CHALMERS
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How can future methodologies be applied in the planning process?

Case study of the bus park and railway station in Kisumu, Kenya and Centralen Gothenburg, Sweden

Master's thesis in Industrial Ecology

VARVARA NIKULINA

Department of Energy and Environment
Division of Environmental Systems Analysis
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VARVARA NIKULINA

Tutors: David Simon and Frances N. Sprei
Examiner: Henrikke Baumann

Report no. 2015:12
Department of Energy and Environment
Division of Environmental Systems Analysis
Chalmers University of Technology
SE-412 96 Göteborg
Sweden
Telephone + 46 (0)31-772 1000

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ABSTRACT

Sustainability is one of the key words of our modern society. Is it the case in every country? To what extent is it integrated in the present state situation and the planning process? Until recently, transportation has never been on the priority list for reaching developmental goals of the United Nations. Continuously increasing demand for transportation services worldwide is one of the main present-day urban challenges. A thought-through integrated transportation system can ensure confidence and comfort for the passengers. On the contrary, the lack of such a system or a poorly managed system prevents the economy from realizing its potential.

Looking at the cases of the bus park and railway station in Kisumu, Kenya and Centralen Gothenburg, Sweden, the question of usefulness of future methodologies in the planning process is investigated. The thesis analyzes backcasting, foresighting and SymbioCity approaches and their applicability to the compared given conditions of Kisumu and Gothenburg.

Field work preparation, different field study methodologies, analytical methods and comparative analyses of the future methodologies in the planning process are used to reach the conclusion.

First, the planning processes in Kisumu and Gothenburg are analyzed. In order to assess the usefulness of the future methodologies in the planning process, the systems of the stations in Kisumu and the current state in both cities are examined. The main conclusion is that backcasting is identified as suitable for both cases. It is easy to apply (can be used by an individual) and avoids "lock-in" solutions. Moreover, it begins with creation of the common desired vision and is useful when traditional approaches do not work. The other two methodologies (foresighting and SymbioCity approach) would be beneficial if certain conditions are met.

Key words: sustainability, development, transportation, planning process, current state, bus park, railway station, Kisumu, Kenya, Centralen, Gothenburg, Sweden

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LIST OF ABBREVIATIONS AND ACRONYMS

AFD - Agence Française de Développement (French Development Agency)

EU – European Union

GFN – Global Footprint Network

GHG – Greenhouse gas(es)

GPS – Global positioning system

IPCC – Intergovernmental Panel on Climate Change

ISUD – Integrated Strategic Urban Development

KUP – Kisumu Urban Project

MDGs – Millennium Development Goals

MIND – Master in Industrial Ecology programme

MOA – Matatu Owners Association

MoLG – Kenyan Ministry of Local Governments

MUF – Mistra Urban Futures

NGO – Non-governmental organization

NTSA – National Transport and Safety Authority

RVR – Rift Valley Railways

SACCO – Savings and Credit Cooperative

SCA – SymbioCity Approach

SDSN – Sustainable Development Solutions Network

KSh – Kenyan Shilling (local currency)

SIDA – Swedish International Development Cooperation Agency

SUM – Sustainable Urban Mobility

SWOT – Strengths, weaknesses, opportunities and threats

TTCA-NC – Transit Transport Coordination Authority - Northern Corridor

UN – United Nations

UNCED – United Nations Conference on Environment and Development

UN DESA – United Nations Department of Economics and Social Affairs

UNECE – United Nations Economic Commission for Europe

UN-HABITAT – United Nations Human Settlements Programme

WCED – World Commission on Environment and Development

DEFINITIONS OF KEY TERMS AND LOCAL NAMES

Boda-boda – usually motorbike taxi, but can be bicycle taxi

Bus park – self-organized bus station in Kisumu

Kikuyu – the largest ethnic group of people in Kenya

KiSwahili - first Kenyan national language followed by English

Leverage point - places within a complex system (a corporation, an economy, a living body, a city, an ecosystem) where a small shift in one thing can produce big changes in everything (by D. Meadows (Meadows, 2014))

Luo - local language in the Lake Victoria region in Kenya and Tanzania

Manamba – tout that is possibly involved with criminal groups/activities

Matatu – minibus with 14 seats on average

Mzungu – white person

Piki-piki – motorbike taxi

Pole-pole – "slowly-slowly" in Luo and kiSwahili

Probox – model of the car with 5 seats capacity

Superintendent – person responsible for management of the bus park

Tout – a person who provides route and stop information to passengers

Trafikverket – Swedish transport administration

Tuk-tuk – motorized scooter taxi with a canopy

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CHAPTER 1. INTRODUCTION

1.1. Introduction

Last year in a letter to myself I was answering a question: how do I imagine myself in a year's time? One of the points was: "I have an interesting topic for my thesis. I learn a lot. My project is not just theoretical study, but a meaningful research in a company". This is how it all started. Throughout the summer and my first semester in Gothenburg I was looking at different possibilities of how I can make my dream come true.

Africa always seemed far away and attracted me with its mysteriousness. Knowledge about several countries from the continent made me curious to explore more and finally visit one of them. I have never been there before. Although I was working as a trainer of non-formal education in the field of intercultural learning, I have not had partners or participants from Kenya. I did not expect to get culture shock, but still was open for new experiences that might have occurred. Reading a book "Field work in the global south: ethical challenges and dilemmas" edited by Jenny Lunn (Lunn, 2014) helped me to prepare and understand what challenges I might face as an unmarried white woman from Europe.

Networking is a key in our modern world. Looking for vacancies online or at the job fairs is a good start but often does not have any result. That is why I started asking around and one day I got an email forwarded from one of my classmates. We took the Sustainable Transportation course together, which inspired me to try to develop a project in the transportation sector. This email had a paragraph about the possibility to shape a project on transportation together with Trafikverket (Swedish Transport Administration). During the meeting there I found out that the topic was quite free. Trafikverket was interested in comparing any elements of the transportation system in Kisumu, Kenya and Gothenburg, Sweden. One of the examples of the research object was Centralen Gothenburg – interchange in Gothenburg that combines bus station, railway station and the surrounding territory: city buses, trams, taxis, stores and a shopping center. There are some challenges that Trafikverket is seeing within Centralen that is why it was interesting to look for solutions abroad. Despite the difference in geographical location the problems could be the same: how to attract more passengers; how to make information available and clear for the customers etc. At the same time the problems could be different. Thus it was interesting to see the local reality in Kisumu and try to compare it to the one in Gothenburg.

At Trafikverket I was also told that Architecture Department at Chalmers University of Technology offers a course called Reality Studio in Kisumu that has taken place in Kenya for several years now and it would be helpful for me to meet the coordinators. This course is taught on the Master level for students from Architecture and Industrial Design Engineering and Planning programmes. The programme is developed in close collaboration with Maseno University (Kisumu), Jaramogi Oginga Odinga University of Science and Technology (Kisumu county), Mistra Urban Futures (Gothenburg, Sweden) and with support from UN-HABITAT. The field study in Kisumu runs for 6-7 weeks; afterwards the students continue working on their projects at Chalmers University of Technology in Sweden (Malmberg, 2009).

The coordinator of the course said it would be possible to join the group of selected students and take part in all activities organized for them. It was a great help and no one would want to wish for more. The next step was to find funds and get in touch with Mistra Urban Futures – "a research center and a platform for knowledge, challenging the discourse and practices in sustainable urban development" (MUF, 2014). It has several Local Interaction Platforms that run projects in Gothenburg, Sweden, Greater Manchester, UK, Kisumu, Kenya and Cape Town, South Africa. That is why it was important to get in touch with the center and see if it is possible to get any support from them.

By lucky chance I was taking part in the conference "European Urban Mobility 2014" organized in collaboration with Chalmers University of Technology. We were offered to participate by our course examiner for Sustainable Transportation. There I met the director of Mistra Urban Futures, David Simon, and started the dialogue about the possibility of undertaking a research project in Kisumu. Moreover, David Simon agreed to supervise my thesis.

In Ukraine we say: "randomness is not random", which means: everything has a reason. I was very lucky meeting all these people. Although at some point I got scared and almost stepped back. What if?.. What if… I will face health issues and will not be able to work? What if… I will not be able to collect data I need? What if… I will not fulfill my expectations? A great role in this decision was played by my supervisors and friends, who convinced me to take a chance and try myself in a new environment.

After deciding to go, the question of funds was still open. I could not apply for most of the Swedish funds because I am not a Swedish citizen, thus I had to look through hundreds of European funds. Together with my supervisors I applied to a few of them and received the Planning Grant for Sustainable Solutions from Swedish Secretariat for Environmental Earth System Sciences (Wilhelmsson, 2014).

Question of being a change maker was frequently discussed at the course Leadership for Sustainability Transitions at Chalmers University of Technology. The main tool that we used there was backcasting, which has 2 perspectives: inside-out and outside-in. Inside-out part has three modules: self-leadership, leadership and dialogue (the main focus is on the person, the change agent). Outside-in perspective applies to the steps of the backcasting methodology (definition of framework for sustainability, description of the current state and strategy creation) (Holmberg, 2014). We used this tool for the campus development. The subtopic of my group was "Bicycling experience between two campuses of Chalmers University of Technology: Johanneberg and Lindholmen". During the summer school for Erasmus Mundus Master's in Industrial Ecology programme (MIND) we used backcasting for Ameland Island in the Netherlands. All this inspired me to look at the possibilities of application of backcasting outside of Europe.

Being there, in Kisumu, people I was working with were asking me for solutions. From the experience they had with the students from Reality Studio in previous years some great projects emerged, which still make a change in the local environment (such as children playground built from the prototype at Dunga Beach in the south of the city).

This is how my research journey started and shaped the project the way it looks now.

First, the thesis discusses how sustainability is incorporated in the development planning in transportation sector in Kenya and Sweden. Then it looks at the present state of the bus park and train station in Kisumu and Centralen in Gothenburg. Finally, it discusses applicability of future methodologies in the planning process, how does this process look like in Kisumu and Gothenburg, what are the pertinent sustainability issues in different contexts of the study objects and how does it affect the choice of future methodologies, and draws conclusions about possibility of application of future methodologies in the given context.

1.1.1. Sustainable development and its criteria

Sustainable development has become a buzz-word that can be heard everywhere: at the university cafeteria, in the magazines and newspapers, and even on the streets. Within 0,6 seconds Google search provided 72,5 million results (Google, 2015). It all started with the publications of *The Limits to Growth* (Meadows, 1972), *A Blueprint for Survival* (in The Ecologist) and *Only One Earth* (by B. Ward and R. Dubos) (Simon, 1989). Over the time, discussion became even more active in 1982 when the World Commission on Environment and Development (WCED) was initiated by the General Assembly of the United Nations (Kates, 2005). The report of this commission was published in 1987 and called "*Our Common Future*" (WCED, 1987). It was followed by a number of international meetings, such as the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, where international agreements on climate change and biodiversity were determined in Agenda 21 action plan. It was reaffirmed in 2002 at the World Summit on Sustainable Development in Johannesburg, South Africa.

What is sustainable development? The most used definition comes from "*Our Common Future*", known as Brundtland Report (WCED, 1987 p. 41): "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". It is based on two main principles: the priority should be given to the world's poor to fulfill their essential needs, and the idea of limitations to meet current and future needs driven by existing technology and social organization. Therefore, the development goals should be defined in all countries (developed and developing) according to the concept of sustainable development.

Meeting basic needs of all is one of the key aspects of sustainable development (WCED, 1987). This can be correlated to Maslow's theory of human motivation. It represents individual "as an integrated and organic whole" (Yawson, 2009). The theory describes the human aspirations as an attempt to fulfill the needs: physiological, safety, belongingness and love, esteem, and self-actualization with being-needs or the growth motivation on top of pyramid (Figure 1):

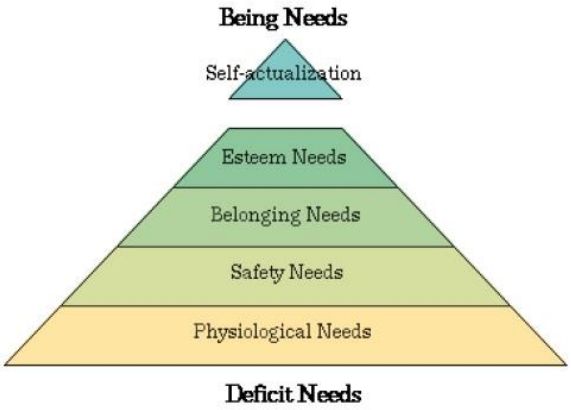

Figure 1. Maslow's hierarchy of needs. Source: (Yawson, 2009)

Maslow's human motivation theory can be seen as a framework for understanding of human activities. It has been applied in many fields, such as human resource management, business, nation studies and medicine. Hagerty (Hagerty, 1999) in his research states that Chinese ruling party believes that basic needs of the nation should be met before introducing democracy, which corresponds to the basic needs from Maslow's theory. Similar ideas were supported by other researchers, viewed by Yawson et. al. (Yawson, 2009). They propose to use Maslow's theory as a framework for sustainable data infrastructure development.

According to Global Footprint Network (GFN, 2014) today the humanity uses the territory of 1,5 planets to provide all the necessary resources and space for waste absorption. It goes beyond the planet capabilities. One of the reasons for that is globalization – "the rapid spread of the capitalist market around the world, including consumer society based on materials produced for a mass market" (Hodge McCoid, 2007). It is visualized in the James & Torbjörn (James, 2004) work and variation of it with integrated approach was created by John Holmberg (Olsson, 2014) (Figure 2):

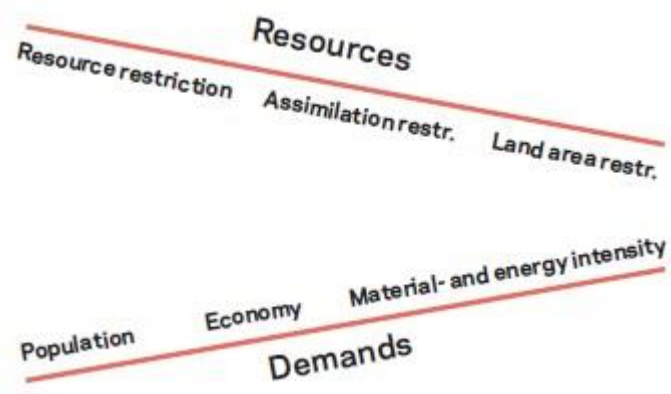

Figure 2. Supply-demand relation challenge. Source: (Olsson, 2014)

This links the overconsumption in rich groups with underconsumption in poor ones. Overconsumption requires exceeded amount of resources for sustaining a healthy life; it is often followed by degradation of the environment. At the same time underconsumption does not fulfill conditions for healthy quality of life. Thus, consumption can be called sustainable when it has long-term approach of smart resource usage without violation of rules of nature and without

compromising future generations to meet their needs. The sustainability concept requires the promotion of values since "perceived needs are socially and culturally determined" (WCED, 1987). However, such development cannot happen without economic growth; it requires increase of productive potential and assurance of equitable opportunities for all. Distribution of resources in the rapidly growing population is another issue that sustainability tackles. It can be considered solved when the harmony between demographic development and productive potential of the ecosystem takes place. When it comes to fossil fuels and minerals, the criticality should be taken into account, making sure their usage avoids depletion and ensures availability of substitutes.

To sum up, sustainable development is a process that assures current and future potential in meeting human needs through integrated exploitation of resources, directed investments and oriented technological development.

1.1.2. Millennium Development Goals

Sustainable development without specific goals is just a concept. Thus, in 2000 at the largest gathering in the United Nations the leaders adopted 60 short-term (by 2015) goals, called Millennium Development Goals (MDG). The main areas were: "peace; development; environment; human rights; the vulnerable, hungry, and poor; Africa; and the United Nations (Kates, 2005). Many of them have specific targets and 8 major goals are controlled by international agencies: "eradicate extreme hunger and poverty; achieve universal primary education; promote gender equality and empower women; reduce child mortality; improve maternal health; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability; develop a global partnership for development" (Millennium Project, 2006). The first assessments showed that some of the goals will be difficult to reach by 2015; moreover, the estimated budget increased from $135 billion in 2006 to $195 billion in 2015. Nevertheless, there was a big progress in achieving them. According to the report (United Nations, 2014), several goals were met:

- The poverty level worldwide decreased in half;
- There is a possibility to reach MDG in malaria and tuberculosis prevention in 2015 based on the great achievements during 14 years;
- The target of accessibility to improved drinking water was reached already in 2010;
- Gender parity in primary school enrollment in all developing countries was achieved by 2012;
- By January 2014, 46 countries stated that more than 30 % women are working in their parliaments in at least one chamber;
- Cooperation between developed and developing countries was rebounded and the debt of developing countries remained at about 3 %.

