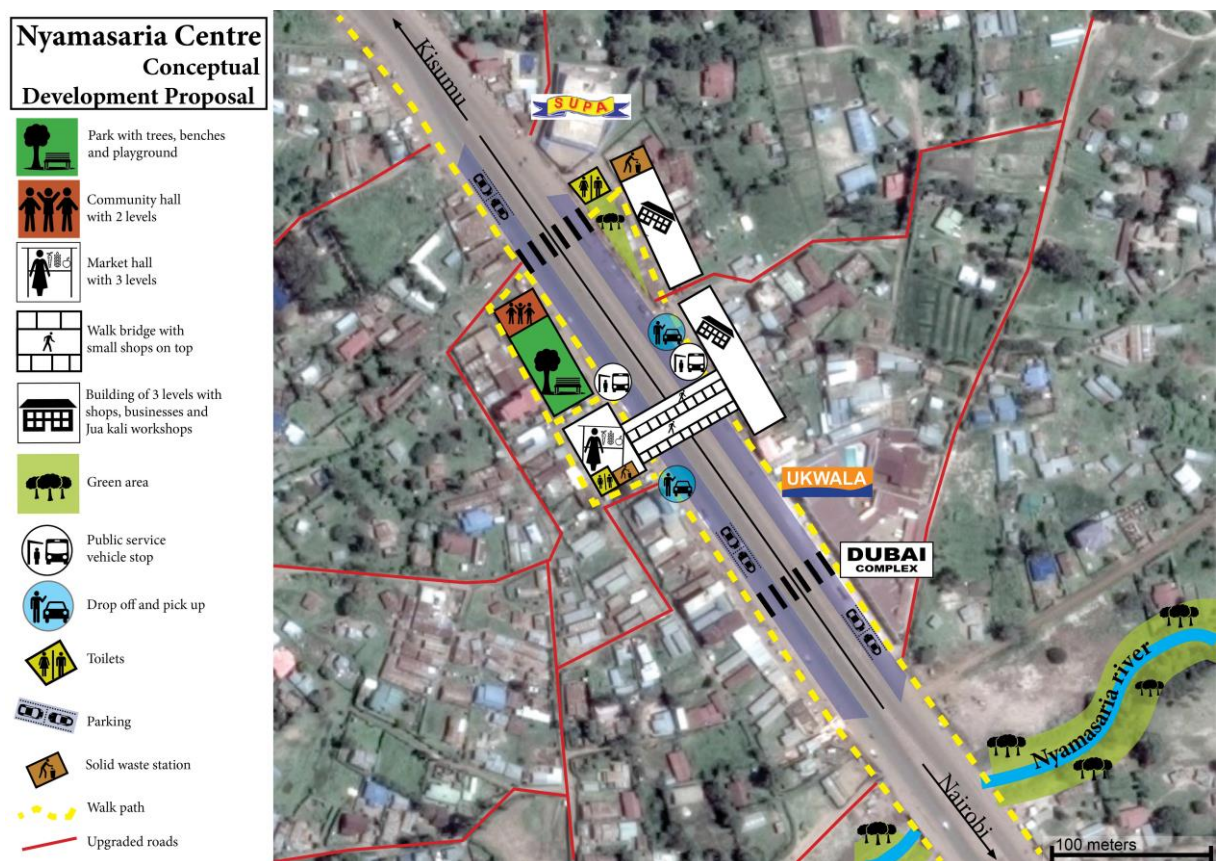


Figure 44. Conceptual development proposal for Nyamasaria Centre.

It is recommended to include wash rooms in the facility as well as a designated place for sorting and recycling of solid waste. The facility should be equipped with stairs and an elevator, alternatively a ramp, to enable people with physical disabilities to access the upper floors of the building.

On the second floor, the proposal includes a footbridge which provides safe crossing over the highway. The footbridge is recommended to be designed with a walk path in the middle and small shops on each side. The footbridge should be accessed both

from inside the market building during business hours and from the outside via external stairs all day around.

Introducing the market hall of several storeys, the footbridge with shops as well as the extended buildings with shops on the other side of the highway, are measures to increase the density of the area and strive towards the balance in land use that is recommended by UN-Habitat, which is described in Section 4.3.3 (Densification and Mixed-use Cities).

A walkway on the backside of the shops is also included in the proposal, which is suggested to be accessed through the external stairs all day around and enable people to safely cross to the other side of the highway when the shops are closed. The external walkway is proposed to be open with a clear view over the space, so that the pedestrians can see if there is anybody at the walkway before entering, as well as be seen by others on the street level while crossing the bridge. It is important that the bridge crossing is safe with no space for criminals or attackers to hide. The external walkway is important for the safety of the area and it connects to the concepts of passive surveillance and visibility as described in Section 4.3.2 (Safety and Gender).

On the north-east side of the highway, already existing buildings hosting various shops and Jua Kali activities are found. These buildings are suggested to be extended in height so that the footbridge can end here, thereby the structure can host more shops. Jua Kali activities requiring less heavy equipment, such as hairdressing and tailoring, are placed on the upper levels, and the more rough activities remains on the ground floor. The design is suggested to be with external access balconies such as the photo in Figure 45 shows. This creates a welcoming impression and possibilities for the tenants to promote their businesses.



Figure 45. Example of building design with external access balconies. The photo shows an existing building in Kondele, Kisumu.

Overall, it is proposed to introduce more spaces for small businesses such as the market hall, small shops and Jua Kali activities. It is recommended to do so since it is

expected that the demand for services in the area will increase as the area becomes more urbanised. It is also in line with the idea that the inhabitants will gain more income opportunities if small businesses are promoted instead of large supermarkets and malls, which is argued for in the theory presented in Section 4.3.5 (Financial Empowerment).

Between the bread factory and the existing buildings which are proposed to be extended in height, there are existing buildings hosting small shops and Jua Kali activities. In the proposal it is suggested to initially leave these untouched and extend them in height in the future, to make space for more office spaces or shops. In front of these buildings there are currently semi-permanent structures hosting Jua Kali businesses. These businesses are suggested to be relocated according to this proposal, to the adjacent formal buildings, that could host more businesses when extended, and the space will be rehabilitated to a green area.

In this area, it has also been proposed for wash rooms and a waste management facility. This would enable the people who are active at this side of the highway to use these sorts of facilities, without being required to cross the highway. This is important in order to create a safe environment for the people active here, and increase the possibilities for them to keep the environment clean. For example the Jua Kali craftsmen need facilities for waste disposal which is close to their place of work.

