



Sveriges lantbruksuniversitet  
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# From Wheels to Walking

Exploring an Alternative Planning Approach in Sub-Saharan Countries  
- the Case of the Axis in Nairobi, Kenya

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Master's Thesis  
Landscape Architect Programme  
Uppsala 2014

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Master's Thesis for degree at the Landscape Architect Programme  
EX0504 Independent project/degree project in Landscape Architecture, 30 HEC  
Level: Advanced A2E

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Title in English: From Wheels to Walking - Exploring an Alternative Planning  
Approach in Sub-Saharan Countries - the Case of the Axis in Nairobi, Kenya  
Title in Swedish: Från hjul till fots - En undersökning av en alternativ planeringsmetod söder om  
Sahara - fallet the Axis i Nairobi i Kenya  
Swedish supervisor: Rolf Johansson, Department of Urban and Rural Development  
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Assisting examiner: Maria Ignatieva, Department of Urban and Rural Development

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To be printed in A4.  
Keywords: Nairobi, Kenya, Sub-Saharan Africa, urban planning, walkability, low income countries,  
landscape architecture, streets, Small Change  
Online publication of this work: <http://epsilon.slu.se>

# Summary

Rapid urbanisation is putting strains on both the landscape and the city dwellers and the pressure on planning for sustainable and equitable cities is crucial. Today, the urban population consists of 50% of the world's population, but this is expected to rise to 60% already in 2030. As many cities in low-income countries are expanding, city planning has trouble keeping up to meet the needs of the growing amount of urban dwellers. The capacity of institutions is not as high as in high income countries, due to centralized government and bureaucracy, as well as corruption. Planning is erratically implemented and it is difficult to know what will happen. Sustainability is of great importance but in fast-growing low-income countries the social, ecological and cultural sustainability is easily ignored.

Since cities have been planned with the cars in focus for a long time, the needs and comfort of pedestrians is often overlooked. This is of particular importance in low-income countries where the majority of people cannot afford motorized transportation and the problem becomes even greater due to the lacking planning facilities. By recognizing the street as an important public space and plan from a point of view where human activities are in focus, issues concerning social, ecological, economical and cultural needs can be addressed. Inclusiveness in terms of walkability can make the street become a public space within the infrastructure of the city. This can, in addition to parks and squares, be a tool to create a more sustainable city. A good street has good connections and a resilient road system, and wide pavements for pedestrians. Using ecosystem services from vegetation integrated in the streetscape, both humans and nature can benefit from a street as public space.

In contrast to making big plans and working from above, the Small change approach described by Hamdi (2004) is a way to work from bottom upwards. He describes two types of structures in the city: designed structures and emerging structures. By designing for the current need with small solutions, the emerging structures appear. If done right, the design can work as a catalyst for change. If not done right, the solution has not been that expensive and can be evaluated to learn what to do better. This approach is very valuable when working in a low income country, since small means can change things quickly.

Using a street in Nairobi, Kenya as an example the work in this thesis consists of developing a toolkit for how to achieve a more sustainable approach to city planning by using small step principles. The Axis as the street is called, runs through a centrally located industrial area and ends in the Central Business District, making the only available overpass over

the railways in a radius of a couple of kilometres. The history of Nairobi is of a colonial character and throughout history, both racial and social segregation have been practised while planning the city. The original African landscape has been altered with due to imported plants and constructed development and more than half of the population is living in the slum areas and belong to the low income group. The planning for their way of transport, housing and vending have been neglected for a long time while planning the city. Staying in Nairobi for nine weeks, we studied how the public places in the city is used and what needs are to be met in the design of the Axis.

The toolkit consists of guidelines called Pillars of Planning, which are based on the problems seen in Nairobi and sustainable ideals described earlier. The Design Principles are building blocks, translated into physical elements from the Pillars of Planning. The toolkit is of a general character and can be applied in similar situations. In this case, these were applied on a centrally located street, called the Axis. Through analysis, four situations without a particular site as well as four complex sites were selected. The situations became examples of how the design principles can be used in a general way, not making any plans so the users themselves can see whether they need it or not. The four sites also were conceptually designed since there was already a demand for these spaces to be developed, due to their important landmarks and collecting of people. By developing these situations and sites, we aimed to make the designs work as catalysts for slowly upgrading the whole area. The situations or sites are our designed structure, a possible catalyst for changing the area around the Axis .

As small change is the approach while designing, the discussion evaluates how working with this method has been and to what extent we have used it. It also brings up why we came to use this approach and how it has been helpful. We evaluate our work and experiences in this project and if we have achieved a general solution for streets in need of upgrading in low income countries.

The essay is divided into three parts. In part 1, the city of Nairobi as well as various approaches on sustainable development is described. The second chapter of this part is our own observations in the city. In part 2, we introduce the developed toolkit that is based on part one. The toolkit consists of the Pillars of Planning and Design Principles, which are described. In part 3, an analysis of the Axis is conducted and the sites and situations are addressed.

# Sammanfattning

Den snabba urbaniseringen är en utmaning för både landskap och stadsbor. Behovet av att planera för en hållbar och rättvis stad växer. Den urbana befolkningen består idag av 50 % av världens befolkning men detta förväntas stiga till 60 % redan 2030. I många städer i låginkomstländer har stadsplanerare problem att hinna bemöta behovet hos den växande mängden stadsbor. Effektiviteten på institutioner är inte lika hög som i höginkomstländer, detta på grund av en ofta centraliserad regering, byråkrati och korruption. Planeringen genomförs på ett oförutsägbart sätt och det är svårt att veta vad som kommer hända. En hållbar utveckling är mycket viktigt, men i snabbväxande låginkomstländer händer det lätt att social, ekologisk och kulturell hållbarhet ignoreras.

Under en längre period har städer har planerats med bilarna i fokus. De behov som fotgängare har förbises ofta. Detta är särskilt viktigt i låginkomstländer där de flesta människor inte har råd med andra transportmedel. Problemet blir ännu större här på grund av de dåliga planeringsmöjligheterna. Genom att erkänna gatan som ett viktigt offentligt rum och planera från en synvinkel där mänskliga aktiviteter är i fokus kan frågor om sociala, ekologiska, ekonomiska och kulturella behov stärkas. Delaktighet i form av walkability kan göra att gatan blir en offentlig plats inom infrastrukturen i staden. Detta kan tillsammans med parker och torg vara ett verktyg för att skapa en mer hållbar stad. En bra gata har goda förbindelser och ett resilient vägsystem samt breda trottoarer för fotgängare. Med hjälp av ekosystemtjänster från vegetation som är integrerad i gatubilden, kan både människor och naturen gynnas av gatan som offentligt rum.

Till skillnad från att göra stora planer och arbeta uppifrån är den lilla förändringen som beskrivs av Hamdi (2004) ett sätt att jobba från botten och uppåt. Han beskriver två typer av strukturer i staden: designade strukturer och framväxande strukturer. Genom att designa för det nuvarande behovet med små lösningar kan andra positiva processer ske. Om det görs på rätt sätt kan designen fungera som en katalysator för förändring. Om det inte blir rätt har lösningen inte varit så dyr och kan utvärderas för att lära sig vad man ska göra bättre. Detta tillvägagångssätt är mycket värdefullt när man arbetar i ett låginkomstland eftersom små medel kan förändra saker och ting snabbt.

Med en gata i Nairobi i Kenya som exempel har arbetet i denna uppsats bestått av att utveckla en verktygslåda för hur man kan närma sig en hållbar stadsplanering med hjälp av förändringar i små steg. The Axis, som gatan kallas, går genom ett centralt beläget industriområde och slutar i Central Business District och är den enda passagen över järnvägen

i en radie på ett par kilometer. I och med Nairobis koloniala historia har både ras- och social segregation praktiserats när man har planerat staden. Det ursprungliga afrikanska landskapet har förändrats på grund av importerade växter och förtätande bebyggelse. Mer än hälften av befolkningen lever i slumområden och tillhör låginkomsttagarna. Planeringen för hur denna socioekonomiska-gruppens sätt att transportera sig och bo samt rådande gatuförsäljningskultur har försummats under lång tid när man har planerat staden. Vi bodde i Nairobi under nio veckor och studerade hur stadens offentliga rum används för att kunna ta reda på vilka behov som bör tillgodoses i utformningen av the Axis.

Verktygslådan som vi har utvecklat består av riktlinjer eller *Pillars of Planning* som är baserade på de problem som observerats i Nairobi och hållbara utvecklingsideal som har beskrivits tidigare. *Designprinciper* utformades därefter som byggstenar, vilka översätter riktlinjerna i *Pillars of Planning* till fysiska element. Verktöglådan är generell och kan tillämpas i liknande situationer i andra länder och städer. Genom analyser har fyra återkommande "typsituationer" samt fyra komplexa platser identifierats längs med the Axis. Situationerna blev exempel på hur designprinciper kan användas på ett generellt sätt utan att göra några planer så att användarna själva kan se om de behöver det eller inte. Vid de fyra platserna fanns en efterfrågan på att dessa utrymmen ska utvecklas på grund av deras viktiga funktioner som landmärken och förmåga att i dagsläget samla människor. Dessa situationer eller platser är vår designade struktur, en möjlig katalysator för att ändra området runt Axis och skapa nya utvecklade strukturer.

Diskussionen tar upp huruvida små stegvisa förändringar är ett lämpligt tillvägagångssätt i utvecklingsländer. Vi utvärderar hur arbetet med den här metoden har varit och hur vi har kunnat använda den i Nairobi. Den tar också upp vad som kom oss att vilja använda metoden. Vi utvärderar vårt arbete och våra erfarenheter som vi tar med oss från detta projekt och om vi har uppnått en generell lösning för gator i behov av uppgradering i låginkomstländer.

Uppsatsen är uppdelad i tre delar. I del 1 är staden Nairobi samt olika strategier för hållbar utveckling i fokus. Det andra kapitlet i denna del är våra egna observationer utförda i Nairobi. I del 2 introducerar vi verktygslådan som bygger på den framtagna informationen i del ett. Verktöglådan består av *Pillars of Planning* och *Design Principer*. I del 3 har en analys av Axis genomförts och de platser och situationer som vi funnit möjliga att applicera våra verktyg på.



# Acknowledgements

In the process of writing this essay, a lot of people have offered their time and support. All of them deserve our deepest thanks. Åsa Carlestam (White arkitekter) initially gave us information about the projects existence while Ulrika Stenkula (White arkitekter) gave us an introduction to the site and the work that had been carried out and also provided us with contacts in Nairobi. Sofia Eskilsson (SEs landskap) further sparked our interest with her stories from Nairobi and enthusiasm for the city. Rolf Johansson, our Swedish supervisor, always directed us in a new and interesting path, along which we have learnt a lot. In Nairobi, Catherine Mujomba, Joy Mboya, Judy Ogana and the others at the GoDown Arts Center made us feel more than welcome to Nairobi and the GoDown- providing us with both an office space and a warm and pleasant arrival in the confusing new context as well as great support during our stay. Our Kenyan supervisor, Lydia Muthuma, always ready to share her knowledge, enthusiasm and support, answered all our questions even though the answer might have seemed obvious. James and Alacocque for giving us well-needed breaks with interesting conversations and giving us information we couldn't have made it without. The people we made friends with during our time in Nairobi helped us to get out of our apartment and office to experience new, exciting things. Others have also provided us with contacts, input and support and we hope that they know our gratefulness. A most sincere thank you from both of us.

Asante sana!

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# INTRODUCTION



Figure 1: Map of Africa showing the locations of Kenya (grey) and Nairobi (pink).

## Background to Study

Nairobi is the capital of Kenya and an important hub in East Africa (figure 1), is a city with many issues in terms of poverty and planning. Being a colonial city in a low income country under the pressure of urbanisation, these questions are hard to address. The city has long been planned for the car and the walking urban poor have a low priority in the city.

## Urbanisation

A worldwide trend is that societies go from being rural to urban. While it has been a slow process before the 20th century, the growing rate has increased rapidly. This is both a result of migration from the rural areas and the improved living conditions that makes up the natural growth where the latter is the most important. Today, the urban areas consist of 50% of the worlds population, but this is expected to rise to 60 % in 2030 (SIDA 2014). When lack of arable land is a reality in the rural areas, jobs and opportunities for another life are found through family in the cities. Urban areas are also incubators for economic growth, but due to bad management, this is not always achieved (Tannerfeldt & Ljung 2006, p.13). The UN- report *State of the Worlds Cities* (2012) recognizes cities as a hub for prosperity, which can help the prosperity of the whole country: "Demographic concentrations in dense urban spaces allow critical masses of protestors to congregate and air new ideas, highlighting cities' role as sounding boards for positive social change (p. 10)". The report presents a perspective of prosperity based on five dimensions: productivity, infrastructure, quality of life, equity and environmental sustainability (p. 19).

Kenya and especially Nairobi is a part of the urbanising process. 54 % of the country's population is expected to live in cities by 2030 (UN-HABITAT 2005). Nairobi is the most populous city in East Africa with its' 3,25 million inhabitants within the city border, or 4,5 in the whole region including satellite towns (UN-HABITAT 2005, p. 11). The dense population creates increasing inequalities and the residents are experiencing a much faster economic deterioration compared to the national trend (UN-HABITAT 2006 p. 4). Nairobi is an important city in terms of economy, transport and international diplomacy. There are many organizations and institutions that reside here such as the United Nations UNEP and UN-HABITAT programs as well as the World Health Organization. Jomo Kenyatta Airport is situated east of the city and is one of the busiest airports in Africa. In a report from UN-HABITAT (2005)



The Central Business District contains mostly offices and is a role model in the planning of the city





The majority of the population live in unplanned slum areas

Nairobi's importance as a regional hub and economic and diplomatic centre is mentioned as a strategic factor in the process of gaining social and economic growth for the whole country. The report also stresses that planning for sustainable economic and social growth is a key challenge for the future and that the integration of economic planning with physical and environmental planning (UN-HABITAT 2005 p. 6). The city of Nairobi is polluted from vehicles, industries and burning of charcoal and waste. Due to the lack of waste dump sites and maintenance, the waste is all over the city, polluting soil and water. Surface water is full of garbage. In this environment, climate change can get big consequences, such as floods that has already been noted in the slum areas (City Council of Nairobi 2007, p.8). These issues need to be addressed and could be with the right planning tools.

## Planning in Nairobi

Nairobi has been growing without an approved master plan since 1948. There was a revision made in 1973 but this was never accepted (UN-HABITAT 2006 p.8). The report *Kenya Urban Sector Profile* (UN-HABITAT 2005) declares how the lack of coherent planning for urban services limits the monitoring of projects. Erratic implementation of development activities and poor financing are therefore results from the non-comprehensive planning of the city (UN-HABITAT 2005 p.8). At the time of writing, a new master plan is being developed. It is supposed to "provide a framework to manage urban development in Nairobi City County from 2014-2030, integrate all urban development sectors and realize the goals of Kenya Vision 2030 for the city county of Nairobi" (NIUPLAN 2014).

The Kenya Vision 2030 has been translated into a vision for Nairobi only. In *Nairobi Metro 2030 – A World Class African Metropolis* (Ministry of Nairobi 2008) the politicians of the government have set ambitious goals for the east African city. Quality of life is recognized as one of the main goals to achieve along with others: economical development, infrastructure, effective transportation, attractiveness, security and governance (pp. 103-104).

There are also goals that have come up in the politics of the city. The City Council has put up ambitious goals to create and upgrade 60 public spaces in Nairobi by 2017. Two test sites are created to this date. The project is supported by UN-HABITAT (Nikitin 2012).

The lack of a common vision and an updated master plan for a long time has been an obstacle in the planning of Nairobi (City Council of Nairobi 2007 p.3). Even though there is an effort to change this, the service delivery



of Nairobi City Council and other local governments are weakened by corruption and bureaucracy. At the same time the centralized political and administrative system in Kenya constrains the capacity of local governance to respond to local development needs (UN-HABITAT 2006 p.8).

## Streets as Public Spaces

In the report *Streets as Public Spaces and Drivers of Urban Prosperity* from UN-HABITAT (2013b) the conditions of a good street is described:

“A prosperous street must promote infrastructure development, enhance environmental sustainability, support high productivity, and promote quality of life, equity and social inclusion. All this is possible in an environment where streets receive their just recognition for their multi-functionality as public spaces” (UN-HABITAT 2013b, p.13).

The importance of which mode of transport you invite is described in Jan Gehl's book *Cities for People*. The increased use of cars during the 20th century led to the fact that almost all street space were taken by car parks or car traffic. Since a couple of decades there are cities working against this tradition. Examples like Copenhagen, Melbourne and Oslo show that the street can look different. The author claims that with higher quality city space for people rather than cars, the visitors of the public space choose to walk around and stay more, which increases the use (Gehl 2010, pp. 9-17).

With the Lighter, Quicker, Cheaper approach, Project for Public Spaces has found methods to test how to transform underused space. Parking lots and streets have been used as an asset in many of the cases. By creating flexible space and furniture, let events take place and make temporary solutions before a permanent one is doable, a high impact change can be achieved at a low cost. This can transform whole areas and private owners of buildings are more inclined to invest in their own space and façades (Project for Public Space 2014).







## The Small Change Approach

“What we need, in this complex environment, is a kind of professional artistry which enables us to improvise and be informed, working somewhere between order and chaos, making what we can out of what we can get, making plans without too much planning, making most of it up as we go along, a creative process of trial and error informed with experience and theory (Hamdi 2004 pp. 116-117)”.

The challenges associated to planning practice that are mentioned in the former chapter are not unique for Nairobi. Many developing countries and transit countries are facing the same issues worldwide. Big visions and final plans are rarely put into action or materialized due to political contexts and other circumstances.

Nabeel Hamdi is the author of *Small Change- About the art of practice and the limits of planning in cities*, in which he shares his experience of “small change”, a participatory planning approach that relinquish conventional planning practice. The ‘small change’ is a suitable approach when circumstances and resources may act limiting. The method acknowledges the on-going urban activities and the people of the community as resources that strengthen and act for a more resilient society in the long run. The synopsis on the back of Small Change states: “This book is an argument for the wisdom of the street, the ingenuity of the improvisers and the long-term, large-scale effectiveness of the immediate, small-scale actions.” (Hamdi 2004)

In the book, Hamdi describes how the different community planning projects he has been involved with have dealt with the balance between ‘designed structures’ and ‘emergent structures’ (Hamdi 2004 p.136). The structures that have to be designed are strategic and can either be of a

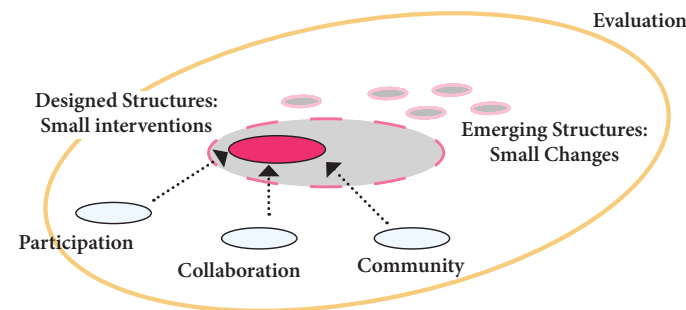


Figure 2. Hamdis method of working with small changes is a lot about the people using the area.

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physical or spatial form or developed guidelines (Hamdi 2004 p. 97). Within the designed structure, practical and local structures must have the opportunity to emerge (Hamdi 2004 p. 101) (see figure 2). Hamdi writes “The question for planners is: how much structure do we design before the structure itself interrupts the natural process of emergence?” (Hamdi 2004 p. 73).

Hamdi also highlights the importance of finding ways of creating collaboration between people, organizations and events. He explains the significance of both “acting practically and thinking strategically” and also “acting strategically and thinking practically”. By building up communities in small increments, Hamdi argues that even though successes achieved are “limited victories”, they are nonetheless vital in an unjust and unequal society (Hamdi 2004 p. 140). Using small changes also turns failure into less acute matters and by constantly reframing problems and trial and error learning from the mistakes can be brought into continuing work (Hamdi 2004 p. 140).

Another key view of planning Hamdi brings up is the acceptance of development as a continuum, an on-going process that planning practitioners may join along the way and in various ways contribute to. Hamdi explains it as “We do this because development has been interrupted, not because it hasn’t started” (Hamdi 2004 p. 130).



*In slum areas buildings are constructed from what is given.*

## Initiation of Project

In June 2013 we were introduced to an urban development project in Nairobi by architect Ulrika Stenkula at WHITE arkitekter in Stockholm. The project was initiated in 2011 and is a collaboration between the GoDown Art Centre in Nairobi, White arkitekter, MIMETA, Kulturhuset Stockholm and Arkitektur -och Designcentrum (former Arkitekturmuseet) and involves the integration of urban planning with identity formation, culture and arts.

The focus was on how culture can function as an incubator for positive changes in the transformation of a centrally located industrial area in Nairobi. The area is transitioning into a mixed-use neighbourhood and the work has involved workshops, exhibitions and dialogues where information has been collected and shared to create a common ground for different stakeholders in the industrial area and the city. We were presented with material from the process, such as maps and the report from a conducted workshop. During this initial conversation Ulrika Stenkula also introduced us to a walkthrough analysis that was carried out along a street of strategic interest, “the Axis”. From the information given to us, we started to form our own project for this master thesis.

## Site in Focus: The Axis

The Axis is made up by two streets, Dunga Road that is located in the more central parts of the industrial area and Workshop Road in the south of the Central Business District (see figure 4). With its central location (see figure 3) it makes up an important path for many people. It leads from residential areas and industries in the south to the city centre in the north. A narrow pedestrian footbridge along the Axis is the only connection over the railway tracks and adjacent area that separate the city centre from the industrial area. The footbridge is used by many people everyday walking between their homes and workplaces.

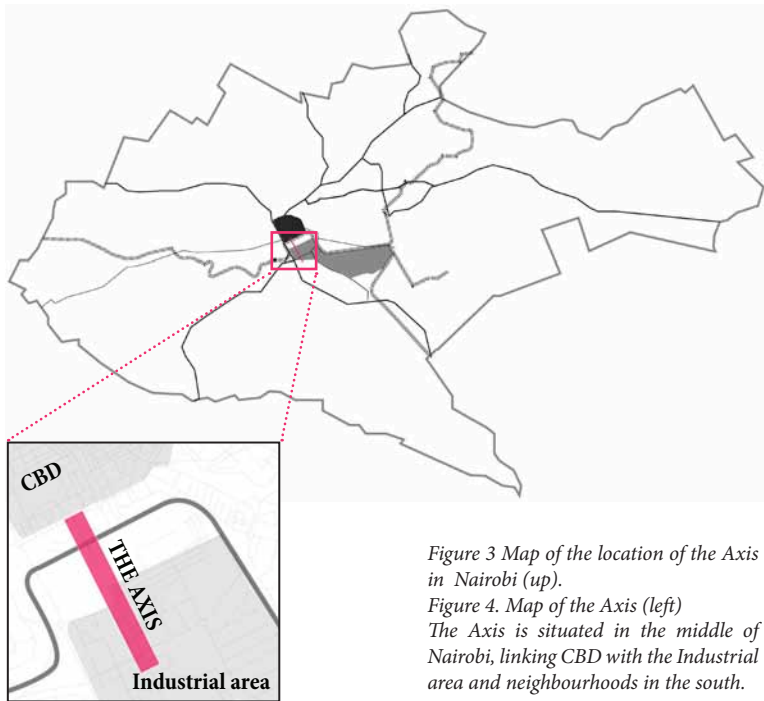


Figure 3 Map of the location of the Axis in Nairobi (up).

Figure 4. Map of the Axis (left)  
The Axis is situated in the middle of Nairobi, linking CBD with the Industrial area and neighbourhoods in the south.





## Aim

Recognizing streets as important public spaces, this study aims to find an alternative approach for planning in Sub-Saharan Africa, with people and their activities as a priority in planning and design.

## Research Questions

What planning tools are useful and what is a suitable design approach when working in a context where resources and means may act limiting for practicing planning and design?

- How do people use public spaces in Nairobi today and what kind of activities take place there?
- How can the path, The Axis, be upgraded and renewed by the use of such tools and design approach?

## Limitations

Our site of our study is the city of Nairobi. Field work has been done in different parts of the public spaces in the city but our focus site is the Axis in the northern part of the main industrial area. The thesis has been carried out during 20 weeks which is the given time frame for a master thesis in landscape architecture at Swedish University of Agricultural Science. The Minor Field Study scholarship required a field study of minimum 8 weeks and we conducted our field study in Nairobi during 9 weeks. Our work was carried out between September 2013 and January 2014. Due to time and other restrictions, we have chosen to replace the involvement of individuals with conclusions from our observations and comments from the workshops and walkthrough analysis performed by the GoDown Arts Centre and supporting organizations and architects as a means of finding the stakeholders opinions.

## Audience

This thesis is addressed to planners and other planning practitioners in low-income countries. It could also be of interest for students in the fields of urban planning, landscape architecture and related disciplines as well as for individuals or NGO's interested in changing their environment.

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*In the slum areas people can't afford cars and things are carried by foot. They are working from the conditions given.*

## Structure of the Thesis

This thesis consist of six main parts: the introduction, theory, three parts presenting the study and one part discussing the results (see figure).

### Introduction

In the first part, the reason for doing the study is presented, the aim and question at issue as well as the methodology.

### Theory

This part explains different theories used in Sustainable planning. These guide the work we have done.

### Part 1 - Nairobi

The first part of the thesis aims to give the reader an introduction of Nairobi's history and what the city is like today. This is done through literature studies of how Nairobi has developed since its founding, short texts of current cultural and social aspects as well as the present traffic situation. It also has a theory section, presenting theories in sustainable planning. This part is complemented by observations conducted in different parts of Nairobi in order to comprehend the people-environment interactions that are taking place in the public spaces of the city. Short stories from our own experience of being in Nairobi are also attached in this chapter to add another dimension of understanding the city.

### Part 2- Toolkit

In this section we present the Toolkit, which is based on the conclusions of part one. The toolkit intends to draft guidelines and building blocks of how to support existing activities that people are undertaking in an urban setting. Pillars of Planning are the guidelines that pervade the continuing work while the Design Principles aim to translate the content of the Pillars of Planning into concrete landscape architectural building blocks. A checklist on how to apply the Design Principles is featured.

### Part 3 - The Axis

The last part of our result is a case study of the Axis. Analysis and observations of existing human activities and reoccurring problem situations along the streets are conducted. Conclusions from the survey resulted in the identification of four reoccurring problem situations and four sites where we apply the Toolkit, the Pillars of Planning and the Design Principles

### Discussion

The discussion reviews the result and evaluates whether the questions have been answered. It also brings up important experiences from the project.

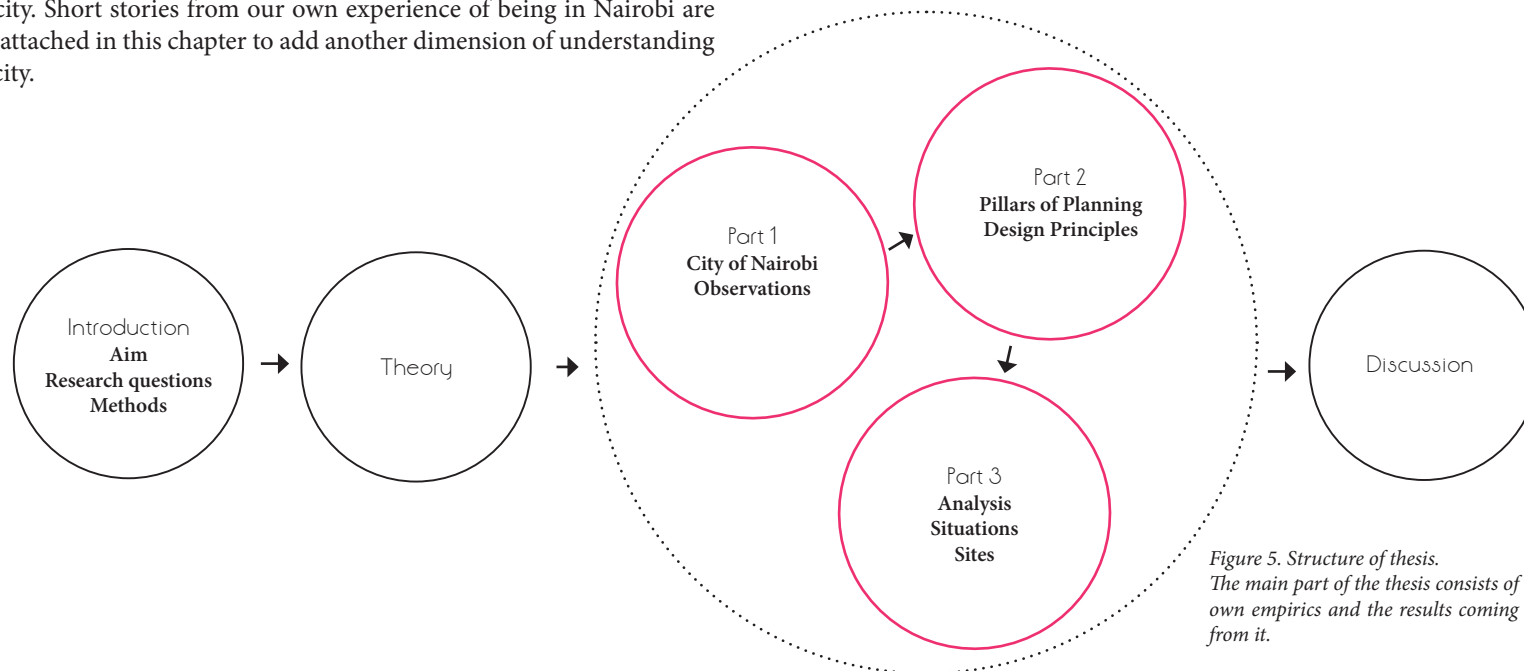


Figure 5. Structure of thesis.  
The main part of the thesis consists of our own empirics and the results coming out from it.