At the same time, some of the goals still need improvements, for example sustainability issues, nutrition, mortality and levels of education in developing countries. Moreover, the improvements are not equal in different parts of the world/countries (Millennium Project, 2006), for example, in sub-Saharan Africa and south Asia the goals will not be met (Waage, 2010). The achievements and space for improvement show that there is a chance to progress with MDG (United Nations, 2014).

Since the lifespan of the Millennium Development Goals as UN targets come to an end in 2015, the world leaders were called to create a post-2015 development agenda, which has long-term ambitious goals (UN2). Currently governments, public and private sectors are having global discussions. There is a global online survey and global online platform, where citizens can engage in the process. The agenda was adopted in September, 2015 at the Special Summit on Sustainable Development in New York (UN1, 2015).

In order to help the Millennium Development Goals (MDGs) to progress, the Sustainable Development Solutions Network was created by UN in 2012 (SDSN). It combines the knowledge and experience from academia, public and private sectors to work on the local, national and global levels. The main focus of MDGs was based on recognized global problems, such as hunger, poverty, gender inequality, and diseases. However, the goals are narrowed down to human aspects of development and leaving out the systems perspective and natural capital. Moreover, MDGs are lacking clear interdependencies between different goals and indicators (Waage, 2010). Thus, the Sustainable Development Goals, defined by UN, will be partially based on MDGs and converge with the development agenda (UN Department of Economic and Social Affairs). Norström et. al. (Norström, 2014) define three important conditions for Sustainable Development Goals:

- They should have socio-ecological and multi-dimensional perspectives, take into account the dynamics of the system and its interactions, including the role of the ecosystems in sustainable development and uncertainties;
- Feasibility of the goals achievement should be assessed and consider political, social and biophysical constraints;
- Multi-level perspective and existing knowledge should be used at all levels, from local to global.

Fulfilling these conditions will increase the chances of achieving the set goals.

1.1.3. Sustainability and transportation

Transport's impact share of total national GHG (greenhouse gases) emissions varies between 3 % in the countries with low income to 30 % in highly developed countries. Travel patterns depend on location and available modes. Therefore the following areas can be improved in the goal of sustainable future: travel activity, vehicle occupancy rates and fuel consumption per capita (IPCC, 2014), as well as, development of innovative vehicles and alternative fuels. As International Energy Agency predicts, the increase in GHG from the transportation sector will double in LDV in the next few decades, as well as, fuel consumption will increase by 80 % in comparison to year 2005.

Transportation has not always been on the priority list for development. However, it has several leverage points that can be influenced. Transport is closely connected to demographic changes. Factors, such as ageing population, middle class rise, and integration of women to the labor market increase demand in mobility. It is both challenge and opportunity for development. The United Nations Economic Commission for Europe (UNECE) indentified four main dimensions of sustainable transport (UN DESA, 2013):

- Access – might indirectly affect the poverty level reduction by ensuring development of social and economic activities (World Bank).
- Affordability
- Safety and security
- Environmental aspects

The post-2015 agenda for Sustainable Development of the United Nations has draft Results Framework for Sustainable Transport with six targets that are planned to be integrated (Sayeg, 2014). It focuses on land transportation and addresses both public and freight transport. The targets are:

- Rural access
- Urban access
- National access and regional connectivity
- Road safety
- Air pollution and health
- Greenhouse gas emissions

The report on Results Framework has the description of the current state and identifies first steps for future development.

One can see that on the global level sustainability issues are integrated into development goals. In Europe everyone talks about sustainability. As was mentioned before, Gothenburg is going through a number of developmental projects. Such advancement requires changes in economic, environmental and social spheres. The latter refers to the cultural roots – the values. In Sweden a lot of companies adopted principles for sustainable society for their strategies. Moreover, organization The Natural Step was created to promote these principles in the business and political sphere (Holmberg, 1996). It led to development of Natural Step framework for sustainability (James, 2004), which is widely used in the backcasting methodology.

In my home country, Ukraine, the term “sustainability” does not even have a direct translation neither in Russian, nor in Ukrainian. That is why I was wondering if this issue is incorporated in Kenyan development, specifically in the transportation sector.

One of the main challenges that cities are facing nowadays both in developed and developing countries is possibility to meet constantly increasing demand for transportation services. A well-planned public transportation system provides passengers confidence in their daily mobility. On the contrary, when the system does not function adequately it has no value of effective transportation services, which leads to inability of the city to realize its true economic potential. It is often the case in rapidly growing urban cities, such as Nairobi (Daganzo, 2007; Becker, 2011; Graeff, 2013) and Kisumu. It also gives a field for investigation and need to understand how the system works, what its strong sides are and what the possibilities for improvement in the weak sides are.

At the webinar "Making cities smarter" (8.04.2015) there was a discussion about transportation situation in developing countries. Some research has been done in Nairobi by Columbia University

(Becker, 2011; Graeff, 2013; Klopp, 2014). The group of scientists was trying to create a mobile application, which tracks *matatus* (minibus with 14 seats on average) in the real time. The main objective of this project is to "create and/or open up … transit data. This enables innovation that produces useful apps for passengers and tools for planners, and allows for more public participation including in data creation through crowdsourcing" (Klopp, 2014). In my opinion, it does not solve the primary problems of providing transportation service to all citizens equally, neither the congestion issue, nor pollution. This application can be used either by mid-(high) income people or by foreigners, while 60 % of the population lives in poverty. Therefore, identification of the main challenges in the transportation sector is an important first step for future research.

Historically transportation was not prioritized in Kenya and in Kisumu in particular. Kisumu system has never been described before. The newly assigned chief officer for transport and infrastructure from Kisumu county government has no data yet (Ondola, 2015). One of his main plans is to create policy and regulations for transportation system. The possible reason for that could be observed Kenyan style of multitasking at the working place and prioritization of tasks.

What I have learnt from the informal talks with the Reality Studio in Kisumu coordinator is that transportation in the city has a very interesting history. When the course started about 10 years ago only several means of transport were representing public transportation in the city: *matatu*, *boda-boda* (motorbike or bicycle taxi), *piki-piki* (motorbike taxi) and cars. However, with the time *tuk-tuks* (motorized scooter with a canopy) were introduced in the city and the traffic increased enormously. The roads built long time ago are not capable with fitting all of them at the same time anymore. This also created an obvious need for road signs and possibly traffic lights (which are still absent in the city). Thus, the study of this unique rapid change and its current state is very interesting. The attempt to describe the transportation system in Kisumu, especially parts related to the bus park and the railway station are presented below. Since the railway station is currently not functioning and has a straightforward revival plan at its first phase, more attention is devoted to the bus park and its challenges.

1.1.4. Background on Kisumu and Gothenburg

Kisumu is the third largest city in Kenya. The estimated population is 409 928 people as for 2009 (KNBS, 2010 p. 206). One of the main advantages of the city is its location – on the eastern shore of the Lake Victoria, the biggest fresh-water basin in Africa. The area is surrounded by fertile land and mid-sized mountains, which creates favorable conditions for agriculture and human settlements. The city is a center for trade, commerce, industry, administration and communication both on national and international levels. It was developed as a port and railway terminus due to the strategic location. Kisumu was the connection point for passengers and freight via water and land to Tanzania, Uganda, Rwanda and Burundi as well as to the other big Kenyan cities, such as Nairobi and Mombasa. The city's main industries are fishery, production of molasses, cotton, rice and sugar. Despite the rich natural endowments Kisumu is one of the poorest cities in Kenya (about 60 % of population lives in slums). Since 1970s there has been a decline in economics and development. Nowadays the country seems to revive. Among the other concerns HIV/AIDS, food insecurity, poor land use planning and poverty are to be mentioned (Syrjanen, 2006; MoLG, 2013).

Since independence the population of Kisumu was growing gradually and the city was expanding far beyond its borders. The projections for 2030 show that the number of residents (as well as density) will continue to increase. The valuable geographical location of the city has a great potential for development. The following areas that require changes were identified (MoLG, 2013):

- Land management and land use
- Infrastructure (port, transportation system, road network)
- Water supply and sewage
- Environmental management.

Kisumu has four strategic elements within the transportation sector – water, railway, road and air transport. The city is spread on the large territory, thus transportation becomes a crucial point for social integration. Two types of factors define the system: formal vs informal; collective vs individual. Therefore, one of the main challenges is to improve the system to accommodate all the variety of the transport solutions in sustainable way.

In order to understand the current state of the bus park and train station systems in Kisumu, there is a need for understanding the transportation system there. The main elements of the transport network are presented on the Figure 3 below. In more details transportation system in Kisumu is described in the Chapter 3.

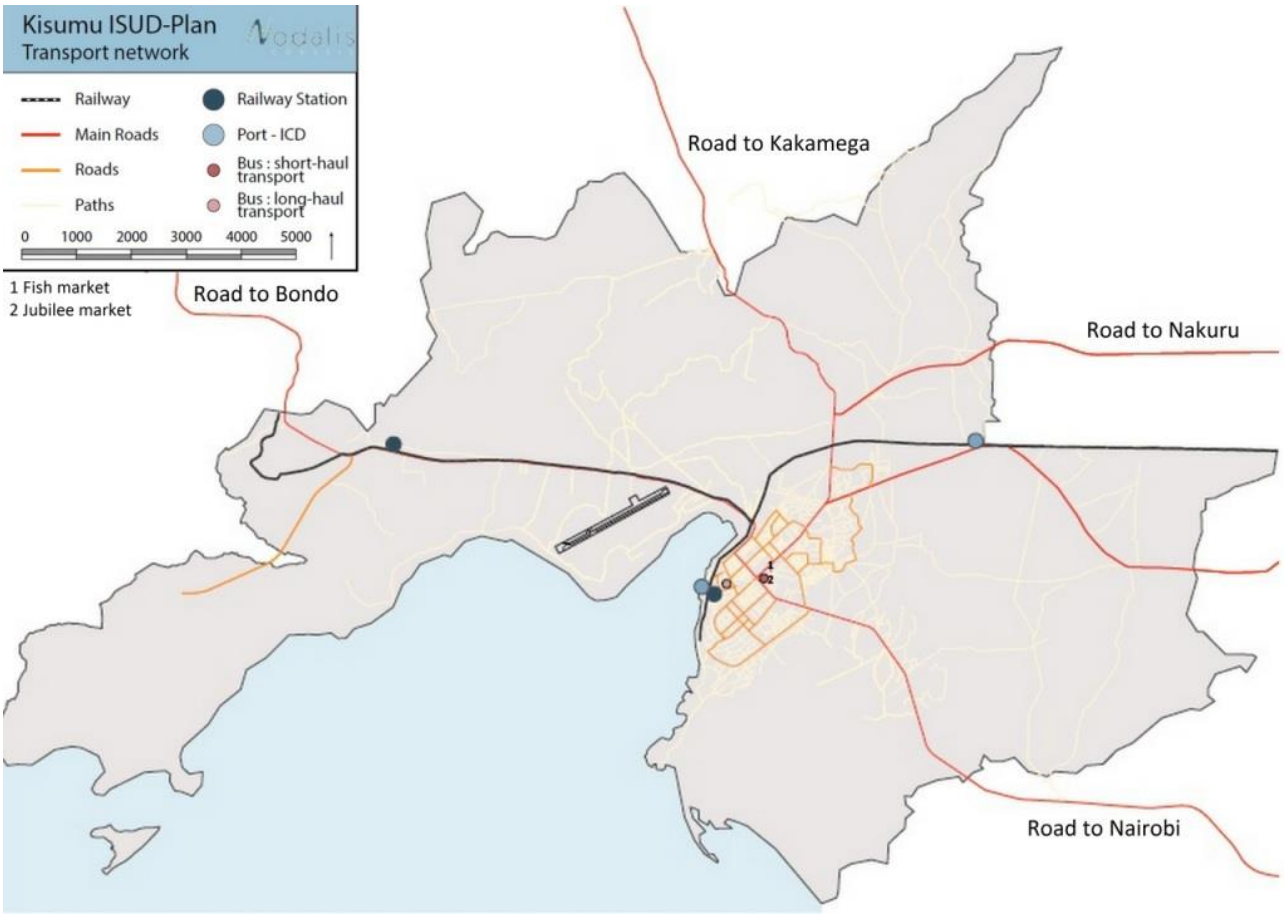

Figure 3. Transport network. Source: (MoLG, 2013)

Gothenburg is the second largest city in Sweden. It was founded in 1621 by Gustav II Adolf. The population is 543 005 (Göteborgs Stad, 2015). The city is located on the river Göta älv on the west coast of the country. The location of the city has a great strategic advantage: it is close to Norway and Denmark. Fishing is still a major activity in the area (Gothenburg Tourist Center). In 18th century Gothenburg became the center of trade and shipping for iron, wood, tobacco and sugar. Throughout its history the city has developed from industrial sea side town to innovative modern city. Many new parts in the city are under development for the 400th anniversary in 2021. The current projects are in the area of Frihamnen (the old free port in the central part); Lindholmen area is planned to get a new skyscraper The North Star; and the new mean of transport – cable car could possibly connect the 17th-century district Haga with the modern Lindholmen: "A symbolic journey through 400 years of Gothenburg history" (Gothenburg Tourist Center).

Gothenburg and Kisumu are working towards similar goals: providing easy accessible transportation services equally for all the citizens and guests (Hellberg, 2014; Otieno1, 2015).

1.2. Aim and objectives of thesis

The main aim of the thesis is to investigate to what extent application of future methodologies (backcasting, foresighting, SymbioCity approach) is beneficial in the planning process of the compared contexts of Kisumu bus park and railway station and Gothenburg Centralen.

The objectives of the research are:

1. To investigate the integration of sustainability in the planning process in Kisumu and Gothenburg
2. To describe the organization of the system within the bus park and railway station in Kisumu
3. To identify key actors of the study objects
4. To identify pertinent sustainability issues of the stations

1.3. Study object

The research is conducted in two cities – Kisumu, Kenya and Gothenburg, Sweden. The main focus was on Kisumu, since it has less documented information than Gothenburg.

Study object in Gothenburg is Centralen Gothenburg (ILGELO, 2015; Stationsinfo, 2015). It was built between 1856 and 1858. It has two main parts: Gothenburg central station and the Nils Ericsonterminalen (bus terminal), which are located in the center of the city. On the south form it, Drottningtorget has stops for city buses and trams. On the west from the station building there is Nordstan shopping center, which can be easily reached through the pedestrian tunnel or via a long ramp. The station has two assigned meeting points for people with disabilities, as well as parking lot for special transport (Isitt, 2015; Stationsinfo, 2015). Figure 4 shows the locations within Centralen Gothenburg:

Figure 4. Central station in Gothenburg. Source: (Stationsinfo, 2015)

Kisumu does not have anything like Central Station in Gothenburg. It has a railway station and the bus park within walking distance of each other. That is why the objects selected for comparison in Kisumu were the railway station and the bus park.

Until 2010 the railway station was used both for cargo and passenger transportation. The station used to have 1-3 passenger trains per day going to Mombasa, Nairobi and Kampala. The freight was mainly delivered from all over Kenya to the port, where it was further transported by water (mainly to Uganda and Tanzania) (Disi, 2015; Kinagwi, 2015; Nzomo, 2015).

In Kisumu public transport is not provided by the government, but by individual operators. That is why there is no integrated bus station. Different service providers (mostly long distance) have their offices and waiting rooms all over the city. Short-distance *matatus*, they operate through the bus park, which is located in the city center (Figure 3) and is easily reachable by different means of transport.