In the development proposal for Nyamasaria, it is suggested to plan for a park on the plot just north of the market, with a recreational area, a community hall and playground for children. The playground is suggested to be located close to the market, since many of the traders working at the market are women with children who often join their mothers at work. The community hall is suggested to be placed in the northern part of the plot.

The community hall can be used for events such as community meetings, public informational and educational events, celebrations as well as hosting vaccination programs the authorities are distributing to the public. The suggestion is to create a flexible building with possibilities to divide into smaller sections as well as opened up to one large room. It should also be possible to open up the front doors so that the hall and the park can be used simultaneously for larger events. A possible solution for the intended community hall design is found in Figure 46 which is created by Kounkuey Design Initiative in Kibera.



Figure 46. Example of a community hall with flexible functions and a park in Kibera, Nairobi.

It is described in the theory in Section 4.2.2 (Densification), when urban areas are densified public spaces are often diminished. It is therefore essential to designate places for recreation, gatherings and creative activities within the areas which are being urbanised. The small green space that is proposed to be placed on the north side of the highway is also part of this concept of preserving open public spaces.

Furthermore, green areas for recreational purposes are suggested to be developed along the river as the example shown in Figure 47. It should be designed to improve the stability of the river bank slopes and be resistant to damages when the river gets flooded. The picture below is illustrating how the riverbank can be developed to create a nice environment in the area. The stabilising structures can also be used for seating by people who want to relax or gather in the area.

Placing a park along the river is a strategic choice since it is a place prone to flooding as well as unstable which makes it not suitable to use for other purposes as described in Section 4.3.1 (Climate Change Adaptation). The large amount of parks and green spaces proposed in the area are motivated by the several benefits that green spaces in urban areas bring, which is described in Section 4.2.3 (Greenery). The distance from Nyamasaria Centre to any nearby green space is currently not far. However, it is recommended to designate places for greenery within the area as it is expected that Nyamasaria will become highly urbanised in the future, and there is a risk that green areas become less when physical development expands.

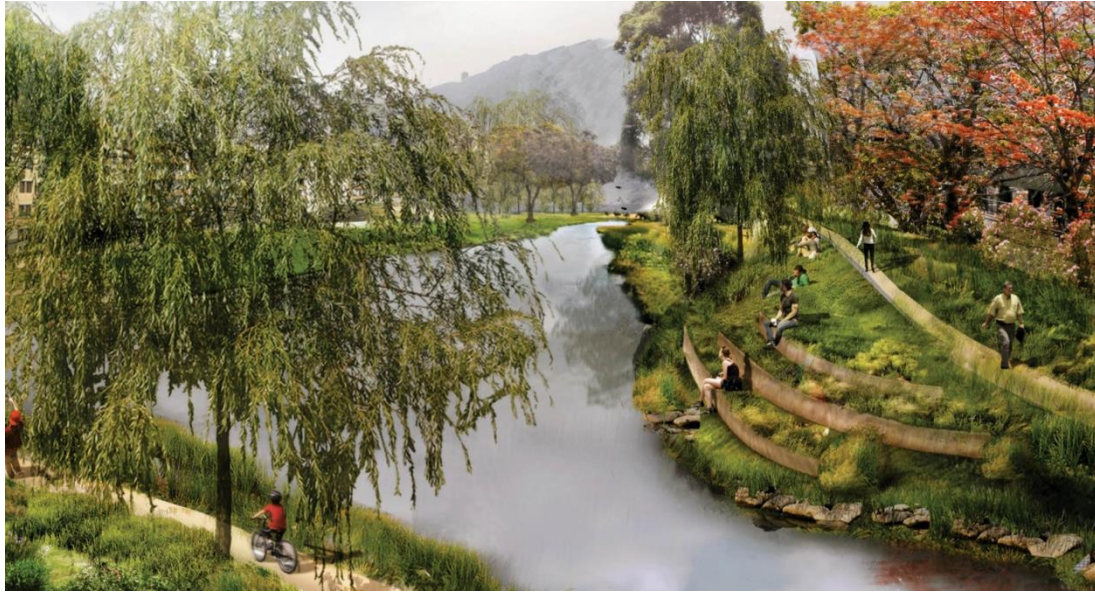


Figure 47. Example of design for a park on a river bank. This is a design proposal for a park in Medellin, Australia (Corkery Consulting, 2015).

To improve the traffic safety in the area, the suggestion is to narrow the highway as it is shown in the proposal map in Figure 44. The suggestion is that the highway should contain only one lane through the community and the second lane, that already exists today, could be used as an access lane to the area of Nyamasaria. The existing access lane can be used as parking area. There will be an increased need for parking when the number of cars increase in the area, as well as it eases for people to stop here to do errands while passing through the area.

A narrow road would reduce the speed of the vehicles and facilitate pedestrian crossing; factors which are decreasing the risk of accidents. This is also in line with the recommendations from UN-Habitat, presented in Section 4.3.4 (Future of Transportation). In order to increase the safety even more, it is recommended to reduce the speed through implementation of speed bumps. Designated places for crossing the streets with pedestrian crossings on ground level are also a suggested measure in order to increase the traffic safety.

The space that would be gained when reducing the width of the road is suggested to be used for parking, as previously mentioned. However, it is advisable to investigate further how this space could be used in an efficient and sustainable way, as well as contribute to a safe and interesting environment. Section 4.3.4 (Future of Transportation), describes how future challenges of transportation can be solved and it is concluded that it is not desirable to encourage an increased usage of cars. It is therefore not appropriate to introduce a high amount of parking spaces, since it would encourage an increased usage of cars in the area.

Bicycling, walking, public transport and informal transport services should be promoted instead of cars. The space along the road could be used with variation of parking and other spaces for these different means of transport. Examples of such spaces are stops for informal transport vehicles, preferably in connection to the bus

stop. Other interventions could include for example small shops, green spots or seating areas along the road.

Furthermore, it is proposed to introduce designated stops for public service vehicles in front of the market building, so that traders and customers easily can access the facility. It is also assumed that the stops would increase the traffic safety and prevent accidents where vehicles get hit from behind when stopping for picking and dropping passengers.

5.1.1 Implementation Strategy Nyamasaria

The first step in the implementation phase would be to solve the land owner issue regarding the empty plot north of the open air-market, and move the traders to this plot while constructing the market facility. Simultaneously, the existing building for Jua Kali activities on the north side of the highway could be extended in height and the footbridge be built. The wash rooms and solid waste stations should also be developed at the same time.

When the market building is completed and the traders have moved in, it is recommended to start the construction work with the park, social hall and playground. The park along the river and the expansion of the second house of Jua Kali activities are suggested to be constructed in the next step.