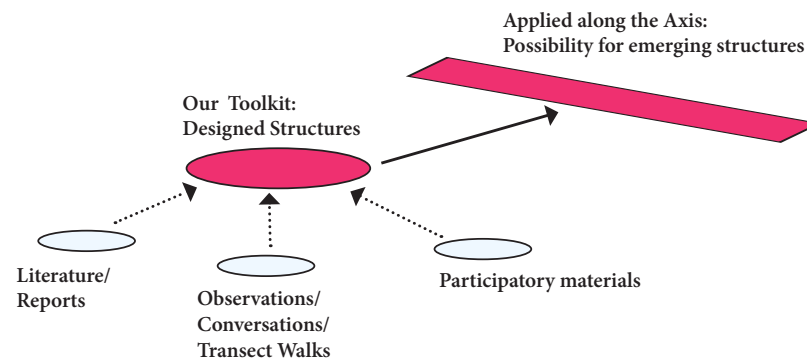
# Methodology

The main method of the thesis is a case study of Nairobi and elaborating a design for the Axis. The work has been based on methodological triangulation, where collecting and analysing data have been combined. Triangulation is an important means for quality assurance in case studies. It is a way to verify read data with the researchers own empirical methods (Yeasmin & Khan 2012). To get the information we needed we read literature and reports and compared this with our own observations and interviews.

In order to find an approach that could work in the given context, a method on how to address the planning of public spaces in Nairobi, we found Nabeel Hamdi's books *Small Change: About the Art of Practice and the Limits of Planning in Cities* (2004) and *A Placemaker's Guide to Building Community* (2010) very useful (see figure 6). Hamdi suggests different empirical methods as parts of the participatory planning approach and community building work that he advocates and has many years of experience from. They are about looking and listening, but in a systematic way: observations, transect walks and interviews.

A lot of Hamdi's theories are based on trial and error, being able to investigate a design in a participatory process. Due to time and others restrictions, we have chosen to replace the involvement of individuals and instead used conclusions from our observations and opinions and comments from the workshops and walkthrough analysis performed by the Arts Centre and supporting organizations and architects as a means of public participation. We have also been able to observe other design solutions already in place and take inspiration from them. On a daily basis, we have held conversations with different people.

Figure 6. Our use of Small change. The Toolkit was created from the gathered information and then tested by applying it along the Axis.



Several eyes see more than one. By including people in the process, a wider picture of the area is given.

## Process

The process of the thesis can be summed into five main steps. The work with the different steps has not been strictly linear or always easy to distinguish from each other. The process has rather moved back and forth in a circular manner between the different steps as the work developed and we got a better understanding of the contents (see figure 6a). The five main steps are:

### People and public space as a starting point

Our ambitions from the start was to work with improving public spaces in Nairobi and to base our work on how people are using public space in different ways in the city.

### Understanding the context and identifying problems

In this step we tried to understand what context we were working in and what kind of problems and challenges in the city that inhibit or weaken the public sphere and the human activities in Nairobi. This work was done through literature studies, informal conversations, interviews and our own observations. From this, we identified problems that we wanted to address for our continuing work with the thesis.

### Finding our role and a landscape architects approach in the given setting

Evaluating our own experience and expertise as Landscape Architecture students, we contemplated in what ways we could contribute and which approach we could use in the existing planning context in Nairobi. Some of the questions we were facing were

- What possibilities and challenges do we face as landscape architect students?
- What limitations have we encountered in our work so far?
- In what way could we address the problems we had observed in the first part?

### Narrowing down the project

An on-going process in its own was the necessity of constantly narrowing down the project. This became easier with time as our role and the chosen approach to the project became clearer. We narrowed down to what we believed could be addressed within the time frame and what could make a difference in the environment we were working in.

### Addressing issues through design

Using the Axis as our case gave us the possibility of applying our developed results in an actual setting and translating them into design ideas and concepts that could address both common reoccurring situations that are general for the whole city of Nairobi as well as site-specific conditions in this particular context of the Axis.

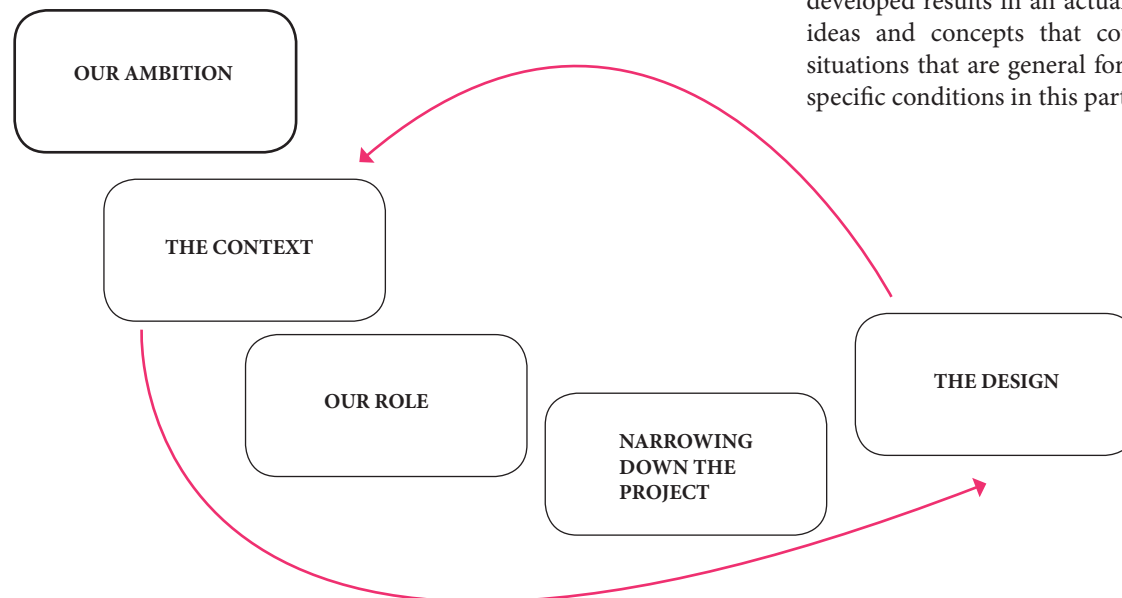


Figure 6a. Five main steps can be summoned up from our process. Since we have been moving between the various steps during our work, the process has rather been circular than linear.



## Gathering Information

### Literature studies

In the process of finding literature about Nairobi, we searched for both site-specific literature about the city and its fragmented character as well as literature about colonial cities in general regarding open green spaces and public space. We also wanted to get an idea of present socioeconomic situations, environmental concerns, visions and policies. Having the Axis, a centrally located street as case study we also read reports concerning urban mobility in Nairobi. Sources we used were reports from UN-HABITAT, UNEP and Nairobi City Council, and scientific articles from relevant authors, for example Ignatieva and Médard. We also did readings on ecologically and socially sustainable planning tools such as ecosystem services. A workshop and walkthrough from the GoDown's participatory process in 2011 were also important sources of information for this project.

### Observations

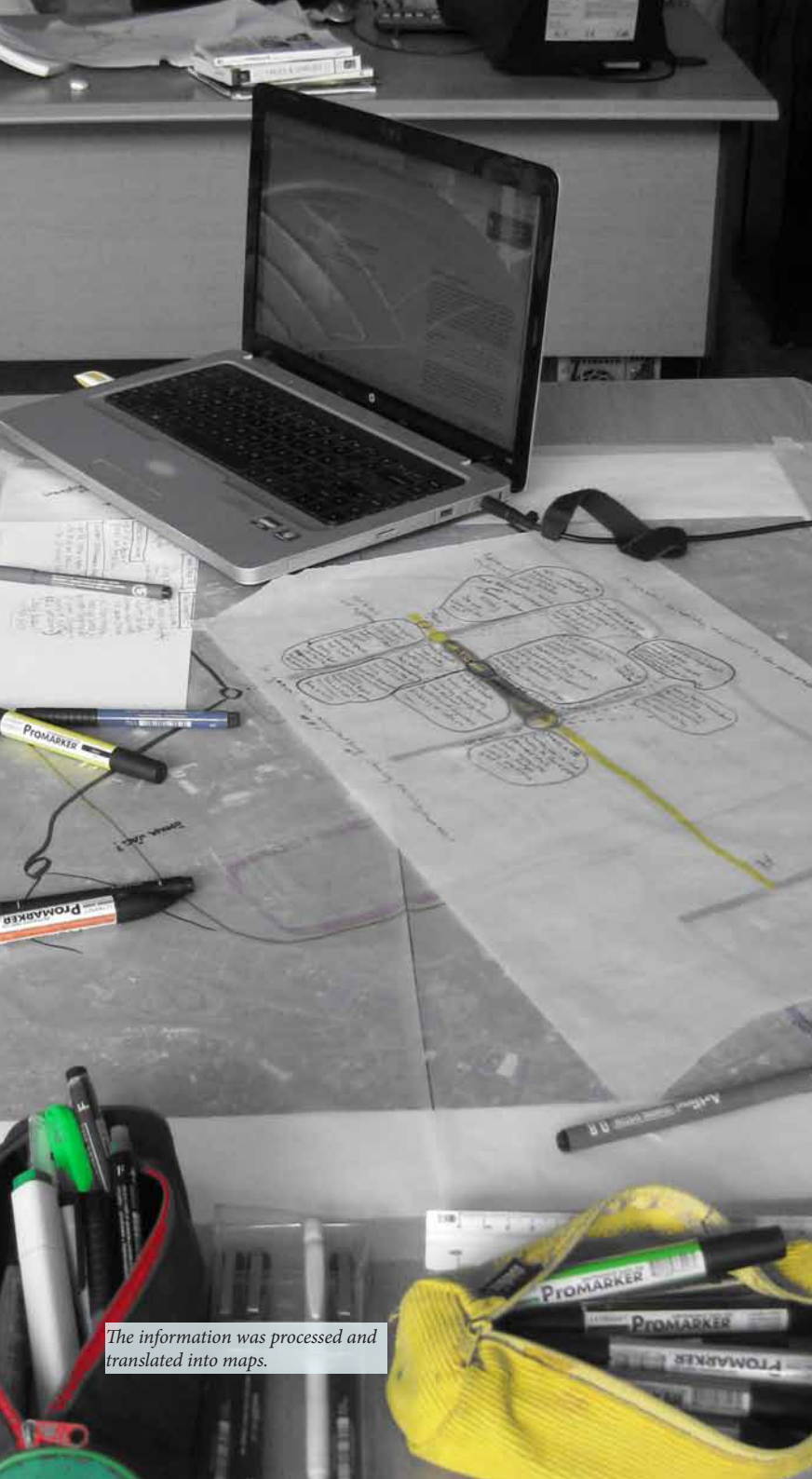
Observations are a way to see the premises in which the planners work with their own eyes. This allows the planners to spot for example poor maintenance and where different activities take place. Transect walks are a way of organizing observations. To walk with someone who has an understanding of the area and be able to ask questions while observing can offer different views, insights and new understandings (Hamdi 2010, pp. 69-70). To get a better understanding of how people use public spaces in Nairobi today we conducted several observations throughout our whole stay in the city. The focus for the observations were people-environment interaction- how people use public spaces as well as how people use vegetation in the city. It was also important to see how the physical structures affected the users and character of spaces. We looked at where people stopped and where people walked as this gave an idea about the use, which wasn't necessarily the use it was planned for.

Some observations were made as we moved around the city to and from our office space in the industrial area and some were carried out on our leisure time when just walking around the city or going out for different errands. We tried to be observant everyday on things that happened as we walked through the city and they were carried out on a daily basis during the nine weeks that we spent in Nairobi. The industrial area, as well as the suburbs Kilimani and South B, were observed several times as we passed on a daily basis. Whenever we saw something interesting we noted it. At times we had company of a person living and working in the area, giving us information about how it worked. We also did



*Transect walks were an important method in the process*





The information was processed and translated into maps.

observations at dedicated sites such as centrally located public parks: Uhuru park, Central Park and Jeevanjee Gardens. These sites we visited once. Another specific site we selected was the parking lot in the city centre where activities changed throughout the week, so this place we visited at three different weekdays and watched how the activities changed. During our observations we took photos and made notes and also informally chatted with people using the space.. We also carried out observations in the slum areas of Kibera twice and Mukuru once to get a better understanding of these neighbourhoods, also in the company of locals. Kibera was chosen because it is the largest informal settlement area in Nairobi while Mukuru is adjacent to the industrial area The Axis run through. The sites were found by advice from our local supervisor or in literature studies about the areas.

### Interviews

Semi-structured interviews are also about listening. With stories and opinions about the community in which the planner is working, a lot of information can be achieved about the hidden social and economic structures. The method includes a conversational form with open questions, and without yes or no questions or imposed values (2010, pp. 70-71). Two formal interviews were carried out during this project. The first one was with Nairobi City Council and the second one with a representative from Kenya Railway Corporation, the owner of some of the land that The Axis cuts through. These were of a more professional character in the sense that we had a purpose of getting to know their plans in the area. The questions were still kept open and the interviewees were able to speak freely on the subject. We received a lot of information from talking to various local people we met and got to know during our time in Nairobi. These were people we met in everyday life: at work, on the street or in trade or other services. Some of them were people we met regularly and some of them were people we only had one conversation with, often in connection with an area we observed. We spoke mainly to six people: one male artist, one female university lecturer, one male cleaner, one male street vendor and two male taxi drivers. They gave us valuable information on how the people of Nairobi themselves view and perceive their city. As these weren't formal interviews the questions were open and held on a conversational level, but the questions were directed towards our subjects: natural resources within the city, people's movement, urban poverty and public spaces.

## Vignettes

Some of the interviews and observations were interpreted and summarized as short stories in the part about Nairobi. These are strictly our own narratives although based on true occurrences and people. The vignettes are presented to give the reader a better understanding of the city and also reveal some of our experiences, which were important in the process of our findings.

## Design Process

### Pillars of Planning and Design Principles

When continuing to the design phase, Hamdi explains how a larger plan or goal can be achieved by placing out a series of catalysts: designed structures for the emerging structures, (Hamdi 2010, p. 158). As a structure of design, we chose to work with generic guidelines and building blocks. From what we found during our background research we were able to define some problems that we wanted to address in the continuing work of our thesis. The background information gave us a broader understanding and a general view over the people- environment interaction and the issues related to it. We summoned the main issues into five Pillars of Planning, guidelines, which would all contribute to support the existing urban dynamic or address what we found was lacking in the public spaces of the city. Our own viewpoint, based on social, ecological and cultural values, from our years of training in the field of Landscape architecture were also represented when we were elaborating these.

Based on the Pillars of Planning we developed Design Principles in order to turn the content of the Pillars into spatial elements with a physical shape, or building blocks. The Design Principles are developed with the city of Nairobi in mind and from what we have seen happening in the public space, but are still kept on a general level to make them applicable in similar urban contexts and situations (see figure 6b).

### Analysis

The analysis of the Axis was made on two scales. On the first scale we studied the overall context of the Axis and on the other scale we zoomed in on the Axis at street level. The reports from the workshops and walkthrough analysis made by the GoDown Arts Centre were a way to incorporate participation. This material gave us valuable insights into the qualities and potentials the site as well as opinions from different stakeholders concerning the future of both The Axis and the area as a whole.

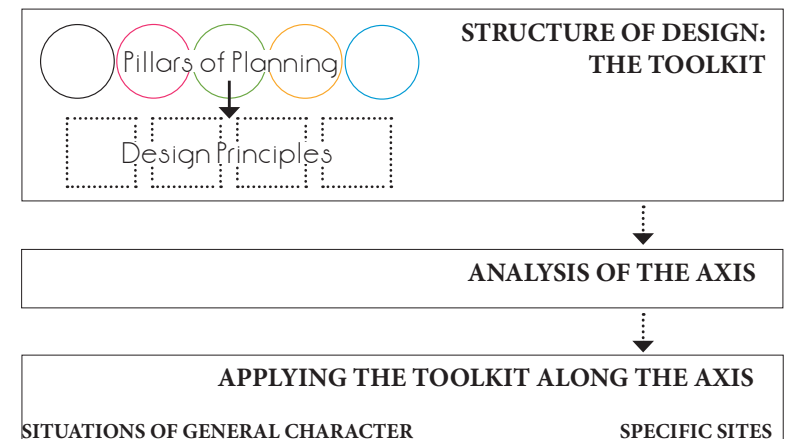
Inventory, mapping and observations were conducted during the analysis work. When studying the larger scale and overall context we investigated the services available in the area, destinations, the flow of people, the experience of walking, the cultural impact and to what extent public space was available. The characters of the surrounding areas were also of interest. The second part, focusing on The Axis itself, investigated the physical structures, the traffic situation, destinations, flow of people and the activities happening there.

The maps we used were mostly orthographic. Observations were made on a daily basis as we moved to and from our work space at the GoDown Arts Centre and were also carried out in a more specific manner where we stopped and watched activities, documented them with photographs, notes and informal chats with people in the area. This was done to pinpoint the activities that took place along the street and to give us information on who the people spending time on the Axis were, and what they did where.

### Applying structure of design along the Axis

Using the Pillars of Planning and the Design Principles, we elaborated solutions for problems found in the analysis. We chose four different common situations along the Axis with problems that could be addressed. These were of a general character and not site specific. As a complement, we found that certain spaces had more potential and problems of a more complex character. There we developed site specific solutions, adapted to place and context.

Figure 6b. Our design process started with formulating guidelines and principles for what Hamdi calls the designed structures. This became our toolkit that we later applied along the Axis after several analyses.



THEORY

This part consist of solutions and theories about city planning and sustainable solutions in general. It guides the information that we brought forward about Nairobi and the observations that we made and are important tools of knowledge when designing.

## The Globalized Landscape

In the paper *Urban Green Spaces in Buenos Aires and Christchurch* by Maria Ignatieva and Ana Faggi (2009) it is highlighted how homogenization and universalization of landscapes are impacts of globalization and how it leads to the loss of uniqueness of place. Urban green spaces and public spaces are identified as important elements in the creation of an urban identity and its' uniqueness (Faggi & Ignatieva p. 241). The paper discusses how historical factors influence the characteristics of green spaces in a city and Faggi and Ignatieva describes how "Urban green spaces show that the urban landscape is the product of a trans-cultural process and very much influenced by western European colonisation"(p. 242). Exotic and non-native plants were brought in to cities and planted for industrial, aesthetic or protective use (Faggi & Ignatieva 2009, p. 242). This was threatening and sometimes destroying the ecosystem of the colony (Ignatieva & Stewart 2009, p. 399). The cities as they looked in Europe were also brought to the New World, such as the grid system and the overall design pattern. Downtown, where commerce and skyscrapers were the symbolic significance, was brought from America to the rest of the world in the beginning of the 20th century. This was associated with "the modern urban spirit (Ignatieva & Stewart 2009, p. 404)", something that was aimed for in the whole world. Suburbs are a British influence, coming with fast transportation and industrialization (p. 406).

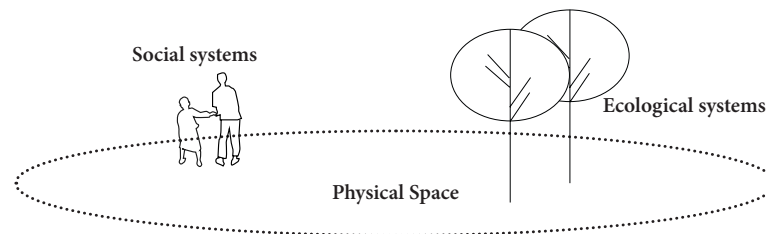


Figure 7. In cities, social systems and ecological systems are sharing the physical space.

## Ecosystem Services

As pressure on the ecosystem increases in line with the population and climate change, the services that they provide decreases.. Ecosystem services are a way to describe the assets of ecosystems, how they contribute to human life economically, ecologically and culturally. In the report *Ecosystems and Human Well-Being* the definition for ecosystem services goes as follows: "Ecosystem services are the benefits people obtain from ecosystems. These include provisioning services such as food and water; regulating services such as flood and disease control; cultural services such as spiritual, recreational, and cultural benefits; and supporting services, such as nutrient cycling, that maintain the conditions for life on Earth (UNEP 2003 p. 49)".

A contemporary project working with ecosystem services is Albano in northern Stockholm. An important point of this project is to see the city "as a fully integrated social—ecological system" (see figure 7) in contrast to the polarization of these two that has been seen in history. With ecosystem services it is evident how this is something that is necessary to do, as the social system is very dependent on ecological systems (Akademiska hus et al 2010, p. 12).

### Urban Ecosystem Services

By using vegetative elements instead of constructed elements, ecosystem services can be achieved. In 1999 Bolund and Hunhammar wrote *Ecosystem Services in Urban Areas* where they described how ecosystem services could be integrated in the city of Stockholm. These were reducing of air pollution by vegetation filtering, lowering of temperature by transpiration and shading, creating a visual distance between traffic and pedestrians, draining of rainwater with a soft soil, sewage treatment with wetlands and human well being through recreation as well as cultural heritage. If water is absorbed and filtered in streams, wetlands, non-hard surfaces and vegetation the cost of managing stormwater can be minimized. A range of species also creates a rich experience and contributes to emotional values and identification (Bolund & Hunhammar 1999).

Bolund and Hunhammar (1999) explain how trees, vegetation and water can decrease the effect of the heated city. The transpiration of water in trees is cooling down, while the canopy is shading both hard surfaces and people. They also reduce wind speed and improve air quality (Bolund & Hunhammar 1999). Even though a small single tree has an impact, big trees and trees in a group can increase the effect of every single tree (Jansson, Persson & Östman 2013, p.13)

Trees and vegetation also have an important role in stormwater management. Water can seep through the soft surfaces and the plants can make use of it (Bolund and Hunhammar 1999). With the many hard surfaces in cities today, a lot of water is led into trenches and not immediately soaked up. Except for the process of slowing the waters running and not overload the system during rains, the plants also help to purify the water and clean it from toxics (Åström 2013, pp. 13-14).

### **Spatial integration**

Designing the city, the ecological systems and social systems can be integrated. With the right spatial disposition, they can enhance each other. Nick Robinson describes how plants can be used as an architectural element to create spaces. In the same way as a roof can be on top of a house, a tree canopy can have the same function. Walls and floors can also be created by vegetative elements. Different physical compositions can provide room for different activities and different moods. Plants also contain many aesthetical qualities (Robinson 2011, pp. 44-45). In the same way a single tree can have impact on the environmental factors, one single tree has spatial impact, but can be enhanced by several (Robinson 2011, p. 17).

## **Culture**

Since city life is a mixture of the built environment and the actions of people, this is what builds up the culture and identity of it. The Oxford Dictionary has four definitions of culture, where two of them are applicable on human society: “the arts and other manifestations of human intellectual achievement regarded collectively” and “the ideas, customs, and social behaviour of a particular people or society” (Oxford Dictionary 2014). This could be interpreted into the visual architecture and public art happening in the city, which is something very collective. The second definition claims the actions of the people, their behaviour in certain situations and the trends of the city. Youth culture and tribe culture could be among these.

A city is a mixture of the old culture and the contemporary culture. Some cultures are upheld by tradition or the built environment and aesthetics left since they were built. The contemporary culture is created from the ideas of the people; trends in what people are doing, the activities, what people are wearing and contemporary public art. The old visual culture becomes a common memory for the citizens and it is also what is the inspiration when building new things.

In the report *The Historic Urban Landscape Recommendation: A New*

*UNESCO Tool for a Sustainable Future* by O'Donnel and Turner the cityscape is described as partly a cultural landscape consisting of “the combined work of humanity and nature” and partly buildings that contribute to the character of the townscape. The historic values of a landscape are divided into two categories: tangible or intangible. The tangible is what is clearly seen: buildings, structures, natural systems, visible water, urban art, street furniture, vegetation, transportation system and visual relationships. The intangible is what happens and more focused on the common stories. Some examples mentioned are festivals, traditional music and performance, iconic shared places, places that have memory of past events (both joy and suffering), traditional practices, urban farming, local food, traditional arts and crafts and the workplaces (O'Donnel and Turner 2012).

### **Cultural Heritage**

Both the tangible and intangible historic values of a place or city make up its cultural heritage. In *More Urban Less Poor* the authors bring up how the cultural heritage is an asset and a resource to the community and if its potential is being recognized and conserved it may contribute to economic development through for example tourism (Tannerfeldt & Ljung 2006 p. 106). Tannerfeldt and Ljung continue with highlighting how “A nation or a people is held together by shared interests and memories- almost always associated with places” (2006 p. 106). Preserving architectural structures and areas rich in cultural heritage is therefore also particularly valuable from a social aspects since it is here where the collective memory of the past is made visible for the residents (Tannerfeldt & Ljung 2006 p. 106).

All events in the history of a city are not pleasant. Not uncommonly there are painful memories in a society that current generations would rather leave behind them. Some historical events, represented by for example buildings or monuments, can function as constant reminders of periods of repression, violence or inequalities. While the wish to erase these are understandable, art and built structures possess a value on its own (Tannerfeldt & Ljung 2006 p. 106). Tannerfeldt & Ljung declares: “Therefore it is an important, but difficult, challenge for every society to liberate its historic environment from narrow ideological or ethnical identifications and to stop sacrificing valuable buildings and monuments for such reasons” (2006 pp. 106-107).

### **Gentrification**

Management and restorations of historical environments should be executed carefully. Local materials and traditional crafts and methods



may protect the character of the area. Many times, the older parts of a city are in decay and where poor people reside or work (Tannerfeldt & Ljung 2006 p. 107). Tannerfeldt & Ljung explains how “Comprehensive restoration might result in gentrification- that the rents go up so that only the well-off can afford to live there”. By for example only conducting minor repairs and let the people who live or work in the area participate in the rehabilitation process, gentrification can be avoided. When the users of an area are not being displaced due to high rents, their lives and businesses can continue, an important aspect that also contributes to preserve the life and character of the environment. “Heritage is not only a matter of buildings- and restoration that eliminates all original life, small shops and services from the area is a failure” (Tannerfeldt & Ljung 2006 p. 107).

## Urban Poverty

“Poverty deprives people of the freedom to decide over and shape their own lives. Absence of economic margins and limited opportunities means that poor people are vulnerable” (Tannerfeldt & Ljung 2006 p. 39).

In *More urban less poor* (Tannerfeldt & Ljung 2006 p. 39) poverty is explained as multidimensional, relative, context-specific and dynamic- a temporal aspect where people may move in and out of poverty. Urban poverty differs from rural poverty and the most prominent reason is that the urban poor are dependent on cash income in order to live their lives in the city; money is necessary for building materials, food and water. Transportation is another major expense, most of the times, the urban poor reside in the outskirts of a city and in order to earn an income, they often have to travel a long distance to other areas for work (Tannerfeldt & Ljung 2006 p. 39). Tannerfeldt and Ljung (2006 p. 42) continue to describe how urban poor are more exposed to crime, violence, traffic accidents and fire and suffer from more acute effects from environmental hazards such as flooding and landslides.

## Urban Mobility

The moving around in cities is determined by the quality of roads and streets. The report from UN-HABITAT, *Streets as Public spaces and Drivers of Urban Prosperity* (2013b), has put focus on how streets could have a part in the prosperity of cities.

The report distinguishes that connectivity is one of the essentials in creating a prosperous street. By avoiding cul-de-sacs and promoting short links and intersections, the street can have better linking and accessibility. This leads to a more resilient system as there are shorter travel distances and more route options, as a solution for the congested streets in especially low income countries. In many cities, pavements for pedestrians and bicycle lanes are often lacking, the report claims. It seems that city planners are not prioritising these modes of transport which has increased the risks of accidents. Promoting walkability and cycling can achieve a prosperous street and ecological systems can be integrated (UN-HABITAT 2013b, pp. 32-34). In these streets, street vending can be encouraged. It does already happen today but it has been proved that businesses have higher sales when more people are using the streets. This is beneficial for the whole economy, as employment rates, income, property values increases and with that the tax revenues (UN-HABITAT 2013b, p. 38).

### Walkability

In many high income countries, walkability is a measurement of how many people are walking, according to the UN-HABITAT report *Streets as Public Spaces* (2013b). These people often have the choice to walk or not to walk, making whether the design is inviting or not essential to the results. In low income countries, the case is rather that there is no choice but to walk for the low income group. The infrastructure is often lacking and there are few affordable alternatives of transport. There are attempts to design more walkable streets in these regions, by expanding sidewalks, planting trees and installing seating (UN-HABITAT 2013b p. viii). This is said to fulfil a “set of objectives: to enhance infrastructure, environmental sustainability, social interaction, public health, productivity and social inclusion, the key components of a prosperous city” (UN-HABITAT 2013b p. viii).

This part consists of our literature studies directed on the city of Nairobi and colonial cities in general. In the end, we present our own observations in the city, verifying a lot of what is presented before.

## PART 1 - NAIROBI





Figure 8. Nairobi in a strategic location between Mombasa at the shore of Indian Ocean and Lake Victoria.

## City of Nairobi

The city of Nairobi has grown for over a hundred years. The character of a colonial city is prominent, and the fact that most of the citizens are from the low income group is not only coincidental. The planning of the city have affected what it looks like today, the culture, how it is used, as well as the natural systems running through.

### From Swamp to Capital

Nairobi is a rather young city, but the colonial mind has been present since its founding. In the paper Kenya: Atlas of Our Changing Environment the founding of the city is described. Nairobi was founded in 1899 during the British colonization as a railway camp along the railway between Uganda and Mombasa. It made a good site with its location almost in the middle between the Ugandan capital Kampala close to Lake Victoria and Mombasa on the coast of the Indian Ocean (see figure 8). The site was set on a swampy watering hole on the border of Maasai grazing land and the Kikuyu agriculture land. The Maasai called the land Enkare Nyirobi - The place of Cool Waters - which became Nairobi by the British (UNEP 2009, p. 145). Nairobi became the capital of British East Africa and the city rapidly grew to become Kenya's centre of business (Chartron-Bigot 2010, p ix-x).

#### The Original Landscape

Nairobi at a height around 1700 metres was founded at a mosaic of savannah, montane forest and swamps. North of the city centre are remnants from the indigenous Karura Forest. The Ngong Hills can be found west of the city and the preserved Nairobi National park is 7 kilometres south of the city centre. Nairobi sits next to the Rift Valley (UNEP 2009, pp. 149-154).