The area of the bus park is divided into several parts depending on the destinations of the vehicles. Each stop has its own platform. All of them are occupied by different vendors, who sell goods, clothes, souvenirs etc. Each area has several places where one can get food: fresh fruit and vegetables stalls, small restaurants/cafeterias, mobile kitchens, moreover there are vendors who walk around and sell snacks. The bus park is attached to the Jubilee market and Fish Market (Figure 3).

CHAPTER 2. METHODOLOGY

This section describes the approaches chosen for the present research, furthermore it discusses tools and methods, which were used during the investigation to collect and analyze the data.

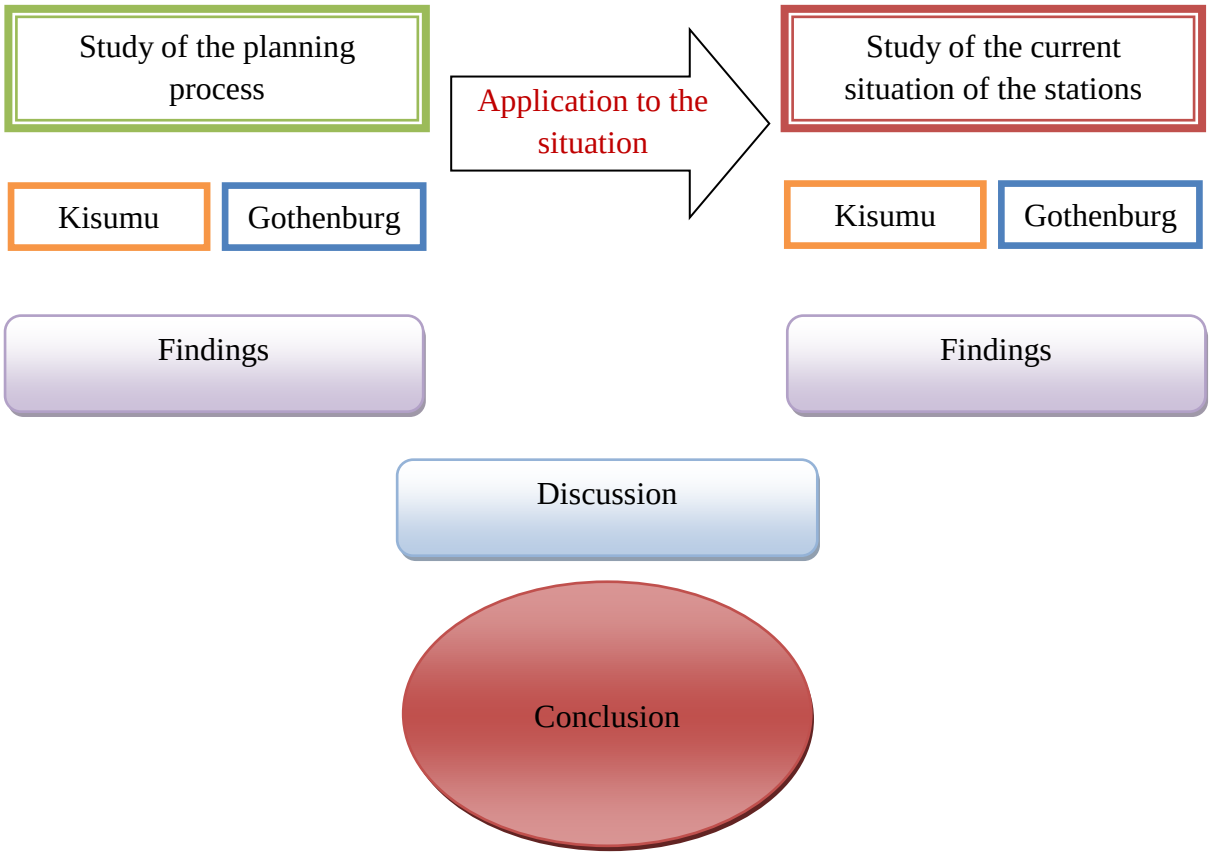

Figure 5. Outline of the methodology

Figure 5 represents the outline of the methodology. There are two main themes investigated: planning process and current state of the stations in Kisumu, Kenya and Gothenburg, Sweden. Findings for each section presented separately, followed by common discussion and conclusion.

In order to understand the planning process in Kisumu, learning about Kenya and its transportation, document studies and 13 interviews (with UN-HABITAT representatives, city planner and other related stakeholders) were conducted (marked with x in ANNEX A). For the Swedish context a literature study and interview with Jaan-Henrik Kain (architect, planner, associate professor at Chalmers University of Technology) were conducted.

Future methodologies can provide support for the planning process. Hence, literature study and analysis of the three selected methodologies (backcasting, foresighting and SymbioCity approach) based on the framework proposed by Baumann and Cowell (Baumann, 1999) were applied.

To test the application of these methodologies in different contexts, the studies of the current state of the bus park and train station in Kisumu as well as Centralen in Gothenburg were implemented.

Field work preparation took place before the travel to Kenya (research ethics, field study approach, positionality of the researcher in the study). No historical documented data was available in transportation sector; therefore, observations, 25 interviews and 2 surveys were the main sources of information.

For the system of Centralen Gothenburg a literature review, 2 interviews, observation and digital documents studies were conducted.

Analytical methods (SWOT, stakeholder analysis and empirical findings for the stations) were implemented in order to draw conclusions.

Finally, this dissertation answers the research questions with the help of the qualitative data gathered through literature review, document studies, interviews and surveys. Moreover, this thesis gives a conclusion, discussion and recommendations for the application of future methodologies in the given contexts of the study objects.

2.1. Scope and limitations of thesis

The thesis does not provide the full descriptions of the future methodologies (backcasting, foresighting, SymbioCity approach) but concentrates on the main aspects related to their applicability in diverse contexts. Since Gothenburg planning process and current state have been studied to a greater extent than Kisumu, special attention is devoted to Kisumu. Moreover, Kisumu has limited amount of documented data.

The length of the study visit and local culture of long waiting hours in Kenya caused further constraints in information gathering. I spent 6 weeks in Kisumu in total. During this time one week I was learning about local environment, meeting professors from Maseno univetsity and Jaramogi Oginga Odinga University of Science and Technology and learning about stakeholders who might be helpful with information gathering for my thesis. From my observation, long waiting hours is a cultural trait in Kenya. Sometimes I had to wait for several hours to conduct interview, which was limiting the number of interviews I could have in one day. That is why I consider 6 weeks as fairly short time for primary research in the transportation sector, which was not studied before in detail.

Most of the time language was not an issue neither in Gothenburg, nor in Kisumu. However, sometimes in Kenya it was necessary to ask for help in translating some words or phrases from/into *kiSwahili* (one of the two Kenyan national languages) or *Luo* (local language in the Lake Victoria region in Kenya and Tanzania). Working with articles about Gothenburg in Swedish caused further challenges because it is not always easy to find proper translation for the words. For the cases when translation engines did not give meaningful results, I was asking my classmates for help.

Since the number of known stakeholders before the field study was limited, a great support was offered by UN-HABITAT, specifically by the regional consultant Silas Maujih, who assisted at most of the meetings (translation, explanation), and was a connecting person between local community and group of international students of the Reality Studio in Kisumu. He was one of the main sources of information, since he is involved in several projects in community development, has grown up in the area and has a broad knowledge on the issues in Kisumu county.

All the produced figures are based on my understanding of the situation, thus may portray subjective attitude towards the current state of the study objects.

The study investigates the cases of Centralen Gothenburg – central station in Gothenburg, Sweden and the bus park and railway station in Kisumu, Kenya.

Kisumu railway station is going through new stage of development. The bus park in the city evolved itself without municipal intervention. That is why it is interesting to see the organization of these stations. On the contrary, organization of Gothenburg Centralen is well documented; there are several authorities responsible for it and there is development project that is being discussed with the public (Göteborgs Stad, 2015). That is why looking at the organization of Centralen is not included in the present study. Moreover, sustainability is part of the development projects in the transportation sector, which are currently in the implementation stage. This is the reason for exclusion of the detailed study of this issue from the present thesis.

2.2. Field work preparation

2.2.1. Research ethics

When doing research in developing countries very often the difficulty of definitions occurs. The invisible boundary between countries and regions is being drawn. And the unwanted division of "north" – "south", "east" – "west", "developing" – "developed" appears. In the present thesis the label "developing country" is used for convenience or cited from existing reports rather than implying any value judgement that one may associate with the term. As a result of growing concern with such issues of good practice, framework for research ethics has been created by Economic and Social Research Council (ESRC, 2015). The framework defines 6 key principles that should be defined during the research in the developing countries:

1. The participants of the research should take part in it voluntarily.
2. Research should have a value and cause no harm to the participants.
3. All the actors involved should have appropriate information about the research aim, methods, risks and benefits if any might occur.
4. If respondents ask to be anonymous the choice should be respected.
5. The report should meet the standards and be transparent.
6. In case of any conflicts of interest they should be explicit.

In my research all the participants volunteered to help. Some of them were very eager to share information, while others required detailed explanation and/or written confirmation of the research purpose. However, it did not cause any inconvenience, I was prepared for it. When interviewees requested to be anonymous, it has been kept. None of the names that were not confirmed to be open are mentioned in the report. No conflicts of interest occurred during or after the study.

2.2.2. Field study

Field study has been chosen as one of the methods for several reasons: it provides a researcher primary information, it allows to gather information from different perspectives, cross-validate it by doing observations, interviews, using documentation (Mikkelsen, 2005). Field study involves

collection of information outside of experimental or lab settings in the natural environment. In Kisumu the field study was inevitable. Transportation has never had a priority on the city and county levels thus no recorded documentation was available.

2.2.3. Positionality

"Doing a fieldwork is a personal experience. Our intuitions, senses and emotions are powerfully woven into and inseparable from the process. – Madison 2012: 9" (Godbole, 2014 p. 93).

On my field study trip to Kisumu I was a "stranger" who had a possibility of coming and going as a character of Georg Simmel (Simmel, 1908). During the information gathering I had different reactions towards a *mzungu* (white person) asking questions. Some respondents were enthusiastic and open to share everything they know, while the others were skeptical. My marital status and perceived age did not make the situation better. Being an unmarried woman and without children when you are over 25 is difficult to understand for Kenyans. Before going to Africa, one of my colleagues, a scientist who has been there before suggested me "to get at least an engagement ring". I laughed at it but still got one. Most of my interviewees were men and they often asked me personal questions. During the first interviews I was being honest and saying I do not have my own family yet. The following conversations were not going so well, the respondents did not take me seriously. Later I was saying I am engaged and showing the ring on the ring finger. The effect was similar, although the interviewees were looking at me with more respect. Next several weeks I learnt to say I am married, while twisting the ring, which gave me full power to ask questions. However, on the last days I failed to lie about the number of children I have. Where would I leave them while I am far away from home?! I am not a confident liar.

Walking on the streets I was getting too much attention. Traders were always trying to sell their goods, children were often begging for money, and taxi drivers/riders were offering their services. At the beginning it made me feel uncomfortable but with time I learnt to ignore it.

My main assistant and translator was Silas Maujih, regional consultant for UN-HABITAT. He has a background in engineering and several years of social work in the country. He had training from UN-HABITAT on working with different stakeholders. He was familiar with methodologies such as interviews, focus groups, surveys etc. Silas also had an extended experience in getting information he needed by convincing people of the importance of the questions he was asking. His local origin was advantageous because he knew how persistent he can be with different stakeholders. My only task was to explain the research idea. I feel grateful to Silas for all the help he gave me. Without him I believe I would not have even half of the information I have.

My task was to explore the local reality and try to understand how the systems work, what the main challenges are, and how the development planning process looks like. At the same time I tried to find any statistical and/or documented data relevant for the project. Expected outcomes, decisions on what to include in the report derived from who I am and what my field of interest is (Agar, 1980). I have a background in biology, biophysics and industrial ecology, thus some processes were difficult to understand and explain. Obviously, I did not belong to the local community and by interviewing people I was gaining knowledge and opening up new perspectives in their work. At the

same time, I tried to experience the functioning of the bus park through taking part in the official meetings and by using provided services.

My experience at the bus park was not always positive. One morning I was meeting my colleague from UN-HABITAT at the superintendent's (person responsible for management of the bus park) office at the bus park. He was 10 minutes late and I had to wait in the neighborhood. These minutes seemed like infinity to me. I was getting too much attention. It started from people trying to sell me their goods or trying to find out which direction do I go or what my marital status is. However, with the time it got worse, I was almost dragged to the bus by one of the *touts* (a person who provides route and stop information to passengers). Knowing the fact that *touts* are not officially employed and mostly represent people from the streets, who have their networks and sometimes harass passengers (from what I have learnt from the interviews) made me feel extremely insecure. It was happening during the day light. After the interview I asked the superintendent to accompany me around the park so I could take pictures and possibly record videos. Having almost a 2-meters tall man beside gave more confidence and feeling of security, although when he had chats with his colleagues on the platforms I was still often physically touched by locals. The feeling of insecurity was so strong that it affected my overall impression of the city and country. I was not so confident walking alone on the streets anymore, even during the day.

2.3. Field study methodologies

2.3.1. Observation

The qualitative approach was used for this study. As a starting point for analysis of the results the observation of the public transport terminals in Kisumu (railway station and the bus park) and Gothenburg (Centralen Gothenburg) was implemented. Observation as a technique provides straightforward and relatively accurate data (Scheyvens, 2003). Being a foreigner for both places allowed having a perception of the "professional stranger" (Agar, 1980), which made things that are obvious and usual for the locals noticed. I directly observed Centralen Gothenburg, bus park and train station in Kisumu in their natural settings. It was nonparticipant observation without my intervention. I was studying how the systems were working and looking at what behaviours are really like. However, observation has its limitations. It is impossible to determine if the observed situation truly represents the state (Kawulich, 2005). I was looking at the current state of the stations from the passengers' perspective as well as physical state of the constructions to confirm what I heard at the interviews.

2.3.2. Interviews

The reason for selecting interviews as one of the methods was because during face-to-face interview it is possible to observe the respondent and the questions can be flexible to adapt to the situation. At the same time, it gives a better understanding of the cultural background and respondent's perspective on the issue (Arksey, 1999). Interviews conducted in Sweden required just a few minutes of organization. One email to each expert and the replies came within a day and appointment was scheduled for the nearest future. One of them with professor Jaan-Henrik Kain took place at Chalmers University of Technology (Kain, 2015), and the other one on the Swedish

side with the journalist Mark Isitt was via Skype (Isitt, 2015). Making an appointment for interview in Kenya, on the contrary, was already a challenge in itself. Very often the time or date was postponed or cancelled. Moreover, waiting for the interview could be up to two hours. It is interesting to see how in one country people are very punctual; while in the other being behind schedule is a social norm.

For the qualitative research a big sample is not necessary, hence 26 experts were selected to be interviewed in both cities (2 people in Gothenburg and 24 people in Kisumu). The first people to contact were suggested by professors from Chalmers University of Technology and consultant from UN-HABITAT. The rest were identified through "snowball" technique described below. Full list of the interviewees can be found in the ANNEX A. The reason for such a discrepancy is that in Gothenburg there is more documented information available than in Kisumu.

The interview type for the present research was semi-structured (the script and main questions were fixed and I had a space for follow-up questions to explore the areas emerging during the conversation) (Arksey, 1999). I had a plan for the direction of conversation and at the same time I was not limiting the interviewee with too many specific questions. Moreover, the informants were able to provide information they think is important and relevant for the discussion. The questions guideline had open and closed questions, which means the conversation was partly led by interviewer and partly by respondent. The interview guide can be seen in ANNEX B.

The questions in the interviews were open-ended, which provided more space for respondents to share as much information as possible. The respondents were explaining their perspectives on the defined issue. It was usually presented in a form of stories and descriptions that cannot be easily simplified. This kind of information is hard to analyze, thus it is open for discussion (Burton, 2000).

In order to understand passengers' perspective on the usage of the stations in Kisumu and Gothenburg, 4 interviews were conducted: 2 with users of the public transportation in both cities (Otieno2, 2015; Watako, 2015) and 2 with experts working in Gothenburg (Isitt, 2015; Kain, 2015).