The proposed interventions are all placed on public land or lease hold land, which are areas where the local authorities have power to decide what should be developed. There are more limitations in what the authorities can decide for the lease hold plots, but since they are the owners of the land it is possible to affect the development.

There is additional land with lease hold where there has not been suggested any development in this proposal; however, these are the spaces that are recommended to develop in the next step. The development of privately owned land in the area is more difficult to affect but through implementations of land use policies, taking into account the recommendations in Section 4.3.6 (Land Use Policies), it can be controlled what type of development which is allowed and encouraged in the future.

5.2 Otonglo

The work process with the development proposal for Otonglo differed from the work with Nyamasaria and Kondele, since an extensive planning and design proposal had already been created for the market place. The proposal was created by a group of master's students at Chalmers, in collaboration with a local CBO which had been working with development of the area for a long time (Eriksson, et al., 2014). In the proposal of this thesis, the previous student proposal has been further elaborated in order to cover more parts of Otonglo, since the student proposal only focused on the market area. The conceptual development proposal for Otonglo is found in Figure 48.

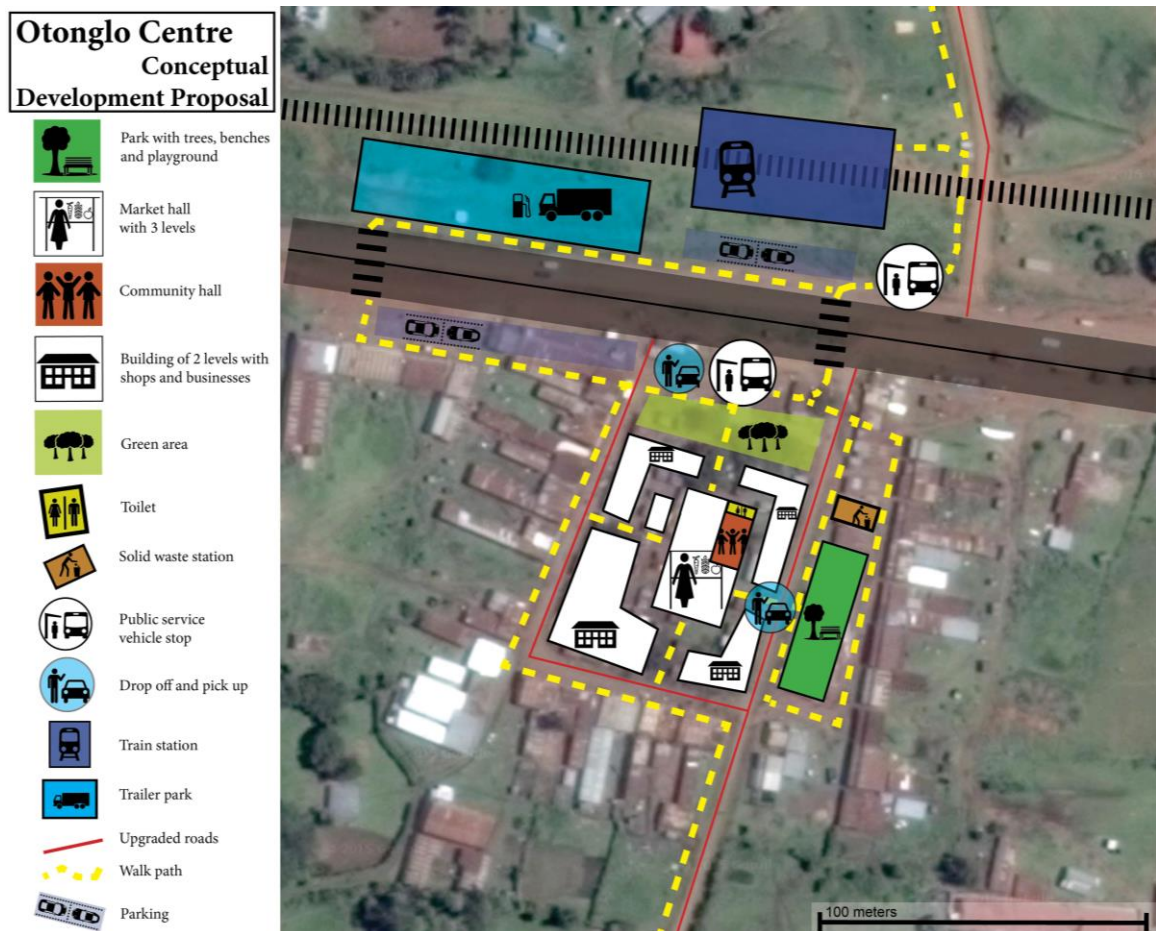


Figure 48. Conceptual development proposal for Otonglo Centre.

The development proposal for Otonglo contains, as suggested by Eriksson, et al. (2014), a new market structure in the same position as the existing open air-market. Instead of the two floors that Eriksson, et al. (2014) suggests, the proposal is made that the new market should consist of three floors. Other buildings surrounding the market hall are also suggested to be extended in height gradually as well as other buildings in the area as the centre expands. The suggestion to build higher structures is in line with the concept presented in Section 4.2.2 (Densification) which is based on a more efficient land use. In a long-term perspective, these buildings can be used for providing office spaces for small firms apart from being used for small shops and similar activities.

The ground floor is designed as an open market hall for trade with fruits, vegetables, cereals and other commodities. The first floor is proposed to host a community hall for people living in the area, places where the traders can eat and rest, child care facilities and small shops. On the second floor it is suggested to be offices which can contribute to a development of the centre as a business area, and attract a greater diversity of people. The variety of small businesses that are proposed is a way of reaching a business environment that supports the local economy, as is motivated in the theories found in Section 4.3.5 (Financial Empowerment).

It is proposed to place a smaller building on the west side of the main market structure which can be used for fish trading. On the east side of the market it is suggested to arrange a place for delivery of goods to the market. These two interventions were strong wishes from the traders in the area during workshops (Eriksson, et al., 2014). It is recommendable to introduce these facilities which the users express a need for, and it is supported by the theories on citizen participation described in Section 4.1.1.

On the east side of the area, across the street from the market, it is suggested to place a small park with trees, benches and a playground for children. The location close to the market is chosen with the idea that children can play there while parents are working, either within the market or other businesses in the area. The benefits of planning for greenery within urban areas are further described in Section 4.2.3 (Greenery). In the north end of the park it is planned for a solid waste recycling station with composting facilities. The idea is that the manure produced from the compost can be used for maintenance of the park or sold to farmers.