East Africa is one of the richest regions of Africa regarding flora and fauna since it has an enormous diversity of climate and habitats. In the higher altitudes, rainfalls are reliable (Dharani 2011, p. 4). The value of trees in this part of the world is not only of a decorative nature. For centuries, trees have had an important role in traditional medicine, as an antidote against magic and in religious ceremonies (Dharani 2011, p. 6). With a growing urban population, moving in from the rural areas, this can be assumed to have a great value in their identification of themselves in the city. Trees also contain many valuable ecosystem services.

Even though the climate in Nairobi is mild due to its altitude, the



The railway was the core of Nairobi

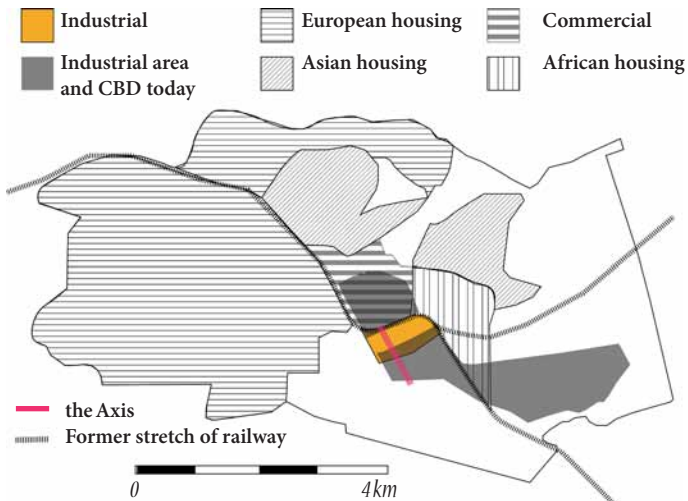


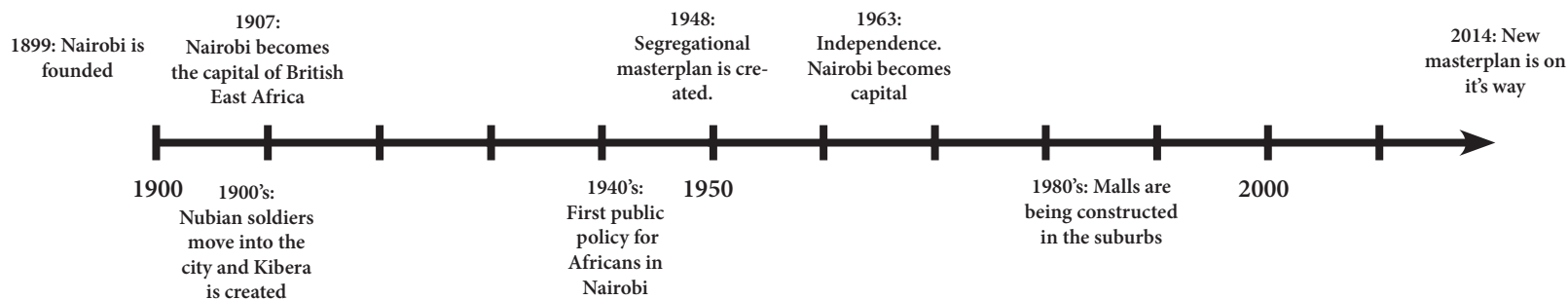
Figure 9. Map showing the colonial racial segregation of Nairobi 1948. The grey areas are the approximate location of CBD and the industrial area today.

phenomenon of urban heat islands increases the temperature. The location close to the equator makes the sun hot and it is avoided during daytime. There are also heavy rains, causing streets to flood. As in other cities, the surfaces are mostly hard and difficult for water to permeate and is led into trenches.

### A Colonial City

An ideological colonial thought has influenced the urban form of Nairobi. The text *City Planning in Nairobi* (Médard 2010) describes how the city was planned to divide different groups of the urban dwellers. In the very beginning of Nairobi's history neighbourhoods developed without a particular plan but after some years, racial segregation was a fact (see figure 9). There were three main residential groups: European, Indian and African, each group living in their own neighbourhood. This segregation caused restrictions in both working and living areas in the city. Since the African population was excluded from the colonial city, they have been the originators of unplanned "villages" in the unoccupied spaces – areas that densified and today are named slum areas. One of them is Kibera, which is among the largest slums in east Africa. The European quarters were planned in the highlands west of the city where the climate was more pleasant and the soil more fertile, in areas such as Upper Hill, Westlands, Lavington and Kilimani. One of the first European residential areas was also located north of

*Mary moved to the city ten months ago. She grew up in a village close to Naivasha, where thorn melons grow on trees. In college, she learned how to cook and lived with her sister. When her friend Jacquey was asked by her boss if she knew anyone who wanted work, she immediately thought of Mary. Now Mary sleeps in the apartment she works in and barely have time to go home to her family. Jacquey comes over once a day, they sit in the kitchen and talk and help each other out with their work. On Sundays they dress up neatly and go to church together and when they have the time and money they go to the beauty salon and get a pedicure or their hair braided.*





*One wall after the other is passing by outside the window. The street is like a tunnel, and there on the left hand side- a new wall built on top of an old one, stretching higher towards the sky. Nairobi confuses me. Never have I had such a hard time to orientate myself in a city. Even after a few weeks the mental map of Nairobi was still hard to chart. The city seemed so disconnected. Just like an archipelago, the different neighbourhoods form isolated islands and within these islands residential areas lay like fortresses with their high walls and security guards. Suddenly my thoughts are interrupted. "Indians live there, Chinese live spot-wise there and there, rich people and expats reside here". Our taxi driver paused for a moment. "And myself, I live in Eastlands"*

the city center, Muthaiga. The African quarters were very limited and located east of the city, in areas like Pumwani and Kariokor. They were restricted by the industrial area in the south and the Indian quarters in the north and mostly dedicated to workers for the Railway. The Indian quarters were found in the north in between the European and the African neighbourhoods such as Ngara, Pangani and Eastleigh (Médard 2010, pp. 28-30). Kenya became independent in 1963 and Nairobi was turned into the newly born nations capital. In the residential areas close to the city, parts of the African population moved in while the Indians moved to the European suburbs. There was no formal racial segregation anymore, even though it remained (Médard 2010, p. 30).

### A socially fragmented city

Today still, the Somalis are said to live in Eastleigh, the Indians in Parklands and the Europeans live far out in Karen (Médard 2010, p. 30). This also affects the use of the city and the opportunity to meet. Médard continues to describe the apparent fragmentation. The areas are different in structure, density and economical group (see figure 10). Just like Nairobi overall is separated, the city centre also is divided between a populous eastern part and a rich but less populated western part with the border running along Tom Mboya street that used to be the boundary between the old Indian quarter and the European business centre. The eastern part hosts important transportation nodes for matatus and buses. It is a busy area with lots of commercial activities.

Some people have been claiming that the area is unsafe with high risks of robbery and attacks. Well-off residents with vehicles have been avoiding this part of the city as well as any public space and instead made their way out in the well-guarded malls and shopping centers which were being built in the suburbs during the 1980's. This, together with the development of protected office blocks and gated residential areas in the suburbs and the fear of insecurity in the city centre, have led to a lifestyle where one can travel with car from a gated residence to a guarded office, mall or entertainment venue. The old European neighbourhoods west of the city such as Karen, Langata, Lavington and Westlands features low density, green and lush residential areas. These are in strong contrast to the old African and Indian residential areas east of the city centre, Eastlands, which stretches from the industrial area in the south to the Mathare river in the North consists of a variety of quarters ranging from maisonettes housing to slum (Médard 2010, p. 31).



Figure 10. Figure grounds over Lavington, CBD and Kibera showing structure and densities. Lavington was one of the areas for European residents with houses surrounded by lush gardens and has until today kept its character. The informal settlements of Kibera grew in the unplanned areas and is still growing. The CBD in the city center follows an European grid layout.



## Exploring an Urban Identity

In Nairobi, being a colonial city, a lot of the tangible history is based on British ideals. The informal settlements in Nairobi can be traced back to the colonial era where the African population was excluded from the planning and therefore settled in the unoccupied spaces in between the planned zoning areas and European neighbourhoods. In Nairobi Today, Kibera is described as the first area to house an informal African “village” (Chartron-Bigot 2010, p. x).

The intangible is present through tribes and the rural history. Jua Kali, a name for the big informal group of businesses happening on the streets, are a big part of this, both in crafts and in the tradition of selling things on the street. During colonial times the African culture was suppressed and in The Story of the Godown Arts Centre: A Journey to Freedom through the Arts Joy Mboya describes how the political situation following Independence during two decades when political opposition was illegal, held quelled cultural expression due to restrictions in freedom of speech. She continues stating that “Creativity went into hibernation” (Mboya, 2007 p. 170).

Today, creativity can be found amongst the citizens of Nairobi in many various ways. There is an enormous entrepreneurship happening in the streets and even though arts as a form was held back, other cultural expressions have been developed along side of the official languages, Sheng is spoken in between the urban dwellers. It began as a form of slang in the slum areas of the city, using a mixture of English, Swahili and minority languages, but is now quickly developing into a language of the Nairobians. Sheng is changing rapidly; new words are introduced while others become old. Not uncommonly, media people like DJ’s, musicians and other entertainers introduce these new phrases. Sheng is described as a “code”- enabling young people to openly talk about topics that otherwise are considered taboo. This is only one example of the many dynamics of Nairobi, always creating city life.

*It is Friday night and we have decided to meet up with a friend in Parklands. Due to the darkness we were forced to take a cab, matatus and walking is dangerous at this hour. Our driver slows down at a run down sheet metal fence and stops at the entrance where we are met by three guards with detectors. They search through our bags and opens up the trunk, taking away our water bottles and examining us all thoroughly. We're in. Our driver drops us off another twenty meters away. Getting out of the car, we see something that we wouldn't have expected from the outside. There are several buildings with restaurants and bars, music is playing from the upper floor in the biggest one. Waitresses walk around dressed in camouflage dresses. The atmosphere is vibrant; it feels like a Friday night in any big city in the world.*

*A lot of the central Nairobi has similarities with many European cities.*



### **The Global influence in Nairobi**

The British influence in Nairobi is very evident. The Central Business District of Nairobi, CBD, is a modern city centre with skyscrapers and symbolic monuments of power (Médard 2010 p. 31). This is a downtown almost only containing offices and commerce as well as the grid layout of the streets. In the outskirts, there are suburbs spreading out over the savannah, mixed with dense slum areas.

The rapid urbanization has had big impact on the vegetation as the sprawling city takes over forested and agricultural land. The bad waste management result in polluted rivers, both from private garbage and enterprises (UNEP 2009, pp. 149-154). A lot of the vegetation in Nairobi is of another origin than Kenyan. The famous Jacaranda is Brazilian and many fast growing species have been planted to be used for firewood for the trains (Dharani 2011, p. 23). In the design of Uhuru Park influences and ideals from English parks can be seen with extended lawns and trees scattered around. By bringing the European ideals to Nairobi, the original African landscape and culture were somewhat forgotten.



Oloolua forest in Karen is a remain of the original landscape, together with the Nairobi National Park representing the Savannah





## An Excluded Urban Majority

More than half of the Nairobi population lives in poverty. These people put their own mark on the city, either by the big informal settlements or with their own informal economy.

### Informal Settlements

In 1997 50% of Nairobi's inhabitants lived below the national poverty line (UN-HABITAT 2006 p. 4). Today over 60% of the residents in Nairobi live in slum areas and the total population living in informal settlements in the city is estimated to 1.4 million (UN-HABITAT 2006 p. 4 and Tannerfeldt & Ljung 2006 p. 40). Kibera is the largest informal settlement in Nairobi and with estimated numbers of 300 000 – 500 000 people living in the area it is also considered to be the largest informal settlement in whole of Africa (UN-HABITAT 2006 p. 7 and Tannerfeldt & Ljung 2006 p. 40). 75% of the urban population growth happens in informal settlement areas and the number of urban slum dwellers is expected to double in the next 15 years. "Informal settlements cover only 5% of the total residential land area of the city, but they are inhabited by at least half of the city's population." (UN-HABITAT 2006 p. 7).

### Informal Sector

A high growth rate is also found within the "informal sector" or the "informal economy". The UN-HABITAT report states, "Every year the informal sector employs a greater share of Nairobi's labour force, but it is not adequately regulated nor supported by the City Council. Kiosks and hawkers are still largely seen as threats to city development instead of opportunities and resources. Lack of services and infrastructure severely constrains the economic development of the informal sector, particularly in the slums." (UN-HABITAT 2006) p. 9)

Tannerfeldt & Ljung (2006 p. 48) refers to the informal economy as the "economy of the poor" and underlines its importance of the economy as a whole. The informal economy therefore plays an important role for both economical and social aspects of development (Tannerfeldt & Ljung 2006 p. 48). Women are identified as key players in the informal sector. In Sub-Saharan countries 84% of the women earn their income from the informal economy, compared to 63% of the men (Tannerfeldt & Ljung 2006 p. 50).

The importance of appropriate strategies to ensure the

*In Kibera there are streets full of informal vendors.*



*We pass the shoeshiners office everyday on our way down town. It is not what you would expect an office to look like. It is next to one of the high walls in the industrial area, in the impediment before the pedestrian road, next to a bus stop. There is always a group of men hanging out around the area. There is two square metres of stone put there to make an area for work. Next to it there is a two square metres well cut lawn with a pilipili bush in the back and others surrounding it. Recently put up thread goes over it with climbing plants starting to grow up on it to cover it. "It's for the customers" he says one day when we stop to talk to him. He has been in the very same spot since 2001. He points at a well-grown tree standing in the corner of the wall: "I planted that 10 years ago".*

reinforcement of the economic growth for the informal sector is also stressed in the report from UN-HABITAT (2006 p. 4). In 2005 the informal sector employed over 50% of Nairobi's labour force. When employments in the public and private sectors are being downsized, the informal sector becomes an important alternative for livelihood. (City Council of Nairobi 2007, p.3) It is in the slum areas where a significant part of Nairobi's income is produced and consumed and the informal economy therefore provides an important way for the urban poor and the unemployed to earn an income (UN-HABITAT 2006 p. 14).



*The informal sector often create their own stalls and places, using found materials and creative solutions.*



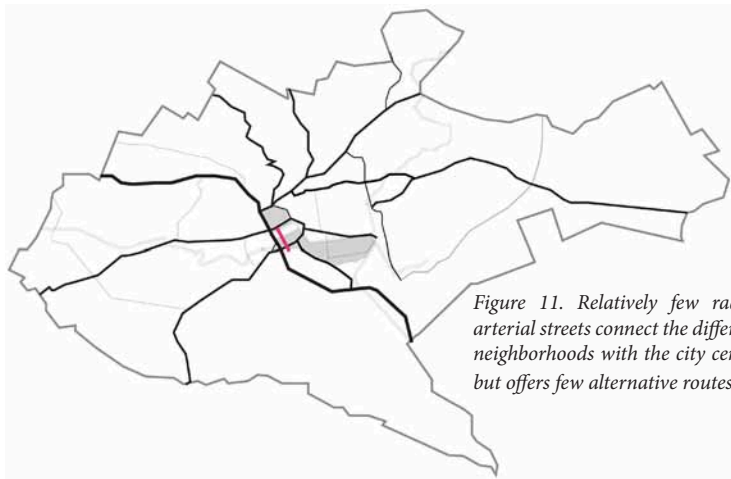


Figure 11. Relatively few radial arterial streets connect the different neighborhoods with the city center but offers few alternative routes.



Orange circle: Traffic to and from the industrial area      Grey circle: Traffic to and from the city center

Figure 12. Traffic to and from the city center and the industrial area has to go through roundabouts whose capacities set the limit for the traffic flowing in and out of the city center.

## Streets in Nairobi

Congested and unsafe roads with unreliable performance characterize the traffic in Nairobi. This is partly due to a poorly connected street network that lacks the capacity to serve increasing traffic demands. Radial arterial streets mainly make up Nairobi's street network (see figure 11). The radial streets connect suburbs and the surrounding areas to the Central Business District, CBD (see figure 12). Few connections between the arterial streets and the lack of ring roads limits the choices of alternative routes and also forces peripheral trips in to the city center (UN-HABITAT 2013a p.8).

The land use pattern with a high number of workplaces in the CBD and industrial area and the suburban housing surrounding the city center, causes strong peak flows of people into the city center in the morning (Gonzales et al 2009 p. 10). In the report Multimodal Transport Modeling for Nairobi, Kenya: Insights and Recommendations with an Evidence-Based Model the authors describe how vehicles have to pass through one of six gateway traffic circles that borders the CBD in order to drive into or even just pass the city center. "This means that the capacity of the street network to serve trips entering and exiting the CBD from surrounding neighbourhoods cannot exceed the capacity of these six intersections" (Gonzales et al 2009 p. 4). Small accidents happening in critical parts of the street network like these roundabouts adjacent to the CBD, can therefore have disproportional consequences for the traffic flow (Gonzales et al 2009 p. 4).

### Focus on the cars

Even though private vehicle make up the smallest share of daily trips in Nairobi, the city could be viewed as quite oriented towards cars. During our stay in Nairobi we came in contact with two infrastructure projects involving elevated streets. The first one is Uhuru Highway that borders the western part of the industrial area and which today is already a difficult barrier to cross as a pedestrian. The second one is Workshop Road, one of the streets that makes up the Axis and runs on both sides of the Railway area, from Polytechnic University in the city center down south towards the industrial area. Today mostly pedestrians move along this stretch and there is only a footbridge connecting the two sides.

In 2004, nearly 4,8 million trips per day were made within Nairobi. 16% of the trips were done by private vehicle, 36% were by public transport and 48% were by foot (Gonzales et al 2009 p. 4). These numbers have most certainly changed in the past decade.

The UN-HABITAT report *Planning and Design for Sustainable Urban*

*The irony is striking and the realization makes me laugh: So this is the actual reason for calling it a zebra-crossing? We are back in Nairobi after the safari in Maasai Mara and are just about to cross a busy street. Just like a grazing herd on the savannah keep together to stay safe, the Nairobians use strategies to survive the hectic traffic in the concrete jungle. Move together as a group to increase the chances of making a car stop is one of them. Yet, I catch myself several times feeling like a zebra, being disturbed by a 4x4 safari vehicle, while crossing the street- shrugging, nervously looking over my shoulder with wide frightened eyes, hurrying my final steps before reaching the other side.*



*It is Thursday evening and our taxi is stuck in a roundabout in one of the suburbs. Cars keep pushing themselves into the intersection without giving way. We have already entered the roundabout and are right in the middle of the chaos, waiting for the policeman that controls and diverts the traffic to let us pass him and drive out. All of a sudden, some guys jump out of a bus full of university students. Apparently there is a game tonight and their excitement pierce through the car window. The students walk up to the policeman, hand him something and then run back to the bus, laughing, looking cheerful. The police starts to wave and their lane starts to move. Soon the bus filled with students can't be seen anymore. It will take another little while before our lane starts moving.*

*Mobility* presents how a total cost of US\$537.8 million was spent during 2008-2012 on the construction or rehabilitation of urban roads in the Nairobi where the main investment went to increasing traffic flows and the enabling of faster mobility. The same report points out how that sum of money is significant for a young African economy (UN-HABITAT 2013a p. 4). The Thika Highway improvement project that was completed in 2012 is one example on how increased mobility with the focus on fast and free-flowing traffic can have negative socioeconomic impacts. People with fewer resources who depend on walking, such as older people, children, the poor and people with disabilities are especially affected by the barrier effect caused and inconvenience of overpasses (UN-HABITAT 2013a p. 110).

### Low prioritised pedestrians

Even though most people travel by foot in Nairobi and even though walking is the only transport alternative for many of the city dwellers, the pedestrian mobility is neglected in terms of safety, quality space and accessibility. We saw during our stay in Nairobi that for many people walking to their workplaces in the city center, the railway tracks provided the most convenient route of transport.

95% of the roads in Nairobi have a high pedestrian flow but only 20% actually have pedestrian footpaths (UN-HABITAT 2013a p. 18). There is a lack of safe pedestrian crossings and streetlights and most parts of the city lack a pavement-system and where there is one it is usually poorly maintained (UN-HABITAT 2006 p. 30). For those who do not have the means for motorized transport issues concerning safety and security could particularly be affected.

The majority of the people living in slum areas walk and walking is especially common among women and children (UN-HABITAT 2013a p. 16). Local economy such as kiosks, street vendors and shops could benefit from an enhanced "slow mobility". More pedestrian flow could also increase social control in public spaces and in turn improve the security situation (UN-HABITAT 2006 p. 30).

### Cycling

Cycling makes up less than 3% of total trips in Nairobi (UN-HABITAT 2013a p. 16). During our meeting with Nairobi City Councils Planning department we were informed that there is still an old colonial bylaw prohibiting biking and even though it is not being followed, it could cause situations where it would be used against someone violating it (interview Patrick Akivaga 2013).



*Pedestrians are often crossing together while the cars are jammed.*





## Public Transport

For those who can afford it, public transportation is an important mode of getting around in the city. Public transport makes up the second largest mode of transportation in Nairobi where matatus provide the majority of trips (Gonzales et al 2009 p. 4). The matatus are informal paratransit minibuses that are meant to carry 14 passengers which operate along side with fixed route buses. Standing for three-quarters of public transport trips and carrying out 662 trips per inhabitant per year, the operation of matatus brings Nairobi to the top of world's highest per capita use of informal transport (UN-HABITAT 2013a p. 26). "Where matatu service becomes critically important is in connecting the city center to outlying townships and communities. Where distances are too far to walk, matatus provide the only affordable means of transport for many people." (Gonzales et al 2009 p. 5). Though for the poorest city dwellers, matatus are no option. Commuting by matatu to and from work in Nairobi can cost up to 30% of daily wages, a trend commonly seen in rapidly growing cities. The fares for informal public transit can increase during heavy rain or peak hours (UN-HABITAT 2013a p. 10, 157).

The railway is still operating but with relatively few commuter trains. There are plans to revitalize the railway and put it into more use (interview Patrick Akivaga 2013). One step in this process was the opening of Syokimau Railway station that opened in the southern suburbs of Nairobi in 2012. From Syokimau last-mile link buses were introduced to carry people between the station and various points in the city (UN-HABITAT 2013a p. 43,52).

In the Central Business District, matatus are being phased out in order to give way for larger passenger buses carrying a minimum of 25 passengers. Nairobi is also one of the cities in focus in the SUSTRAN-project (Sustainable Transport Solutions in East African Cities) with the aim to support the work of long-term visions on sustainable transport. Bus Rapid Transit, BRT is one of the strategies that are being investigated to reduce emissions and increase public transport efficiency (UN-HABITAT 2013a p. 28).

*We barely slept on the flight. The flight attendants woke us up early for us to be able to eat breakfast. The taxi drivers name is Isaac. He watched the game yesterday and his favourite team is Arsenal. Eagerly, we look out the window to get a first glance of this new country. The savannah landscape is very open, some trees are scattered out. There are people everywhere, even though it's early in the morning. They are like a river floating beside the highway. Our driver confirms that they are walking to work.*

*Some of them work at the airport, others are walking downtown or to the industrial area. As we get closer to town, there is still a lot of people out in the streets but their way of dressing has changed. In this part they wear suits and their skirts are shorter, instead of worn out, too big clothes..*

The bora bora is a form of taxi used to transport single persons around the city..

## Conclusion City of Nairobi

Historical factors have led to Nairobi being a city fragmented in terms of social, physical and ecological aspects. The colonial planning schemes were based on ethnical segregation that after independence reinforced social segregation, a polarization of the inhabitants that is still found in the city today (Médard 2010, pp. 28-30). This fragmentation is also increased by the current urbanisation trend, which is happening at a faster pace than the city of Nairobi can handle. When parts of the city sprawl, urban green areas and the surrounding landscape becomes more fragmented. The poorly connected street network and land use pattern separates functions and divide neighbourhoods of different socioeconomic status. This result in uniform commute patterns that together with inadequate roundabouts contribute to severe traffic congestions that in turn have negative environmental, economical and social impacts.

Walking is the most common way of getting around in Nairobi and for many residents public transportation is not an option due to high fares compared to their daily income. It is the urban dwellers with fewer resources that have to walk the longest distance between home and work and are also more exposed to traffic accidents. Focusing on fast and free-flowing vehicle traffic has proven to decrease the accessibility for pedestrians since their safety and comfort are not fully taken into consideration, with socioeconomic impacts as a consequence. The majority of Nairobi's city dwellers would benefit from increased walkability either directly by better quality and increased safety of pedestrian space, or indirectly by enhanced economic profits for informal and formal businesses and less congested streets. Biking and walking are the most sustainable modes of transportation and supporting this slow mobility would improve air quality and decrease greenhouse gas emissions.

The increasing population and growth of Nairobi is putting a greater pressure on the urban ecosystems. Nairobi was built in a swampy area with many rivers running through. As the city grows, the hard surface amplifies, which increase the urban heat island effect and decrease the amount of rainwater that can infiltrate the ground and be delayed before running into the rivers. The process of a more globalized landscape has both ecological and social impacts. When the British brought their plants, less indigenous species were planted. This meant that the local ecosystems weren't strengthened within the city. By deliberately planning for and providing ecosystem services some environmental and social issues in Nairobi can be addressed such as microclimate for the many people who walk and use the public spaces and stormwater management

for managing of the rain.

As the British brought their landscape ideals and city structures to Nairobi, the linkage to the original savannah, forest landscape and village culture was also weakened. The original landscape and native plant species is something that many people can associate to when moving from the rural parts into the city. Faggi et al (2009 p. 241) identify urban green spaces and public spaces as important elements in the creation of an urban identity and its' uniqueness.. Since it is both the physical environment and the activities of people they support that make up the culture and identity of a city it is of importance to take both into consideration when planning and developing an area. Tannerfeldt & Ljung (2006 p. 107) stress the importance of participation of users of a place when renewing a place and using minor interventions in order to avoid gentrification, the displacement of people and loss of character in the area. The creativity of the Nairobians can be seen through various and multiple cultural expressions, ranging from the dynamic and ever-evolving presence of Sheng to different entrepreneurship within Jua Kali, the informal sector of streets vendors and artisans. As the informal settlements are growing, this informal economy is an important alternative for livelihood for urban poor and unemployed and is at the same time an economy that most people in Nairobi are in contact with during everyday life. Yet, its presence is partly considered a threat to development rather than recognized as having an important role for both economical and social aspects of development.





## Observations

In order to get an understanding of how people in Nairobi use public spaces such as parks and streets we carried out observations. The observations were conducted mainly in the central parts of Nairobi and the suburbs (see figure 13) with focus on traffic situations, vegetation and human activities in the public realm. Most of the observations were done as we moved around the city in our daily life and in the hours of daylight. Other observations were carried out with a more predetermined agenda such as our visits to different parks in the city, the parking lot and our visits to Kibera.

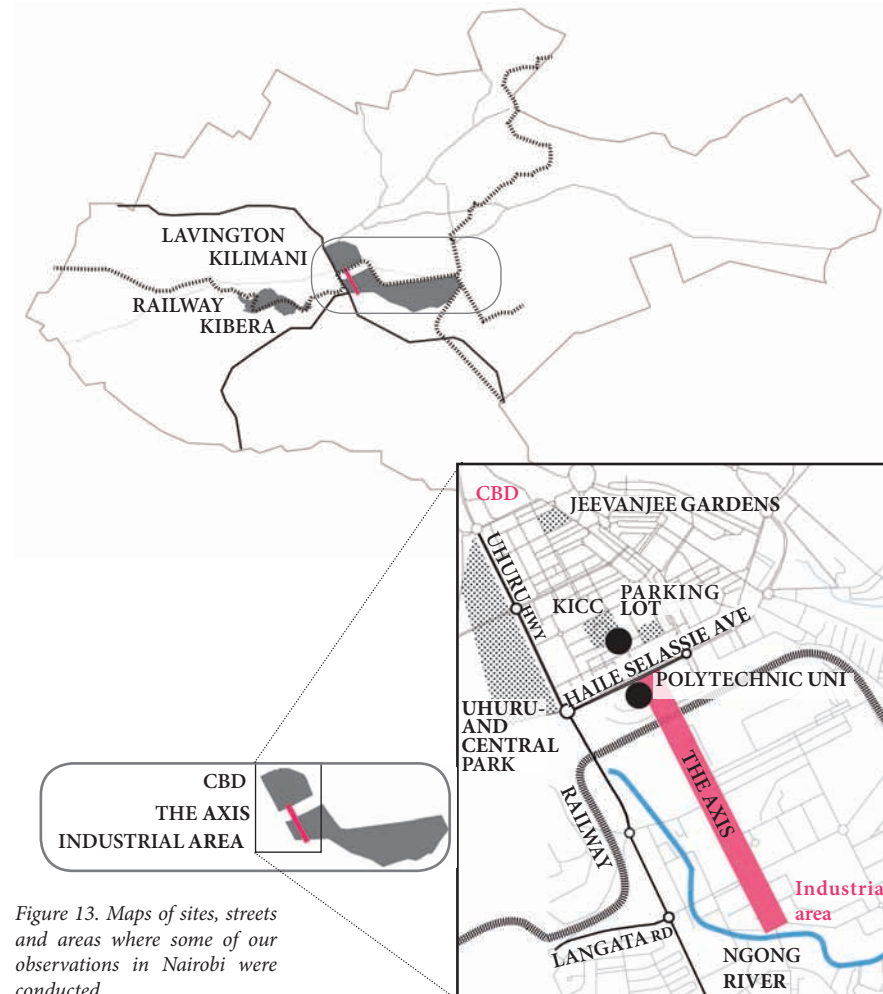


Figure 13. Maps of sites, streets and areas where some of our observations in Nairobi were conducted

The observations were focused on people's activities in public spaces.

## Urban Mobility

The traffic in Nairobi is constantly present, both physically and mentally. It is also an issue affecting everyday life. Cars, traffic jams and matatus have a prominent place in the image of Nairobi but along side all the vehicles causing jams, there are numbers of people walking and finding their way to and from work. There are also other means of transportation, such as bikes and motorbikes.