For a reliable analysis, most of the interviews were recorded and transcribed (when the respondents accepted it). It gave the advantage for me to be able to listen to it again, better understand the response and possibly pick up new insights that could have been missed on the first place (Flowerdew, 2005). In case if interviewees disagreed to be recorded, detailed notes were taken. I tried to understand the systems, make sense out of the gathered material and find patterns.

2.3.3. "Snowball" technique

The "snowball sampling" technique (when the main interviewee nominates further people for data collection) was applied in the research as well as purposeful sampling (when the researcher makes a prior assessment of the target group) (Arksey, 1999; Scheyvens, 2003; Flowerdew, 2005). Since it was my first time in Kisumu, I did not know anyone at the beginning, thus I used contacts that I got from my supervisors and interviewees from Gothenburg and Nairobi. While conducting my first interviews in Kisumu, the "snowball" started to work. I was getting more and more names of the people and companies that could be of any use for the research project. This technique brought very reach results for the present dissertation.

2.3.4. Survey

Another method used for data collection was survey. It is one of the most widely used methods for qualitative data collection (Burton, 2000; De Vaus, 2013). Two written surveys were conducted for the study purposes.

The first one was addressed to SACCOs (Savings and Credit Cooperative) one of the main stakeholders within the bus park). The main purpose of it was to better understand the system of the bus park and find out what the main challenges for the SACCOs are. The list of registered SACCOs at the National Transport and Safety Authority is also available online, but it has 635 names, so looking at all of them did not make sense. Moreover, looking at the bus park system shows that there are vehicles, which are registered in Kisumu county and operate there, as well as the ones that are just passing through every day. Thus, it is very difficult to track them, especially because no one is monitoring this information; neither information about the size of SACCO is available. Total number of respondents was 34. Number of different SACCOs that were present at the meeting – 21 (out of 24 registered in the county): 12 SACCOs registered in Kisumu; 3 registered in the western region; 4 had registration in Kisii county and 2 SACOOs were not on the list of registered SACCOs. The reason could be that they are new or coming from different county or were incorrectly transcribed from the hand-written survey questionnaire. The majority of respondents were from Kisumu county. It can be explained by the high interest of Kisumu SACCOs in the questions of the transportation development. Names of the SACCOs that had their representatives at the meeting are marked with "x" in the ANNEX C (Oloya, 2015). *Matatus* are the key players of the bus park system, which is described in Chapter 3. The survey questionnaire is presented in ANNEX D. The first three questions ask about the respondent – name, contact details and the name of the SACCO (s)he is working for. The next three questions were looking at the statistical data: how many vehicles of different capacity pass through the bus park in Kisumu every day. The last two questions were asking about the challenges that SACCOs are facing within and outside the bus park.

The second survey was addressed towards 9 students and 2 teachers of Reality Studio in Kisumu (described in Section 1.1. Introduction) in order to understand their experience as users. Questions for the written survey can be found in the ANNEX E. All of them spend 7 weeks in Kisumu and at least 7 months in Gothenburg. The respondents come from 6 countries: Belarus, Denmark, Finland, Kenya, Norway and Sweden. It is an interesting sample of respondents, because some of them compare everything to Sweden or Kenya where they come from, while the others have a view of outsiders as well as I do.

When gathered, the results of surveys were analyzed according to identified criteria. The quantitative data on numbers of vehicles from the first survey was summarized according to the capacity of the vehicle. The qualitative data from both surveys had a lot of similar replies, thus was ranked by the number of repetitive answers.

2.4. Analytical methodologies

2.4.1. SWOT

To assess the situation and environment the structured planning method SWOT analysis has been applied to the system of the bus park. SWOT stands for strengths, weaknesses, opportunities and threats. It identifies these 4 elements for the given environment. The current analysis is based on interviews, surveys and printed (or online) materials that were collected during the field study. This framework is useful to focus on the strength of the study object, minimize threats and take advantage of the opportunities that are available in the present situation (Maylor, 2010).

2.4.2. Stakeholder management

"Stakeholder management is critical to the success of every project in every organization I have ever worked with. By engaging the right people in the right way in your project, you can make a big difference to its success" (Thompson, 2015).

Stakeholder management has five main steps: identification, analysis, mapping, prioritization and engagement (BSR, 2011; Thompson, 2015).

On the first step – it is important to identify who the main stakeholders of the process are.

Once the list of stakeholders is created it is necessary to analyze them in order to understand if/how they can be involved in the development process. What is their possible contribution, how legitimate is their claim for engagement and how much they are willing to participate.

Present thesis has a grid for analysis – power and interest (Thompson, 2015). Power in this case means the level of influence stakeholder has towards the development process. Interest defines as willingness to participate in the process. According to these two aspects all the important stakeholders were placed on the map.

Prioritization means that different stakeholders require different amount of attention. Stakeholders who have high power and high interest should be managed closely; those are the most important people and institutions within the study objects. Stakeholders who have high interest and low power should be kept informed. Those are usually local citizens and media. In case of the bus park it is also bus driver and conductor. Actors with the high power and low interest should be kept satisfied. Traditionally they are private sector representatives or authorities who invest in the projects. In case of Kisumu it is local government and at the bus park it is also NTSA (National Transport and Safety Authority). Finally, stakeholders who have low power and low interest require minimum effort and they just need to be monitored.

The last step, engagement, looks at the strategies that can be used in order to manage stakeholders in the best way to reach the goals of the project. Stakeholders with high power and high interest should be managed closely: they require the most attention and should be involved in the process as much as possible. The ones with high power and low interest should be kept satisfied: since they do not have a lot of interest in the process, they just demand reporting on the situation and improvements. Stakeholders with high interest and low power must be kept informed. Very often it

is local population. Minimum effort from responsible for the project requires for stakeholders with low interest and low power. They just need to be monitored (Thompson, 2015).

Stakeholder analysis for Kisumu is based on the respective interviews (marked in ANNEX A) and respective publications. The one for Gothenburg is based on the articles by Mark Isitt (Isitt, 2014) and Jesper Meijling (Meijling, 2014) and interviews with M. Isitt (Isitt, 2015) and J.H. Kain (Kain, 2015).

2.5. Future methodologies in the planning process

Futures research has its origin in the mid-1960s and since then it has undergone significant development. Some of the earlier methodologies such as Delphi and simulations evolved into new more effective form, while new approaches such as foresighting, backcasting and SymbioCity emerged. The main aim of future studies is to "help inform perceptions, alternatives and choices about the future" (Amara, 1991). At the same time, the current state of the system is analyzed and solutions for the future are described and evaluated in these approaches. Therefore, future studies are often used in the planning process, since they depict some possible outcomes.

For the present research three approaches were selected. Backcasting emerged in 1970s and with the time transformed into the methodology with a strong focus on sustainability. Sweden is one of the countries in the forefront of backcasting development together with the Netherlands and Canada (Vergragt, 2011). Foresighting emerged a bit earlier than backcasting, around the 1960s. The approach has been changing and still does with the advancement of knowledge (Conway, 2005). SymbioCity approach evolved from Sustainable City concept (developed by Swedish government and Swedish Trade Council) launched in 2002 at the World Summit on Sustainable Development in Johannesburg. For a long time now Sweden positioned itself "to contribute to sustainable urban development, both nationally and internationally" (Ranhagen, 2012). Backcasting and SymbioCity approaches were developed in Sweden; backcasting is still evolving at Chalmers University of Technology. During the interview sessions, several authorities in Kisumu, Kenya mentioned that it would be beneficial to have such studies done in order to support the planning process (Eising, 2015; Nzomo, 2015; Otieno1, 2015). That is why these three methodologies were selected for comparison.

Paper called "An evaluative framework for conceptual and analytical approaches used in environmental management" by H. Baumann and S. Cowell was taken as a basis for comparison of the future methodologies analyzed in this study.

The framework

The selected approaches can be used in the planning process; however they have different outcomes based on the input data. The three aspects were taken into consideration: *general information* (nature of the approach); role in the decision-making process (*contextual aspects*) and the methodologies themselves (*methodological aspects*). Table of comparison is presented below (Table 1).

Table 1. Comparison of future methodologies: backcasting, foresighting, SymbioCity

Aspects	Categories		Approaches		
Generic aspects			**Backcasting**	**Foresighting**	**Symbio city**
Nature of approach	Type:	Concept		x	x
		Tool	x		
Contextual aspects					
Type of decision maker	Decision makers:	Governments/authorities	x	x	x
		Industrial companies/business enterprises	x	x	x
		Non-governmental organizations (NGOs)	x	x	x
Overall purpose	Uses:	Strategic	x	x	x
		Communication	x	x	x
Object analyzed	Focus:	Ecosphere	x	x	x
		Technosphere	x	x	x
Perspective	Nature of perspective:	Prospective	x	x	x
		Retrospective			
Methodological aspects					
Investigated dimension	Main dimensions:	Environmental	x	x	x
		Economic	x	x	x
		Social	x	x	x
		Spatial			x
	Integration of sustainability dimension:	At the beginning	x		
		In the middle		x	x
Character of the approach	Emphasis on procedure:	Understanding and analysis of the present situation	x	x	x
		Specification of the objectives, indicators and targets	x	x	x
		Development of proposals/solutions	x	x	x
		Strategy creation	x	x	x
	Emphasis on modeling	Development of smart models	x	x	x
Basis for comparison	What is kept constant in a comparison:	Identified criteria	x	x	x
		City/town			x
System boundaries	Spatial limitations:	One geographical area (single site)	x	x	x
	Time limitations:	Short-term modeling		x	x
		Mid-term modeling		x	x
		Long-term modeling	x	x	x
	Approach limitations:	One social problem	x	x	

		Multiple social problems			x
Type of data (input and output)	Subject of data:	Social and economic systems	x	x	x
		Physical systems	x	x	
	Nature of data:	Qualitative	x	x	x
		Quantitative	x	x	x
Evaluation of results/interpretation	Presentation of results:	Single scenario			x
		Multiple scenarios	x	x	

Generic aspects

Nature of approach

Backcasting, foresighting and SymbioCity (SCA) approaches have different nature. While foresighting and SymbioCity can be defined as *concepts* (in this case concept is an idea of how to reach the sustainable future), backcasting is a *tool* (it has a specified step-by-step guidance towards the goal). The main difference between tools and concepts is that tools are often used in concepts in order to achieve the determined goal (Baumann, 1999). The decision of comparing tool with concepts is based on their final outcome – application in the planning process. Different places in the world have preference in using one or another, thus it was interesting to see what are the differences and similarities and which one of them or combination would be beneficial for the cases in Kisumu and Gothenburg.

Contextual aspects

Type of decision-maker

From the contextual perspective, there are four main aspects that are taken into consideration for comparison. All three approaches are used by the decision-makers described in the paper: *governments/authorities, industrial companies/business enterprises, non-governmental organizations (NGOs)* and none of the approaches are used on the individual level. SymbioCity approach has a focus on developing countries and the ones that undergo transition. The concept had pilot implementation in Skopje, Macedonia and Visakhapatnam, India (in 2007-2009) and partly in China. SymbioCity enables active participation of different stakeholders, and multidisciplinary and sector approach on different levels of urban development (Ranhagen, 2012). Graphically it can be presented in the following way (Figure 6):

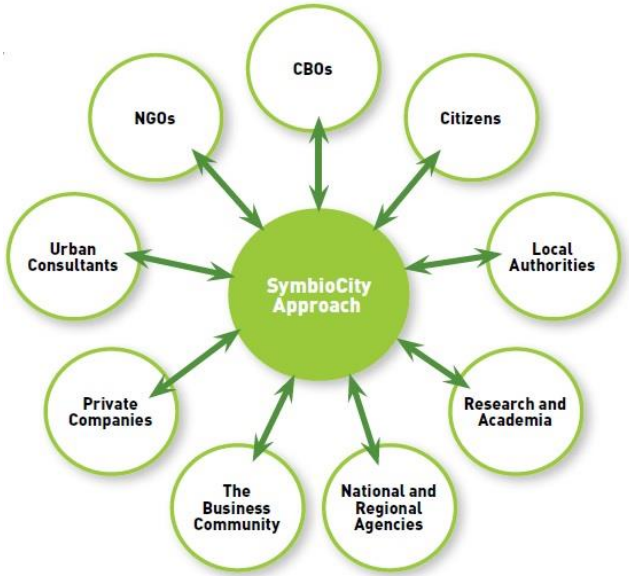

Figure 6. Stakeholders of SCA that are involved in the process. Source: (Ranhagen, 2012)

Backcasting is used by a wide range of stakeholders: governmental authorities, municipal institutions, varied organizations, private companies and general public. Many actors on different levels can be involved in the decision-making process (Dreborg, 1996).

Foresighting approach is often used by the government on the national level, business organizations and other related groups (Conway, 2005).

Overall purpose

The uniting feature of all three approaches is the purpose of support of strategic decision-making process. Since all of them look into the future, it is logical that the last step would be a call to action. In one way or another, at the end of the process there is a strategy creation. This means finding creative solutions to existing challenges (Baumann, 1999). Alongside the main aim, the vision for future development is also one of the outcomes of the present approaches. Working on it in a group of stakeholders enables to generate an easy-to-understand common vision, which everyone can work towards (Dreborg, 1996; Conway, 2005; Vergragt, 2011; Ranhagen, 2012; Kuosa, 2014). There is a tendency that when people create something together, they invest more time and effort into implementation of the idea. Active involvement of stakeholders in the process is a strong side of the approaches. The example of communication purpose can be a campaign for raising awareness in an NGO or reaching out for employees in the company. *Strategy creation* plays role of internal tool, while *communication* is meant for people outside the organization (Baumann, 1999).

Object analyzed

The object under investigation defines the focus in the decision-making process. Present approaches are interdisciplinary; they also take into account both *ecosphere* and *technosphere*. Ecosphere deals with land use, while technosphere is focused on technological systems (Baumann, 1999). SymbioCity approach has clear representation of the land issue. Significant part of the approach

deals with questions related to land and its management; it is one of the prioritized objectives, especially while addressing developing countries (Ranhagen, 2012). Foresighting and backcasting do not have a separate priority on land use. However, these approaches address specified social problems so the focus can be shifted that direction if necessary.

Perspective

All three of the approaches look into the future, have a *prospective* perspective. They assess possible alternatives and their potential outcomes. SymbioCity is followed as guidance for development on the city level and can be used in the decision-making process during the planning stage. Backcasting and foresighting can have either broad complex system to work with or narrowed down to smaller scale (for example, geographically).

Methodological aspects

From the methodological point of view five aspects that are shared among approaches were analyzed: investigated dimensions, character of the approach, basis for comparison, system boundaries, type of data (input and output data), and evaluation of results/interpretation. Since concepts have more complex nature and do not necessarily define the methodologies that must be used the outcomes might be different. For example, depending on the final user of the results of foresighting either qualitative or quantitative or both techniques can be used (Conway, 2005).

Investigated dimensions

Main dimensions

Backcasting methodology is developed for working with desired futures and ways of achieving them. With the increased popularity of sustainability question in the last decade, backcasting has evolved into several variations. One of them was developed in collaboration between the non-governmental organization The Natural Step, businesses and scientists. This methodology has a strong sustainability perspective (Dreborg, 1996; Holmberg, 2000). Similar development happened to foresight approach (Conway, 2005). SymbioCity the way it is presented now (2012 version) has already embedded sustainability perspective too. Thus, *environmental, economic and social dimensions* are incorporated in these approaches. Additionally, SymbioCity has *spatial* dimension, because land issue in the city development plays crucial role.

Integration of sustainability dimension

Backasting starts with vision creation and definition of criteria (how desired future should look like and what are the required parameters). Already *on the first* step sustainability is integrated in the process. On the contrary, foresighting and SymbioCity approaches have assessment of the current situation as a first step, and sustainability comes in at the stage of specification of the objectives, indicators and targets (*2nd step*). Although the order is reverse for backcasting, it does not change the final outcome of sustainability integration to the approach.

Character of the approach

It is common among tools to have *procedure* and a *model*. In this case procedure is defined as the best way of moving towards decision. Modeling in this case is conceptual, often presented through scenarios of possible future(s).