In front of the main entrance to market, closer to the highway, it is suggested for a public service vehicle stop and an open green area. The Kisumu-Busia Highway passing through Otonglo has recently been extended; it is a wide road with high speed vehicles passing through the community. Similarly to the proposal for Nyamasaria, it is recommended to narrow the road here as well. This is necessary in order to improve the traffic safety in the area, which should be enhanced through provision of zebra crossings and speed bumps.

On the north side of the highway, the currently unused railway is passing by. Kenya Railway Corporation is in the process of developing a plan for railway upgrading in Kenya and a new line will probably pass Otonglo, thus a railway station is suggested in this proposal. This land is already owned by KRC and development of a railway station will therefore not be a problem.

A railway station in Otonglo would boost the businesses in the area and promote a more rapid growth. In combination with improved public service vehicle stops, the station is a measure of enabling means of sustainable transport in this area. This is motivated by the theories presented in Section 4.3.4 (Future of Transportation), which includes strategies for increasing the use of public transport.

It will be necessary to maintain some land for parking spaces, which preferably are placed near the train station and the market area. However, the amount of parking spaces should be limited, in order to not encourage increased car use. To attract even more visitors to the area, this proposal suggests to introduce a trailer park with a petrol station next to the proposed train station. The land covered by the train station in this proposal is currently owned by both KRC and KeNHA. Since the highway development is now finished it is assumed that this piece of land can be used for establishing a train station.

5.2.1 Implementation Strategy Otonglo

The implementation in Otonglo starts, as well as in Nyamasaria, by solving the land tenure issues to enable the development. The empty land north of the highway, currently owned by KRC, should preferably be acquired by Kisumu County, or at least borrowed during the implementation phase. The traders can during construction works be relocated to the north side of the highway and if necessary, shipping containers can be used as temporary structures.

After construction of the market hall, the traders can move in to the structure. At the same time, the shop owners and the people from the Jua Kali sector could be relocated to the north side of the highway, while those buildings are refurbished to match the other expansions being made. Also roads, walkways, drop offs and public service vehicle stops are recommended to be upgraded during this phase of the project.

Lastly it is proposed to construct the park, the green area and the parking lot. When that is finished, the construction work on the north side of the road can start. The railway station is suggested to be developed in cooperation with KRC and built at the same time as the new railway line. Parking and trailer park could be built when the construction work on the south side of the highway is completed.

The proposed development in Otonglo only concerns public land, except from the north side of the highway which is owned by KRC and KeNHA; the latter can be developed in a desired manner through collaboration between the authorities. For a future expansion of Otonglo Centre, it is recommended to develop the land which is under lease hold, where the local authorities can affect the development of these plots through a collaborative planning together with the current lease holders. The private land surrounding the area has currently little development and through sustainable land use policies in line with the theories presented in Section 4.3.6 (Land Use Policies), new development can be controlled in order to suite the desired usage of Otonglo Centre as a dense, mixed-use and sustainable centre.

5.3 Kondele

The development proposal for Kondele is shown in Figure 49 and contains similar facilities as in Nyamasaria and Otonglo, but are customised to the area of Kondele and its characteristics. It has been elaborated through discussions and workshops which included residents and business operators of the area.

The proposal contains a formal market structure on the same plot as the existing informal market can be found today. It would be beneficial both for creating opportunities for small scale businesses as described in Section 4.3.5 (Financial Empowerment), as well as densifying the area through a more efficient land use as motivated in Section 4.2.2 (Densification).

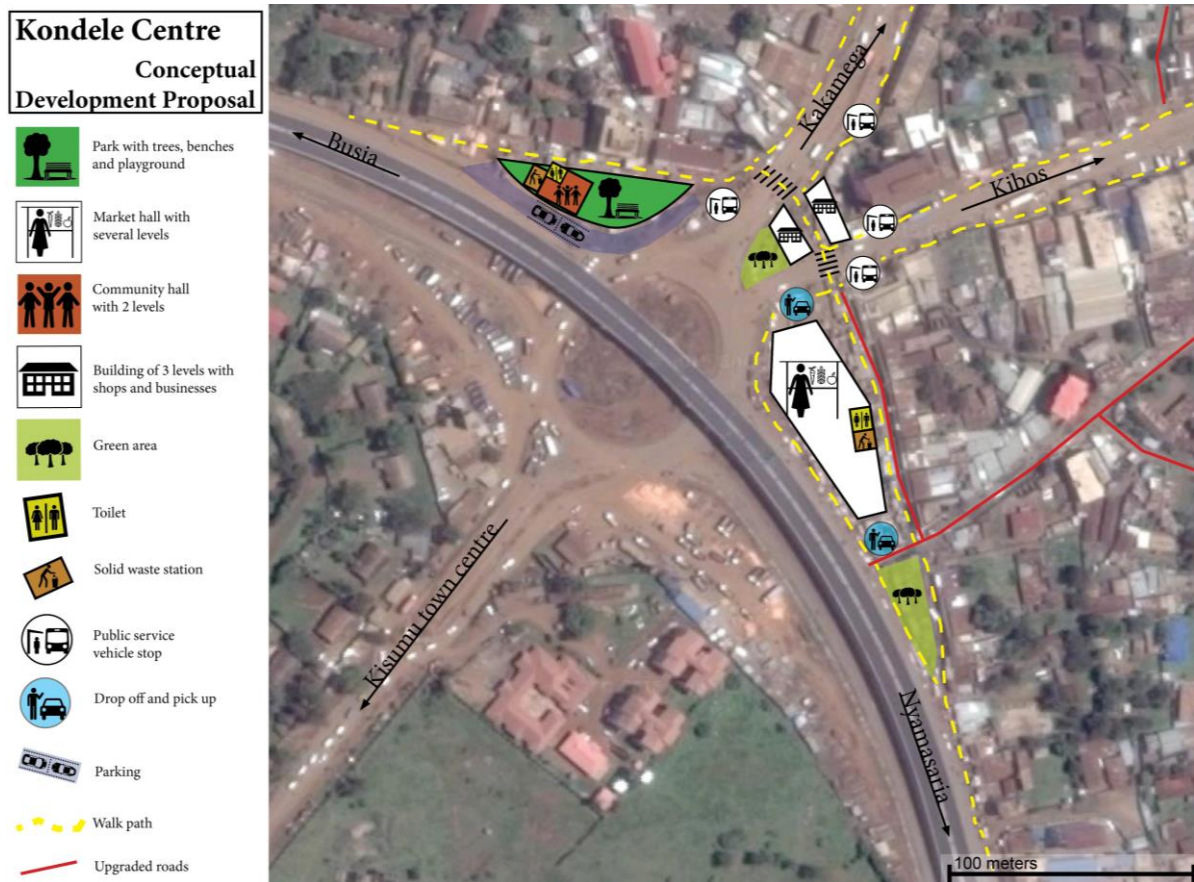


Figure 49. Conceptual development proposal for Kondele Centre.