### Pedestrians

Walking is an important means of transportation, especially for the low-income group. The streets are heavily used, mostly during morning and afternoon rush and the railway also serves as an important pedestrian path for people in the slum areas (see figure 14). Cul-de-sacs and dead ends are common features in the street network in many parts of Nairobi that makes orientation more difficult and results in longer distances for pedestrians. Where cars and vehicles are prohibited or where they cannot pass, the space is usually overcrowded with pedestrians. Aga Khan Walk (see figure 15), the footbridge over the railway area and the wide sidewalks along Moi Avenue are some examples of this. Many people choose to use these roads to avoid the cars, even though they are met with a jam of people. Along many streets, the sidewalks are not wide enough for the amount of pedestrians, especially at certain hours of the day. The sides of the roads where pedestrians walk are usually not paved outside of the city center (see figure 16) or along the minor roads in the suburbs. When the rain falls, the bare soil, consisting of mainly clay, becomes slippery and hard to walk on. People get dirty and if the traffic lanes are paved, some people decide on walking on the paved street instead, risking to get hit by a car or impeding traffic.

Figure 14. Picture from Kibera. Since there are relatively few daily trains occupying the tracks to and from Nairobi, the railway becomes an important pedestrian route for many of the city's residents.

Figure 15. Aga Khan Walk, the only pedestrian-only street in the city center. Here people both pass or sit down for rest on the ground.

Figure 16. Unpaved sidewalks cause inconvenience during heavy rain for both pedestrians and vehicle traffic.



Figure  
14



Figure  
15



Figure  
16





Figure 17



Figure 18



Figure 19

### Crossings

Pedestrians often have to adapt to cars when crossing a street, making the crossings of streets both dangerous and time-consuming. Zebra crossings can be found in some locations in the CBD and in some of the suburbs. Even when there is a zebra-crossing, people adapt to cars by choosing to walk over as a group since drivers do not bother to stop and give way (figure 17). At some locations pedestrians are hindered to cross by guard rails along the streets, such as along centrally located Haile Selassie Avenue (figure 18). There are also pedestrian overpasses stretching high above the roads. These are mostly seen empty, probably due to the discomfort of climbing stairs and the emptiness of people that this physical hinderance causes. In some locations, where the only option is to use the overpasses, these are frequently used and therefore also attracts street vendors and hawkers, seeing potential customers in the big flow of people (figure 19).

Figure 17. Zebra - crossing at Uhuru Highway in the Central Business District.

Figure 18. Busy Haile Selassie in the Central Business District. The street feeds vehicles in to the train station and the bus stations downtown but with few pedestrian crossings it becomes a barrier for those who walk.

Figure 19. The overpass at Haile Selassie is centrally located and busy during daytime. The flow of people makes up a good basis for vending activities. In other places in the city these overpasses are underused and used for other purposes rather than crossing the street safely.

### Buses

Bus stops in Nairobi are sometimes hard to find. A number of them have sheds and a niche for the buses to stop on (figure 20 and 21). Very few of them have adequate lighting. Overall, the quality of the bus sheds is not too good since they are not providing the shelter that they could. A lot of them have neither shelter nor niche, but are just a crowd of people standing waiting. People are not only standing only around the bus shed, but are also on the alert to be able to stop the bus when it's arriving.

### Bikes

Biking is a relatively uncommon sight in Nairobi, both as a mode of transportation and for recreation. There are few streets with cycle lanes and there is a lack of bike racks or other elements and services to encourage biking and provide for it. Roads that are being upgraded and undergo construction in some of the suburban areas have dedicated space for cycling. This is a step towards encouraging biking where new roads are meeting the demand for a new urban use (figure 22).



Figure 20



Figure 21

Figure 20. Bus stop in Kilimani, one of the suburbs. This one is lacking seating, shelter and adequate lighting.

Figure 21. Kilimani. Street vendors often gather around bus stops where they find good business.

Figure 22. Upgraded street in Kilimani. Newly planted trees are protected by car tires and separates the bike path from pedestrian space but still allows access and the possibility to move inbetween.



Figure 22



## Social and Cultural Activities

Where people are able to meet culture is created. In Nairobi, where people are, vending is happening. Around the stores or vendors, more social interactions take place, stimulating more informal commerce to emerge.

### Appropriation

Due to the lack of public space and the land use pressure, people take hold of the remaining land. In some cases they come up with new ways of using a place that was designed for a certain purpose. One example of this is a parking lot in the Central Business District, CBD (see figure 23). As seen in the pictures, on weekdays, Monday until Friday and partly Saturday, it is used for parking since CBD consists mostly of offices, and these days the daytime pressure on CBD is high. During Saturdays, when pressure of parking space is lower, half of the parking lot is transformed into a market. On Sundays, when all the offices are closed and the whole city center is a lot calmer, it is transformed into a space for skating. Some people rent out rollerblades and children and grown ups are going there to do sports.



Monday



Saturday



Sunday

Figure 23 (left). The parking lot provides space for various activities during different days of the week.



Another important part in the appropriation of public spaces in Nairobi is the informal sector vendors. Individuals start taking care of their own plot for business purposes. Stalls are put up and if a vendor stays in the same place for long, he or she could start taking care of the area. For example, curbs of the sidewalk are used for displaying goods, benches are put up or plants are planted. One example of this is a shoe shiner along the Axis that we passed almost every day during our stay in Nairobi. He has turned an area into his own which is neatly taken care of, a small garden free for the passing people to enjoy (figure 24).

### Vending

Selling things is an important part of both the city's economy and the street life. As mentioned in the background part of this thesis there is a big informal sector in Nairobi. The formal businesses mostly happen in malls or in shops along the streets, whereas the informal is happening in the actual streets. Compared to the formal businesses in the malls that are guarded and where only certain people are let in, anyone can access the informal stores. They are often performed in the same space all the time. A businessman or woman often returns to the same space for selling goods or offering their services. The streets are the main arenas for this activity. Informal businesses are usually seen where lots of people are passing, in street corners, close to bus stops or right in the middle of the street during traffic jams as some hawkers walk along the congested traffic in between cars to sell their products (figure 25). Fruit and sugarcane are sold from wheelbarrows or carts and maize is roasted on grills built up from construction materials such as building blocks (figure 26).



Figure  
24



Figure  
25



Figure  
26

Figure 24. Entrepreneur in the industrial area. Climbing plants provide shadow for customers and also contribute to a more interesting street environment for people passing.

Figure 25. Street vendors selling fresh fruits outside Polytechnic University College.

Figure 26. Industrial area along the Axis. A small traffic island provides a good spot for selling sugarcane.



Figure  
27



Figure  
28



Figure  
29

From sheds, goods such as domestic products and top up for the cell phone are provided (figure 27). In some areas in the city all street vendors are chased away by authorities to keep the area 'clean'. This is happening in the Central Business District (figure 28) and in parks.

Open-air markets have an important and prominent role of the daily life in Nairobi where anything from food to handicraft to spare parts can be found. Some markets move around to different locations during different days of the week while others are reoccurring at the same site. Markets of different sizes are also found along both bigger streets and smaller roads (figure 29).

Figure 27. Informal economy activities such as kiosks, vending of second hand clothes and services such as shoe shining in the street corner in Kilimani. This is a common sight in many parts of Nairobi and fullfills the purpose of what could be the charachter of a square.

Figure 28. The square in front of KICC, Kenyatta International Conference Center. A planned public space that are more used for official meetings and tourism rather than daily life activities.

Figure 29. Open air market north-west of CBD.



### Social activities

People socializing can be seen in every part of Nairobi. Hanging out happens both in the streets, malls and parks. Having lunch outside is an important break for workers (figure 30). They often buy from the carts or wheelbarrows (figure 25). Some of them cannot afford it, and then they just sit around and rest while waiting to start working again. Along the streets people offering their goods or services hang out with each other in between clients. Outside the universities and offices people gather. They mostly stand, some sits on old constructions materials and others sit right on the ground (figure 31). Religion is an important part in the Kenyan society. Christianity is the main religion but Islam and Hinduism is also commonly practiced. In parks and along less busy streets, there are sometimes preachers standing or walking around shouting out their message to whoever wants to listen or families singing and preaching. On early Sunday morning's processions of people singing and dancing on their way to church can be seen along the streets. Parks and calmer streets are also important forums for politics. Here people gather to have political discussions. It is often men connected to a political group who stand together in big groups in parks. There are a couple of places that have been appropriated for this particular use. We noted very little artistic expressions along the streets and in the public spaces in Nairobi. When we did see artistic activities a lot of people had stopped to watch the performance (figure 32).



Figure 30



Figure 31



Figure 32

Figure 30. Jeevanjee Gardens in the CBD. People hang out and rest during lunch hours on a weekday.

Figure 31. Students hanging out outside Polytechnic University College. Lack of street furniture makes people use urban elements in their own way.

Figure 32. People stopping and gathering to watch a street performance in the CBD.





Figure 33



Figure 34



Figure 35

## Recreation

Different kinds of physical activities are often practiced in indoor gyms, usually located in malls, which also offer other various recreational activities but for a certain amount of money. Soccer is a big sport in Kenya and practiced in assigned spaces, soccer fields (figure 33). As mentioned earlier, in empty parking lots there is the possibility to do skating or rollerblading. Joggers can be seen during the cooler hours of the day and during the colder days and seasons. Walking just for fun is not very common in Nairobi. The parks and forests close to the city are important spaces for going out biking, jogging, walking or picnicking but are considered to be dangerous during the darker hours (figure 34). A lot of people can be seen sleeping or resting in the parks. Along the streets, you can see people sleeping either in the wastelands between the vehicles and the pedestrians or even between neat flowerbed and vegetation arrangements just next to the noise of the busy streets (figure 35). Many of these people are poor and sometimes homeless.

Figure 33. Kibra Social Grounds in Kibera provide space for various sports.

Figure 34. Families gathering in Uhuru Park during the weekend.

Figure 35. People resting in the wastelands are a common sight in various parts of Nairobi.

## Urban Ecosystems

In Nairobi, the water and the trees are highly used or appreciated by its citizens. These form an important link to the surrounding national park and landscape and wildlife is present in the city through the green links.

### Trees

Nairobi was once called 'The Green City in the Sun' and there are different opinions whether or not this is still true. Trees as urban elements are important from many aspects and the residents use them in many ways (figure 36). They are important meeting places, the canopy protects from the forceful sunlight and create a place you can linger without getting burnt. Where trees are planted in rows along roads, people also choose to walk. Some vendors use the trees to hang their goods. Also they make habitats for different species of birds, such as the big Marabou stork. The blossoming of for example the Jacaranda tree gathers bees and benefits pollination. Some of the trees give fruits and makes a good resource of food as well as wood to build furniture and houses. They also make the streets less flooded during rain season and have the function of evapotranspiration, which cools the city. Especially trees in a group have these benefits. Around Central Business District and in some of the suburbs, newly planted trees are found along the streets as a way of reintroducing greenery in the city.

Shadow



Shelter



Spatiality



Figure 36 (right). Trees and vegetation support various human activities with improved microclimate and spatiality.





Figure  
37



Figure  
38



Figure  
39

## Wastelands

In the streets there are sometimes areas covered with grass that has draining function. These are either in between the lanes or along the side of the streets and more or less planned and maintained. Along highways people use the wastelands as transportation routes (figure 37). It is important to be careful in the development of these areas. Often permeable soil is seen between the paved sidewalk and the walls of the houses where water can infiltrate. In the urban area a lot of informal food production is happening (figure 38)- on the railway, in wastelands along the walls and in gardens. This takes off the pressure on the surrounding arable lands and also provides food or an income for the poorer inhabitants in the city. The growing of sukuma, kale, is especially a common sight in city. Agriculture can also become a social meeting point. Plant nurseries are also found along the streets and riverbanks in some parts of Nairobi (figure 39). They contribute to a more beautiful and lush experience in the streetscape and also protect the wetlands and preserve green spaces.

Figure 37. Wasteland along Langata Road. "Desire lines", paths created from people walking, show the preferred route for pedestrians, usually the shortest distance between origin and destination.

Figure 38. The growing of Sukuma, green kale, along Mbagathi Way, west of the city center.

Figure 39. Plant nursery in the wasteland south-west of Central Business District, sits on the riverbanks of the Nairobi River.



### Parks

Uhuru Park is situated just outside of the Central Business District and was constructed to support the surrounding area with drainage from stormwater. The park eased the flooding that occurred in the CBD and saved it during heavy rain. The parks are important for recreation and create a linkage to the surrounding ecosystems. Uhuru Park and Central Park (figure 40) make up an important green belt in between the CBD (to the right) and Upper Hill (to the left), where the high rise development is spilling over to.

### Water

Although the landscape has changed since its' founding and the cool waters are not as numerous as they used to, rivers like Ngong River (figure 41) and Nairobi River are floating through the city and collect rainwater. These are often used as dump sites for garbage, due to the lack of other dumpsites, which makes them highly polluted. Water always has many benefits, and in the shores of a river plants linked to this habitat are growing. The pollution has most probably reduced the use of rivers and recreation as well as the diversity of species in rivers. For the lower income group the rivers fill important functions for daily life, people washing themselves or their clothes are commonly seen around Nairobi. They are also part of the natural cultural heritage as the site for the city was once a swamp.

### Stormwater management

Except for wastelands where water can infiltrate the soft ground, hard open trenches that collect and divert stormwater are constructed along the side of the roads. The width of the trenches can differ in size, in the industrial area they are wider while in some of the suburbs or central areas they are narrower. The trenches are usually open without any element protecting. Some trenches have had iron bars covering them but which have been stolen or gone missing in other ways. Some of the newly constructed trenches in suburbs like Lavington (figure 42), have slabs of concrete with gaps in between, solution to prevent theft and also provide additional space for walking.



Figure 40



Figure 41



Figure 42

## Conclusion Observations

In a city where the inequalities between the people are as great as in Nairobi, the importance of quality public spaces becomes even more significant. Streets could in turn be viewed as especially important since the majority of people do not have the resources it takes to travel by motorized modes of transport, take part of recreation activities and essentially rely on the street as the venue for their daily income and livelihood. The observations confirmed the streets as main arenas for daily life, where social, cultural and economical activities all blend and support each other.

Planning space and structures for people doesn't necessarily mean that people use them the way they were meant. People use spaces and urban elements in a dynamic way in Nairobi. One example is the empty parking lot in CBD during the weekends. Here, the paved surface and shadowed area contribute to a good spot for other activities to take place as well - functioning as a market place one day and a roller skating venue the other. Appropriation opens up the possibility for using a space in more ways than it was intended to from the beginning. It can also help to make sure that the space is used for the current need that exist in that particular setting or place. As the shoe shiner and his business showed us, small-scale private initiatives could improve the quality of public spaces and the experience of walking through them.

As shown in Nairobi, spaces dedicated for people are well used, and could therefore be seen as a good way of using precious land within the city. Another way of taking care of valuable land is to make sure they fill multiple purposes. The constructed stormwater trenches can be seen as single functional elements that instead could be designed so their main task of handling stormwater is integrated with functions that support human activities such as walking and vending. We saw how the provision of a good microclimate is crucial for activities in the city's public spaces. Trees carry out many different functions such as shadow and spatiality that increase comfort for the various users of the streets and benefitting various needs of the city's inhabitants.

These examples of what we observed in Nairobi, the multifunctional parking lot, the ever-present informal economy happening along the streets, markets that move around, the social interactions, the appropriation of space, all make up a certain street culture in Nairobi. It is in these existing activities where identity and sense of place can be found. These existing activities can be strengthened in different ways and with various means and scales of interventions. With small means, one activity can be supported that in turn affects another.

Meetings and gatherings



Appropriation



Entrepreneurship







In this part we present a toolkit for designing with people and their activities in focus. The *Pillars of Planning* are guidelines to bring forward values that are important to keep in mind while planning for a sustainable city. The *Design Principles* are elements translated from the *Pillars of Planning* that can be used in a design.

## PART 2 - TOOLKIT

# Pillars of Planning

From the conclusions of the two chapters, City of Nairobi and Observations in Nairobi, we summoned five main themes that described issues that were the basis of guidelines to make up the five Pillars of Planning. These are supposed to lead the continuing work in the right direction and seep through, all the way to the proposed design, through the Design Principles (see figure 43).

## Linking

The poorly connected street network, radial arterial streets and cul-de-sacs do not provide sufficient connectivity neither for pedestrians or vehicles. The streets are also prominent venues for everyday life and many people make their daily living out of the flow of people that move along them. The centrally located parks in Nairobi are frequently used by people from different socioeconomic backgrounds, but are too few and to centralized. In a city with wide socioeconomic division meeting places are of great importance from both social and economic standpoints.

- create meeting places
- improve accessibility

## Walkability

Planning for increased walkability would benefit the majority of Nairobi's city dwellers directly by better air quality, less congested streets and increased safety of pedestrian space. The high flow of people in the streets of Nairobi makes up a good basis for businesses to flourish, public transit to run frequently and the integration of bicycles, pedestrians, public transit and cars. Public spaces and activities along the edges of the streets where informal business can happen and people can gather are important for supporting walkability.

- provide quality space for pedestrian movement and flow and possibility to change mode of transport for longer trips
- provide opportunities for stop, commerce and rest

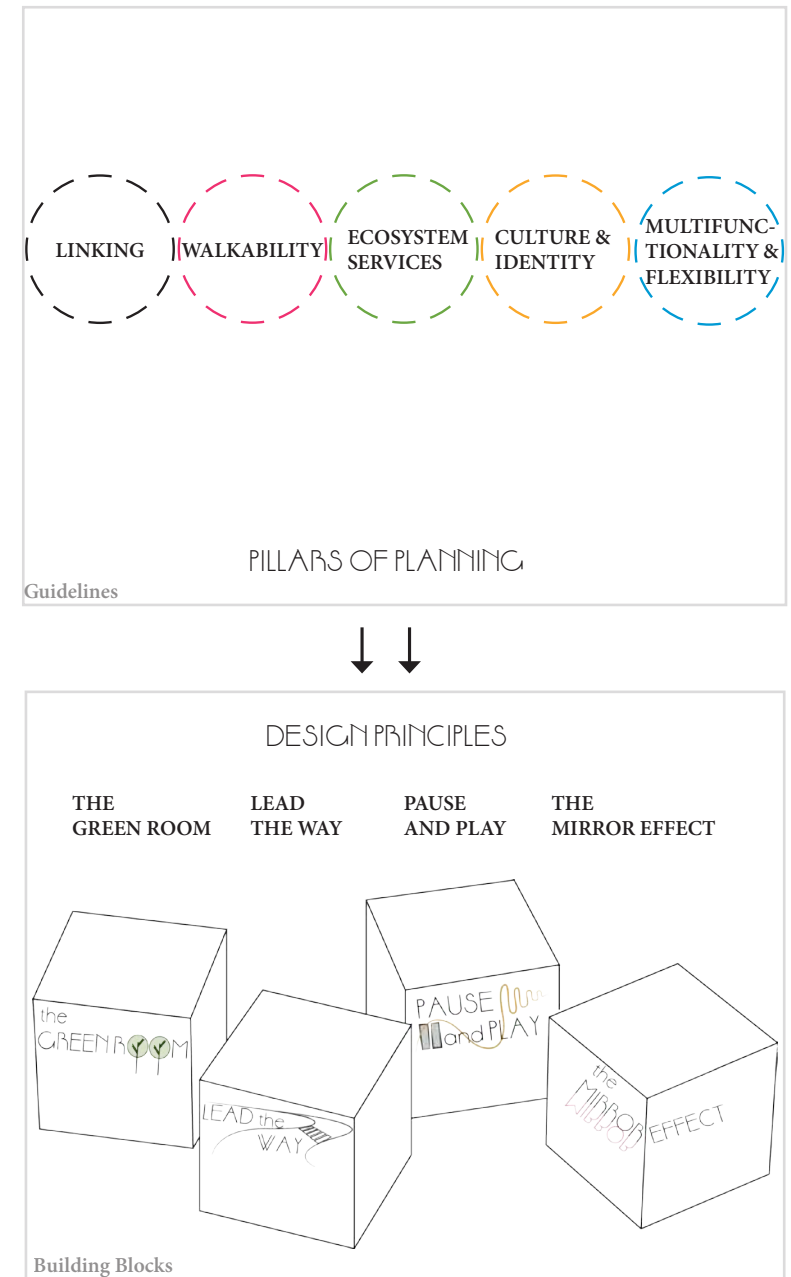


Figure 43. The Pillars of Planning are translated into Design Principles.

## Ecosystem Services

The urbanization process has caused Nairobi's natural landscape to become scattered, threatening the ecosystems services of the city. The shadow and shelter that city trees and urban greenery provide are closely knitted to and very important for the human activities happening in Nairobi. Both social activities, pedestrian mobility and informal businesses happen in the shadow. Except for shadow trees and vegetation provide spatial structure where goods can be displayed or where the sense of protection makes it more comfortable to linger around. Plants and permeable ground can also take up water from heavy rainfall.

- *integrate urban ecosystem services, such as microclimate and stormwater management, in the streetscape*
- *make use of the architectural qualities of plants to increase the quality of public spaces*

## Culture and Identity

The local culture and identity has severely been altered with and oppressed throughout history. This is concerning both tangible and intangible values. In further development, a sense of uniqueness in Nairobi can be enhanced by taking care of the heritage of what has already been built and by looking at how people are using space and adapting to it. This is a way to avoid gentrification.

- *create a sense of belonging by strengthening tangible cultural elements and provide space and opportunities for intangible culture*
- *maintain the character by avoiding gentrification, involve the public, develop in small steps and use local materials*

## Multifunctionality and Flexibility

In the old planning schemes of Nairobi, the colonial segregation ideals have promoted single use of land and the divisions of functions and people. Planning cannot control all aspects of the urban dynamic, the growth of the informal sphere being a concrete example of this. As the city is growing and the urban dwellers are rising in numbers the pressure on land is increasing. To make better use of space there is a need to create places that integrate people, ecology and activities. From the different activities we saw took place along the streets and in the public spaces of Nairobi we came to the conclusion that multifunctional and flexible spaces would be desirable in order to benefit the city dwellers and the environment.

- *support mixed-use and provide opportunity for different activities to take place in a space*
- *recognize peoples appropriation of space as something that can contribute to a richer experience of the streetscape and provide space for this.*



# Design Principles

The design principles are building blocks for how to achieve the Pillars of Planning. They are examples of elements to be used and spaces to be created (see figure 44). The different Design Principles can reinforce each other but can also function alone. The design principles are of general character so that they can be applied in streets similar to the Axis in other parts of the world. The objectives have to be somewhat the same. They can thereafter be adapted to the certain sites chosen. No matter the scale of implementation, the design principles can work as catalysts to fulfil the goals of the area (see figure 44a).

## Design principles as catalysts

The design principles can be used at different scales, influencing the sites in different degrees and extent. The principles could either be used as a single element, limited to a certain site or form a large overall structure. Hamdi explains how the principles can work as catalysts by being applied:

“Rather than start with policy and move down to projects, we start with projects, a series of catalyst interventions to improve conditions locally. These catalysts help to shape the larger urban plan. They are its molecular structure, its DNA and give it its character and coherence” (Hamdi 2010, p. 158).

This way the Pillars of planning, our guidelines, can be achieved. By designing structures, emerging structures are encouraged. One example of a catalyst in Nairobi could be providing shadow in a street corner, leading to someone appropriating the space for informal business or small scale enterprises. This in turn would attract people to hang out there, creating a good basis for new small business to develop. When the design principle is applied in a slightly larger area the effect of the implementation can be of greater size and of greater diversity. Since the designed structure can hold more people it creates more opportunity for emerging structures. One example could be the planting of trees in an unused lot, where markets, parking, seating and sports could take place at different times.

All of this is building a frame for future development to grow within. This could lead to a greater interest in developing or transforming the surrounding urban environment. It is a way to reach the greater goals.

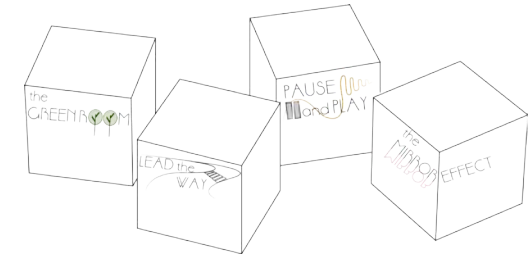


Figure 44. The Pillars of Planning are translated into Design Principles which are the building blocks of physical elements that can make up a design.

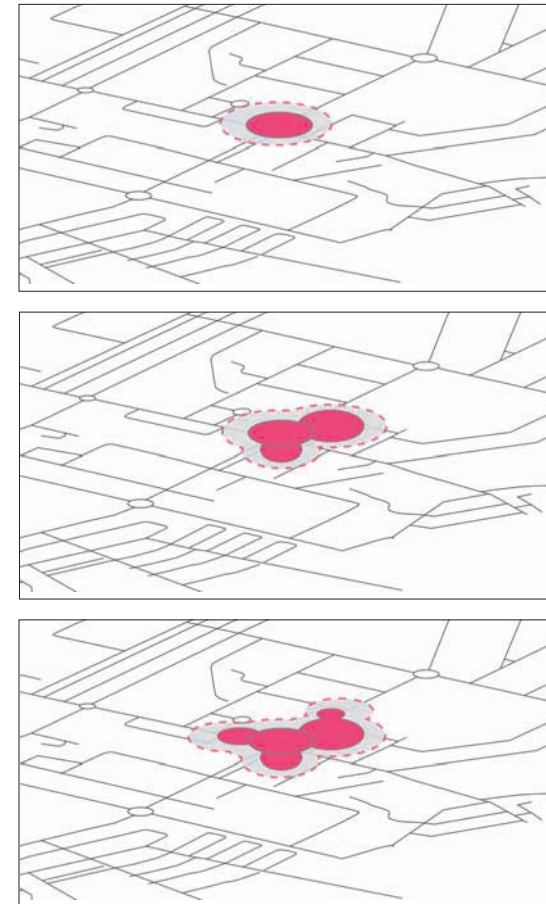


Figure 44a. Diagrams showing the concept of a catalyst. Instead of a final plan, one small strategic intervention that supports an activity, positive change can multiply and attract new activities.



The Green Room is about the vegetation in a city. This is supposed to be integrated in the cityscape, to be able to provide ecosystem services. The plants can have different shapes or be arranged in different ways

### **Spatiality**

Plants can define and create space. Depending on the size and shape of the tree as well as the placements and arrangements of groups of trees and other vegetation different spatiality can be created. Spreading canopies provide overhead enclosure that gives shelter and protection from rain, sun, wind, and also provides privacy. Trees trunks can separate activities and functions that are incompatible by for example create distance between different modes of transportation. With soft short plants, a pleasant floor can be created.

### **Ambience**

Plants can provide aesthetical values and create more interesting places by stimulating people's senses. Seasonal changes, scents, colours, textures, sounds, biodiversity and much more all assist to create more pleasant experiences in the city. The presence of water has many positive effects on the senses, such as diminishing noise and create a pleasant sight. Designing or collecting of water, stormwater can be used for this.



Lead the Way is mainly about transport infrastructure. By prioritising pedestrian traffic, and secondly bikes and buses, the accessibility of the streetscape becomes better. By reprogramming and giving the modes of transport their own lanes, the transport situation can be improved.

### **Pedestrianization**

Pedestrian mobility should be prioritised through wider pavements and the amount of space necessary. The cars get less space by removing lanes which provides more space for other users of the streets. At crossings, the pedestrians shouldn't have to adapt to the cars by going down on their area, but the cars should have to drive up on pedestrian space by elevating the ground.

### **Movement and Flow**

Visual guidance on where to walk and to various destinations and landmarks could be made either with focus points, a continuous element or with signs. To separate different modes of traffic, solid elements should be put up to avoid motorized vehicles to drive up on the pavement. At night, lights should be lit to create a feeling of safety and keep the movement going.

## PAUSE and PLAY

The Pause and Play design principle is about creating space for people to appropriate. By providing street furniture and ground space, a range of activities can be encouraged and meeting places created.

### **Inviting**

By positioning the spaces close to pavement, the prospect users see them. There should be an opening towards the street and no high walls between them. The furniture and modelled ground should look comfortable and be reachable for people to be able to use them. The placement of modelled ground and furniture is adapted to the activities already happening, and the activities that might happen.

### **Changeability**

Modelling the ground and designing street elements that people can use in a way suitable to their needs is a goal of this principle. A bench can function as a seating place, a separator, a bed or for displaying of goods and commodities for vendors. Ground space can be modelled to be used for parking, as an obstacle for vehicles, as seating or a planting bed. The change can go on throughout the hour, the day, the week or the year.

## the MIRROR EFFECT

The Mirror Effect is about the local historical elements of a place. These are all gathered from the context worked with and could be anything, depending on the history of the area. It is about maintaining the character and creating a sense of belonging.

### **Reuse**

Through using old structures, buildings and elements in the area, a stronger identity can be supported. A building can be renovated so the character remains intact while housing new functions that correlate to the needs of today are met. By highlighting elements and certain features that has taken place or are still happening in the area, the history is shown.

### **Reintroduce**

When introducing new elements to the design, they should have a basis in the cultural context. Traditional patterns, colours, materials and plants show the culture of the place. Showcasing historical people, events and occurrences of what has been and what is now going on through monuments, signs, trees or other appropriate means can help to tell the story of the area and make it more interesting.



In this part of the thesis we are using the Axis as our case study to apply the Toolkit on. Starting with contextual and site-specific analyses, the problems and potentials of the site were specified. From this we developed designs from the design principles, based on either recurring situations or specific sites.