The procedure describes step-by-step process. Although present methodologies have different number of steps and their order might vary significantly, it is possible to define four main stages of the procedure: *understanding and analysis of the present situation; specification of the objectives, indicators and targets; development of proposals/solutions; strategy creation* (Figure 7). The stages and their components are approach dependent. Moreover, the concepts can include a number of tools used at different stages. The procedure is visualized in Figure 7 (below). It is based on the articles by J. Holmberg (Holmberg, 1998), M. Conway (Conway, 2005), and U. Ranhagen and K. Groth (Ranhagen, 2012). While foresighting and SymbioCity approaches are moving forward in time, where the process starts with the description and analysis of the current state and ends up with the strategy creation, backcasting has both directions in the process (forward and backward). It starts with creation of vision of the desired future and identification of key criteria that must be fulfilled. Then it goes back to the present date and describes the current state together with identification of leverage points that can be influenced. Then again backcasting goes forward and envisions solutions, and on the last stage it goes back to the present time and develops step-by-step strategy for achieving the goals and fulfilling the defined criteria (Holmberg, 1998; Holmberg, 2000; Vergragt, 2011). As one can see, these methodologies have similar steps in the process, however taken in different order.

The conceptual model has a *descriptive character* and usually *one or few scenarios*, which support decision-makers in their strategic planning. All three approaches have scenario creation on the late stages of the process. They are analyzed and used as a base for strategic planning.

Basis for comparison

Studies that are used in decision-making process and provide alternative solutions should have a basis for comparison. It is something that is kept constant and makes a starting point for comparative analysis (Baumann, 1999). All the methodologies define *criteria* as a comparative constant; moreover, SymbioCity keeps *city/town* as a constant unit.

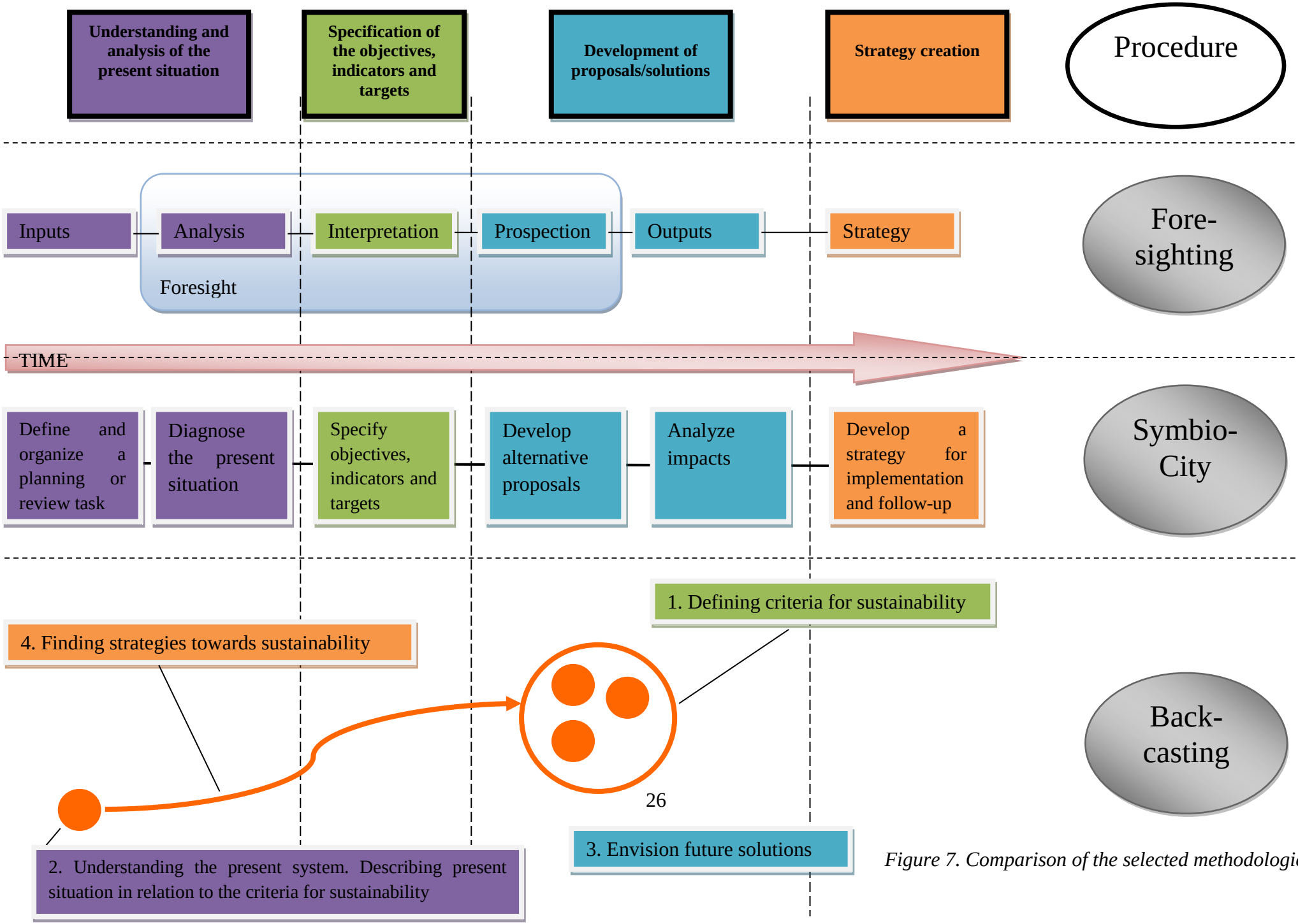

Figure 7. Comparison of the selected methodologies

System boundaries

System boundaries define the area that limits the scope of investigation. Usually it is presented in *space and time limitations*. All three approaches have spatial modeling on a *single site*. Time modeling in this case is divided into three categories: *short-term, mid-term and long-term* modeling. Only backcasting is not used on the short- and mid-term. It is usually applied for far away in time targets (the most common time horizon is 50 years) (Vergragt, 2011). It represents two generations time and considered to be realistic, because it is easy for people to imagine the future of their grandchildren at about their age now. On the contrary, foresighting and SymbioCity can be also used for short-term and mid-term modeling. Moreover, the shorter time span is, the more precise and truthful the scenarios will be. Current approaches also have limitations in terms of the problems they are dealing with. Foresighting and backcasting work with *single social challenge*, which might have complex system (for example, transportation) (Vergragt, 2011). SymbioCity deals with the *number of challenges* that might occur in the city; it covers the number of essential areas: urban functions and urban structure; public space and the public realm; urban landscape planning and ecosystems; mobility, traffic and transportation; building design and architecture; energy systems; waste management; water management and sanitation; urban systems – synergies and climate change (Ranhagen, 2012). SymbioCity approach has a list of issues that it is dealing with on the city level.

Type of data (input and output data)

The analyzed approaches require input data and the final outcome is output data. Different systems (economic and social systems or physical systems) demand various types of data. Depending on the system boundaries, research question and defined criteria, backcasting and foresighting can deal with *physical systems* – "data on flow of energy and matter in technological systems and data on changes in ecosystems" (Baumann, 1999). In most of the cases all three of the approaches work with *economic and social systems*: "financial data and data held by humans" (Baumann, 1999). Looking at the nature of data it can be categorized as *qualitative* or *quantitative*. Foresighting and backcasting mostly use qualitative data (Conway, 2005; Vergragt, 2011), while all three of the approaches can use quantitative data. A combination of these two types of data gives a better understanding of the situation and more comprehensive solutions.

Evaluation of results/interpretation

Presentation of results in the three analyzed approaches is either *one or several scenarios*. SymbioCity approach offers one scenario (or it is better to say guideline) at the end, while backcasting and foresighting usually provide number of alternative scenarios. However, when SymbioCity approach is using backcasting tool on the late stages, the number of solutions can be provided.

Taking into account all these aspects, it is possible to identify the distinctive advantages and disadvantages for the investigated approaches. They are presented in the Table 2:

Table 2. Advantages and disadvantages of using backcasting, foresighting and SymbioCity approaches in the development planning

Backcasting	**Foresighting**	**SymbioCity**
Advantages		
– Begins with creation of common desired vision – The result says what *should* be done to achieve the vision – Helps to avoid "lock-in" solutions – Useful when traditional solutions do not work – Easy to apply, can be done by individual – Gives a range of alternatives to address the issue	– Gives a clear picture of how future *could* look like if considered a number of criteria – Based on available technology – Gives a range of alternatives to address the issue	– Describes how the city *would* look like if the guidance is followed – Considers city from multiple perspectives – Connects stakeholders with various backgrounds – Looks at the city as a whole – Considers number of issues – The model can be adapted to the local context
Disadvantages		
– We do not know future possibilities, thus it is difficult to design a strategy – Dealing with qualitative data requires thorough selection of experts	– Does not give creative solutions – Locked-in to current state – Dealing with qualitative data requires thorough selection of experts – It can be difficult to avoid wishful thinking	– Requires a big number of experts – Locked-in to current state

These approaches have a lot in common and they are used for the same purpose; however, the main outcome of their application is different. Foresighting shows how the future of defined area *could* look like; backcasting depicts how the future of the system *should* look like if alternative solutions are implemented; and SymbioCity represents how the future *would* look like if the guidance is followed. Moreover, SCA might be used as a base for the general or detailed plan on the city level. Hence, when looking at the suitable methodology one has to consider the expected outcomes.

CHAPTER 3. FINDINGS

3.1. Study of the planning process

3.1.1. Kisumu

My research journey started in Nairobi, when I was invited to an official meeting at UN-HABITAT together with students and coordinators of Reality Studio in Kisumu course. During the meeting at UN-HABITAT I have learnt about UN development goals and programmes in Kenya and conducted my first interview with Sohel Rana, urban planning and design officer. He shared that UN-HABITAT developed five principles for sustainable planning that address challenges of developing city (for example population growth, accessibility and equality, environmental issues etc). These principles are based on "three key features of sustainable neighborhood and cities: compact, integrated and connected" (UN-Habitat, 2014). Every city is encouraged to use them as guidance. However, in Kisumu the development planning is outsourced to the private sector, thus the guidance is not always followed. It gave an insight on the direction of where Kenya was going to. However, between goals, plans and implementation sometimes a chasm may occur. UN-HABITAT also gave me contacts of another person who played central role at the information "hunting" – Silas Maujih – consultant based in Kisumu. The "snowball" started rolling. Having a male colleague was a great advantage in Kenyan environment as well as name tag from UN-HABITAT allowed opening hidden doors and meeting unattainable people.

Meeting coordinator of Kisumu Urban Project (KUP) helped me to answer part of my research questions – whether or not Kisumu development planning team is using any futurist methodologies in their work. The answer is not (Eising, 2015). The coordinator is from the Netherlands and has a lot of experience working in Africa. His understanding of the issue and local culture helped to get a better comprehension of the situation there. His "sharp tongue" pictured the current state with bright colors, however took a while to "digest" the information and translate it into the common language. The talk gave a view of the foreigner who lived and worked in Kisumu for about two years, another "stranger" in the community.

Everything takes time in Kenya. Waiting time differs between 40 minutes and 3-4 hours. There is nothing like a scheduled meeting. Meeting officials requires a lot of patience, time and persistence. The main source of information for my research was expected to be the city planner. 7 minutes long talk with the city planner at the municipality, who might have had official information or statistical data, took a week of scheduled-rescheduled appointments and about 15 waiting hours in total. It was interesting to see how municipality works. For five days I was coming 1 hour before the opening hours to be able to see the city planner first. At the end of the week, the secretary was offering me morning tea and always entertaining with chit-chats. By the time when the working hour starts the city planner would come in through another door. Then visitors most of the time would not know if someone is inside or not. Multitasking is a key feature at the office. During the visitor hours, the secretary can show up any time to ask for a signature or clarify a question. At the same time the talk can be interrupted by the phone call. The visitors who are in the queue next would try to get in or just check if the city planner is still inside. In case of important meeting that suddenly happen to be that day and was not confirmed before, the plan for the day would change

immediately and flexibility would step in. That is a great characteristic when unexpected events occur; however, it might be difficult to cope with every day routine and regular responsibilities. Moreover, having so many tasks for one person does not make the work efficient. After all the struggling with getting an appointment and actually making it happen, the interview took place. It was combined with another 2 meetings that were not entirely related to my topic, and was interrupted several times by other visitors, secretary and phone calls. Unfortunately, the information I was expecting to get did not exist, which made me feel really frustrated and required a new plan for future steps.

In order to find the first hand information I had an interview with the city planner. When I asked about any previous research or any statistical data that was documented, I was told that in transportation sector as a whole there was only one attempt to implement *Sustainable Urban Mobility* (SUM) plan (supported by SIDA, Swedish International Development Cooperation Agency) designed for pedestrians and cyclists. The project was not successful (not a lot of participants showed up and no interest was expressed for the future) and from that point did not move any further. In my opinion one of the reasons for that is new trend of having a motorcycle. Moreover, it seems that people in Kisumu tend to prefer different personalized taxi services or *matatus* over walking and cycling. Most of the time there are pavements for pedestrians, although very often major part of them is occupied by street vendors. For the cyclists safety is an issue. There are no separated path and cyclists have to go on the same road with the cars, public transportation and freight trucks. Taking into account number of vehicles on the road at the same time and quality of the roads, it becomes dangerous to go by bicycle. Thus promotion of pedestrian traffic or biking did not have any continuation. Within the bus park there was a small research done by the consultancy Strevlan. However, all the data was saved only on one computer and this computer got stolen. Thus, the study was gone and only few initial documents were kept by chance in the email. It would be of great advantage if such information was secured and saved in several places.

Due to the small capacity in the city planning department, most of the planning services are outsourced to private actors. Once county assembly defines what the areas of interest and leverage points for future development are and estimates the required budget, announcement for tender goes to the public through newspapers, magazines, local radio and other media means. Usually the project, which has the lowest budget, wins the tender and goes to the next stage – contract and implementation (Otieno1, 2015; Otieno2, 2015). The latest *Integrated Strategic Urban Development* (ISUD) plan for Kisumu was developed by Kenyan and French partners (Kenyan Ministry of local governments (MoLG), Kisumu County Government and Agence Française de Développement (AFD)) and funded through French Development Agency (AFD) (MoLG, 2013). Since March 2015 there were meetings scheduled to approve the plan. On the present date (end of May 2015) it has not happened. Difficulties with having all stakeholders at the same place at the same time cause constraints. The main purpose of this plan is to guide the incoming investments (including 40 million Euros from AFD). It is not something that the city would strictly follow, but rather is guidance that can be considered if any funding comes in. ISUD is managed in line with ISUD-Plan Capital Investment Strategy. Another purpose of the plan is to provide a framework for the city growth and development. The plan takes into account historical and current state information (specificity of the city, local culture etc) in order to ensure the use of the city location

and strong strategic sides. ISUD has 10 parts where important aspects of urban development are described and main future steps are defined. The plan has integrated approach and combines 10 sectors (Figure 8):

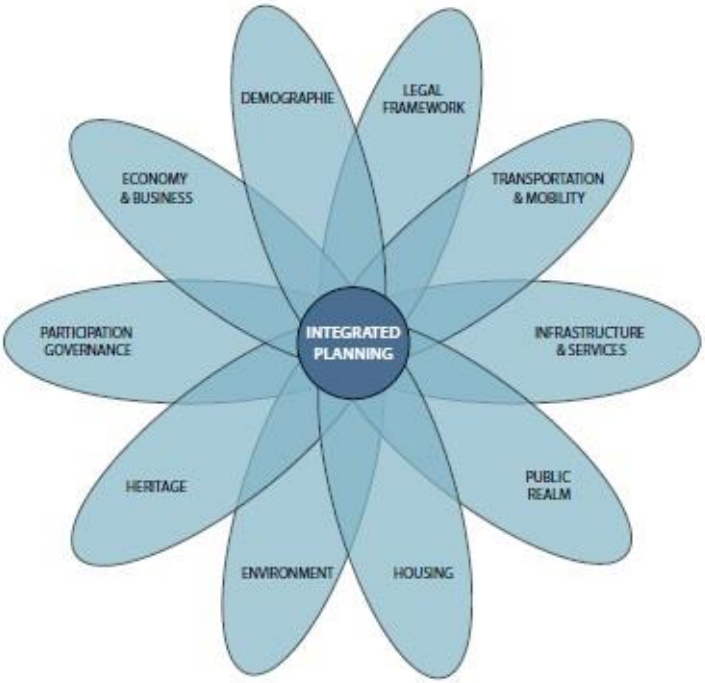

Figure 8. Sectors of integrated approach. Source: (MoLG, 2013)

One of the ISUD plan chapters is devoted to urban grid transport and mobility. It has 17 pages (including pictures and graphs). Transportation sector has never been a priority for the city, "Kisumu is one of the key transit node in the Northern Corridor – a multi-modal corridor, encompassing road, rail, pipeline and inland waterways and intended to link the land locked countries of Uganda, Rwanda and Burundi, Eastern part of the Democratic Republic of Congo, Southern Sudan and Northern Tanzania with Kenya's maritime port of Mombasa (Figure 9). The organisation responsible for the management of the Northern Corridor is referred to as the Northern Corridor Transit Transport Coordination Authority (TTCA-NC)" – states the Integrated Strategic Urban Development plan of Kisumu (MoLG, 2013).