Since there is a lack of available land in Kondele the market structure should be a high-rise building with several floors in order to increase the efficiency of land use. A high-rise building would also aesthetically fit in with the large flyover adjacent to the market structure. The ground level is suggested to be designed as a market hall where fruits, vegetables and other groceries can be sold. The first floor should be dedicated to small shops for other products, services and other small businesses.

The second floor is proposed to be used for offices, since the need for such is assumed to increase with a growing population. The population growth is also expected to bring up the demand for housing. Therefore, the third floor and above are suggested to be used for rental apartments of a middle standard, with tap water and connected to the sewerage line. This is motivated by the land use and densification recommendations that are brought up in Section 4.3.3 (Densification and Mixed-use Cities).

In connection to the market, it is planned for wash rooms to be used by the traders. The proposal is made to include designated places for convenient deliveries of commodities to the market, as well as possibilities for customers to park their vehicles in the area when visiting the facility. A station for recycling and picking up of solid waste is proposed.

South of the market structure, it is planned for a small area with greenery and benches, which can be used by people living in the community and those working in

the market. It is also proposed to arrange a park in the north part of the area, which is suggested to be used for more recreational purposes. It is motivated in Section 4.2.3 (Greenery), which benefits are related to planning for green spaces in urban areas.

Furthermore, a rain water collector on the roof of the market structure can be included, the water would preferably be used by the traders for washing their products and the excess could be sold to external actors. The rain water collection in combination with the increased amount of greenery in the area are measures to decrease the effects of heavy rain falls, which is supported by the theories presented in Section 4.3.1 (Climate Change Adaptation).

East of the proposed market structure, between the market and the existing structures hosting shops, it is also proposed to arrange a city street. This means a street which is wide enough for cars, but with low speed limits, thus making cars drive at the same speed as pedestrians walk. This will provide possibilities to deliver goods for the businesses along the street and to the market, as well as creating a safer and more pleasant environment for the pedestrians, thus a more attractive area.

In the corner of Nyawita, it is suggested to introduce a park with a community hall and a playground. Today the area is used informally for parking, and the need for parking will be even more prominent in the future. Therefore it is suggested not to use the whole space for the park and instead save some space for parking as the map indicates. However, in line with the theories presented in Section 4.3.4 (Future of Transportation), the proposal is made to not encourage car use and instead promote the usage of other means of transport. Therefore, it is only recommended to introduce a small amount of parking spaces in the area.

Just north of the park, next to the existing buildings, the suggestion is made to have a city street similar to the one east of the market. The purpose of this street is the same as the one proposed next to the market. It enables transport of goods to the existing buildings and businesses but it limits the numbers of vehicles and speed of them, which gives a safer and more pleasant urban environment.

The area of Kondele, as described earlier in the report, is busy with lots of people moving around and many vehicles of varying kinds. To increase the traffic safety and accessibility, the suggestion is made to build sidewalks along all the roads in the area. The suggested sidewalks are indicated with yellow marks in the map.

It is also suggested to introduce zebra crossings on both Kakamega Road and Kibos Road in Kondele Centre but also further east on both roads, since there have been many accidents with crossing pedestrians, especially school children on their way to and from Migosi Primary School. The proposal contains introduced speed bumps in combination with pedestrian crossings in order to increase the safety even more, and assure that the pedestrians will be able to cross safely.

Another measure to increase the traffic safety in Kondele is to improve the public service vehicle stops, so that they do not block the traffic when picking up and dropping off passengers. The dedicated areas are suggested for the roads to Kibos and

Kakamega, respectively. There are small areas for public service vehicles to stop already today, but the suggestion is to make these larger and more clearly marked. It is recommended to combine the public service vehicle stops with space for drop off and pick up by other informal transport means. The improved conditions for public transport will increase the possibilities for more people to travel sustainably which is described in Section 4.3.4 (Future of Transportation).

In between Kibos Road and Kakamega Road, close to the main junction, the proposal is made to build two permanent, multi-storey buildings for commercial businesses on the ground level and with offices and housing further up in the buildings. This small intervention is proposed in order to achieve even higher density and mixed use, as described in Section 4.3.3 (Densification and Mixed-use Cities). The space between those two buildings is supposed to be used by pedestrians only, and through an opening in the west building it should be possible to reach a small green space which can be used for relaxing. It is important that this space is protected from surrounding traffic to maintain it a safe place.

5.3.1 Implementation Strategy Kondele

Kondele is a congested place today and the market is busy, making the implementation in Kondele more complex than on the other two sites. The proposed development for this area is placed on land that is road reserve today. It is suggested that the County authorities acquire these plots and transfer it to public land; a necessary action in order to develop any public services in Kondele. The flyover highway is completed and the smaller roads passing through Kondele Centre are already at an appropriate size for an urban centre, hence the road reserves will not be needed for further road development.

First of all, Kisumu County has to acquire the road reserve next to the flyover from the road authority and then relocate all the traders. Some of the traders can be hosted south of the proposed market hall, where a suggestion is made of placing a green area with trees in the future; and some can be relocated to the plot which later is proposed to be a park, playground and community hall.

When the market structure is completed it is recommended to upgrade the roads, as well as the pavements and zebra crossings for pedestrians. At the same time the designated stops for public service vehicles can be built. The next proposed step is to relocate all the informal businesses which today are placed between the roads to Kibos and Kakamega, they could be placed at the same plot as recommended for the market traders during the construction of the market hall. When the two buildings which are proposed for this plot are completed, the tenants can move in. The final recommended step is to put in place the greenery, parks and community hall.

5.4 General Recommendations for the Development

This section presents recommendations of development that is suggested to be implemented at all three sites. It includes infrastructural upgrading, land use policies and a solid waste management plan.

5.4.1 Infrastructural Upgrading

Poor infrastructure within the community is prominent at all the three sites, and improvements are necessary in many areas. First of all, the roads within the communities need to be upgraded according to recommendations in Section 4.3.3 (Densification and Mixed-use Cities), stating that at least 30% of the available land should be used for streets. Currently the roads are in bad condition and mostly made from earth materials, but an upgrading to murram roads would make them more persistent to heavy rains and thereby increase the accessibility to the surrounding neighbourhoods.