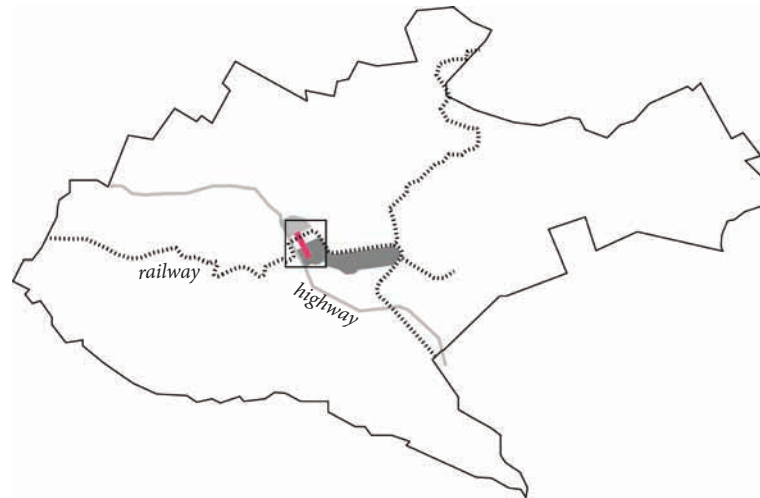
## PART 3 - THE AXIS

# Analysis

The Axis is made up by Dunga Road in the industrial area that is connected by a pedestrian footbridge over the railway tracks to the CBD. With the growing population and expansion of the city, the industrial area that once was in the outskirts now has a central position. Now it works as a barrier for the rest of the city, due to its' one dimensional activities and bad reputation but as old industries move out it has the future potential of developing into an integral part of Nairobi.

By developing the Axis there is a possibility to link the rest of the city to the industrial area. As we started the project it had already been chosen as an important site and, as the name indicates, an axis. The analysis we have conducted have proven its central position in a cultural, multifunctional and connecting process. It is also a part of an important pedestrian thoroughfare between the shantytown Mukuru, the industrial area and the CBD. In terms of development, it contains a lot of potential with its flow of people and leftover space.

In order to understand the area we mapped out important elements, buildings and activities. The focus was the dynamics of the area. Our analyses were based on our observations and experience of the area, as well as orthographic maps.



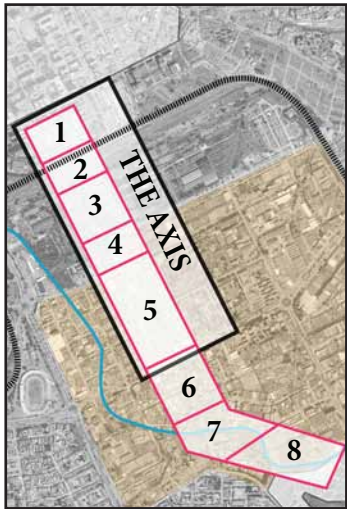
*Map showing the central location of the Axis, stretching from the industrial area in the south to CBD in the north.*



*The footbridge across the railway area. Buildings in the CBD can be seen in the background.*

## A Walk Along the Axis

*In order to get to know the Axis we walked down from the city centre to Mukuru observing the street life, character and atmosphere. There was also a point in getting to know the route that the people living in Mukuru had to walk to get to CBD and the bus station and workplaces there. The experience of the streetscape changes along the road. Dividing the Axis into eight areas, the different characters could be described as follows.*



PART 3: THE AXIS  
ANALYSIS  
A Walk Along the Axis



1



2

### 1. Outside Polytechnic

This is a vibrant space but away from city noise. A lot of people are passing or going to the university. Many are waiting and sitting on the poles. Restaurants and vendors are seen further down, in connection with the street. Occasional cars are passing but have to slow down because of the pedestrians.

### 2. The Footbridge

The bridge is narrow, which makes it crowded during rush hour. There is a nice view from the bridge, showing the rails, old trains, Kilimani or Eastlands. Less crowded hours, people are stopping to look at the view and chatting on the sides. It feels very calm since the main sound is shoes against wood.



3



4

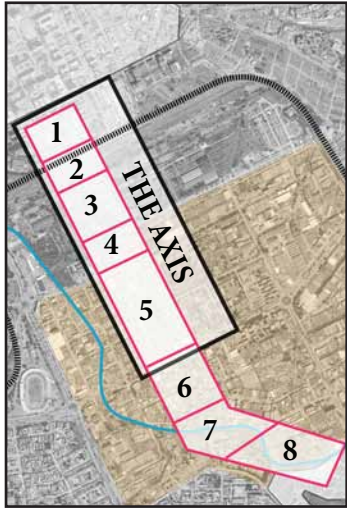
### 3. The Warehouse walk

The street is very monotone with closed sheet fences. In some places it opens up, for a gate or a store. There is a group of people singing or preaching, but this isn't stopping others. Some hens usually reside in the wastelands of the street. It is mainly a transport corridor for pedestrians but the occasional motorized vehicles are creating stress and a risk.

### 4. The Market

This is a very lively place. Vendors are stopping people and talking to them. Off the street, there are calmer areas and people are hanging out in restaurants. Some music is playing from one of the stalls, making noise all over the street. On the ground, there is lack of paving and holes are filled up with water.





5



6

### 5. First part of Dunga road

Here, lots of empty wasteland but also wasteland where vendors and motorbikes have gathered. They sit and hang out and passers-by stop to look at their goods. Most of the walls are closed and monotone. Traffic noise is heard everywhere. The street is very wide, and together with the monotony, creating a feeling of desolation.

### 6. Second part of Dunga road

In this part, there are stores in the bottom floor, open to the streets. People are hanging out in the entrances. Other sites have stalls and kiosks close to trees, also creating a hub for hang out. There are activities and things to look at everywhere and even though there are many cars and wide street, this is an exciting place for people.



7



8

### 7. The Suburbs

Walls are surrounding big suburban houses, creating monotony. There is little leftover space between the pavement and the walls but when there is, people are hanging out and sleeping in the spare wastelands. The wide streets with less people and cars create a feeling of desolation.

### 8. The Shantytown

Houses in the slum have doors towards the street and have no walls. The streets are narrow and have no space for cars. Street life is vibrant and people are standing in their doors, being half-inside half-outside. People stop to talk and children are playing in the street. There is very little noise from traffic, you can mostly hear humans talking or walking.

## The Potential Link

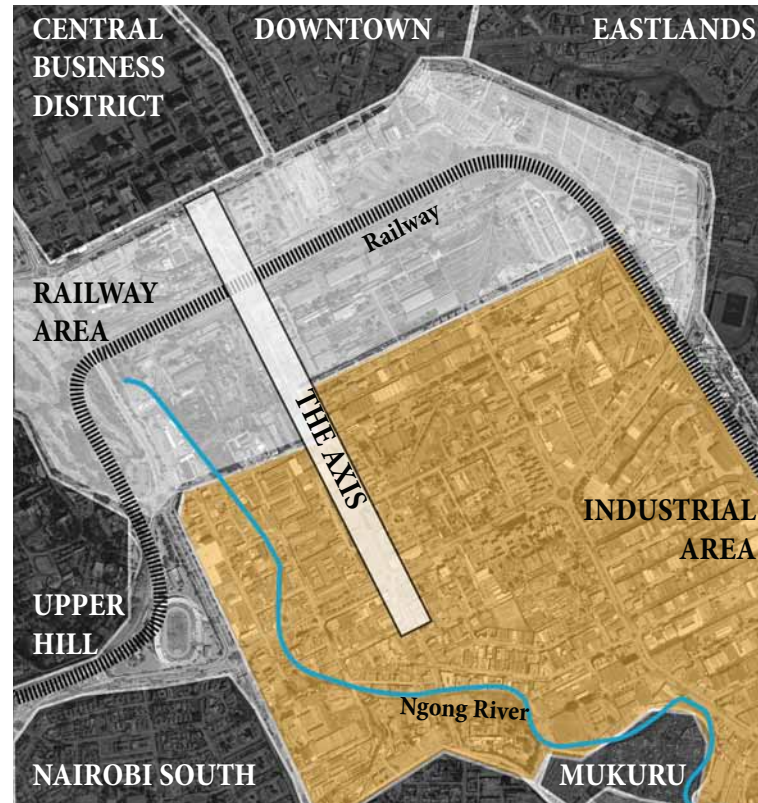
*As we zoom in to the northern fringe of the industrial area, which is the most central part and also where the Axis is situated, we find how the area borders several different neighbourhoods of various characters and socioeconomic status. Some neighbourhoods are from the old colonial planning periods while some grew after independence. The areas are constantly developing as the city dynamics is changing.*

The old European part of Nairobi with a mix of old buildings and skyscrapers in grid layout where many offices, governmental institutions and workplaces are located.

The railway area surrounds the railway tracks and consists of the train station, a bus station, old warehouses, a private golf among other things. This land is owned by the Kenyan Railway Corporation.

Upper Hill is one of the old European residential areas. Due to the crowding and traffic congestion in CBD, offices started moving out here in the 1990's and today it is more of a mixed use area.

The east part of the city centre was in the beginning where mainly the Indian population settled. Today this busy area contains important transportation nodes for buses and matatus.



Eastlands was historically the Indian and African parts of Nairobi. It has expanded a lot during recent years and today it is a mixed-income area. Neighbourhoods range from informal settlements to lower and middle- income housing.

The industrial area covers a large area south and southeast of the city centre. Many people have their workplaces here since it houses different industries, factories, warehouses and workshops. Closer to the city centre a range of other land use is taking place such as cultural activities, markets, restaurants, housing and shops.

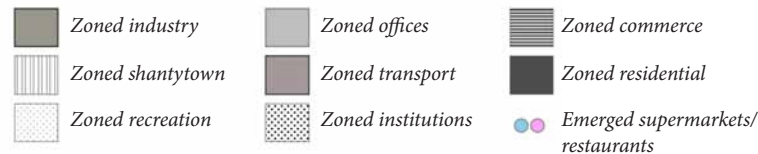
Nairobi South consists of middle income residential housing such as South B and South C as well as student housing.

Mukuru is a dense area of informal settlements growing along the Ngong River. Some residents work in the eastern part of the Industrial area.



## A Development Beyond Zoning

*Looking at the plans of the city gives a lead to what is supposed to happen. When looking at the processes of the city, another dynamic is showing. A lot of activities and uses are emerging in the public realm, in space that have been zoned for other things.*



Planning in Nairobi has for a long time been based on zoning and separating different activities. The CBD is for offices, the industrial area is for industry and South B is for housing. As the shantytown of Mukuru emerged, it also became a part of the zoning in the plan of Nairobi. When visiting the areas, one can see that the zoning isn't strictly followed. Especially in the CBD, restaurants have emerged. As people working often need a place to have lunch, business owners have set up restaurants. This is also a trend spreading around the Axis. Supermarkets have opened up in the residential areas as well as in the CBD, but not yet in the industrial area. As this is happening, the neighbourhoods become more multifunctional and the need for transport decreases.



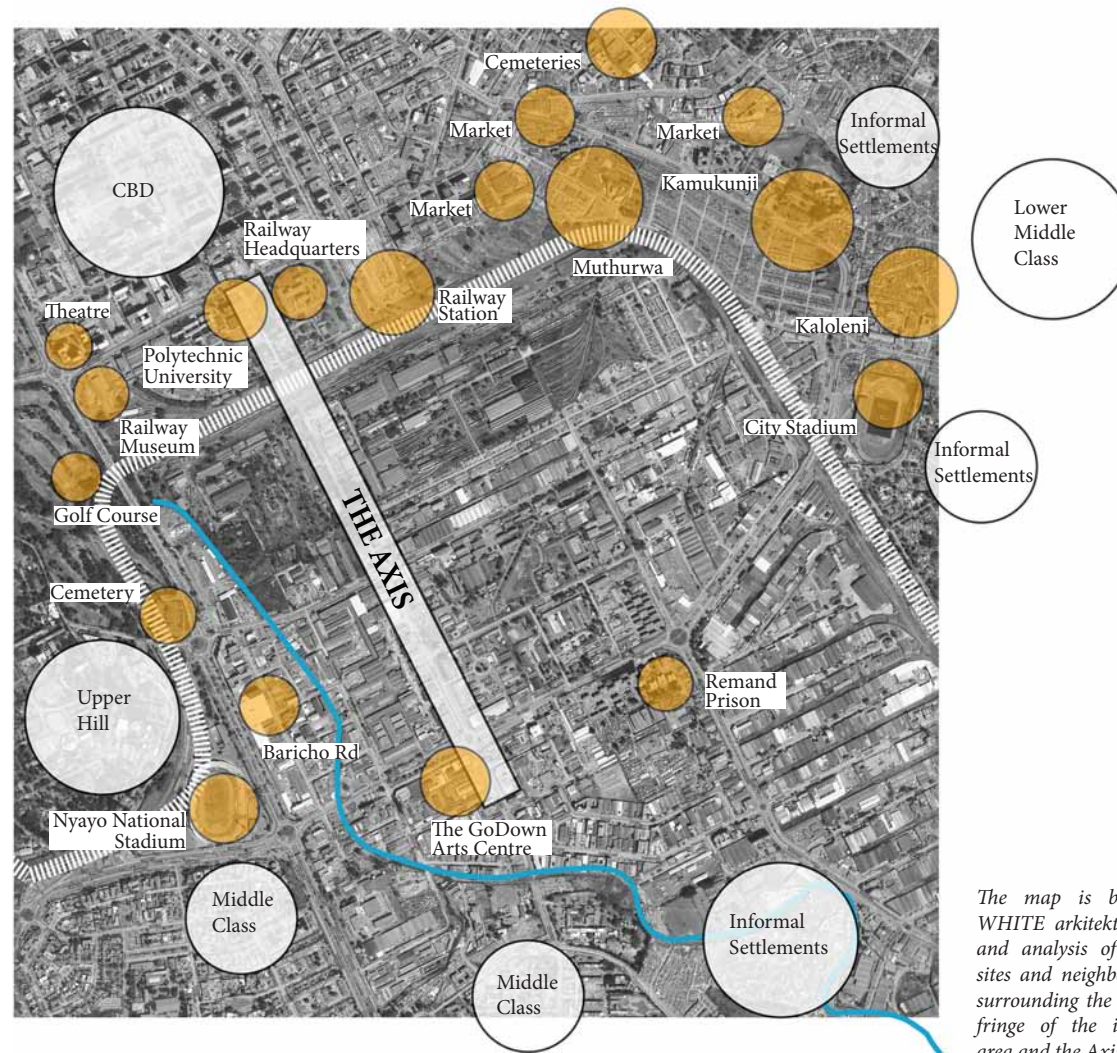
*Sign informing about the facilities in new office building that is under construction in the industrial area (top). Small shops has emerged on the outside of a wall close to the industrial area (bottom).*





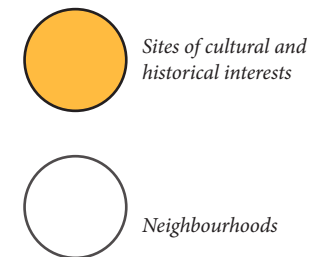
## The Cultural Circuit

*The railway and the industry activities that are linked to it, have a history that goes far back. The Axis and adjacent areas sits on various interesting historical and cultural values. Together with a constant development of contemporary culture facilities this results in an interesting mix of various cultural qualities already centrally located in Nairobi.*



*The map is based on WHITE arkitekters work and analysis of cultural sites and neighbourhoods surrounding the northern fringe of the industrial area and the Axis.*

In the ongoing urban development project WHITE arkitekter and the GoDown Arts Centre are collaborating in, the main focus is on how culture can function as an engine for urban development and positive change in the industrial area. WHITE and the GoDown have identified how sites of cultural and historical interests are located in a circuit around the northern fringe. These sites, markets, sport venues, the Polytechnic University College, museums and more, make up a structure which they call the Cultural Circuit. The Axis is strategically located within the circuit and between some of the identified cultural destinations.



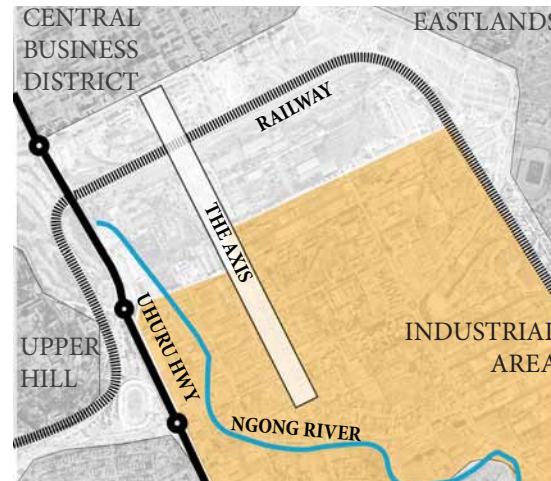
## A Disconnected Street Network

*By looking at the street network, we aimed to see the accessibility within and without the area. The number of alternate routes is an important indicator of this. Even though there are links to and from the area, these may not be ideal to pedestrians because of heavy traffic. Some of the surrounding roads work as barriers, as people are avoiding them because of the unpleasant and sometimes dangerous experience.*

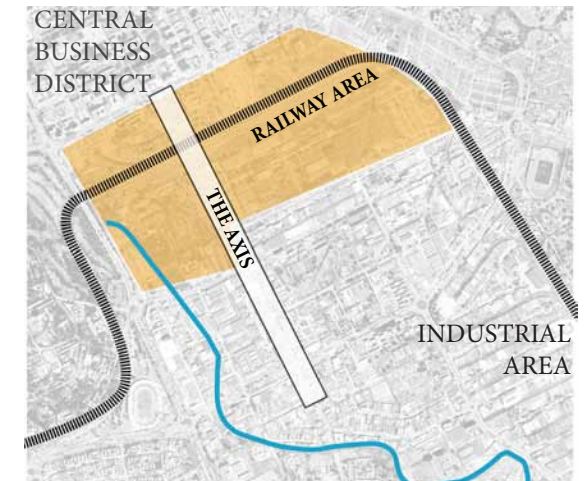
The northern fringe of the industrial area is separated from the surrounding neighbourhoods by barriers such as the railway track and adjacent land, Uhuru Highway and Ngong River.

The railway area wedged between the CBD and the edge of the industrial area makes up an area of approximately 2,5 kilometres that has no passages or thoroughfares. Within this area, the footbridge along the Axis makes up the only connection between the two sides of the railway tracks.

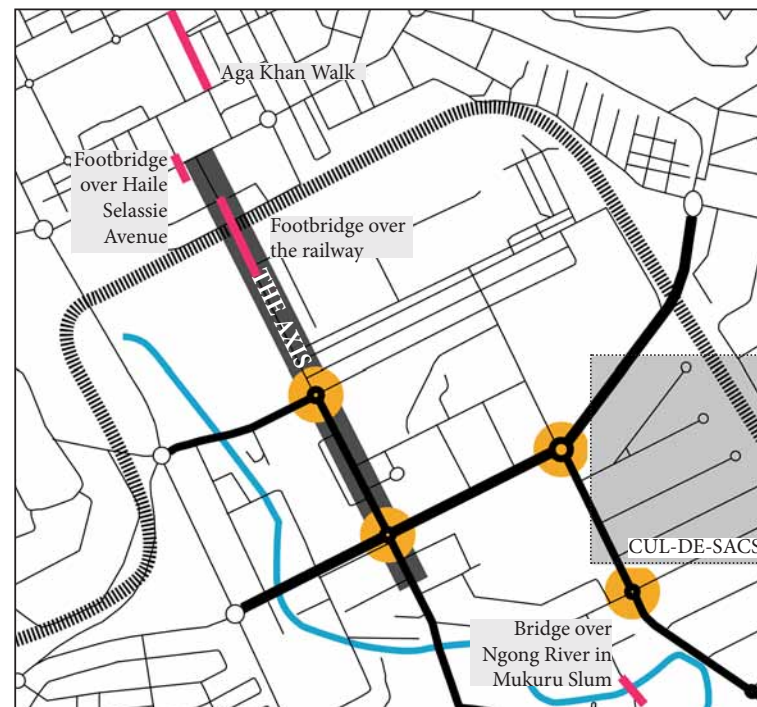
The present street network within the industrial area is poorly linked with its surrounding. The area has a small number of thoroughfares that connect east with west and south with north. This makes the few existing thoroughfares even more important for connectivity as the users of the street have no optional routes to choose. Cul-de-sacs and streets ending at the gate of a private property are common features in the street pattern, decreasing the permeability.



Barriers separating the various neighbourhoods

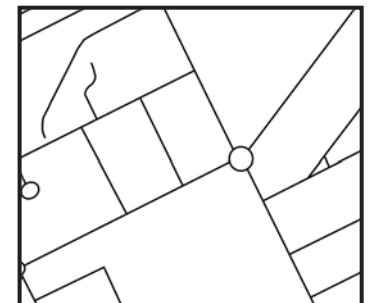


The Axis is the only connection over the railway area.



Pedestrian-only passages nearby and along the Axis (pink). Few streets connect the industrial area with the surroundings where the capacity of the roundabouts (yellow) determine the flow of vehicles.

*The permeability of the street network in the industrial area is low (bottom) while streets in CBD provide alternative routes (top).*





## The Flow of People

*In the south of the CBD several nodes create an important transit hub for people commuting to work in the city center. This analysis shows the movement of people walking and their main routes from areas of informal settlements to the industrial area where, together with CBD, most workplaces are located.*



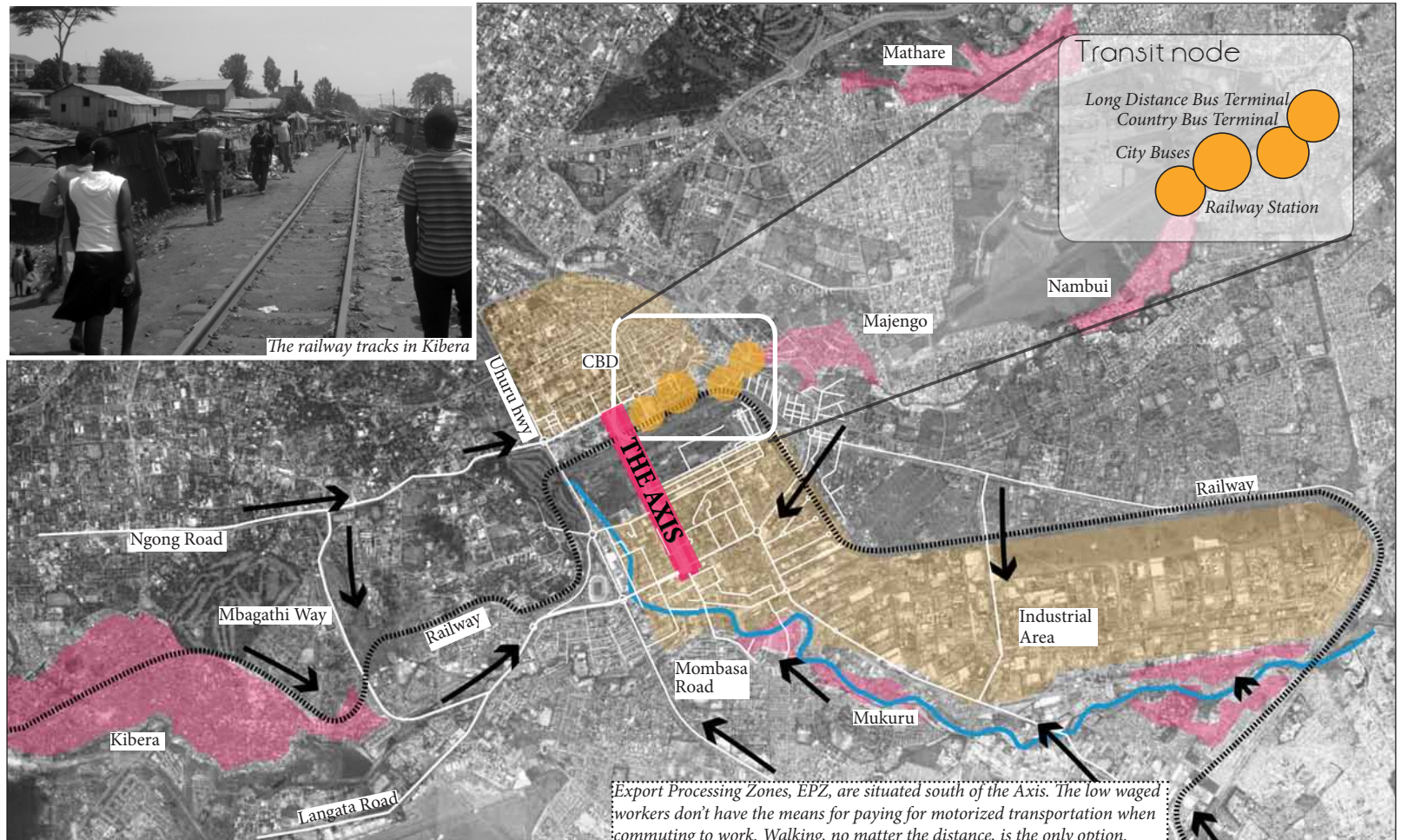
The railway station and several bus terminals are located with a proximity to the Axis. They make up important destinations for people commuting to and from workplaces in the CBD and the industrial area. At present, there are no city buses running along the Axis, only matatus.

The vast majority of the people walking to the Industrial area

and the CBD are from the lower income groups. Many come from Kibera in the west, Eastlands in the east and Mukuru in the South. The footbridge connecting the two sides of the railway therefore make up an important link.

The train fare from Kibera into the city is cheaper than taking a matatu. Since paying for public

transit is not an option for the majority of the slum dwellers and there are relatively few trains running daily, the railway tracks become an important pedestrian route to and from the city, especially for the large amount of commuters from Kibera. People in the EPZ-business and other workers also travel through Mukuru to their workplaces in the industrial area.

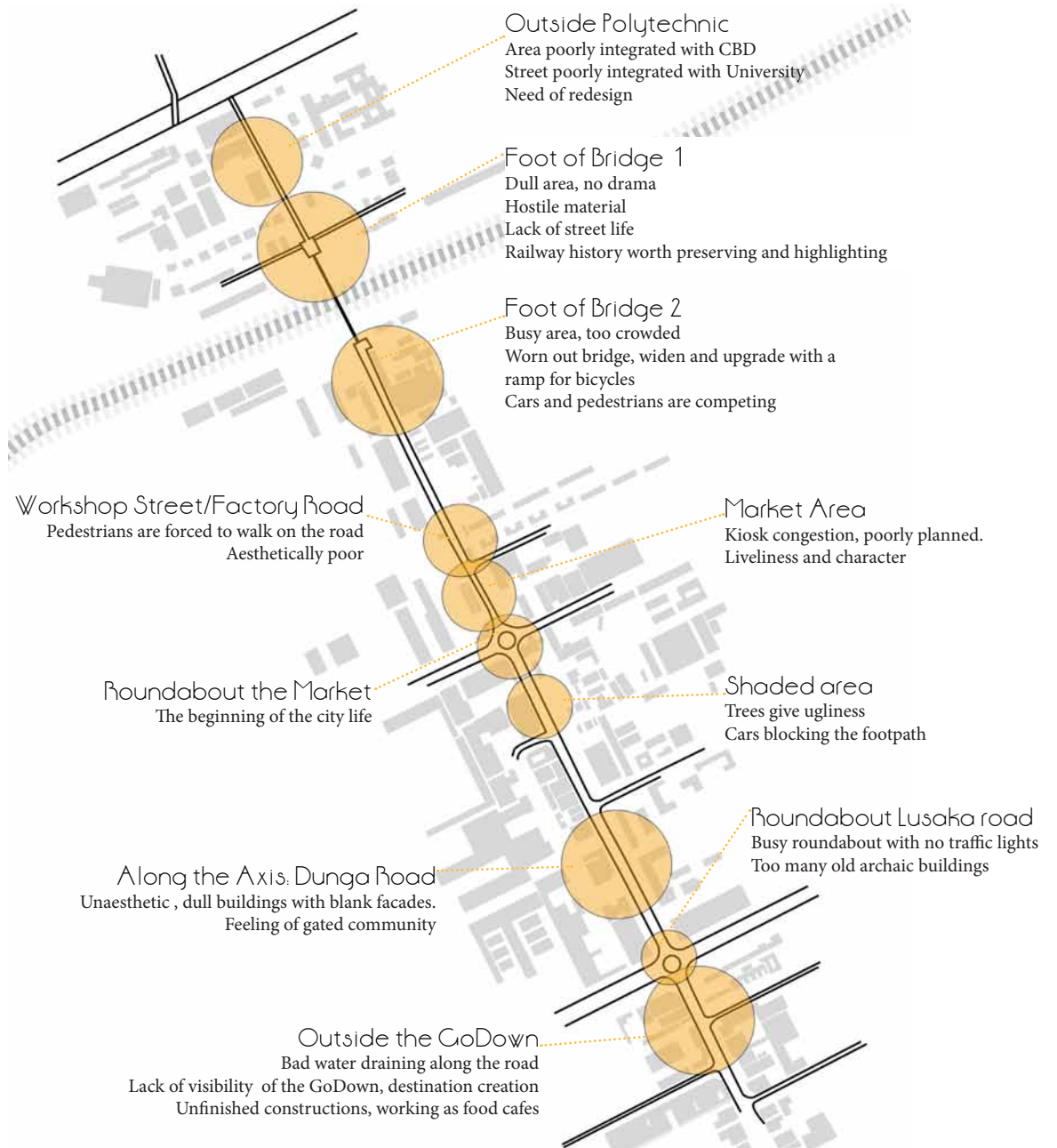




## Walkthrough Analysis

In February 20th 2012 a walkthrough evaluation along The Axis where challenges and possibilities of developing the area were observed and stated. Ten predetermined stops had been chosen and 24 participants from different backgrounds such as city planning, architecture, artists, students and some others made comments. The comments were compiled into a report and handed to us. To be able to use the work we summarized it and translated it into a map. We focused on comments concerning the street and changes that we can plan for within the frames of our work. Since there were a lot of comments we couldn't use all of them, and comments that were interpreted similarly weren't mentioned.