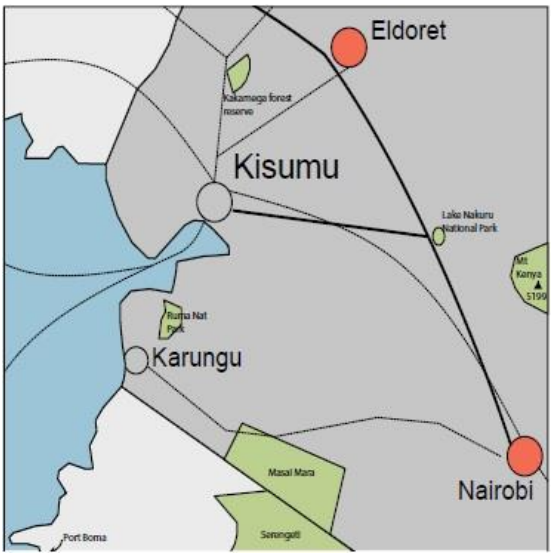

Figure 9. Regional context – the Northern Corridor. Source: (MoLG, 2013)

ISUD describes briefly the main networks and services and their current state. This document does not have any detailed strategies for improvement of the situation but I believe that, rapid urban development and absence of governmental control over traffic and passenger public transport demand requires immediate intervention.

Development project of the train station in Kisumu

At the moment the railway station is completely frozen in its work, thus, Rift Valley Railways (RVR) cannot do anything about it. At the same time, Kenya Railways Authority cannot push forward the development projects, because the operational power still belongs to RVR for the next several years. Despite the fact that Kenya Railways is following all the standard procedures in the development planning, the level of public participation is doubtful. According to the interviewees, not a lot of people attend the meetings and not all social groups are reached.

The city council has similar view on the railway station development. ISUD plan suggests the following railway network for future Kisumu (Figure 10). The plans works like guideline and can be implemented in case of additional financial support (MoLG, 2013)

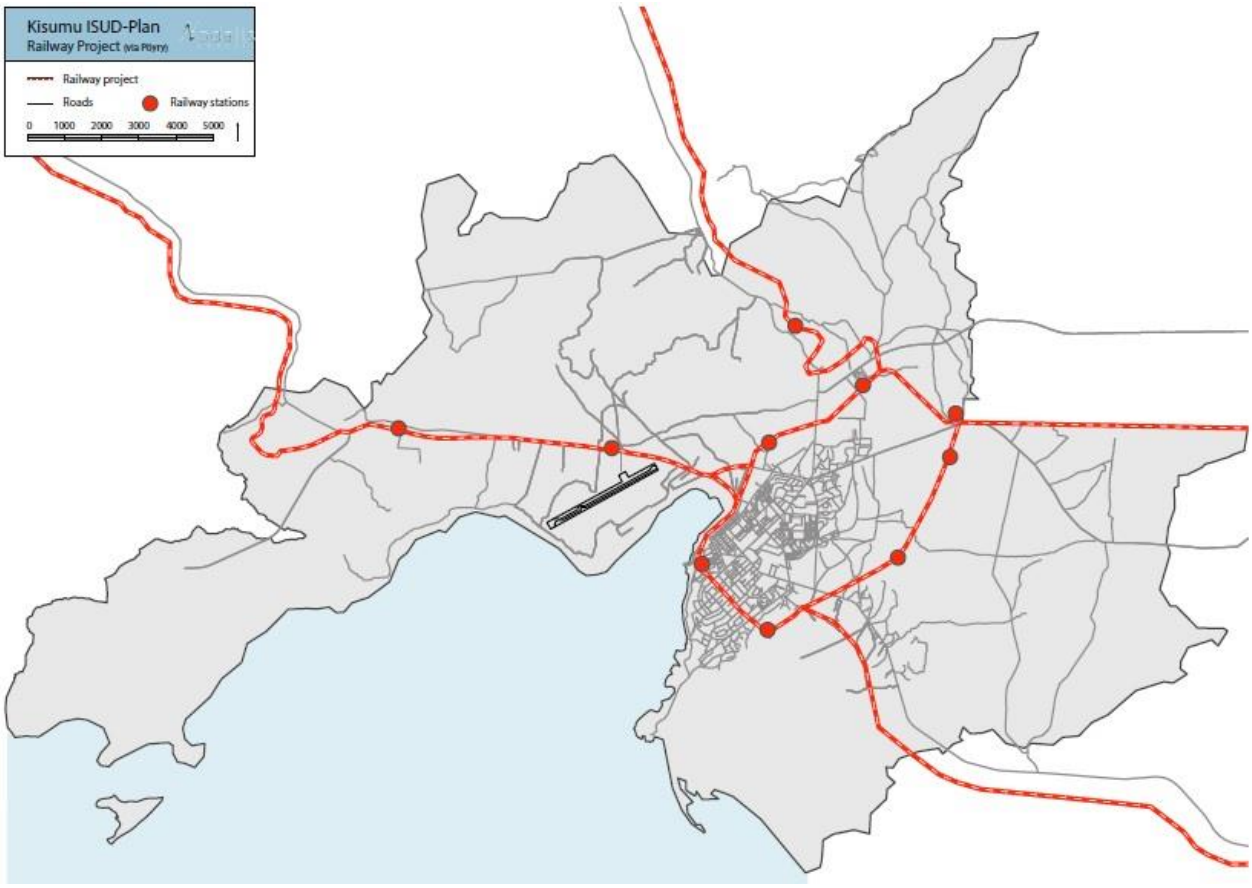

Figure 10. Railway network for future Kisumu. Source: (MoLG, 2013)

On the international level Kenya Railways has a big developmental project, which also involves Uganda, Burundi and Rwanda. It was developed under Kenya's vision 2030 and is "critical for the economic development of Kenya and East Africa" (Mumo, 2014). The project would help to reach the main aim of the government – improve competitiveness for future investments, as well as improve cargo and passenger transport in the country. Moreover, it will have a great impact on Eastern and Central Africa development, called the Northern corridor. Each of the countries involved in the project is responsible for their part of the railway. The assigned project team from Kenya Railways developed a vision; however, no methodologies were applied for its creation. It was based on the previous experience and comparison to the other similar projects. The results of this vision creation were collected in the calendar for year 2015 that was later printed out and distributed among employees of Kenya Railways. Interviewee mentioned that foresighting would be great to have, because very often, as it happens in most of the spheres in Kenya, "first building comes and then people think what to do with it". I was unable to ascertain the reason for this but that it could be due to some combination of institutional constraints, way in which the planning system is operated in the context of political factors, resource and capacity constraints and the like.

The main aim of the project is to build a standard gauge system (since the current one is old, partly destroyed and does not correspond to international standards). The project has 2 consecutive phases. At the first phase the Mombasa-Nairobi line is planned to be built, while at the second, the railway will continue from Nairobi to Kisumu. About 300 billion Kenyan Shillings (KSh) were invested in

the first phase of the project already. It is partially financed by Chinese government. Environmental sensitivity analysis and environmental impact assessment have been applied for the first phase. The preliminary report was issued as well as two meetings with local community already took place. Now it is a stage of detailed design and further market research for the second phase. The project will go to the second stage only if the first one has a success (fulfills all the requirements and brings profit) and it is evident for Kenyan citizens that it has a potential and possibility of future investments (Disi, 2015; Employee, 2015; Kinagwi, 2015; Nzomo, 2015). "The standard gauge railway is a project that Kenya needs to have commissioned yesterday and the sooner it is delivered, the better for the country's economy and that of the Northern Corridor as a whole" (Mumo, 2014). However, the perception of the level of the plan implementation in Kisumu at the local ministry is "talking a lot" (Mbula, 2015).

Breaking news in Kenya dated 5th of May 2015: "Rail firm seeks 23 billion KSh to fund five-year revival plan. Rift Valley Railways has entered into a deal with six international financiers and a local bank to raise KSh 22.9 billion for its five-year turnaround plan. The debt plan with the African Development Bank, Germany's KfW Bankengruppe, International Finance Corporation, the Dutch Development Bank, ICF Debt Pool, Belgian Investment Company for Developing Countries and Equity Bank would help it raise fresh capital" (Okoth, 2015). It gives a hope to speed up the Phase I of the project and deliver it before the assigned date.

Sustainability perspective is incorporated in form of feasibility study and environmental impact assessment in the train station development project (at the late stage of Phase 1). Within the bus park currently there is no plan, which gives opportunity to include sustainability at the early stages.

3.1.2. Gothenburg

The planning process in Sweden is structured and well defined. A lot of attention is devoted to the preparatory stage. Consultations with the regional state authority and municipality are implemented on the early stages; consultations with the citizens on initial proposals are a norm (Larsson, 2006). Gothenburg has a project for public consultations "Älvstaden" (Göteborgs Stad, 2015). A lot of visioning work and stakeholder discussions about the future of the city takes place there. The place Älvrummet has big installation of future Gothenburg city center, the screens on the walls show the past, present and future developmental projects. There are guides who would lead you through the scaled city and provide you detailed information about the city and its future plans. The leaflets support the talk by printed graphical representation. This project is supposed to influence the development process quite a lot (Kain, 2015).

After the proposal has been developed by respective authority (depending on the project) the consultation with the public takes place again. Then the project goes to approval and follows by detailed plan. In Gothenburg the city development (even the big infrastructure proposals) takes place by very small projects (a plot or a block). When someone wants to build something a detailed plan for this building must be developed. Despite the directions from the Ministry of the Environment, the Law of Environment (Larsson, 2006), the detailed plan on the small scale does not necessarily need to follow the city visions. If all the small projects are developed in a different way and get exceptional approvals from the politicians who play a key role in the process, the

comprehensive plan of the city development would significantly differ from the created vision (Kain, 2015).

Environmental impact assessment takes place at the preparatory stage. It is part of the EU directive, which says that projects that might affect the environment, natural resources or local community should undergo such assessment (Larsson, 2006).

Development of the transportation sector in Gothenburg is part of the Transport Strategy for 2035, which is available online. The plan has sustainability in its vision. The strategy was developed "in an integrated process with the Development Planning Strategy and the green strategy" (Hellberg, 2014). Based on the policies that influence the Transport strategy several small scale plans will be developed (Figure 11):

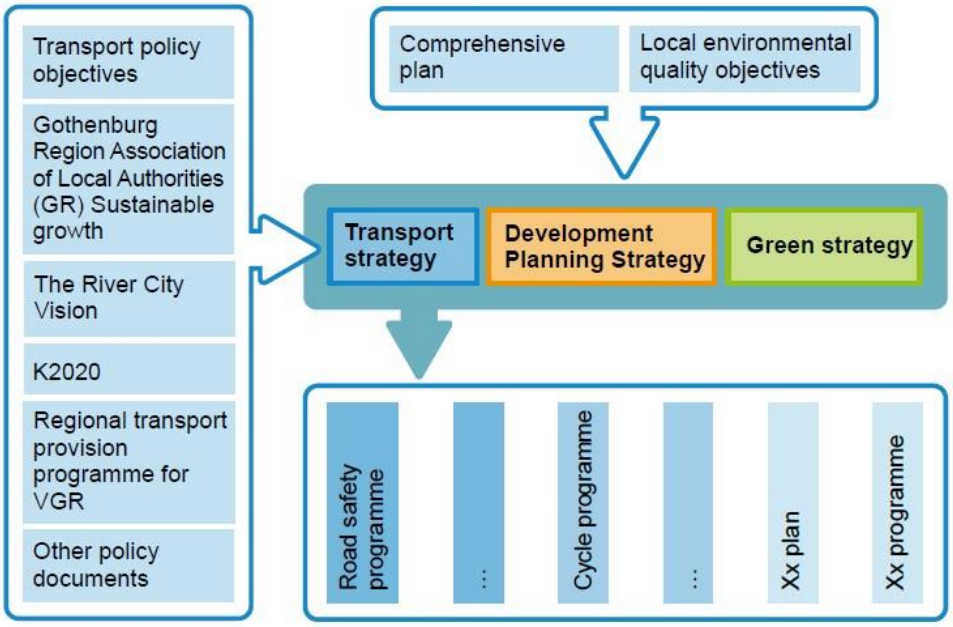

Figure 11. The transport strategy in context. Source: (Hellberg, 2014)

From Figure 11 one can see that sustainability issue is incorporated into planning process from several perspectives.

3.2. Study of the current situation of the stations

In order to understand the systems of the single units in Kisumu, there is a need for explanation of the transportation system in general, which is presented below.

Water transportation

Kisumu port (Figure 12) has two parts: the lake port and the dry port managed by Kenya Ports Authority. Previously the port was used for passenger and goods transportation, including international connections. It still has all necessary equipment for roll-in-roll-off of the freight. However, nowadays the port is mostly used for goods deliveries within and outside the country. The loading on/off of the ships takes long time, thus preferred by the road transport. Another major issue of the water transportation is water hyacinth invasion, which disrupts port activity. The inland container depot has all necessary facilities for freight transportation and storage (MoLG, 2013; Disi, 2015; Employee, 2015).

Figure 12. Kisumu port

Air transportation

Air transportation is represented by Kisumu International Airport. It has been built in 1930s (Kenya Airports Authority, 2013) and renovated in 2012. It is meant to connect cities within the lake region, big cities in Kenya and join international network. Current work is going in the area of freight deliveries and in the future it will allow transporting goods by air rather than by road. At the moment the airport is accessible by two roads – the old airport road and a new highway connecting Nyamasaria and Kisian districts. One of the possible future projects is a road that connects railway station and airport. So far it is only an idea (MoLG, 2013).

Road transportation

Kisumu is well connected to other cities through road network. However, the state of the roads does not always correspond to the standards and together with violation of the rules often leads to congestion and accidents (Figure 13).

Figure 13. Kisumu-Busia road. Construction on the left, main road on the right

Within the city the old part and Kibuye district as well as well-off residential areas have paved roads that are regularly maintained. Road names are appropriately located on the road junctions; nonetheless, constant increase of the number of vehicles on the road leads to congestion and in the future without additional regulative tools (for example traffic lights) may lead to other problems. In

the other parts of the city the tarmac got worn off and the roads got back to the initial state – earth. Most of the country-side roads and slum areas have the earth roads (MoLG, 2013).

The road transportation system in Kisumu is represented by several means: *boda-boda*, *piki-piki*, *tuk-tuk*, taxi, *matatu*, long-distance bus (Figure 14).

Figure 14. Piki-piki, tuk-tuk, matatu and bus at the bus park, Kisumu

A few hours bus ride one of the days, combined with the talk to the driver helped me to gain deeper understanding of the *matatu* system and the bus park functioning. Higher education of the bus driver was a significant point in this case, because we were speaking "the same language". The system was getting more and more complete in my head and finally started to make sense. It also gave another starting point for investigation – involvement of *matatus* in the SACCO associations.