The roads in the neighbourhoods are often narrow and in need to be widened at some places, in order to increase the accessibility which is necessary for a functioning suburban centre. Furthermore, it is recommended to introduce designated walking paths within the sub-centres. This is necessary in order to improve the traffic safety as well as promoting a decreased usage of cars.

In the proposals for Nyamasaria and Otonglo it is proposed to narrow the highways which are passing through the communities. Furthermore, it is recommended to not extend the roads passing through Kondele Centre to wider roads. This is in line with the recommendations presented in Section 4.3.4 (Future of Transportation), where it is stated that car traffic should not be promoted and that extended roads actually does not decrease problems with traffic jams it increases the usage of cars. Additionally, it is necessary to have narrow roads within a community where many pedestrians move around, in order to create a safe and pleasant urban environment.

Flooding is a major problem during the rainy periods in Kisumu. The rains are heavy and bring high amounts of water in a short time, which is why a functioning drainage system dealing with the storm water is necessary. Along the main roads the suggestion is made to use closed dikes in order to use the land as efficiently as possible, while in less busy roads open dikes can be a solution. The suggested green areas will also support the management of storm water as further described in Section 4.2.3 (Greenery).

Solar powered lighting is suggested to be incorporated in the plans for the three sites. According to findings in Section 4.3.2 (Safety and Gender), it is recommended to have several light posts of low intensity rather than one large light post of high intensity. It is also recommended to have stronger lights on parking lots, public service vehicle stops etc. The lights are to be placed in all three suburban centres and on roads within the areas that are frequently used, as well as main access roads to the neighbourhoods.

The roof of the market buildings could be used for rain water harvesting, a suitable design can be 'the first flush system'. This system separates the firstly collected water, which may contain dirt and pollutions from the roof, from the rain coming later which is cleaner. Installing this system would give traders access to clean water for

rinsing commodities, making it unnecessary to collect water from other (often polluted) sources such as rivers etc.

The rain water can also be used for cleaning of the facility and if there is an abundance, it can be sold and bring an income to the CBO of the traders. The system of rain water harvesting is a way of adapting the community to climate change, as described in Section 4.3.1 (Climate Change Adaptation), and increasing the possibilities for maintaining provision of water.

5.4.2 Land Use Policies

As described in Section 4.3.6 (Land Use Policies), it is recommended to implement land use policies in order to assure that the desired variety of usage is achieved, as well as an efficient usage of the land. According to UN-Habitat, this can lead to increased land value and decreased pressure on the infrastructure in a long-term perspective.

In line with the current ideals in Sweden as well as recommendations from UN-Habitat, it is advisable to strive towards more dense cities, which is described in Section 4.2.2 (Densification) and 4.3.3 (Densification and Mixed-use Cities). Therefore, the proposal includes suggestions for increasing the height of some existing buildings in the central parts of the three sites. The aim is to allow more buildings to be extended in height over time as the areas become more and more urbanised. The authorities should be present and survey the development closely, in order to assure that all new structures are permanent and suits within the vision of a modern and sustainable suburban centre.

When planning for development of these centres it is important to keep the current population prognosis in mind; these areas will most likely be highly urbanised in a near future, as is described in Section 2.2.3 (Population). Therefore, it is essential to plan for open public spaces ensuring the inhabitants possibilities to gather for meetings and recreation. As described in the theory in Section 4.2.2 (Densification), there is often a risk of diminishing public spaces when densification occurs. There are already available green spaces near the centres in both Nyamasaria and Otonglo today. However, in order to assure an availability of public spaces in the future when the centres become more developed and urbanised, it is planned for both parks and community halls in the development proposal for the sub-centres.

The recommendations in this proposal includes to implement restrictions on what types of new development which is allowed to be built in the areas in the future. According to the theory presented in Section 4.3.3 (Densification and Mixed-use Cities), it is advisable to designate certain amount of space for economic use; residential use of different tenure types; as well as restrict the areas allowed for single use blocks. Furthermore, it includes recommendations for the density of the population and the physical structures. These recommendations come from UN-Habitat and are put in place in order to achieve the mixed-use city.

The informal traders who are active in the areas can be included in the formal sector if they are recognized by the authorities as real participators in the local economy. This is described as a strategy for improving the physical environment in Section 4.3.5 (Financial Empowerment). By being registered they would get benefits which they currently are not entitled to, as informal traders. The revenue that they pay could then be used by the authorities for providing societal services such as waste collection and maintenance of the area. Registration of the traders can also provide them with opportunities to take loans to upgrade their business and physical structures.

In order to achieve a more efficient usage of the land it is recommended that the authorities in Kisumu encourage land pooling, as described in Section 4.3.6 (Land Use Policies). A strategy for land pooling is presented in a student project which consists of a proposed strategic plan for upgrading of Manyatta Slum (Coli & Finkel, 2014). It is an approach which can be suitable to use when developing the sub-centres in Kisumu.

5.4.3 Solid Waste Management Plan

One of the identified challenges which has a high impact on the physical environment as well as the health of the inhabitants all over Kisumu is the current management of solid waste. It is a great challenge to deal with, the following recommendations includes suggestions on how the solid waste could be dealt with at the market places.

The new market halls which are suggested in this proposal are suggested to be built and owned by the County. The traders ought to be tenants in the facility, thereby paying rent to the County. Kisumu County will be responsible for the facilities management and the suggestion is that the County should employ a market CBO to do the work connected to cleaning and waste handling in the facility.

Through interviews it has been identified that traders at the market dislike when outsiders come to do the cleaning, since their perception is that externals do not care enough about the market place and therefore will not clean it well. It have also been identified that the traders do not trust the external cleaners and are afraid that their items will get stolen.

The idea is that all stalls should be equipped with waste bins for organic waste, plastic etc. and that all traders are responsible for their own sorting. The sorted waste is valuable thus important to keep secure; therefore the members of the CBO are responsible to bring the waste from the stalls to the waste station and make sure that the station is clean. A composting point is suggested to be located at the recycling station and the ready-processed material can be sold to local farmers, recyclable material such as plastic can be sold to recyclers. The remaining waste should be collected by the County.

The financial suggestion is that Kisumu County pays the CBO responsible for cleaning of the market and taking care of solid waste management, and that the members of CBO share both the payments from the County and from the sold materials. This could possibly lead to lower expenses for the traders or maybe an

extra income, depending on what prices are decided upon from the County Administration. These measures together could allow the County to lower its facility management costs and at the same time provide vendors with opportunities to earn some extra money, without having to worry about external workers intruding in the facility.