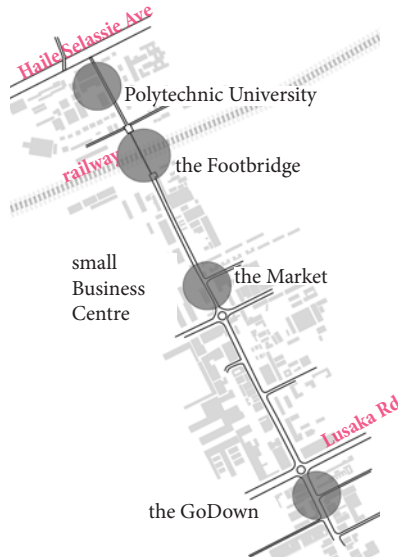
In the Walkthrough analysis (GoDown Arts Center et al 2012) there were some recurring comments concerning problems along the whole Axis: poor maintenance, no bicycle lanes, lack of shade and lack of street furniture. Along the main road, comments about the noise from traffic, lack of crossing zones and the fast driving were made. Lack of lighting was also something that was mentioned along the whole Axis, but tended to get more comments at the more pedestrian friendly parts. More greenery and seating places were wished for at many stops. Along Dunga road some trees had been planted. There were complaints about the lack of benches. The trees were small and there was a wish for trees providing shade. From this we can conclude that it's not only about adding greenery, it's also about the quality of space made by vegetation. Informal vendors got both positive and negative comments. Some saw restaurants and food cafés as unhygienic, some wanted more of them and a better structure



Site specific comments were made during the Walkthrough.  
Some of them are represented in this map.

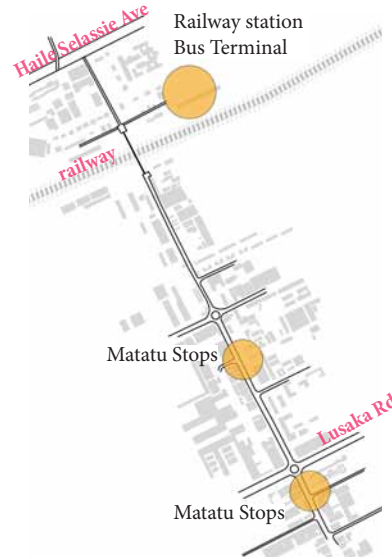
## Mapping of the Axis

We analysed and mapped various aspects of the Axis with the purpose to make connections and relationships between the different visible aspects. We observed elements, issues and activities that affect the character of the site and experience of moving along the Axis. Physical structures and elements, street life and activities, destinations, traffic situation, public transit, microclimate and the overall ambience were identified. The conducted analysis were done through the perspective of a pedestrian.

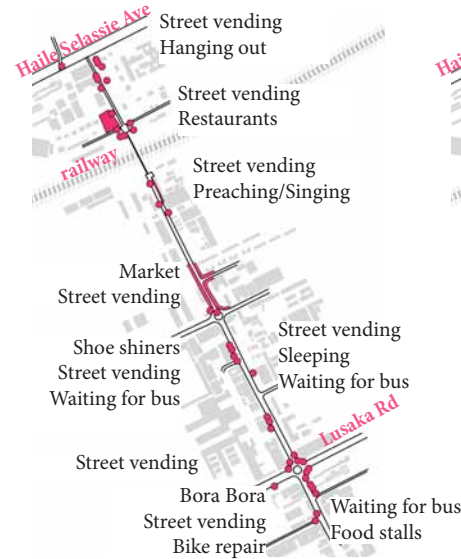


### DESTINATIONS AND LANDMARKS

Transit nodes and different facilities are important places that gathers people and affect the flow of people and activities along the Axis.

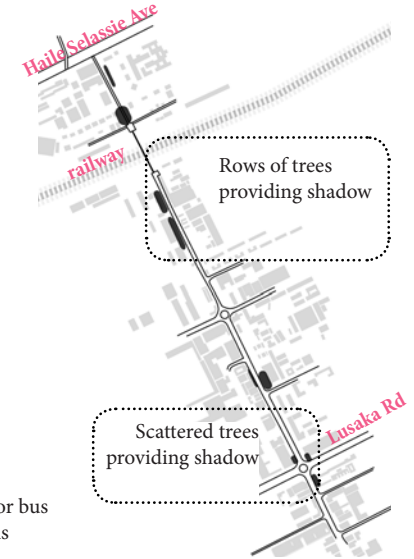


### PUBLIC TRANSPORTATION



### ACTIVITIES

The street life varies along different stretches of the Axis.



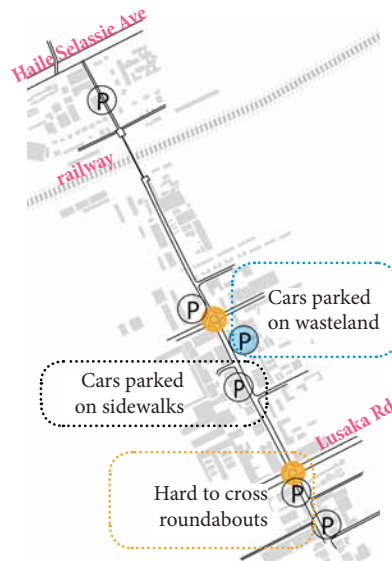
### SHADOW

There is an overall lack of shadow along the Axis.



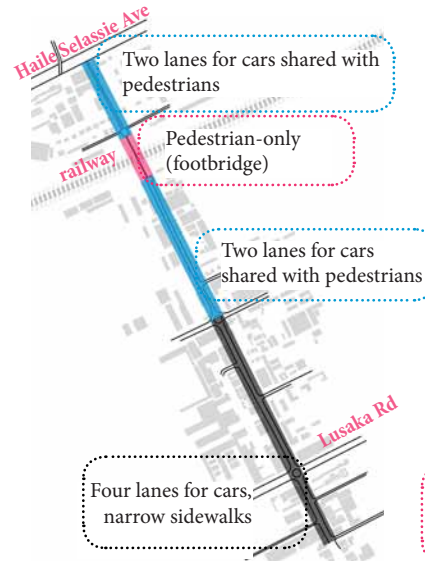
### WASTELANDS

Stretches of vegetation of various sizes are found along the walls.



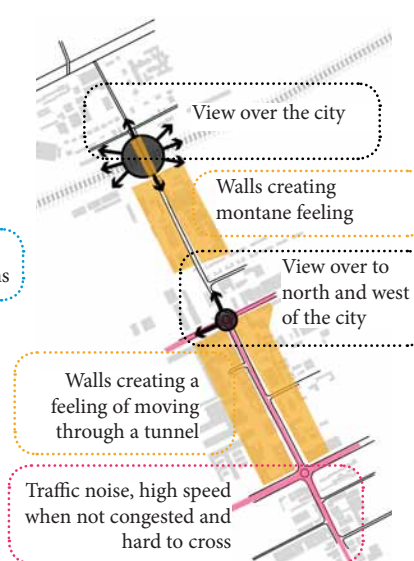
### PARKED CARS AND ROUNDABOUTS

Various obstacles along the Axis decrease the accessibility and comfort for pedestrians.



### TRAFFIC SITUATION

The footbridge is the only car-free area along the Axis.



### EXPERIENTIAL

Long parts are monotone while certain points along the Axis offers nice outlooks.

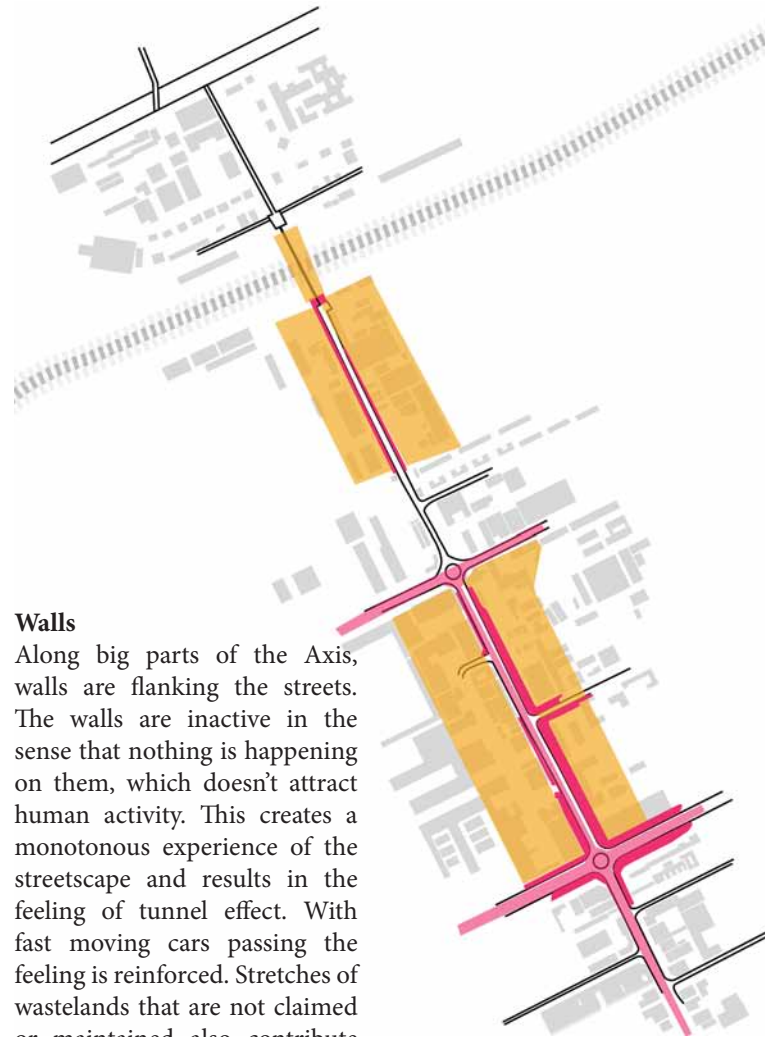
## PART 3: THE AXIS ANALYSIS

### Mapping of the Axis

## Concluding Analysis

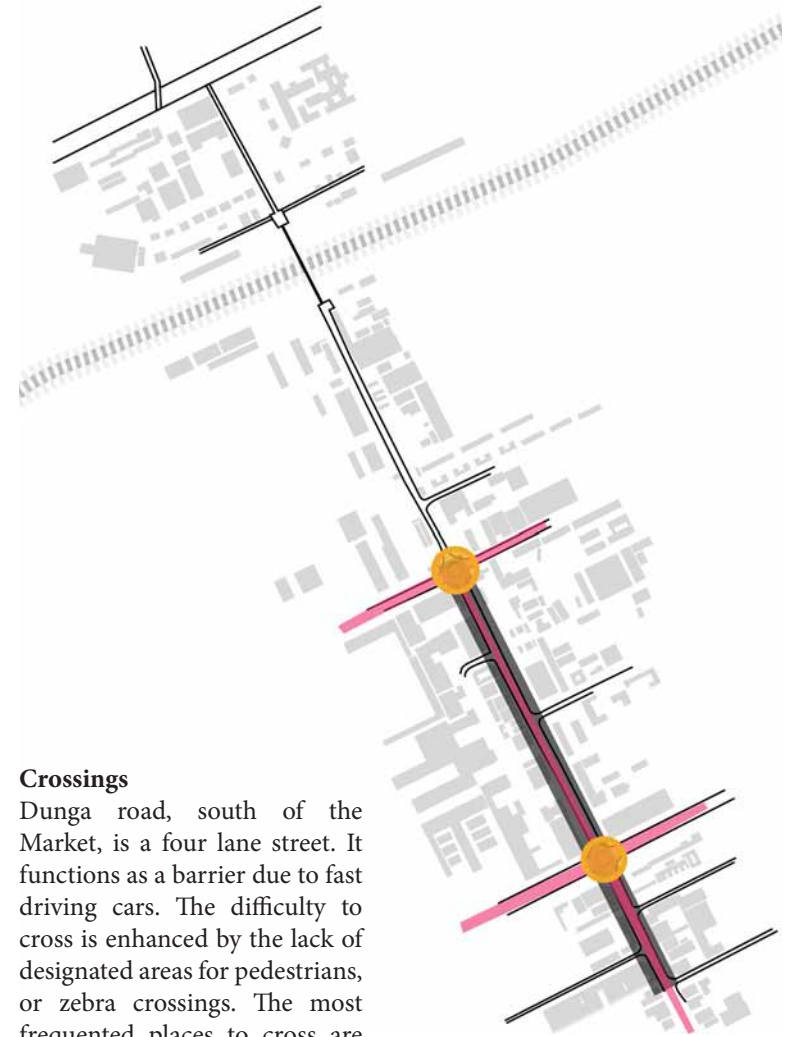
*After mapping out various aspects of the current situation of the Axis we added them up and compared them. Putting these different factors in relation to each other made various connections between them visible. We could for example see how pedestrians had to adapt to the inconvenience of traffic and street structures or how transit stops and shadow affected activities. From these connections we found certain issues we wanted to address or possibilities that we wanted to support.*

By putting together features and elements along the Axis that doesn't encourage activities to take place and decrease the comfort of pedestrians we identified two different reoccurring situations: walls and crossings. Addressing the issues we found aims at providing new space for activities and street life to happen.



### Walls

Along big parts of the Axis, walls are flanking the streets. The walls are inactive in the sense that nothing is happening on them, which doesn't attract human activity. This creates a monotonous experience of the streetscape and results in the feeling of tunnel effect. With fast moving cars passing the feeling is reinforced. Stretches of wastelands that are not claimed or maintained also contribute to an unpleasant experience of walking as they mostly collect waste.

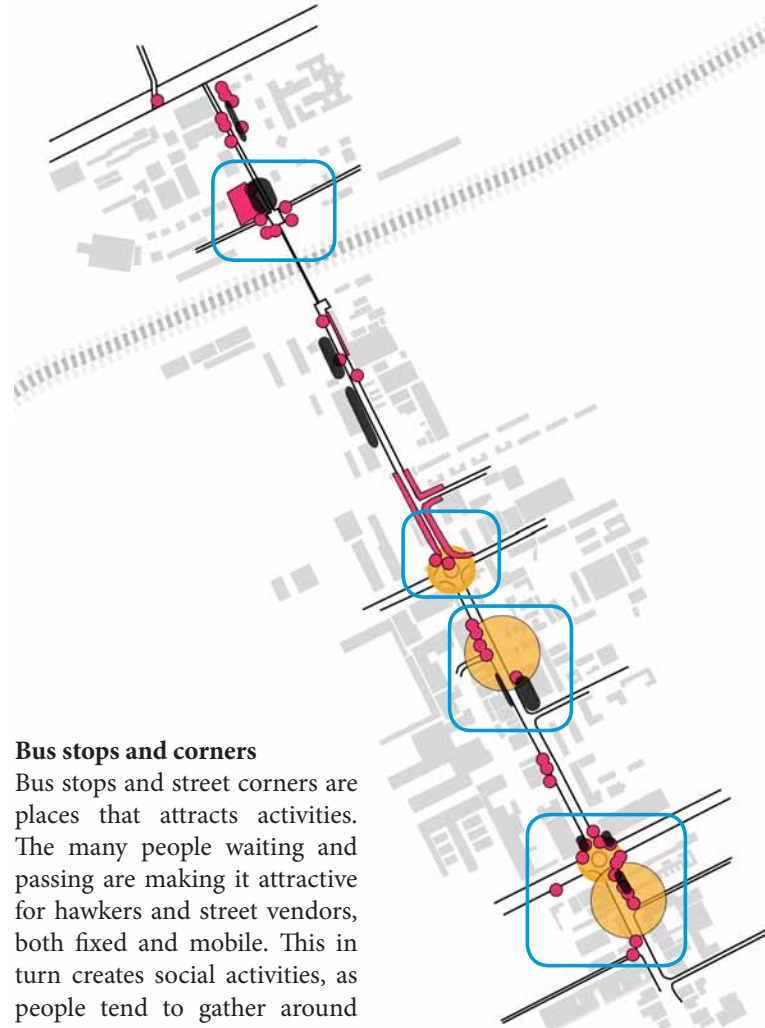


### Crossings

Dunga road, south of the Market, is a four lane street. It functions as a barrier due to fast driving cars. The difficulty to cross is enhanced by the lack of designated areas for pedestrians, or zebra crossings. The most frequented places to cross are next to the two big roundabouts which capacities controls the flow of traffic.



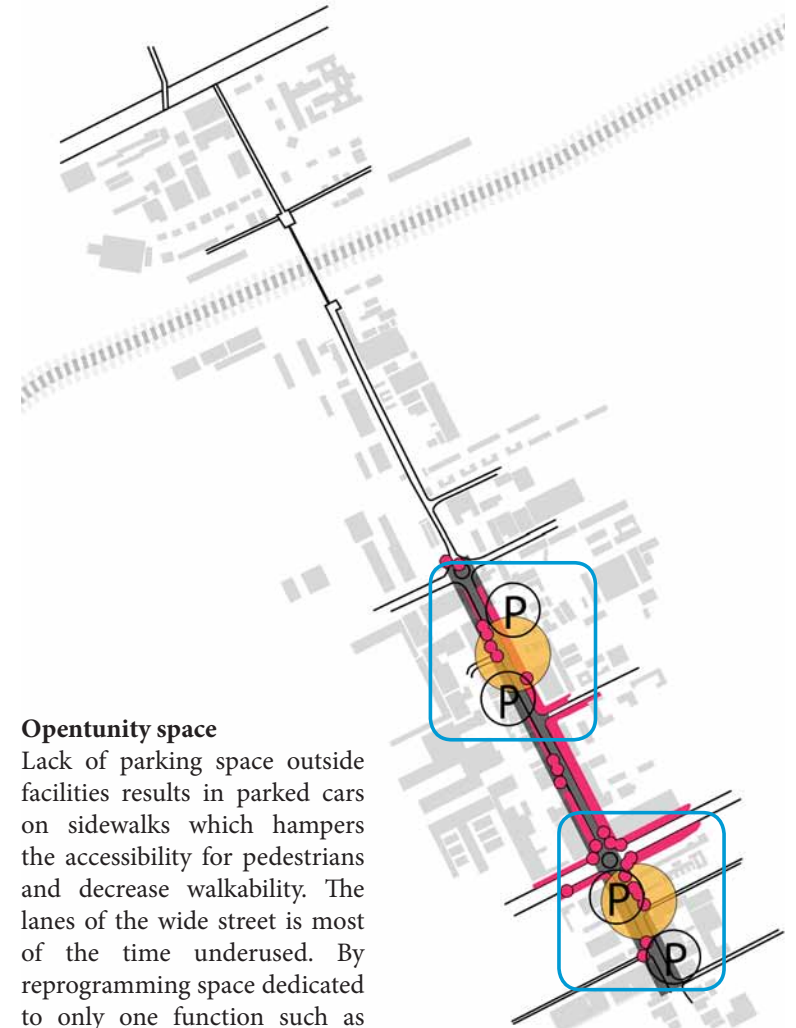
Bus stops and street corners were identified as strategic sites where the presence of people and their activities in turn generate other activities. By improving the quality of these particular sites, through providing enhanced comfort or opening up the possibility for other uses of the street or site, existing activities can be supported.



#### Bus stops and corners

Bus stops and street corners are places that attract activities. The many people waiting and passing are making it attractive for hawkers and street vendors, both fixed and mobile. This in turn creates social activities, as people tend to gather around vendors and sit and have a chat. Amplified activities are also found in the protection of tree canopies.

Opportunity spaces are open spaces that have the opportunity to become more multifunctional. We noticed the consequences of lacking functions along the Axis and thereafter claimed space that could be made better use of. By doing this, space is provided for what is lacking and at the same time flexible spaces are created that allow both existing and new activities to take place.



#### Opportunity space

Lack of parking space outside facilities results in parked cars on sidewalks which hampers the accessibility for pedestrians and decrease walkability. The lanes of the wide street is most of the time underused. By reprogramming space dedicated to only one function such as the movement of cars, or the parking of cars in wastelands, other activities and public transit can be given more room.

### Destination Creation

Four sites along the Axis are important landmarks and gather a lot of people as it is today. The big number of people moving through these areas, the various traffic situations they are located in, the proximity to public transit and their different functions that are of great importance in the city make them very complex and they need a site specific solution

to improve the existing conditions. We call the strategies for these sites “Destination Creation”, an expression we found in the walkthrough analysis conducted by the GoDown and WHITE. It was a comment from one of the participants and we think it summons up the relationship between the lack of recognition they have at present, despite the various and interesting possibilities these different sites have.

#### POLYTECHNIC UNIVERSITY COLLEGE

Proximity to transit hub, restaurants and the footbridge  
Social activities and street vending  
The building has no interaction with the street

#### THE FOOTBRIDGE

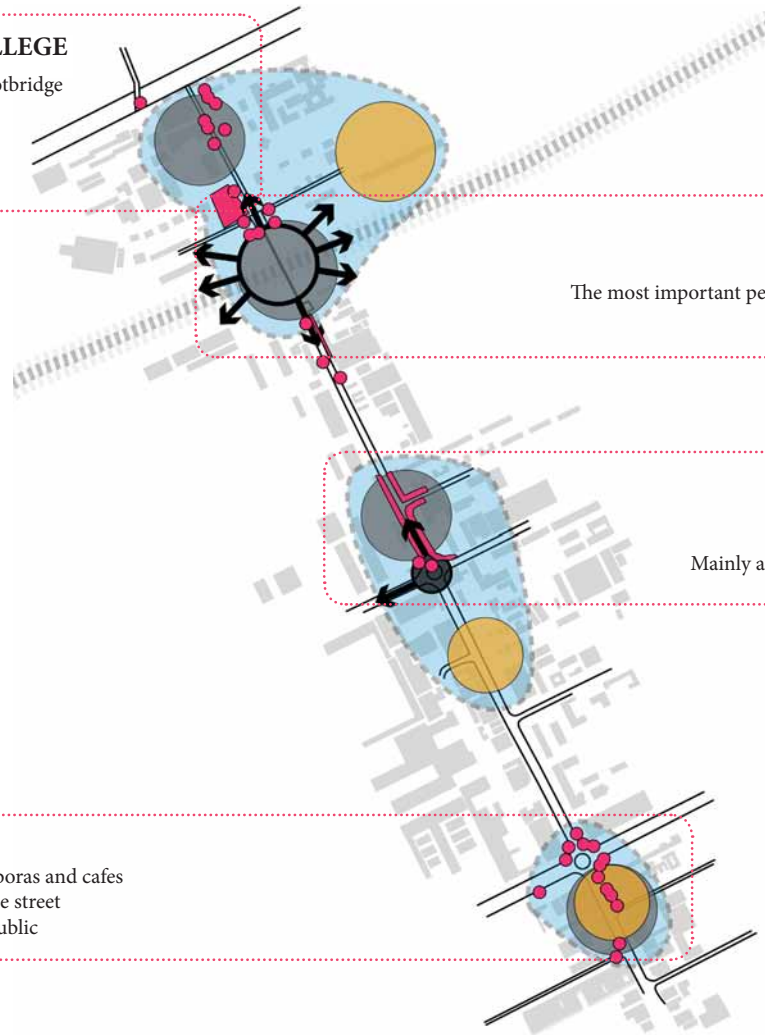
Nice view over Nairobi and in the heart of the city  
The most important pedestrian link between the industrial area and CBD  
Important passage to adjacent transit hubs

#### THE MARKET

Nice view and a feeling of the city starting here  
Close to matatu stops  
Mainly a pedestrian area with a lot of commercial activities

#### THE GODOWN ARTS CENTRE

Closeness to bus stops, vending activities, bora boras and cafes  
The building is not properly announced from the street  
Cultural activities and restaurant open for the public



## Sites and Situations

When designing, we chose to work with situations and sites. The situations are more of a general solution on reoccurring issues we observed, whereas the sites got a site specific solution, due to their complexity. The situations respond to the concluding analysis of walls, crossings, bus stops and corners and Opportunity spaces. Destination creation was the concluding analysis for the sites. A traffic strategy was also drawn up.

### An Area in Transition

When we started the project, the GoDown Arts Centre already had conducted a series of workshops concerning culture in the industrial area. This was done in March 2011 and participants from the regional-

and city planning offices, artists, art organizations, people from the cultural and creative industry and some from the Polytechnic University College or the Railway Museum were present. They concluded:

*“The transformation of the area is a question of improving infrastructure (accessibility, linking and traffic), preserving cultural heritage (preservation) and accentuating the contemporary and modern Nairobi (creating unifying spaces, addressing the mobility of people).*

*The main outcome of the workshops is the shared vision of the potential of this project: To create a sustainable Industrial Area, showcasing its rich history through the cross fertilization of heritage and modernization”*

(the GoDown Art Center et al 2011, p. 6).

These are leading words that we have used when designing and these are strengthened by the toolkit.

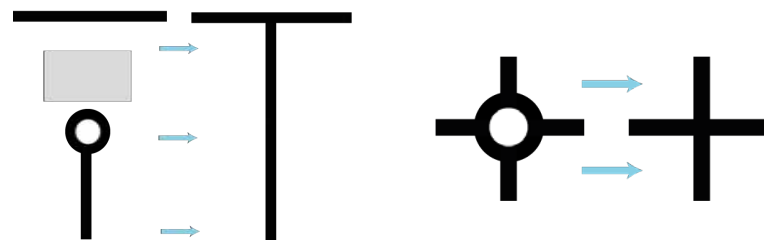
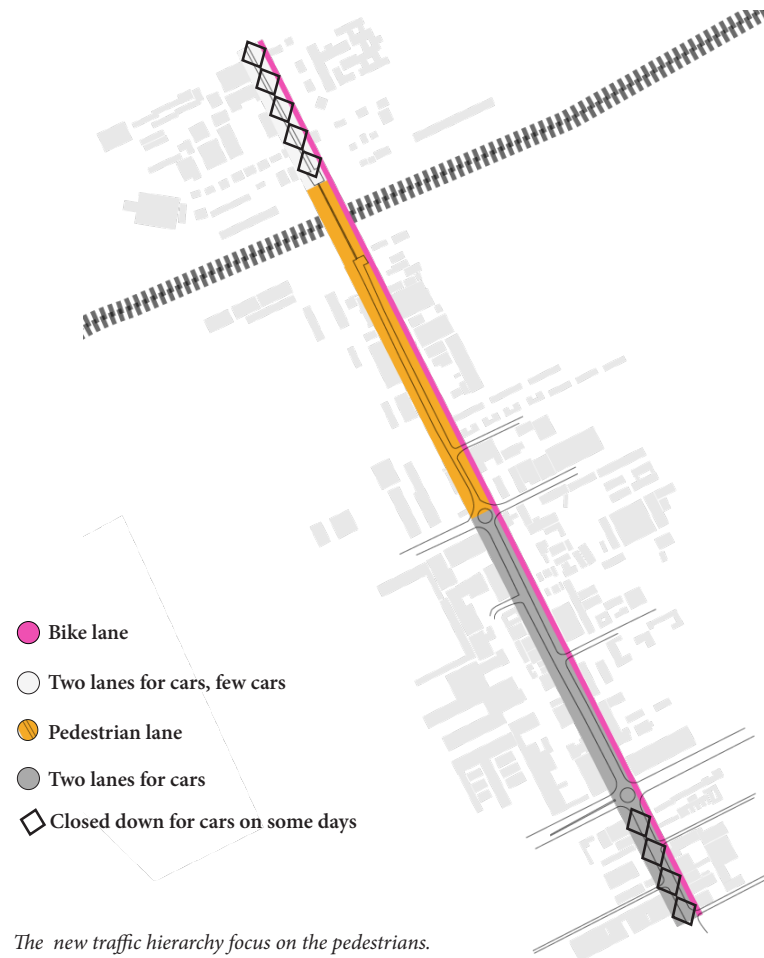
*The site next to the footbridge contains many interesting situations, while it also has the complexity of a site.*





## Traffic Strategy

*This strategy is mostly about linking, walkability and lead the way, through the apparent prioritising of pedestrians.*



*A better walkability is achieved by making the road network more permeable (left). By removing roundabouts, more space is created for pedestrians and they can easier pass(right).*

The present traffic pattern within the northern part of the industrial area and along the Axis is connected to the industrial activities and workplaces in the area. Since the area is transitioning, by old industries moving out and new activities and facilities moving in, the traffic pattern will also change. With this change comes the opportunity to question the current traffic hierarchy and rearrange the space of the street to better match the new need of the users. By programming and making new suggestions for the street along the Axis, the space can have a more effective use. The purpose is to be able to strengthen public space along the Axis without having to compromise with cars. At our site interventions there is a need to lessen the impact of cars and this has been done in different ways.

### Open up

To handle the cul-de-sacs and the dead ends, there is a possibility to connect them to roads close by. This will improve the overall connectivity in the industrial area. The transformation can happen gradually, whenever a building is torn down or space is acquired.

### Hierarchy

A new programming for roads is proposed along the Axis. This is a step in prioritising pedestrians. Along Dunga road, South of the Market, four lanes for cars is decreased into two. The pedestrian path stretching over the bridge is increased to the Market. The road outside the Polytechnic is judged to be important for the cars going to the restaurants and offices outside of the railways and is kept as it is today. Outside the Arts Centre and the Polytechnic, there is a strategy to close down for cars on some days to be able to use the space for activities. A consecutive bike lane is running along the right side of the road.

### Roundabouts

The roundabouts are an obstacle in the whole city and causing a lot of traffic jam. As stated in page 31, the roundabouts are vulnerable for accidents, causing a stop in traffic when they are happening. They also are mostly causing a flow of traffic for cars, whereas pedestrians have to walk around them to cross the road. By turning these into junctions, space on the sides can be released and used by pedestrians while the flow is working better.

## Walls

*The design of walls provides Walkability through making activities happen along the road and creating interesting sites. It also creates visual guidance and contains Lead the Way. The design invites people into the streetscape and also represents Pause and Play.*

The walls are ever-present along the Axis. Sometimes they change material and height, from metal sheets to concrete blocks and sometimes new advertisement is painted on them. Only at some locations the walls open up to let activities flank the sides of the street. The walls make up the boundary between public and private, they protect a few but more so exclude the majority. Walls create both a poor visual experience and an eventless street life, reducing the potential of most parts of the Axis into a mere transport corridor.

### Mimic positive initiatives

Some people consider the walls a problem. That is why positive examples are happening both in other parts of Nairobi and along the Axis. These positive examples should be encouraged to happen along the Axis and is likely to happen in a collaboration between private landowners and organizations and private initiatives. In Kibera colourful murals have been beautifully painted on the walls. Encouraging the painting of murals have several advantages. It doesn't claim any space but have a significant visual impact. Using walls as the canvas of the city, they can function as a visual storytelling, showcase artists and engage people and

*A mural in Kibera (upper right) and vegetation planted along a wall (middle right) are examples of how walls can be used or hidden to ease the negative impact on the streetscape*

*The same wall gives different visual experience. Down to the left is a monotonous wall and not many people are walking there. Further down on the same stretch the wall is opened up and more people are walking by.*





organizations using the area. In other neighbourhoods vegetation covers or screen the hard surfaces. Trees, climbers and other plants are excellent as green screens that can soften the harsh expression of the walls and at the same time provide important shadow which in turn could attract street vendors. At a few places along the Axis, walls have opened up to house small shops and new shop spaces have been built in old houses next to the street. Where space in

front of the walls allows, street cafés and small shops could be introduced in old renovated train cars from the railway area.