Matatu is one of the main short (medium)-distance means of transport in Kisumu. It is an informal paratransit industry in Kenya. The word comes from the *Kikuyu* (the largest ethnic group of people in Kenya) term "mang-otore *Matatu*" which means "thirty cents". It was a standard price in the late 50s when the *matatus* emerged on the market. Physically it is a minibus (14-25 seats), often second-hand run-down minivan taxi. All the *matatus* that provide transportation services in the city must be registered at the Ministry of Co-operative Development and Marketing, which later transfers the information to the National Transport and Safety Authority (Graeff, 2013). At the rare occasion of the good wifi I found out what SACCO stands for and that it spreads for any industry, not only for transportation. In order to become a legal SACCO a group of individuals has to register at the Ministry of Co-operative Development and Marketing. Usually one SACCO in the transportation sector operates in one route (Graeff, 2013).

Walking around the city I noticed several bus companies that provide services on the long distances. However, there is no documented data on the number and destinations of such companies. That is why the question of their role in the transportation system in Kisumu came to my mind. In order to understand that, two interviews were conducted with bus operators in the city. Both of them were branches of big bus operators from Nairobi and connected Kisumu with big cities in other counties. Large size of the companies and high profit let them have rented space in the city and have their own stations. However, number of such companies is not documented and the locations are not described anywhere. Thus it could be a project to map them and describe their

functional role in urban development. Example of such bus company is presented on Figure 15, Figure 16, and Figure 17 below:

Figure 15. Bus operator Easy Coach boarding platform

Figure 16. Waiting room

Figure 17. Easy Coach station view

Railway transportation

The railway in Kisumu has a century long history. Over the period it was not modified or restored and together with complete termination (after significant financial losses in 2006 due to privatization), it requires complete renewal.

The way to understand the transportation system within the bus park and the railway station in Kisumu was challenging but interesting. Since no information on transportation has been ever documented I hope this report could be a first step to understanding and improvement.

3.2.1. Organization of the system

Kisumu railway station

The situation with the railway station seemed to be easy to understand that is why it became a starting point for the data collection. Where is the best place to kick-off if not on site? The first visit was paid to the railway station itself. It was empty and quiet and the only person there requested to

remain anonymous. Moreover, he did not allow recording the interview or taking notes. It created a strange feeling of distrust and seemed that I am asking for something secretive. Possibly the reason for that was that this man is an old employee in the company that does not perform any action at the moment and it made him feel insecure with consequences of the talk. Very often any questions about life of people or conditions at their working places were perceived as an attempt to shut down the place or make them move out of their household/working spot. In the official environment foreigners are often seen as change makers, mostly with personal interests (of gaining profit) that would affect the life of locals in a negative way. My intentions were different that is why every time I had to carefully explain why I am there and what kind of questions I am going to ask and how it will benefit them. At this interview I got the most basic information that I have heard before, during the informal talks with people.

My most informative by expectations person in regard to the railway station was the real estate officer of Kenya Railways. He spoke good English and had a university degree so I didn't have to oversimplify my questions, but still I needed an assistant. The speed of the speech was too high for me to comprehend and the *Luo* accent made it very difficult to make sense of the information heard. Moreover, inability to record the talk made it very difficult to follow and do not miss anything. Nevertheless, the interview helped me to learn that in the railway sector some sustainability methodologies are used.

Another informant was the port manager. He was a friendly man who told me about the project for railway station development. Finally that day my age, nationality and marital status did not play any role. However, personal connections of the colleague from UN-HABITAT, I think, made a big difference. While waiting for the port manager we saw a group of officials from Nairobi, who happened to be top managers from Kenya Railways who came to see the state of the station, port and talk about future plans. This simple coincidence helped to make a connection with general manager for business development and corporate planning and schedule a short interview for the next day. It was one of the shortest and the most informative talks during the study visit.

The railway in Kisumu has a century long history. Over the period it was not modified or restored and together with complete termination of the usage nowadays requires complete renewal. Moreover, the rail gauge does not correspond to international standards, thus might cause further challenges in the future development (Disi, 2015; Kinagwi, 2015).

The station is located very close to the port. The railway has a direct line to the water front which allows moving goods directly to the boat without intermediate means of transport. During the visit to the ministry of environment, water and natural resources I did not get much information because the only available person at the office that day was natural resources specialist. Everyone else was in the field. However, I learnt that water hyacinth causes a lot of troubles in the lake, including creation of obstacles for ships movement, which prevents active collaboration with the railway station as it was in the past (Mbula, 2015).

The station was functioning fully (passenger and freight) until 2006, when the privatization has happened. Slowly Rift Valley Railways realized that it is not profitable and by 2011 the station

stopped working completely. However, Kenya Railways still maintains the railway, because the company believes in revival and wants to be ready when it happens.

The land and railway belong to Kenya Railways, however, operation of the station and trains belong to Rift Valley Railways. These two companies have "landlord-tenant" partnership. Since the railway has a direct connection to the port (as it was mentioned before), the port authority plays significant role in the decision making process for the railway station (Disi, 2015; Kinagwi, 2015; Nzomo, 2015).

The following scheme represents the involvement of the stakeholders in the operation and development of the railway station (Figure 18):

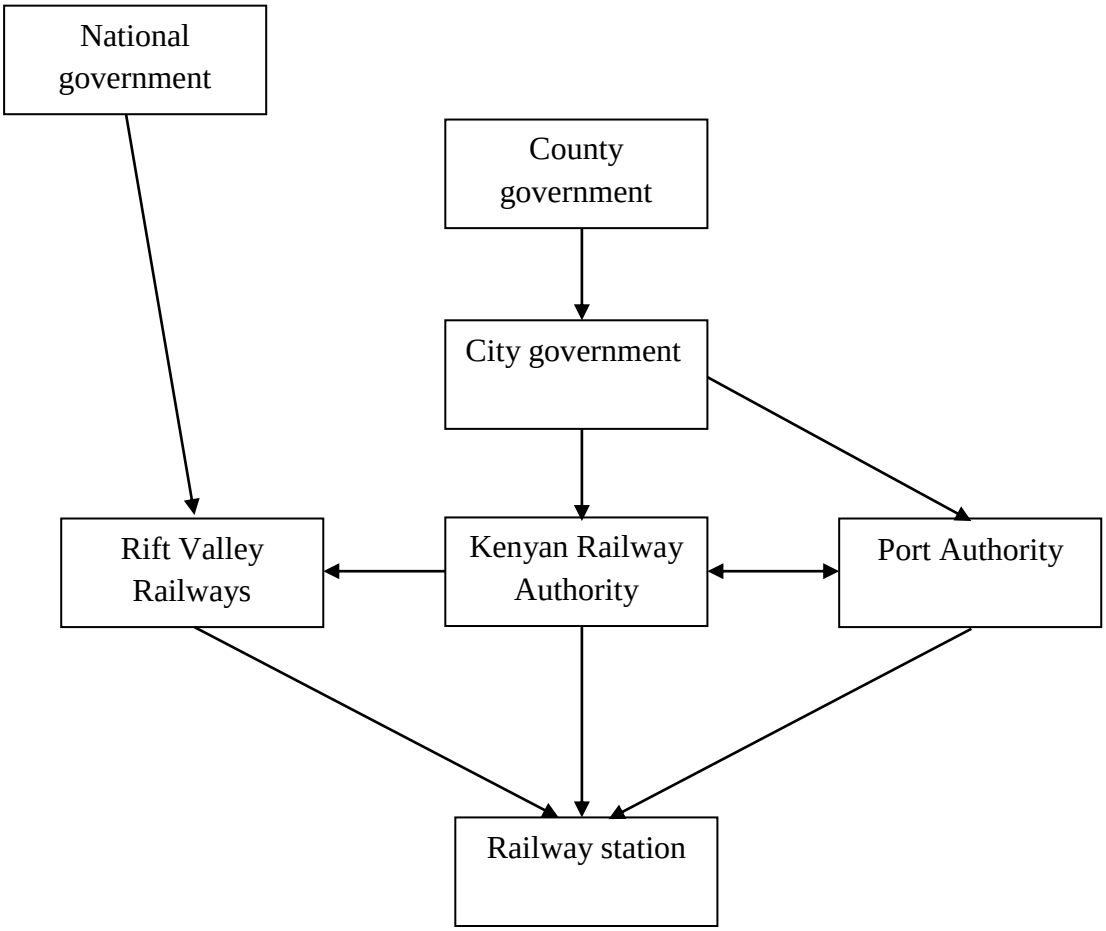

Figure 18. Involvement of the stakeholders in the operation and development of the railway station

Kisumu bus park

In order to understand the situation at the bus park I had to visit it several times. My first impression of this place was: "Bus system? There is no system!" Kisumu does not have a centralized bus station. A place, which plays similar role, is called bus park or "bus stage". That is why it was number one area to visit. At the first sight there is total chaos: people shouting, busses beeping their horns, traders trying to sell their goods at the park, on the waiting platforms, in the vehicles; some

people have their meals on the platforms, while the others cook right in front of them; the stall with live chickens separates the two parts of the bus park. There are more examples to mention. The place seemed to be very busy and disorganized: Figure 19, Figure 20, Figure 21, and Figure 22.

Figure 19. Fixing matatus at the bus park

Figure 20. Cooking on the waiting platform

Figure 21. Selling goods to the passengers inside matatu

Figure 22. Traffic at the bus park

On my first visit to the bus park I was lucky to meet superintendent of that time. The main task in this position is to manage the park, deal with all the administrative work and solve the problems that occur on the way. However, such employee is not involved in the development planning. There is not so much data documented, thus it was difficult to understand the system after one interview. One would assume that the person in charge of the park would know all the details and would be able to give the most precise description of the situation. The knowledge was very limited and it was difficult to reflect on the current state based on the subjective personal opinion of an individual.

The number of terms that could be understood by superintendent was limited, which required partial translation into *Luo*.

For the enormous number of people that pass by every day there is only one rest room, which makes sanitation at the bus park one of the main issues. Lack of garbage bins leads to large amounts of solid waste on the ground and in the drainage systems, which causes further problems. Most of the time the drainage cover is made of the metal: it makes in valuable and often gets stolen. It is one of the reasons for *matatus*' frequent need for maintenance: the wheels get stuck in the ditch, which originates physical damage, traffic in the park and delays in services.

Kisumu bus park has double fee paying system for the vehicles: the driver must pay upon arrival and departure at the specifically assigned gate stations (*Figure 23*). There is no official schedule for the vehicles. *Matatu* leaves the park once it is full. However, the drivers know the demand on their routs at different hours, thus sometimes they leave without being full and pick up people on the way. Since daily routine is similar from day to day, *matatus* have corresponding working scheme, which means there is unofficial schedule.

Passengers who commute every day know the approximate time of arrival of *matatu* and plan their activities according to that. However, since there is no official schedule unexpected events may lead to delays and even change in the routes. The network of *matatus* is very efficient. When unexpected congestion occurs on the road, conductors of the vehicles communicate this information among each other and *matatu* can slightly deviate from original route to avoid traffic.

Figure 23. Matatu driver is paying fee at the bus station

There has been no statistical data collected previously. According to the interviewees the low activity months are February, March, April, May and June (for example the number of vehicles passing through the bus park on 30th of March 2015 was 297); while the peak seasons for *matatu* services are November, December and January (for example the number of vehicles on 19th of December 2014 was 1431) (Muga, 2015). There are 3 groups of SACCOs that operate within the bus park: the ones that are registered in Kisumu (24 cooperatives), SACCOs of the western region (19 cooperatives) and SACCOs registered in the neighboring county - Kisii (31 cooperative) (ANNEX C). One can see that the number of Kisumu SACCOs represent 1/3 of total SACCOs that are involved in the provision of services at the bus park. It means it is more difficult to influence the situation at the bus park due to involvement of external stakeholders. Still these numbers are not enough to estimate the number of passengers passing through the bus park every day, since they do not represent different types of vehicles which contain varied number of seats. Moreover, one cannot see how many vehicles pass by every day (some of them go through the park several times). Thus, monitoring system at the bus park would be beneficial for the park itself, as well as for county and tax office.

Monitoring at the bus park was conducted once on request of the city government (Otieno1, 2015; Rawinji, 2015). It took place between 29th of June and 7th of July (mid-season) 2012, during the day time (6.00-19.00). Time, vehicle registration number, vehicle capacity and partly destinations were noted. However, this information neither enough to estimate the number of passengers per day (it is not necessarily the case that the vehicle leaves completely full), nor information on service providers (there is no available data on which vehicles belong to which SACCO). Nevertheless, assuming that the vehicle leaves full, the average number of passengers these days was 10856. To enrich the data on number of vehicles in the medium season, the investigated dates had average of 718 vehicles.

The scheme of the bus park system is presented on the Figure 24:

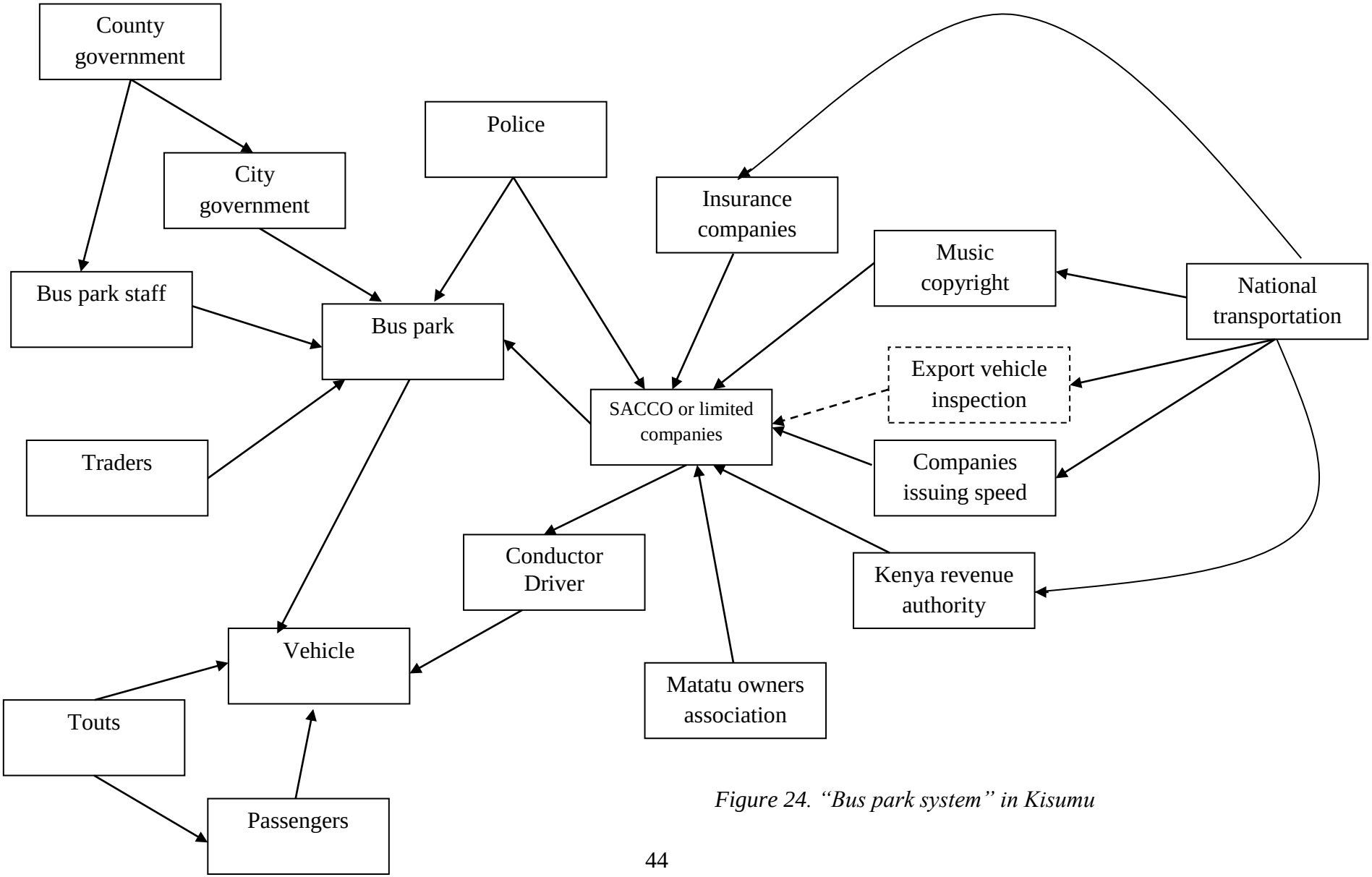

Figure 24. "Bus park system" in Kisumu

3.2.2. Identification of the key actors

Kisumu railway station

I believe stakeholder management plays a key role in the development process in Kisumu and it is the first issue to be addressed when talking about improvement. In order to understand the division of roles in the planning process, stakeholders' analysis was implemented. The distribution of power and interest between the stakeholders is the following (Figure 25):