All initial investments and inventories connected to the waste management and waste stations should be included in the market upgrading project and covered by the rental income, while running costs for consumable materials should be covered for by the CBO. Similar systems could be implemented in the Jua Kali sector.

5.5 Financial Solutions for Implementation

For future projects in Kisumu a system called Build-Operate-Transfer is suggested, which is one type of Public-Private Partnership. It is based on the suggestion that the County finds an agreement with a private investor, Special Purpose Vehicle. The SPV both constructs and finances the project, and operates and maintains it, preferably on a public land provided by the County. The SPV is financed through the rental income generated in the facility or similar and after a certain amount of time, when the concession terminates, the ownership of the facility is transferred to the County at no cost. The PPP approach as well as the SPV is further described in Section 4.3.7 (Financing Strategies).

5.6 Summary of Interventions

The different development objectives and corresponding development strategies, found in Section 3.7 (Development Objectives for the Sub-centres) and 3.8 (Development Strategies for the Sub-centres), are reached through various interventions which are described in the development proposals presented earlier in this chapter. A summary of the development strategies and the interventions contributing to fulfilling them is illustrated in Figure 50 and Figure 51. The green, blue and orange dots indicates the sites in which the interventions are proposed to be made.

DEVELOPMENT STRATEGIES

- (A) Provide with permanent structures for small scale businesses
- (B) Encourage and facilitate for people to visit and use the services that are there rather than going to the CBD
- (C) Promote densification of the built environment
- (D) Introduce a sustainable solid waste management plan
- (E) Create a storm water system that prevents flooding
- (F) Plan for greenery in the public space
- (G) Provide with sufficient lighting
- (H) Create a safe traffic environment
- (I) Create safe and functional public spaces for all groups of the society

INTERVENTIONS

- Permanent market hall ●●●
- Upgrading of Jua kali workshops ●●
- Permanent structures for hotels and small shops ●●●
- Bridge with small shops ●
- Parking spaces ●●●
- Larger variety of services ●●●
- Public service vehicle stop ●●●
- Bridge with small shops ●
- Taller buildings ●●●
- Solid waste management facility ●●●
- Drainage system ●●●
- Parks and greenery ●●●
- Park along the river ●
- Solar powered public lighting ●●●
- Zebra crossings ●●●
- Speed bumps ●●●
- Side walks ●●●
- Public service vehicle stops ●●●
- Foot bridge over highway ●
- Narrowed road through community ●●
- Multi-functional community hall ●●●
- Waste management ●●●
- Accessible public spaces (ramps, lifts) ●●●
- Lighting ●●●
- Public toilets ●●●
- Drainage system ●●●

COLOUR KEY: ● NYAMASARIA ● OTONGLO ● KONDELE

Figure 50. A summary of how the different development strategies are implemented in the three different sites.

DEVELOPMENT STRATEGIES

- ① Give restrictions and incentives that will steer what type of businesses and activities that can establish in the area
- ② Plan for a defined midpoint in the sub-centre
- ③ Introduce regulations on what types of structures that are allowed to be built in the area

INTERVENTIONS

- Land use policies ● ● ●
- Permanent market hall ● ● ●
- Foot paths ● ● ●
- Foot bridge with small shops ●
- Land use policies ● ● ●

COLOUR KEY: ● NYAMASARIA ● OTONGLO ● KONDELE

Figure 51. A summary of how the different development strategies are implemented on the three different sites.

6 Discussion

This section aims to conclude and discuss the outcome of the thesis. The discussion is divided in three main parts; the three sites that have been in focus for this thesis, the work process of the thesis and the feasibility of the development proposals.

6.1 Chosen Sites for This Thesis

In the ISUD-plan, the Integrated Strategic Urban Development plan for Kisumu, it is identified six different locations for development of suburban centres and this study is focused on three of these sites. It is stated in the ISUD-plan that this development is necessary in order to decongest the city centre and steer the physical growth in desirable directions, thus decreasing the need for travel and harmful environmental impact. This is also motivated by the concept of mixed-use cities which is presented in Chapter 4 (Theoretical Framework). Therefore, we consider an implementation of sub-centres as a viable measure for reaching a more sustainable urban development of Kisumu.

The three sites which this study is focused on, Nyamasaria, Otonglo and Kondele, are the most urgent to be developed since they are already highly congested and unplanned. They are also the three among the six sites that are located nearest to the CBD, and therefore it can be expected that these sites become urbanised before the other three. The urbanisation is often a threat towards sustainable urban development and it is important to intervene and guide development at an early stage. The currently on-going spontaneous development will only increase the complexity of the sites, hence also adding complexity in developing a dense and sustainable city.

The sites suggested for sub-centre development in the ISUD-plan are strategically located, since they are situated in already existing infrastructure nodes with various activities and businesses in the area. However, it can be discussed whether some of them are located too close to each other in order to fulfil the functions as independent sub-centres. For example, Kibos and Kisian are located very close to Kondele and Otonglo. Future plans for Kibos and Kisian include a train station respectively a dry port, which will make them important nodes for the future development of the city either way. It can therefore be a strategic approach to plan for the different centres keeping in mind that they can have different profiles in order to not compete with each other.

All development on these sites, as well as in almost all development around the world, will have both positive and negative aspects and effects on its surroundings. In the sub-centre development, there will be effects on many existing businesses currently occupying the land that is planned to be formally developed. Those businesses will either be forced to close or be relocated elsewhere. This will obviously affect the owners' income and revenue, which also will have an impact on the economy of whole families. Many families in Kisumu are poor and most do not have any savings, which in combination with non-existing social security, actions such as these can result in a threat against their livelihood. However, a development of the areas is still

necessary, and the longer it takes before implementation, the larger will the effects be and more people will be affected.

The proposal includes recommendations for land use policies as well as restrictions on development in the sub-centres. This is suggested in order to ensure a development which is sustainable in all three aspects; social, economic and environmental. The suggestions in this thesis include only a few examples on socio-economic issues that can be addressed through policies and restrictions. In order to guide the development of the sub-centres, there is a need to create detailed development plans, taking into consideration how different types of development possibly can impact the future of the sites. Furthermore, it is strongly recommended to frame detailed development plans for all of Kisumu, only allowing new development fulfilling the sustainability criteria.

Spatial segregation, described in Section 4.1.2 (Social Inclusion), is a prominent issue in Kisumu and it can be discussed how a sub-centre development will affect the segregation issue. As described in the theoretical framework, gaps between different groups occur in all cities, and it contributes to tensions between different societal groups, unequal levels of education, criminality and health.