*By using different solutions along the wall, new things happen along the stretch.*



*A container placed outside a wall and changed into a kiosk support street activities and at the same time hides the wall behind it.*





## Crossings

*The design of crossings is addressing Ecosystem Services through swales and Walkability through the prioritising of pedestrians. The design principles used are Green Room and Lead the Way.*

There is not one single zebra-crossing along the whole Axis. This doesn't mean that people are not crossing the street. Unofficial crossings have come up close to roundabouts and junctions. The process of crossing is complicated in the sense that you have to wait for the cars to either not be there or being stuck in the jam.

The overall neglecting of pedestrians is very prominent in this area. A lot of people are walking, but have only about 2 m for this purpose whereas cars have 4 lanes of about 4 metres each. These are often underused, unless there is a car accident creating jam. Cars are driving fast when they can and creating a lot of noise.

### Slow down cars

There are several strategies to slow down cars and put the focus on pedestrians. By using the traffic strategy to decrease the number of lanes cars can't drive as fast and pedestrians and bikes can get more space. To just put out the markings can make the awareness of pedestrians increase. Another way is to decrease the size of the lane at the zebra crossing. This marks that something special is happening. Kerbstones and other materials could be used

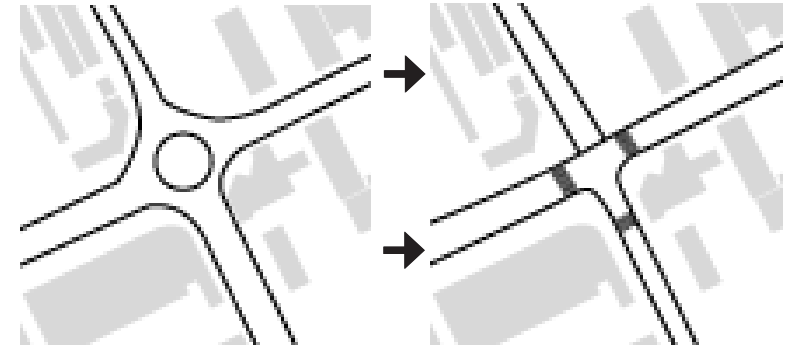


*Hard trenches are collecting and leading water in Nairobi. They separate the road from the pavement.*

to divide different lanes and different modes of traffic. Signs, trees and other focal points can also help with this.

### Traffic behaviour

The attempt to slow down traffic might not work immediately. The behaviour of vehicles and pedestrians in Nairobi is based on the fact the fastest goes first. When the physical environment better encourages to pay attention to pedestrians, the awareness of them hopefully increases. As this happens, drivers might start looking for them and eventually bylaws prioritising pedestrians might be created, such as the rule for cars to stop at zebra crossings when someone is waiting to cross that came up in Sweden. Changes don't happen overnight, but they do happen.



*By transforming a roundabout into a junction and decreasing the number of lanes not only the traffic flow works better. The flow of pedestrians can also be more straight.*

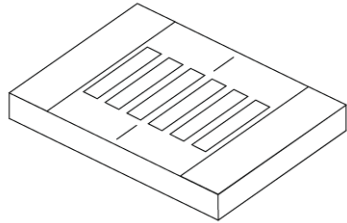


*About 60 pedestrians sharing a little amount of space and about 12 cars sharing a big amount of space (top). The lack of programming in crossings creates confusion and people are waiting to cross even in the middle of the street (bottom).*



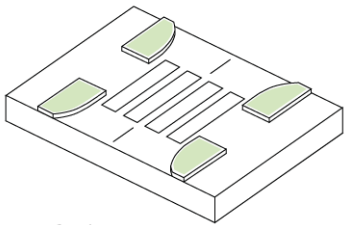
### Step 1:

Add crossing lines and connect the two sides.



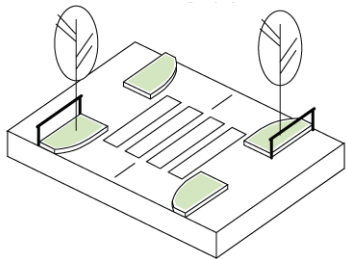
### Step 2:

Planting beds are added to treat stormwater and decrease amount of lanes to make cars slow down.

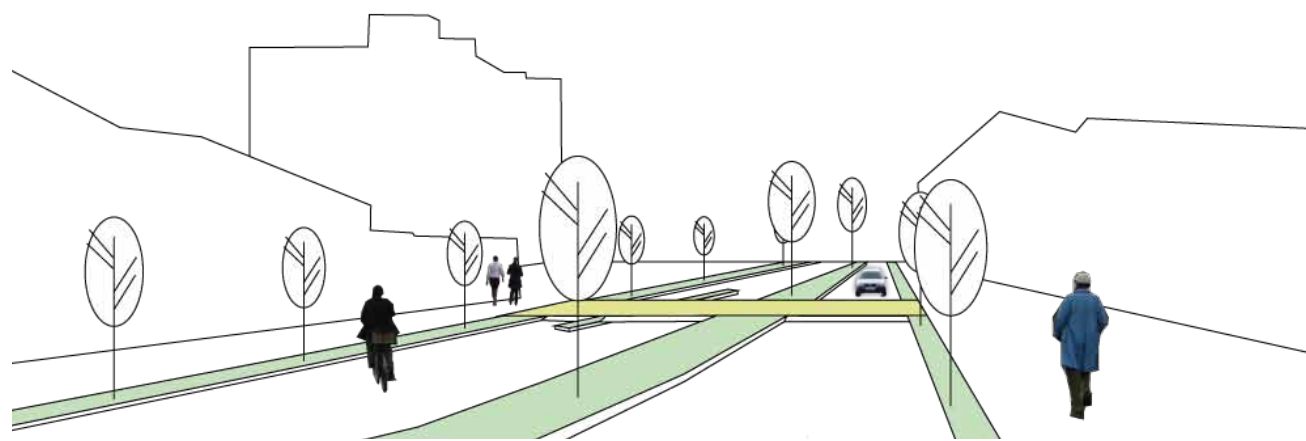


### Step 3:

Planting of trees to bring shadow to the waiting zone, improve stormwater treatment and function as a focus for cars.



*The design will happen in different stages as a part of the small step design. Every step will improve the security for pedestrians.*



*Swales and planting beds can be used to separate different modes of traffic. By raising the crossings cars have to slow down.*

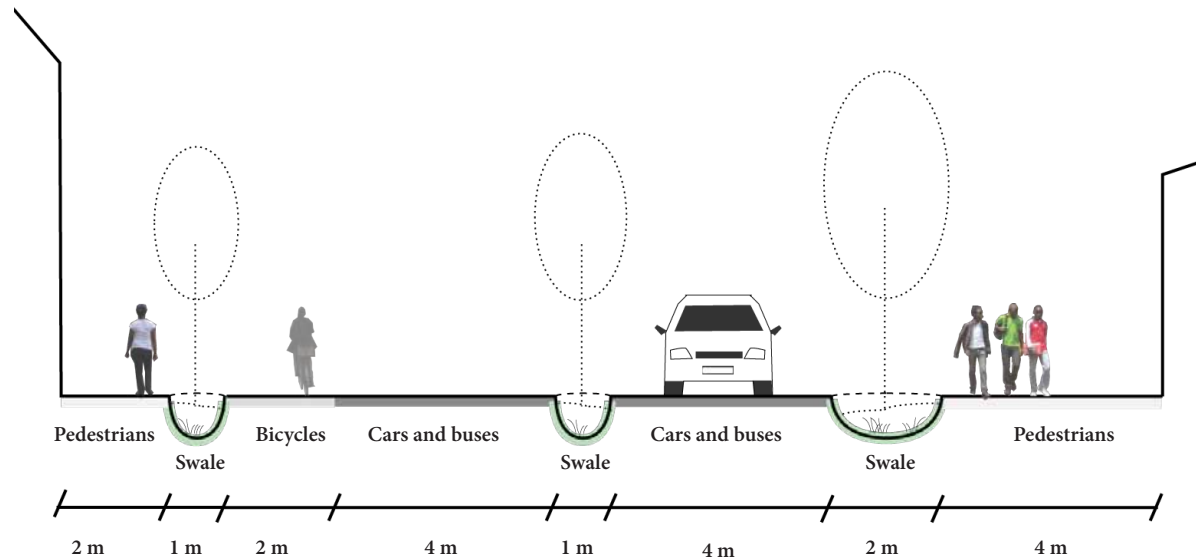
### Swales

To make the most use of the space in between different modes of traffic, a system for taking care of runoff water is created. Instead of the solid trenches used today, plants in swales can take up the water.

By using perennial grasses,

flowers and trees growing in Nairobi and the surroundings both ecological and aesthetical values can be achieved. Plants suitable for Nairobi, that tolerate being dry for a while but that also can take up a lot of water, can be found in the Savannah. Along rivers, plants

that can grow in the water can be found. The swales have a soft ground, allowing water to permeate. Every five metre and at crossings, a tiny bridge is placed allowing people to pass. The maintenance don't need to be too expensive if well adapted plants are used.



*The design might differ along the road, but this is a possible division of space for a 20 m wide street.*

## Bus Stops and Corners

*In this reoccurring situation, the Pillars of Planning such as Multifunctionality & Flexibility Walkability and Culture & Identity are particularly addressed. Design Principles applied are; Pause and Play by suggesting flexible furniture, Lead the Way by providing space for pedestrians where activities interrupt each other and the Green Room where street trees are introduced. The Mirror Effect is applied by improving the space for street vendors, an important part of the intangible culture and also by reusing materials that are found in the area and integrate them into the new design suggestion.*

### The Butterfly Effect

Where there is movement of people vendors have the best chances of making good business. Street corners at intersections and roundabouts are commonly occupied by informal business activities. This also happens at transit points, where people are waiting or changing direction, like bus stops and footbridges. Once someone has established a business another vendor can benefit from existing activities which in turn makes another entrepreneur seeing new opportunities. These street activities both benefits local economy and creates an interesting street life and with more people in the streets public spaces, they could be perceived as more safe. As a response to the dynamic described above, we found upgrading of vending sites as an important means of both supporting the informal sector and at the same time contribute to support the street life along the Axis.

### Upgrade Vending Sites

Today these sites along the Axis, the street corners, the bus stops and the foot of the pedestrian footbridge are not recognized as important places for entrepreneurship and street life. Lack of shadow, uneven ground with bare soil, no seating possibility are contributing to this. Sometimes the access for pedestrians are hindered due to some enterprises that take up more space. There is also a lack of adequate lighting.

### Flexibility

The intervention should aim at improving the conditions for vendors and at the same time be kept flexible to allow and invite other uses of the space. Improving ground conditions and provide seating should not only support vending activities but also benefit people waiting for the bus, resting or having lunch in the area since these activities tend to happen together. Lighting and shadow are also design elements that encourage multiple uses of each site during different hours of the day.





## Bus Stops and Corners -Bora Bora

### Common sight

The ground is often uneven with stones sticking up from the bare soil. When rain comes the clay becomes sticky and muddy. There is shade from a tree but no proper seating possibility nearby. The drivers at an electrical cabinet to rest in between customers. The motorcycle is parked in the pedestrian zone. When the Bora Bora is arriving or leaving confusion between pedestrians and motorcycles may occur.

### Addressing present situation

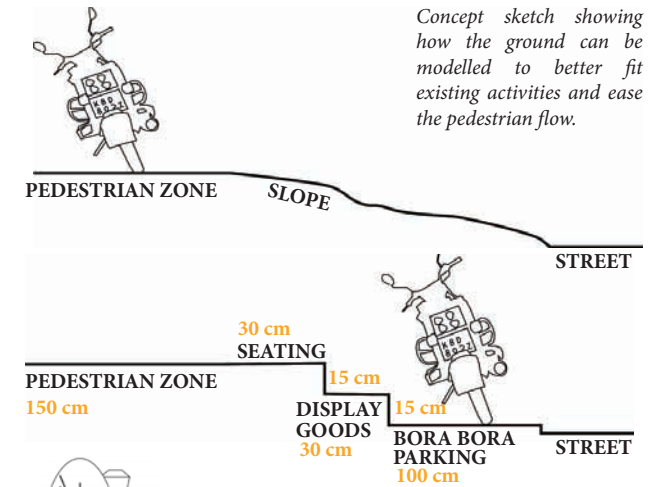
The slightly sloped ground is remodelled into terraces or steps in order to make room for motorcycle parking adjacent to street and provide seating possibility.

### Other possibilities

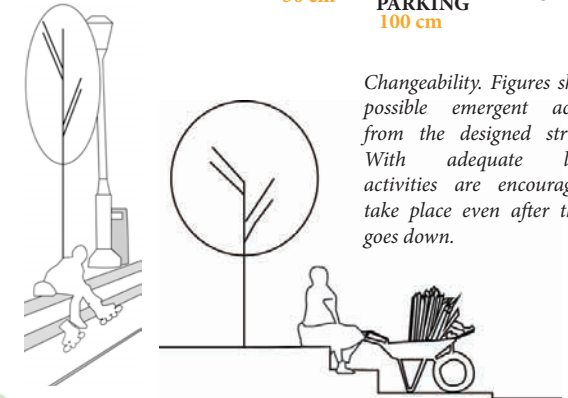
Other activities that could benefit from this small change could be other street vendors and hawkers, or people who are just hanging out, having lunch, preaching or waiting for pick up. If the adjacent street would be shut down for cars occasionally, it would make a good site for putting on skates or watching an performance.



Street corners make up important sites for Bora Bora drivers and street vendors but are usually lacking proper seating. These activities may sometimes interrupt pedestrian movement.



Concept sketch showing how the ground can be modelled to better fit existing activities and ease the pedestrian flow.



Changeability. Figures showing possible emergent activities from the designed structure. With adequate lighting activities are encouraged to take place even after the sun goes down.



Improved micro-climate by planting trees can encourage the emergence of activities.

## Bus Stops and Corners -Street vendors

### Common sight

Hawkers can be more or less mobile and flexible with how they transport and display their commodities. They usually locate themselves close to bus stops and in the shadow under a tree.

### Addressing present situation

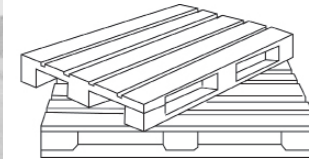
Designing furniture that provides both seating possibilities for the vendor as well as a structure that improves the display of his or hers goods, multiple functions can be fulfilled. The commodities can easier be kept clean and displayed when not on the ground and they are in a more comfortable position for costumers. It also gives the hawker a better supervision over the goods

### Other possibilities

Other uses are seating for people while waiting for the bus or hanging around. They can also function as play element for children or a bench for someone who needs a nap or sleep for a while.

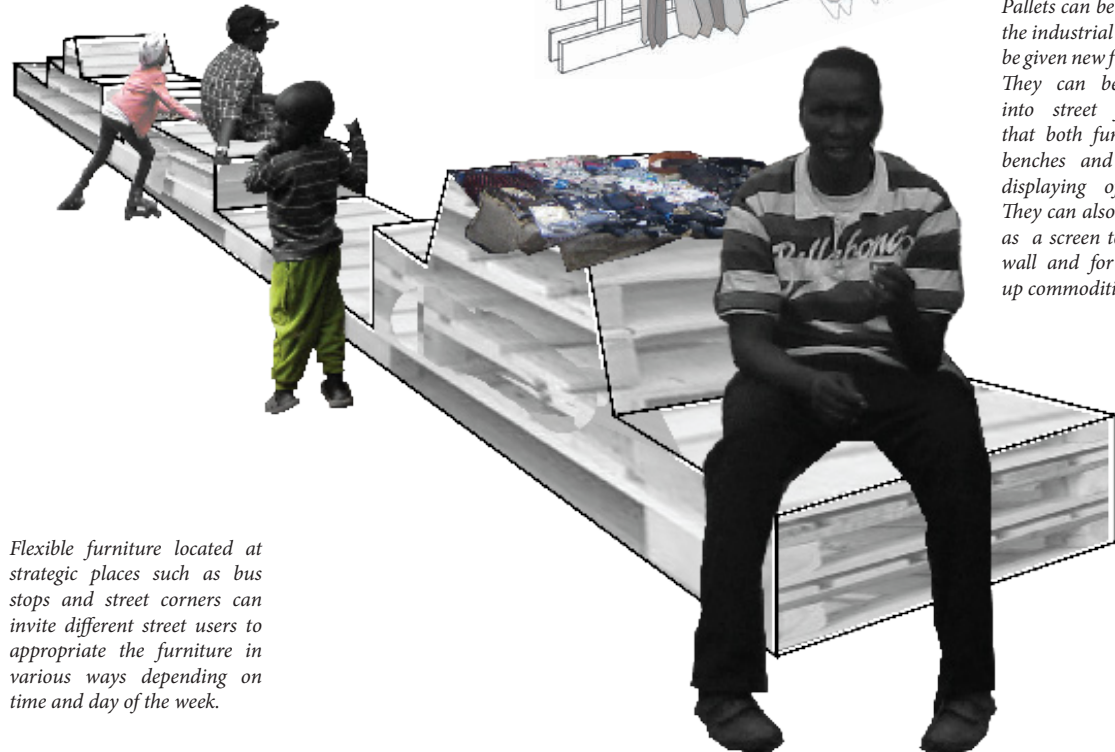


*Hawkers move around with their commodities but usually locate themselves close to bus stops. Flexible furniture that both hawkers and people waiting for transit can use are therefore suggested at these locations.*



### Pallets

*Pallets can be found in the industrial area and be given new functions. They can be turned into street furniture that both function as benches and for the displaying of goods. They can also function as a screen to cover a wall and for hanging up commodities.*



*Flexible furniture located at strategic places such as bus stops and street corners can invite different street users to appropriate the furniture in various ways depending on time and day of the week.*

## PART 3: THE AXIS SITUATIONS

Bus Stops and Corners -  
Street vendors



## Opentunity Space - the traffic lane

*The Pillars of Planning that Opentunity Space particular address are Multifunctionality & Flexibility, Ecosystem Services and Walkability. Design Principles such as Lead the Way and the Green Room give a priority to pedestrian movement both by making more space available as well as improving the microclimate. These factor may in turn increase the possibility for strengthening Culture and Identity by supporting street activities such as vending.*

### Present situation

The fourth street lane could be considered an underused and unrecognized asset for the Axis. It only fills one function; mobility for cars. When there are no cars the becomes an unused empty space not contributing to streetlife and activity. When filled with cars it makes up the arena for noise and pollution

since cars can drive fast on this straight stretch until reaching the congested roundabout. Here, cars also park on pedestrian space, leaving barely any room for people to pass, making people use the vehicle lane

### Rethinking the lane

The lane could be turned into a flexible space where different

activities can occur at different times of the day and days of the week. Trees are planted in a row to provide distance between different street users and shadow to different street activities that take place in the new space. Since the lane is wide, there is enough space for car parking, street vending, food stalls or markets stall.

### Appropriation

The main concepts of this space is "open" and "opportunity". By providing the basics features, space, shadow and protection the users of the street and the city will find ways of appropriating this space. Maybe it becomes a skating lane, maybe a biking lane, maybe a market stretch, maybe a cat walk or track and field practice ground or maybe parking. Perhaps it can hold all the mentioned activities, at different hours or days.



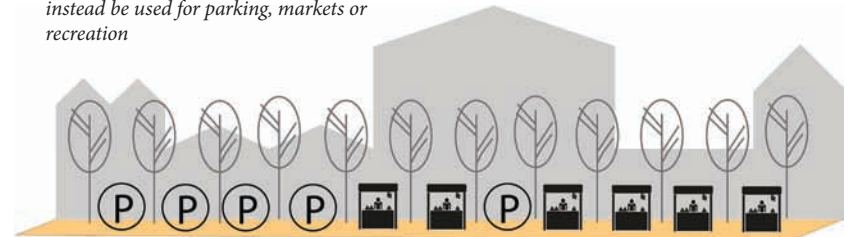
Cars in the pedestrian zone.



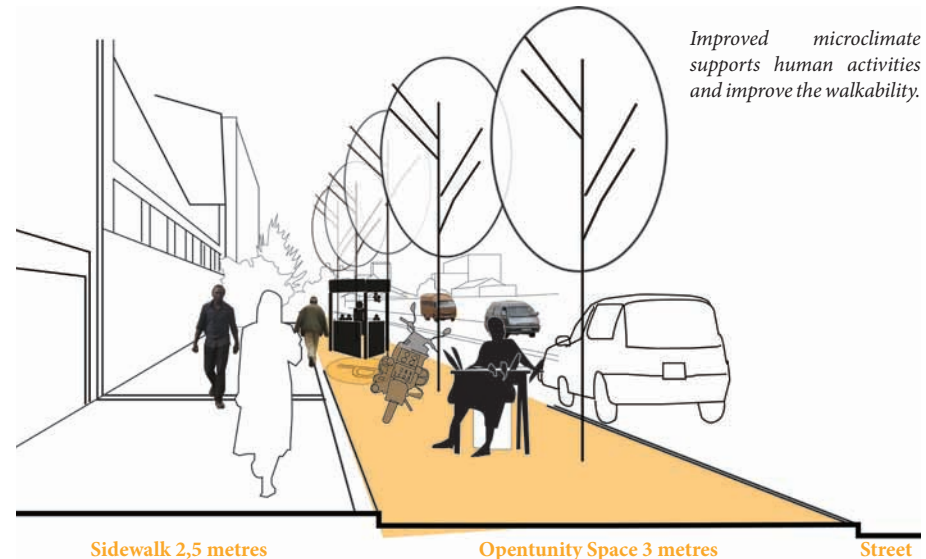
The need of parking interrupts pedestrian flow



One lane can be closed down for cars and instead be used for parking, markets or recreation



Improved microclimate supports human activities and improve the walkability.





## Opentunity Space - the wasteland

Some wastelands have uneven ground with heaps of soil that collects litter and the poor maintenance gives the impression of a place in oblivion. Quite often, stormwater trenches run along these areas. Parking space and rundown pedestrian paths are common sights. After rain puddles of water are created, not uncommonly where the pedestrians move. Occasional activities that take place here are connected to vending or bus stops, and usually happen in the shadow.

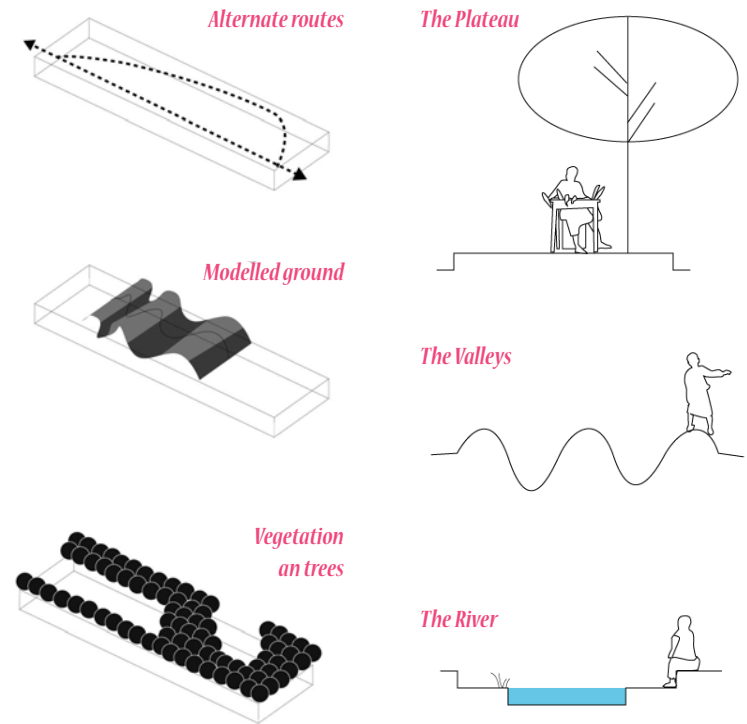
### Upgrading through integrating

These wastelands sits on the potential of being used in a more flexible way. Upgrading certain parts by tying together different activities can have the result of a more used spaced, a space that becomes appropriated and signals that it is taken care of. With an integrated approach, where trees provide shadow and the ground is modelled into suiting the activities currently taking place, the site can accommodate present needs that have the possibility to emerge here. Where cars are parked during the weekdays,

a market could emerge during the weekends or benches could be placed under the trees, protecting their trunks from car tires and make up a good resting place.

### Inspiring Landscapes

With inspiration from the Rift Valley, underused wastelands can be modelled in different levels and shapes. On the flat Plateaus opportunities for markets, parking and vending are offered as well as the possibility to just sit and rest or wait for the bus in the shadow. In the Valleys the ground is undulated in round shapes letting people interact with the landscape, play around or use them for relaxing after a hard day at work. The River makes up a water feature where stormwater is collected to a couple of centimetres of water. When heavy rains fall the water spills over to trenches and is diverted away.



Through integrating different Design Principles the result can become a richer experience. Lead the Way, Pause and Play and the Green Room are represented in the graphs while Mirror Effect is represented by the inspiration from the landscape.

Through planting trees, the space can become more pleasant.



The wastelands have potential to be developed into more multifunctional places.



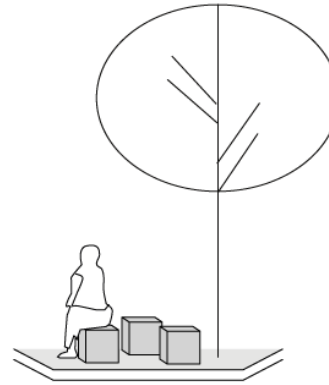
# Polytechnic University

*In this site, Walkability is promoted through the new traffic solution. Pause and Play is used on the new islands.*

The space outside the Polytechnic University is mostly visited by students, waiting for their class to start. The traffic on the site is today a form of shared space between cars and pedestrians, where pedestrians have to move as soon as a car is approaching. The cars are driving to offices and restaurants where they have parking spots. There are no seats but people are sitting on bollards. A lot of the pavement is privately owned and fenced off. The rest is used as parking, which leaves very little space for the pedestrians.

## Where to put the cars?

As there are many activities along the street and there are no alternate roads, the cars need to be able to drive back and forth on it. In the situation today, there is a lack of programming making both vehicles and pedestrians confused, also increasing the risk for accidents. This could be addressed through proper programming and decreasing of lanes. In the example, the cars have to take turns driving on the main lane and they have to wait for each other. No car can drive fast because they have to pay attention to the meeting cars.



*Spaces to sit down and rest are important, and solid furniture protects the space from cars driving up.*

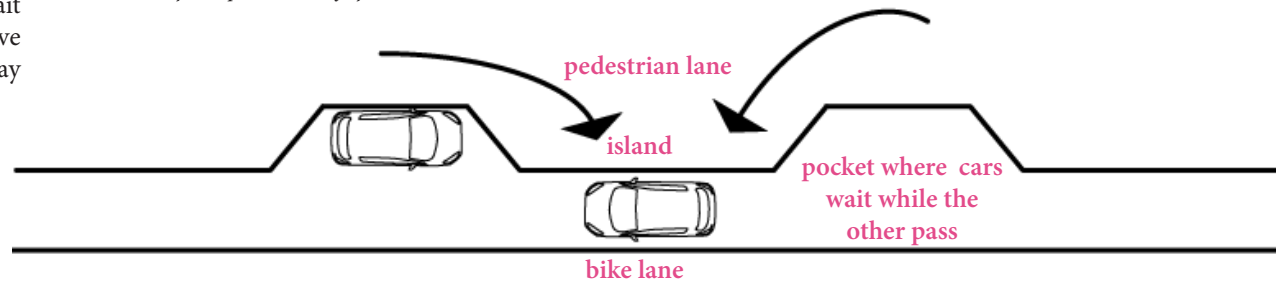


*Since there are no benches or seats put out, people are sitting on the ground or on concrete blocks. The only space to hang out without risking to get disturbed by cars is in the swales beside the road.*

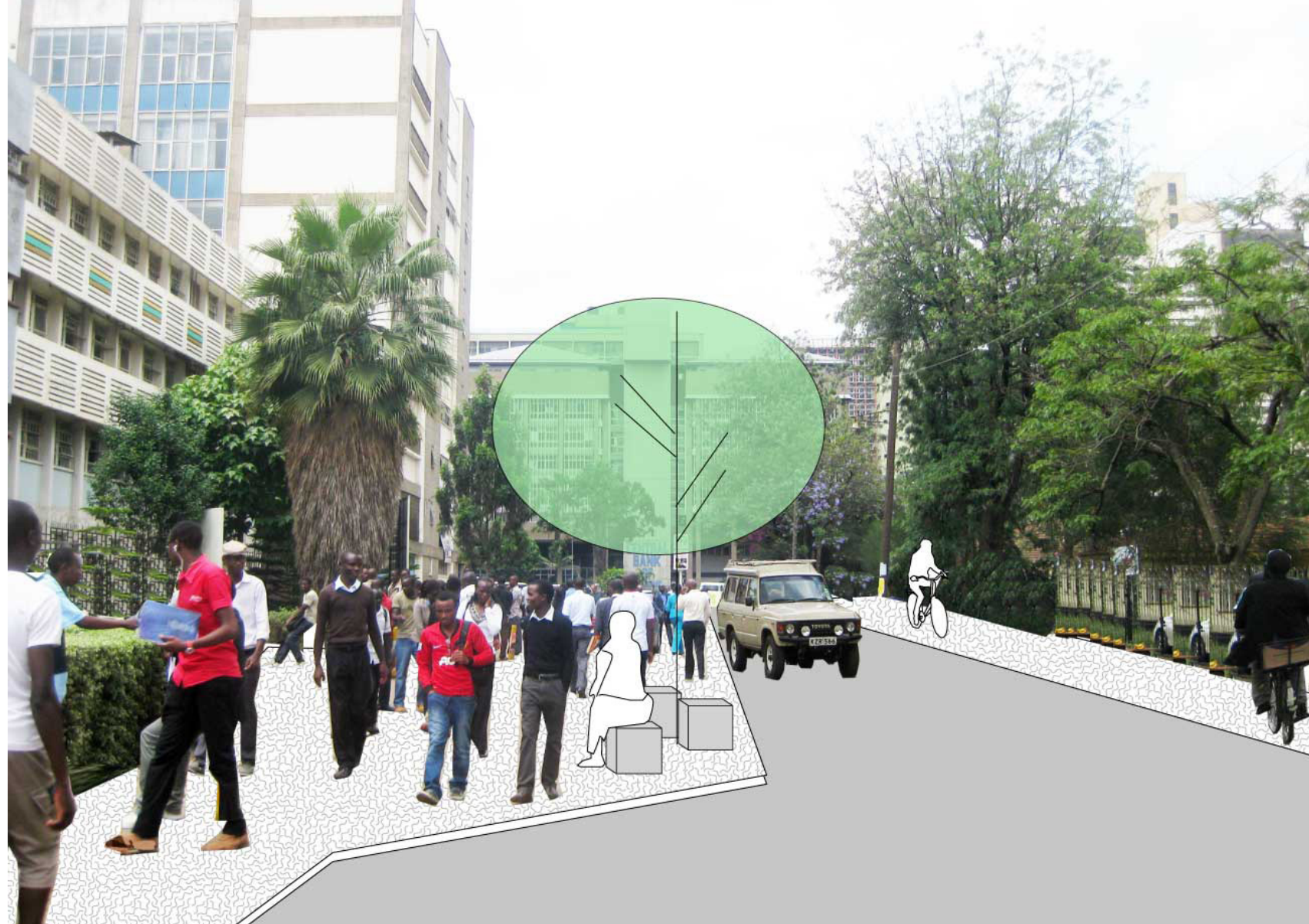


*In many places, cars park on the pavement and the pedestrians walk on the road for cars.*

*By making cars wait for each other they have to drive slowly which increase walkability and pedestrian safety.*







*The new traffic solution creates better use of the space and bikes get their own lane.*

### **Pedestrians and bikes**

The private land owners are encouraged to remove fences so the space can be used. There is already today a big flow of pedestrians and these need space where they are not

compromised. Bikes are, as in the rest of Nairobi, a rare sight. As a part of a continuous bike lane along the whole axis, there will be a two way bike lane put out on one side of the road, to not interrupt a pedestrian flow.