Development of the sub-centres will hopefully lead to decreased need of commuting between the different areas of the city. However, this could lead to a decreased social exchange between different groups of society and an increased segregation in Kisumu, if there is no social mix within the sub-centres. Socially homogenous areas limit the spontaneous interaction between different groups of society, which is described as a necessary part of a socially sustainable society in Section 4.1.2 (Social Inclusion). This is why it is important to introduce mixed-tenure forms, as well as opportunities for spontaneous meetings in public spaces, in the future development of the sub-centres. Doing this enables the overcoming of possible negative effects generated by people not frequently visiting other parts of the city.

6.2 The Work Process

The development proposals presented in this thesis are based on interviews and workshops with the local community as well as relying on the theoretical framework, complemented with inspiration found in other projects. In the theoretical framework in Section 4.1.1 (Citizen Participation), it is discussed that community involvement is a way to empower people, especially those who lack resources and privileges, thus reaching a higher social sustainability. Making disenfranchised groups more visible and including them in planning processes can also contribute to decreased segregation; addressing this matter is highly needed in Kisumu. However, it can be discussed whether the process of community participation could be performed in other ways than used in the work with this thesis.

When looking at the model in Figure 39 developed by SKL and further elaborated by Huddinge Kommun in Figure 40 in Section 4.1.1 (Citizen Participation), one can conclude the fact that since our role being students and not decision makers, we could

not execute other measures than dialogue. When going further into the project and when involving decision makers, a cooperation or co-decision process can be used.

The number of people involved in this project can be seen as too little to be able to call it community participation, but it was not manageable to include more people within the scope and time limits for the thesis. It could also be discussed whether the interview results are valid when the number of interviewees were limited, and the interviewees were chosen with help from people who possibly were partial. This could have affected our perception of the sites and thereby also the proposals in this thesis. A more viable solution would be to include more people in the interview process, and use a method for selecting interviewees that ensures a representative result. Nevertheless, we consider that the process used as valid for the scope of this thesis. However, we recommend further method development by the County before actual work with the sub-centres begin.

People from both the County Administration and Kisumu Urban Project have been involved throughout the field study, but there have been a knowledge gap and limited information transfer between both these two parts, as well as between us and the two organisations. This gap has probably affected the outcome of this thesis, especially when it comes to already existing development plans for the areas, which unfortunately were not well communicated to us. In order to fully understand an area and create a valid proposal, it is necessary to have all the updated information.

6.3 Feasibility of the Development Proposals

In this study, it has been identified many challenges and threats regarding the feasibility of the proposals in the report. Obstacles include the issues of financing of development, land tenure and corruption, which are further described in this section.

6.3.1 Financing of the Development

Through conversations and interviews, as well as from the ISDU-plan, it is clear that financing issues are recurring challenges in Kisumu, and public-private partnerships are often brought forward as a solution for implementing projects. It is a new approach in Kenya and it is noticed that people consider it a complicated method, but in some cases it is seen as the only way to find financial means.

In the proposals PPP is brought up along with a Build-Operate-Transfer solution, where the County Administration contracts a private company to construct, finance, operate and maintain the facility for a contracted period of time and then transfer it to the County at no cost. The system is considered a possible and valid solution since it is necessary to speed up the development pace in Kisumu, in spite of the city's limitations in terms of both financial and human resources at the County Administration. The PPP system enables projects to be performed and can also include contracting of facility management, which currently often is a challenge in Kisumu. However, it is of great importance to implement guidelines and standards for how to work with PPP since it is a new concept and contains many complicated interventions and legal difficulties.

6.3.2 Land Tenure Issues

As described in this report, land tenure issues is a complicated and problematic matter in Kisumu. It is not always clear who owns the legal right to a piece of land, and sometimes it appears that several people have legal papers assuring land ownership of the same plot. This is a threat to the sustainable development of Kisumu in general, but it is also identified through this report as a major challenge which has to be dealt with in order to enable a development of the sub-centres.

The proposals in this thesis are based on the assumption that the land tenure issues can be solved. However, if the land tenure issues are not resolved, it will not be possible to implement some of the interventions described. Additionally, it is assumed that all authorities work towards the same goal: to develop a city which is financially, environmentally and socially sustainable. Therefore, it is assumed that for example land owned by KRC or KeNHA can be sold to the County, but if those authorities do not agree on doing so, the development proposals in this thesis need to be adjusted.

6.3.3 Corruption Hindering the Development

The land owner issue is only one of the issues that seem to exist related to corruption and several sources have indicated that corruption is a major hinder for the development of Kisumu. It is claimed that projects are not prioritised according to their importance for the community good. These issues are not within the field of our study and we have chosen not to go further into this topic. However, it is obvious that corruption related matters are hindering a sustainable development of the built environment in Kisumu, and it is an issue which needs to be dealt with in order to achieve a desirable development of the city.

7 Suggestions for Future Studies

This chapter aims to highlight some topics which we think are necessary to address in order to implement the development proposals and a sustainable urban development in Kisumu in general.

Firstly, a detailed development plan for the sub-centres is needed. It should include investigations of needed floor area ratio for different types of usages in different parts of the centres, and quantify requirements of open space and green space.

The next step would be to create detailed designs for the different proposed interventions. Our suggestion is that it is done in cooperation with the community, in order to ensure a relevant outcome of the projects. In this step, it will be important to involve larger numbers of people than was possible within the scope of this thesis. Doing this will be time consuming but result in viable solutions firmly anchored in the community, thus more likely to be successful in a long-term perspective.

Furthermore, the suggestion is made to develop strategies and guidelines for how to work with community participation in an efficient way in Kisumu. It is important that the approach suits the context and the culture of Kisumu, and it is therefore suggested that professionals from the geographical area create both the strategies and the guidelines. It is preferred to be done in cooperation with external consultants with expertise in the field, since community participation within urban development is a relatively unexplored approach in Kenya.

Distribution of information is seen as a challenge in general in Kisumu and has also been an issue through this project. It would benefit the society, as well as enable the County to work more efficiently, to develop a communication plan. It could include strategies about how to communicate information both internally within development and construction projects, but also externally with the community and other stakeholders.

Lastly, it is frequently mentioned both in the ISUD-plan and publications from UN-Habitat that Public-Private Partnership, should be used to finance projects within developing countries and in Kisumu. It is therefore recommended to do a feasibility study regarding the concept and to develop standards, recommendations and strategies on how to work with PPPs in Kisumu. The outcome from this study should be communicated through the suggested communication plan.

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