### **Islands for hang out**

The land in between the pockets make up islands, situated outside of the flow of pedestrians and the flow of cars. This gives them a unique opportunity to become places for rest and hang out.

Solid benches and trees can be used as a means to avoid cars driving up on the pavement, while they are giving shade and a place to rest or hang out.



## The Footbridge

*Linking, Walkability and Culture & Identity are the Pillars of Planning that are integrated at this site by increased accessibility, the creation of meeting places as well as highlighting the cultural heritage of the railway and the city. Pause and Play, Lead the Way and the Mirror Effect are the Design Principles used by turning the bridge into a more multifunctional passage for passing, vending and hanging out and also showcasing the history of the site in various ways.*

The bridge serves as an important pedestrian thoroughfare over the railway tracks. Located on the site where Nairobi's was founded it has prominent historical and cultural values. The Railway could be regarded as the very heart of the city, the cradle from which Nairobi grew into becoming a regional hub and an international center. It all more or less started here, at this site.

The bridge also sits between the two landscapes upon which Nairobi was built, the plains and hills. This change in landscape is easier understood when being higher up- the elevation offer a great view over the city.

The footbridge has the potential of not only being a narrow corridor for people to cross and pass. Situated in the interface between the city centre and the industrial area a development of

the bridge can let a wide range of activities also happen here.

### An Elevated Square

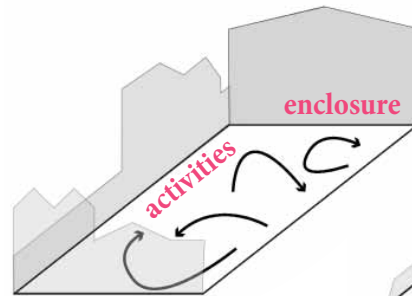
What could be considered a conventional square is an urban phenomena that is not very typical for Nairobi. The functions a square throughout times has provided might instead take place in markets, malls, streets and parks around the city. Market and vending

*Street vendor displaying commodities on a busy pedestrian footbridge above Haile Selassie Avenue (top). The footbridge over the railway area is an important pedestrian thoroughfare (bottom right). School children enjoying the nice views over Nairobi from the bridge (bottom left).*

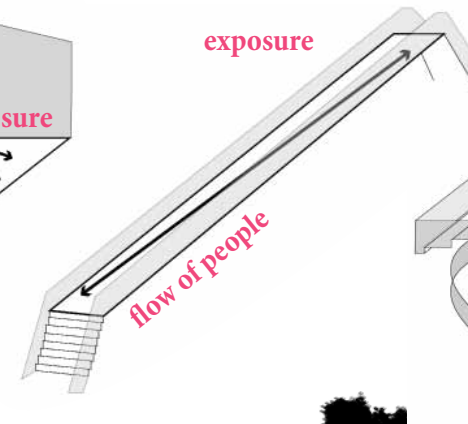


are important and prominent activities in the streets. They also take place on footbridges where lots of people are moving and passing such as the one over Haile Selassie Avenue. By using the strategic location of the footbridge over the railway tracks, we can acknowledge the potential of the daily flow of people and highlight the cultural value that the bridge very much sits on. At the same time we also showcase and make use of the beautiful view this elevated site provides, the view over the Kenyan landscape, the plains and the mountain ridge. This landscape is so very typical for Nairobi, a common memory shared by many Kenyans.

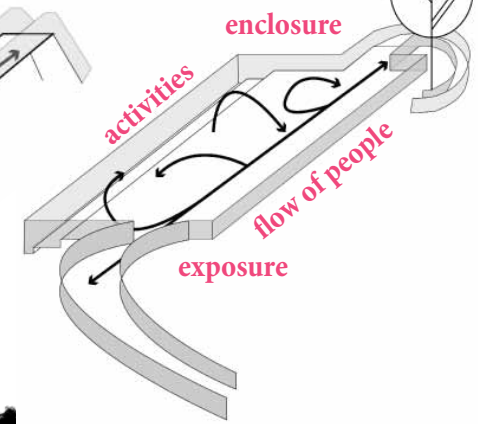
*The conventional square.*



*The footbridge today.*



*Concept of rethinking the footbridge.*



*Screens in shape of trees native to the savanna protects from sun and remind of place (right).*



*The new bridge offers the possibility for people to stop and pause to look at the view (bottom).*



### PART 3. THE AXIS SITES The Footbridge

*The bridge can be made accessible for bicycles and disabled by constructing the ramp.*



## The Market

*This solution is very simple, but the big tree is very multifunctional. It includes an orientation point to lead the way, shadow provided by green room and the fact that it is taken from the Kenyan landscape makes it a mirror effect.*

Being filled with cars, pedestrians and stalls, most of the space in the Market is already in use. The hectic life gives an exciting but stressful impression. Cars are often parking in front of the stalls, hiding the trade. The stalls have taken over the pavement and pedestrians are competing with cars on the main road.

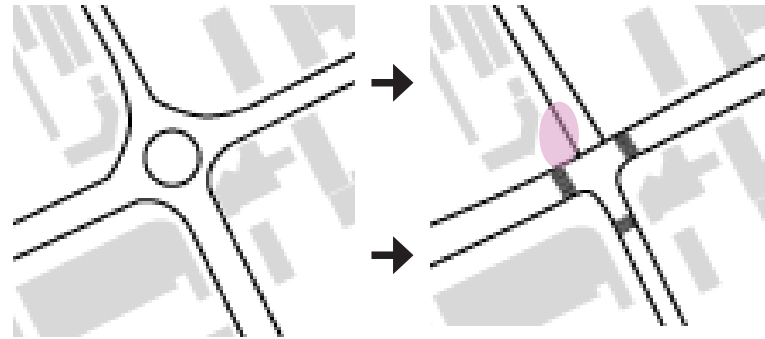
With another traffic solution and the new traffic strategy some space is created where it is possible to create a welcoming entrance where it is also possible to meet up with friends.

### A new Entrance

The Market is a very lively place but there is a lack of shadow. By planting one big tree, welcoming people, the place can get a sense of calm before entering. It also marks the beginning of the new pedestrian lane.

### *Ficus sycomorus*

The *Ficus sycomorus* is an indigenous species, growing up to 21 m. It usually grows near rivers, in woodlands or bushlands. It bears edible fruits. The tree can be used for wood carving or houses (Dharani 2011, p. 103). It needs a continuous supply of water and is traditionally used to provide shade in markets, due to its spreading branches.



By transforming the roundabout into a junction, the traffic can flow smoother and the market can get a space for uncommercial hang out (left). Enough space is created for the planting of a big tree that marks the entrance to the walking path (top).

The market is full of activity and a very crowded place where pedestrians, cars and commerce compete for space. Walking in different directions show different views (bottom pictures).







*The tree serves as a shadow provider and an obstacle for cars at the same time.*

### **Stormwater management**

Since the tree needs a continuous source of water, stormwater can be led to the tree, and permeable pavement can make water flow to the roots. The roots of the *sycomorus* are good at penetrating down into the

ground water reserve. Not far away from the spot is a river, which follows the pattern of how it grows in nature. Since the roots are close to the surface, a big area around the planted tree needs to be vegetated and with permeable materials. This makes an opportunity to take care of

stormwater. Through leaning hard surfaces towards this soft surface, the water can be taken care of while the tree gets its proper amount of water. Water from the roofs can be collected to run off into this spot.

## Outside the GoDown

*At this strategic site, Pillars of Planning such as Linking, Multifunctionality & Flexibility and Culture and Identity are integrated by introducing new meeting places where activities of the space change over the course of the week. Design principles applied at the site are Lead the Way by claiming space from cars, announce the arts centre and elevate the ground, the Mirror Effect where paving pattern is inspired from the railway and Pause and Play are incorporated in the suggested shared street furniture.*

### From Cars to Art

In the area outside the GoDown Arts Centre, a lot of things are happening. At the bus stops people are standing while waiting for the bus, there is a lack of both shadow and benches. On the opposite side of the arts centre a number of food cafés have emerged and hawkers are staying close to the existing trees. The two sides of the street are poorly connected and the activities are crowded together due to lack of space. The GoDown is not properly announced from the street and the traffic is very present.

### Car free Sundays

Along this part of Dunga road, the traffic strategy comprises decreasing the number of lanes for cars from four to two. Outside the Arts Centre, the strategy also includes closing down completely for cars in Sundays. This makes it possible for the activities to spill out over the whole area at least one day of the week.



*The facilities of the Arts centre were once a GoDown, a car workshop. Today, instead of the mechanics, various creative people house in the buildings (top). On the other side of Dunga road are cafés and food stalls.*

PART 3: THE AXIS  
SITES  
Outside the GoDown



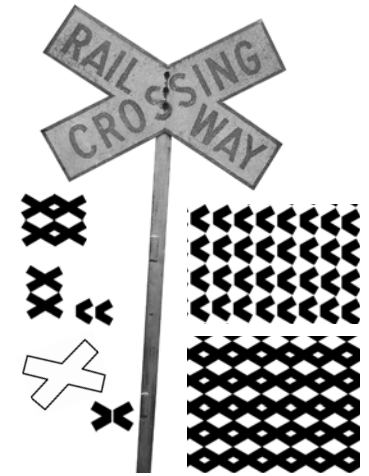
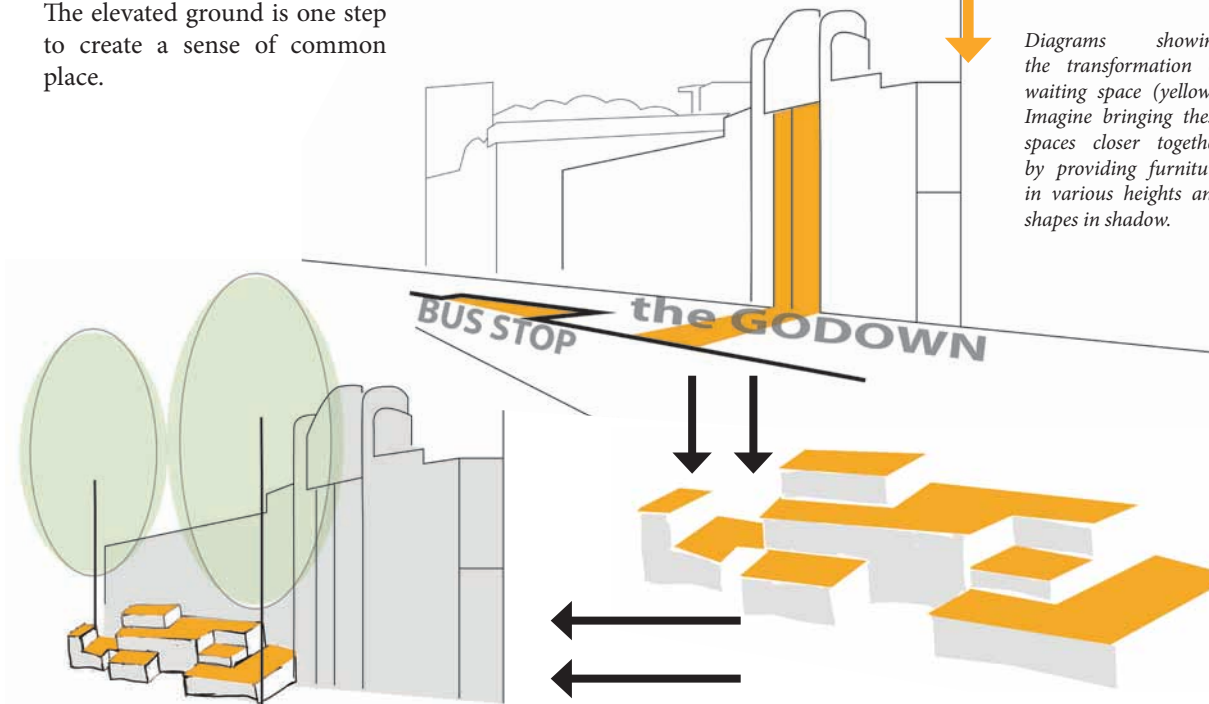
### Sharing the Space

To define the space outside the GoDown and create a sense of a united place even though cars are passing, the street is elevated. Stretching from the end of the arts centre building to the trees in front of the cafés on the other side, the pattern and ground material will be coherent and in the same height. Cars can drive here but the elevated surface will signal a change in the traffic situation which can contribute to reducing speed. Trees and solid benches are blocking cars from parking on the sidewalk and arranged to facilitate the various activities, for example people waiting or eating lunch. The elevated ground is one step to create a sense of common place.

*Unpaved sidewalks and poor announcement of the GoDown and the bus stop. There is a lack of shadow and benches. A bora bora driver is waiting for clients while people waiting outside the arts centre and people waiting for the bus stop are spread out.*



*Diagrams showing the transformation of waiting space (yellow). Imagine bringing these spaces closer together by providing furniture in various heights and shapes in shadow.*



### The Railway Sign

The pattern used in the ground is collected from the area. A sign that once warned people of railway crossings ahead can now function for drawing attention to the history of industrial area. With the straightforward warning sign in mind, a pattern, as subtle reminder of what once was, can be created. By loosening up the distinct shape of the alert, a more welcoming pattern can be used for paving and street furniture.

Using the old railway sign is a way of telling the story of the city. Here, in the cradle of Nairobi, the railway used to service the productions and workshops in the industrial area. As relationships and functions cease and change, this is a way of showcasing history, providing continuum, while heading into the future.

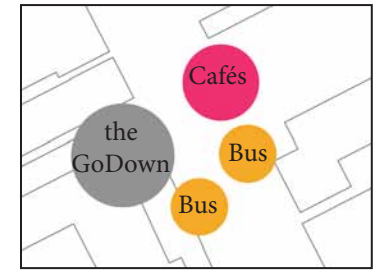


### Concept: In the Spotlight

In the Spotlight is inspired from the artists, performers and cultural activities that reside and take place at the GoDown Arts Centre. The concept aims to better announce the activities of the arts centre and also create a united space for new and emerging activities. This can be achieved by providing space that can help the different existing activities to benefit each other. This can be done by making use of the potentials of each activity

linked to the existing facilities—the art centre, the bus stops and the food cafés. At present the various components of the street life compete for space and there is a lack of basic elements such as benches and sheds, for example at the bus stops. Outside the GoDown by the bus stop, benches and trees can be arranged in a way that people waiting for the bus share the same street furniture as the clients and workers in the adjacent facilities. The coherent ground material visually links the two sides of the

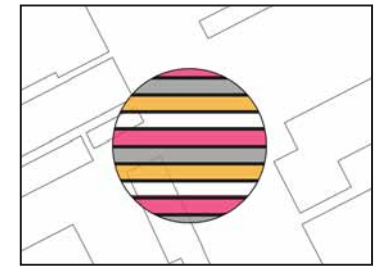
street. Reduced amount of lanes and decreased speed provide better accessibility for crossing over. Restrictions in vehicle traffic on weekends provides the possibility of new activities to emerge. Now the street can be turned into a stage for culture and recreation, a performance space. Dancers, children's choir, street performance, roller skaters, or stand-up comedians can fill this public space. The new street scene can be viewed from the sides of the street, from the shared street furniture at the cafés and the bus stops.



Present situation **Separated**



New situation: Weekdays **Linked**



New situation: Weekends **Merged**

### In the Spotlight- concept

The diagram shows the present situation outside the GoDown and the idea of a new dynamic of the site. A temporal aspect allows activities on the two sides to be either linked or merged. When cars pass on weekdays, the elevated ground and shared street furniture create a sense of place. In the weekends, a new street scene can emerge as the street can be used as a performance stage that has the potential to fully merge activities and benefit from each other.



# DISCUSSION



## New Environment, New Reality, New Approach

When starting our project and coming to Nairobi, we had the aim to work out a strategy about improving and developing public space adjacent to the Axis with the focus on social, cultural and ecological aspects. To get an understanding of future development plans for the city and what we could relate to in our project we read a lot of different reports and visions in regards of planning in Nairobi. When conducting this work, we found it hard to sort out what would be realized in the near future and to what extent the plans would be implemented. Finding concrete information about what was happening in the city and the industrial area was difficult, seeing coherent plans that would be materialized was even harder.

Early on during our stay we found that what we read in the plans for Nairobi and what we saw and experienced in reality seldom matched. When moving along the streets in Nairobi, experiencing different neighbourhoods, meeting people from various socioeconomic backgrounds, the gap between visions and existing conditions just grew wider and wider. And with this insight, a feeling of frustration also started to grow, how can we possibly plan without any plans?

As we walked along the Axis, we realized how many sites flanking the street were already appropriated by human activities. Along some parts important public spaces already existed where people and various activities made up a vibrant street life. A lively market with stalls, restaurants and cafés, students walking between the university and student housings, street vendors and people greeting each other and also starting to recognize us as we walked by, all this gave us a pleasant feeling of community. Along these parts of the Axis the contents of what makes great public space were already in place- the dynamic street life with its people and the various activities. What was lacking was the quality and dignity of the public space itself.

The new environment we had chosen to step into brought with it a new reality we were not fully prepared for. This led us to make the decision of changing our approach. Instead of letting our strategy result in a final plan, with exact measures and placements of interventions, we would instead try to create a strategy to meet the immediate needs of the people in the area by enhancing the assets with small changes, directly addressed towards what we had seen happening in the streets and work for improvements step-by-step and site-by-site.

DISCUSSION  
New Environment, New  
Reality, New Approach  
An Alternative Way of  
Planning  
Small Change as Both  
Methods and Results

## An Alternative Way of Planning

British planning tradition has formed Nairobi and the globalization still impacts the way of planning with foreign influences such as skyscrapers, wide highways and suburbanisation. This is not unique for the city of Nairobi. As many colonial cities, for natural reasons, never had a tradition of urban planning beyond the colonizers plan, the tendency to gaze at other big cities in the world. These are often based on modernist ideals, where the car is prioritised over pedestrians. As this is a tradition that some of the cities in high income countries are trying to get away from, the low income countries lack the resources and knowledge to work on both providing and expand infrastructure for vehicles and meeting the needs of a human scale streetscape. Planning for cars is a global trend and in Nairobi there have been lots of investment in roads. A bypass through Kibera, four lane highways and elevated highways was on the sketch board or completed as we arrived, all to ease the traffic situation. In an interview with the city council, they claimed that the roads had been the domains of engineers up until now (interview Patrick Akivaga 2013).

We have deliberately chosen to let our approach stand in contrast to the planning scheme that is operating in Nairobi today. As the car is associated with welfare, it becomes a symbol of status and something that is well sought after and given priority in the cityscape. But the streets in Nairobi also show us another reality. It is the reality of the majority, the many people walking or earning their livelihood along the streets or in the streets. It is the low-income group, who cannot afford a car or even the daily commute fare by public transportation that are neglected in the current way of planning. As a step towards social inclusiveness, the needs of the majority have to be addressed for improvements step-by-step and site-by-site.

## Small Change as Both Methods and Result

Nabeel Hamdi's work with small change and participatory planning was a great influence for us when changing our strategy for how to reach the aim of our work. The small change approach involves participatory work and processes and small-scale implementation with evaluation from which lessons can be learned and continuing work improved. Since we had experienced the difficulties with unclear visions as well as the gap between various plans and what happens in reality Hamdi's

suggested way of approaching planning under these circumstances was something we considered made most sense and perceived as a relevant way of planning in the given context. With this approach we found it easier to address issues concerning social and cultural sustainability.

We couldn't embrace everything in the small change approach since our initial purpose as well as time and resources were limiting. Instead we took the opportunity to let various parts of Hamdi's work permeate the different parts of our thesis. Our results are based on the participatory methods that Hamdi proposes such as observations, informal conversations, transect walks and the conducted workshops and walkthrough analysis that the GoDown and WHITE carried out earlier. What we would find to be very helpful was talking to various local people we met and got to know during our time in Nairobi. Conducting the observations made us quickly and more easily understand processes and relationships between people's activities and urban form. Thereafter we created a toolbox out of what Hamdi calls structure of design, what became our Pillars of Planning and Design Principles and then apply them in the context of the Axis with the aim to support the existing urban dynamic and the possibility for emergent structures to take place. By doing this Hamdi's work has been integrated in both our method and as a part of our result of this thesis.

## Using the Axis as a Case Study

In order to actually implement small change, people affected should be directly involved and after the intervention evaluations should be carried out. It is a long process so rather than carrying out these steps we let the methods Hamdi advocates be the participatory inputs of our work. In turn the case study of the Axis became the way of testing the toolbox on different situations and reoccurring issues we had seen happening. Having access to participatory work conducted by several collaborating actors with both local experience of the city and the aim of developing the industrial area and the Axis in a social and cultural sustainable way also gave us valuable insights for how people in the area wished a future development could be like and how it could happen. These opinions and conversations became a second reference point in the larger-scale framework within which the small change approach operate and make up a crucial initial step towards long-term development of the area.

The work with the case study of the Axis meant a lot of improvising, elaborating, exploring and questioning. We have been balancing between the inspirational and conceptual end of the planning seesaw and the pragmatic down-to earth end. We decided to both apply the toolkit

on reoccurring situations, typical patterns that we could distinguish that were not bound to a certain place and also to explore site-specific solutions. Choosing sites with different potentials and challenges made us select key issues we wanted to address, some where of more conceptual nature and some of more practical character.

Our results we propose in the case study are not the only way of addressing certain issues. They might not even be the right way of designing for actual change since an evaluation of the design has not been conducted. Nor do they take all circumstances in to consideration; the main aim is to highlight the potential of each site and situation, use this potential as a starting point towards change. To incorporate the values of the pillars of planning and the applying the elements of design principles is a way to highlight existing activities people are undertaking and acknowledge this as an important dynamic that should be an integral component in the transition of the industrial area.

## Can Small Changes Change Anything and What Differences Can a Street Do?

As mentioned before, what we cannot plan for is what is emerging from these designed structures, what Hamdi calls emergent design. We can have ideas, seeing what we have seen in our observations. If we for example design and place out a street furniture for a street vendor, the street vendor might find another job and stop going there. However, the same furniture could instead be used as a bench for people hanging out or maybe becomes an important hub for playing board games or such. That was what the multifunctionality and flexibility in the Pillars of Planning was important for, allowing change to happen. We believe this is feasible since we have seen the many ways of appropriation of public space that occurs in various parts of Nairobi. People use what they can in the environment and make the best out of it for themselves. One of the basics in small change is what Hamdi describes as "the concept of catalyst", practical interventions of strategic objectives (Hamdi 2010, prologue xvii). By addressing one issue something else might emerge.

We also realised that there are some activities that we didn't see too often in the public spaces of Nairobi but that might happen if there would be space available. The rollerblading in a parking lot on Sundays when offices in the Central Business District are closed is one example. This transformation of space is proof of both the dynamic street life in Nairobi and an aspiration of claiming space and taking the opportunity to make better use of it. If a centrally located parking lot can become

DISCUSSION  
Using the Axis as a Case  
Study  
Can Small Changes  
Change Anything and  
What Difference Can a  
Street Do?

a recreational venue, then why can't a street lane provide the same opportunity? The traffic strategy we proposed may seem like something that is far away from being a small change, rearranging street hierarchies and removing roundabouts. But the strategy itself can be implemented in small steps by introducing car-free zones and car-free weekends and along the parts of the Axis where the pedestrian movement today is already dominating, the step of restricting cars from these areas wouldn't be that big and would most likely give way for emerging structures we can't even predict.

An important aspect of starting with a street is that throughout history, development of cities has happened along important routes. Mombasa was founded due to the streams making it a stop on the sea route, Stockholm was founded due to its position where you could cross the channel between two islands and Nairobi was founded because it was a suitable stop of the railway.

Starting with improving the street would be a strategic way of making use of the flow and activities of people, which in turn would make the rest of the area attractive for emerging structures. The development could happen from inside out and spread over the area. The GoDown Arts Centre and WHITE arkitekter call culture and the Axis an incubator for change, Hamdi would most likely call it a catalyst. Since our observation has showed us the importance of streets as public spaces in Nairobi, the Axis as an incubator for revitalization of the industrial area seems reasonable.

One of the first issues we encountered in the work with our thesis was the question of gentrification. With its central location, the industrial area possesses great potential for development but is also at risk of becoming gentrified, as the Central Business District could easily spill out towards the south like it already has in the western part in Upper Hill. A rapid transformation with a grand plan as goal would be the same as building for other people than the people who use the area today. By planning for the existing activities and people this could also be avoided. None of Mombasa, Stockholm or Nairobi was founded with an ultimate objective or final goal. They all grew from people's activities and the current needs within the given frames of the landscape.

## The Next Step

The proposals are supposed to be applicable by any stakeholder: the GoDown, private landowners and enterprises, the street vendors or the City Council. This is something that is difficult to plan for exactly since the initiatives tend to happen as someone invest in the space. That is

why we have mostly been working with situations instead of sites. The situations are recurring along the Axis, and anyone who has a plot of land can improve it. By looking at the appropriation of the shoeshiner, there is proof that this can happen. A lot of private initiatives are happening in the streetscape of Nairobi, as long as it is not illegal, as in CBD. A big part of the small change approach is about the process of implementation and doing evaluations on the designs done. The next step could be to involve one person and interview that person about how his or hers life could be improved. If this is what he or she needs, we can try to apply one of the designs in collaboration with the person. If our ideas were to be implemented, it would be necessary to follow up how it works and evaluate it. If it improves the situation, it could be implemented in the similar situations along the Axis. If it doesn't it has not been a big change affecting the whole population but a cheap one, and it hasn't really made a difference unless something important has been destroyed. The involvement of community and finding the stakeholders is very important to make an actual change.

## Important Experiences

Doing work in a whole new context provides many important and educating experiences. Working in a whole new context gives you an opportunity to see things for the first time. In everyday life, problems tend to get invisible because you get used to them and that they are the way they are. This is also an important understanding to have when talking to planners in the context you are working in, they have the in depth understanding of the situation, but might not see it from your perspective. This is also true for yourself when being home, it is hard for you to see things from a new perspective but you do have the in depth understanding.

This project had very few frames as we started and we had to develop them ourselves. The lack of the material that we are used to, such as cad-files and maps was not only an obstacle but also an opportunity. We had to work from where we stood and find a suitable approach. It is important to realize that sometimes all the resources are not there. Then you have to make the most of it. To be flexible and be able to rethink our project from the circumstances was also one of the things we learnt from this.

What has been very helpful have been the people we met. The fact that they already know a lot that we could have no possibility to know was an important asset in our work. We had to evaluate our own preconceptions and actually look at what people were doing and saying. This made it



possible to get more of a bottom up approach instead of the plans that are more of a top down approach. People, all the users of space, are the ones we are planning for. To try and fulfil their needs from their resources is something always worth remembering.

## Can the Toolkit be Considered a General Solution

The Pillars of Planning is a strategy for bringing forward values that are important to keep in mind while planning for a sustainable city. The Design principles are elements with which to apply these values in a design. When applying these in Nairobi, we could use them by choosing element and occurrences we had seen in the city. We have been affected by our own ideals and experiences from a Scandinavian context, but it was easier to stay in touch with Nairobi while knowing that we had to think about our Design Principles.

As a way to avoid the globalization of landscapes, we tried to look at the functions that these elements provide and not make them go into the detailed design. Ecosystem services, accessibility, seating, space for activities and local history are things that can be adapted to different contexts and depending on the needs. These are functions that can be claimed to be occurring in all cultural landscapes. By not deciding on specific plants, designs on benches or what kind of history should be developed they can be used differently depending on context. As we travelled to Zanzibar and Uganda in the end of our stay, we saw other trees that provided shadow and other solutions on benches. As landscape architects we cannot invent culture but we can enhance it by truly adapting to the site and context we are working in.



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