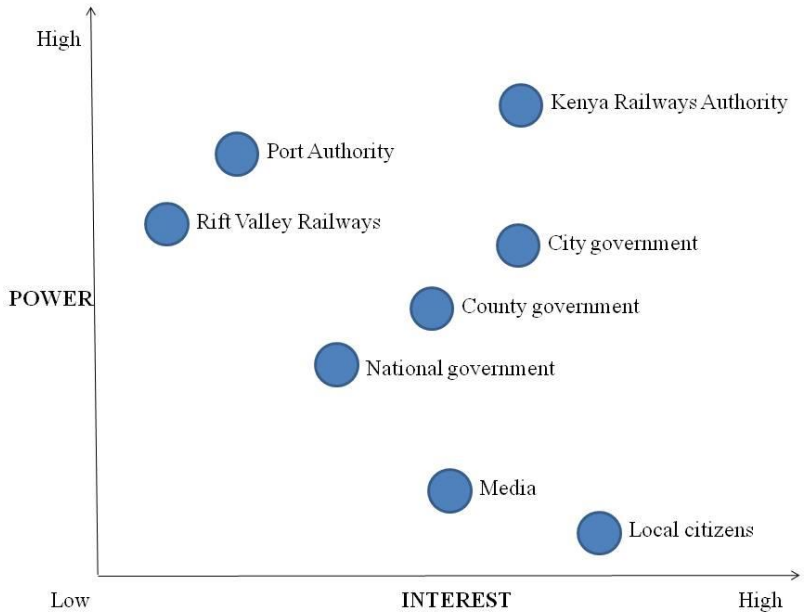

Figure 25. Stakeholders' map for railway system

The Figure 25 above is based on the interviews and discussions with experts who are involved in the city development in Kisumu. On the left vertical axis power shows how much stakeholders can influence the situation (development of the railway station in the city). On the horizontal axis the level of interest identifies how much stakeholders are interested in the development of the station. As one can see, the most power and interest belongs to Kenya Railway Authority. This company is working with the development project, looking for funds directly and is responsible for implementation of the project. Although Rift Valley Railways is under responsibility of the national government, they have a little power, because their main role is to ensure operation of the station and trains.

Kisumu bus park

One of the main players of the bus park is SACCOs, which provide transportation services for the whole county. SACCO is a group of individual *matatu* owners that operate within the same route and is registered on the county level (as described above). Once a vehicle becomes part of SACCO the ownership shifts to the association as well as full responsibility on vehicle's condition, operations and actions. For example, in case of violation of the road rules or even arrest of the vehicle SACCO takes responsibility on that and deals with the problem. Moreover, SACCO is

responsible for getting all the different licenses and insurances through NTSA and providing qualified drivers and conductors for corresponding vehicles. In order to protect the rights, advocate and lobby on the issues affecting the vehicle owners – Matatu Owners Association (MOA) has been created (Graeff, 2013).

County and city governments are responsible for the bus park development and recently a new position at the county government was open – chief officer for transport and infrastructure. One of the main goals of this employee is to develop a transportation policy based on the current state and future development plans. Furthermore, the county government is responsible for human resources at the bus park (superintendent, accountant etc).

Police office at the bus park is responsible for safety in the area. Although six people are employed within the park the interviewees pointed out that it is not enough to manage such a big and busy place.

The controversial role of *touts* was flagged as a sensitive or important issue by all respondents to the survey. The *touts* play an important role in the operation of SACCOs, providing route and stop information to passengers. The controversy exists partly due to the fact that many of the *touts* are or were homeless street children and possibly are involved with criminal groups/activities. The methods of coercion used by the *touts* can go beyond what would be considered respectful or appropriate in Europe. This is in part due to the intense competition between SACCOs and the importance of convincing customers to travel with their company. There is thus a negative perception of the involvement of these *touts*, as customers may feel unsafe due to the threat of physical or other types of harassment. It is controversial to suggest removal of these *touts* from the operation of the SACCOs, not least due to the difficulty of enforcement, but also due to the important and useful role that they play (information messengers) and the fact that it is a valuable means of employment for people with fewer opportunities.

Traders have a great impact on the operation of the bus park. There are permanent shops and restaurants/cafeterias that divide the area into several units depending on the destination by their constructions. Most of the waiting platforms are occupied by the vendors who sell their good or provide services right on the ground. Furthermore, there are hawkers who move around the bus park and offer their items to the passengers both inside and outside the vehicles. It creates very lively atmosphere in the area.

The analysis of the interest vs power of the key stakeholders involved in the operation of the bus park is presented below (Figure 26):

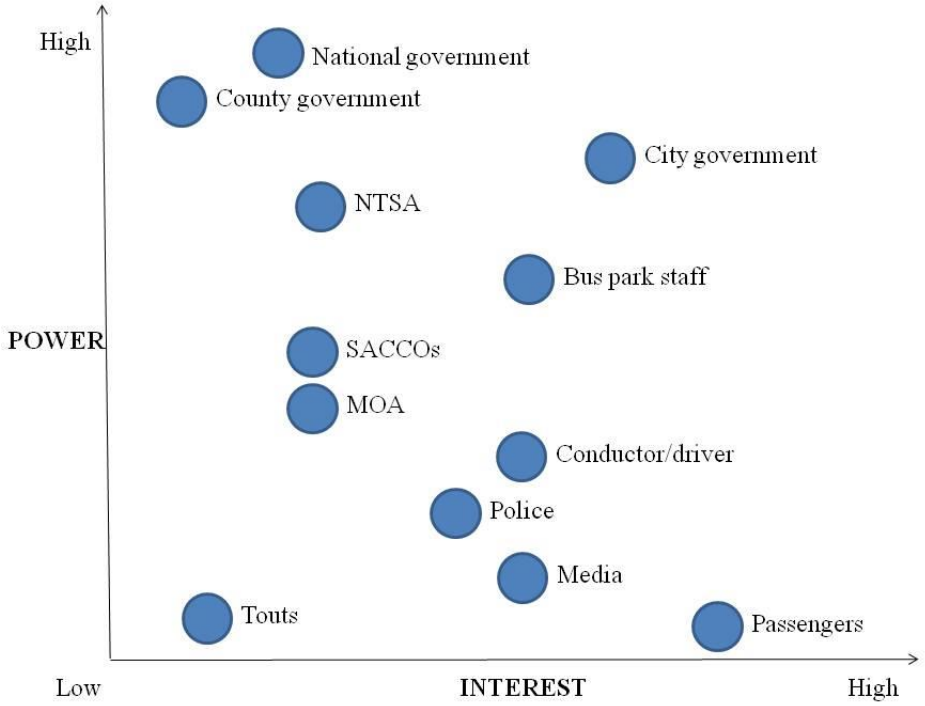

Figure 26. Stakeholders' map for bus park system in Kisumu

Figure 26 above is based on the interviews and discussions with experts who are involved in the city development in Kisumu. On the left vertical axis power shows how much stakeholders can influence development of the bus park. On the horizontal axis the level of interest identifies how much stakeholders are interested in the development of the park. The most power in the bus park belongs to the different levels of government, although transportation is not a governmental service. NTSA dictates regulations connected to the services provided by the park that is why their power is above average. SACCOs are the service providers thus they are the ones to come to the regional meetings and discuss their issues and proposed rules and regulations.

Centralen Gothenburg

The number of actors involved within Centralen Gothenburg is very high, which makes system difficult to understand. The "*Market model*" has been applied to the central station in Gothenburg: different parts of the technical system were separated, fragmented and built separately to mimic market. In Gothenburg each element of the station belongs to different actors: "The tracks are managed separately, as well as traffic management and traffic information; to run the trains themselves constitute another business, broken down by a growing number of different actors; command and information in the wagons handled by yet other companies; ongoing equipment maintenance of yet other actors; Station buildings, commercial space located in a separate company, while waiting rooms operated by another, with the exception of the platforms that are subject to the return of another player. There are some examples of how the system has been fragmented. There are also several different operators running the same traffic route" (Meijling, 2014).

The following graph represents key stakeholders (Figure 27):

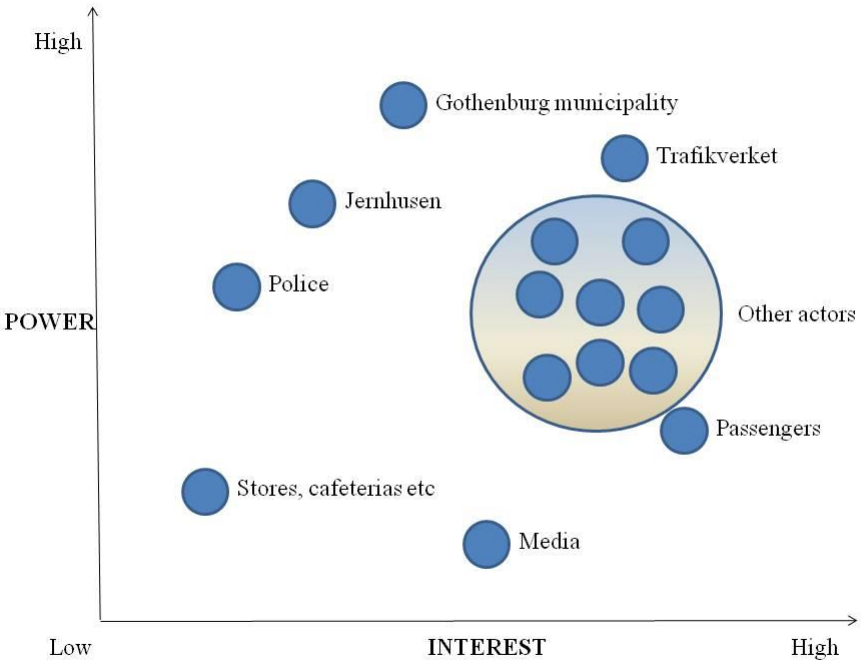

Figure 27. Stakeholders' analysis of the Centralen Gothenburg

Jernhusen is a key player of the system and planning process in Gothenburg with a lot of perceived power. The company "owns, develops and manages properties along the Swedish railway" and belongs to the state (Jernhusen AB, 2011). It is working both with passenger transportation and freight. Centralen is owned and administered by Jernhusen. Although the company owns property at Centralen, all the small actors that provide services around the station create constraints in the development work. When something has to be done, all the actors should be involved in the process which makes the change complicated due to the number of people involved.

Trafikverket has a lot of power and interest. It is Swedish Transport Administration dealing with the planning process for road, rail, shipping and aviation. One of the main tasks of the organization is to develop sustainable transportation system which will take into account all means of transport. Within the Central Station Trafikverket owns platforms, but not the passenger service (Isitt, 2014).

"Gothenburg municipalities have a very strong independence from the state and they can decide whatever they want. So basically it is up to politicians to decide how things should be in the city" (Kain, 2015). That is why I understand that municipality has a lot of power. However, sometimes the plans of municipality and small scale elements may have different goals, which would end up in unexpected results.

Police, media, stores and restaurants/cafeterias as well as passengers play smaller role in the development planning hence they are situated closer to the bottom of the graph.

Transparency is very important for the city of Gothenburg. Municipality tries to have all the processes open for the citizens. There is a place for public open discussions about the

developmental projects around the city called Älvrummet (Göteborgs Stad, 2015), where everyone can see the existing or upcoming projects and express their opinion.

3.2.3. Identification of pertinent sustainability issues

Kisumu train station

Based on the gathered knowledge, the following SWOT analysis has been implemented for the railway system in Kisumu (Table 3):

Table 3. SWOT analysis of the railway system in Kisumu

Strengths	**Weaknesses**
– Strategic location – Connection to the port – Kenya Railway Authority being governmental institution – Interest of the locals in the revival	– Poor maintenance of the station and railway – Non-standardized gauge – Complete termination currently – Inefficient involvement of stakeholders – Partial development plan on the national level
Opportunities	**Threats**
– Improvement in cargo and passenger transport in Kenya – Possibility of reviving international cooperation – Joining the Northern corridor – Sustainable solution over road transportation – Job opportunities for the local community	– Lack of budget – Long time of decision making process – Lack of competence

One of the main strength of the railway station is its location. It is centrally located in the city, close to the airport and is almost on the lake. It can be easily accessed from different bus companies and the bus park by public transport as well as by foot. Cooperation with the port has a great potential of renewal of old partnerships with neighboring countries. The renovation of the station and its equipment may lead to fast and efficient freight services, which may bring significant profit both on the local and international levels.

Projects that have importance on the national level are highly influenced by the government and politicians. Thus, Kenya Railways Authority being a governmental institution has a lot of advantage, because of the personal relation. Most of the processes can be speeded up and supported by the corresponding authorities in more efficient way.

According to the interviews and informal talks with local citizens, people are interested in the railway revival as they see a great potential, however, it is a challenging task and requires comprehensive approach.

Most of the weaknesses are related to the complete termination of the operation of the railway. Except for direct consequences, there are indirect ones, such as stealing and damaging the property of Kenya Railways. The other weakness that looks into the future is slow pace of decision making and currently absence of the detailed development plan for Kisumu area. Moreover, Phase 2 of the project will take place when Phase 1 is completely delivered and proves the expected outcomes. Only then the responsible authority will start looking for funding etc for Kisumu part.

Kisumu railway station has a lot of opportunities for the future development. They are all connected to the location and its strategic potential. It will not only trigger local development, but also bring new possibilities for economic growth and partnerships on the international level.

As for threats, they are similar in all spheres of urban development in Kisumu: lack of education and competences, lack of financing and Kenyan cultural peculiarity – long time of decision making and prolonged time between the plan approval and implementation.

As was mentioned above, the train station in Kisumu is currently not in use. There is a development plan on the first Phase of implementation. Since the development process has already started and this study does not evaluate this project, the leverage points for the train station were not identified.

Kisumu bus park

Since SACCOs represent providers of the services within the bus park they are one of the biggest stakeholders there. Therefore I believe it is important to understand what kind of challenges they are facing in- and outside the bus park in order to see what can be done in the future.

First, I tried to arrange interviews with the SACCO representatives that I had on my list, which were found on the internet. Kistag SACCO was picked to be the first to interview. It had a tiny office just across the road from the bus park. It looked like one of the trader's stalls and had space for a table and three chairs. However, the meeting was not as productive as I expected, because the chairman of the SACCO did not even know how many vehicles are registered within his company. He gave two more names of the SACCOs that could be interviewed next. However, the outcome was similar, although one of the chairmen mentioned an official gathering organized by NTSA next day. But before that it was interesting to try to visit NTSA itself. The people there were unexpectedly friendly (I have a perception that in the official offices people are not so nice and open for dialogue). They had the data that was interesting for the project – list of SACCOs that are registered and number and type of vehicles they have in each of them. The employee promised to do that in 2 days. However, it happened a month later: "there were other things to do". I got information only because the colleague from UN-HABITAT was calling them every day and finally went there personally to collect the material. However, it happened to be possible to invite ourselves to the official SACCO gathering to conduct a survey for SACCO representatives.

Since the meeting meant to be for SACCOs registered in Kisumu or the ones that operate within Kisumu county it gave me a rough idea of how many different active SACCOs are there, how many different vehicles they have and what their main challenges are. Although English is an official language in Kenya and most of the people know it, reading the surveys was difficult. Some

sentences were written in *Luo* and a lot of them had locally used words that I have not seen before. Hence, help of UN-HABITAT colleague to translate them into English was priceless.

The results of the survey are presented in the Figure 28 below. There were 11 main challenges identified. They were ranked according to the number of repetitive responses.

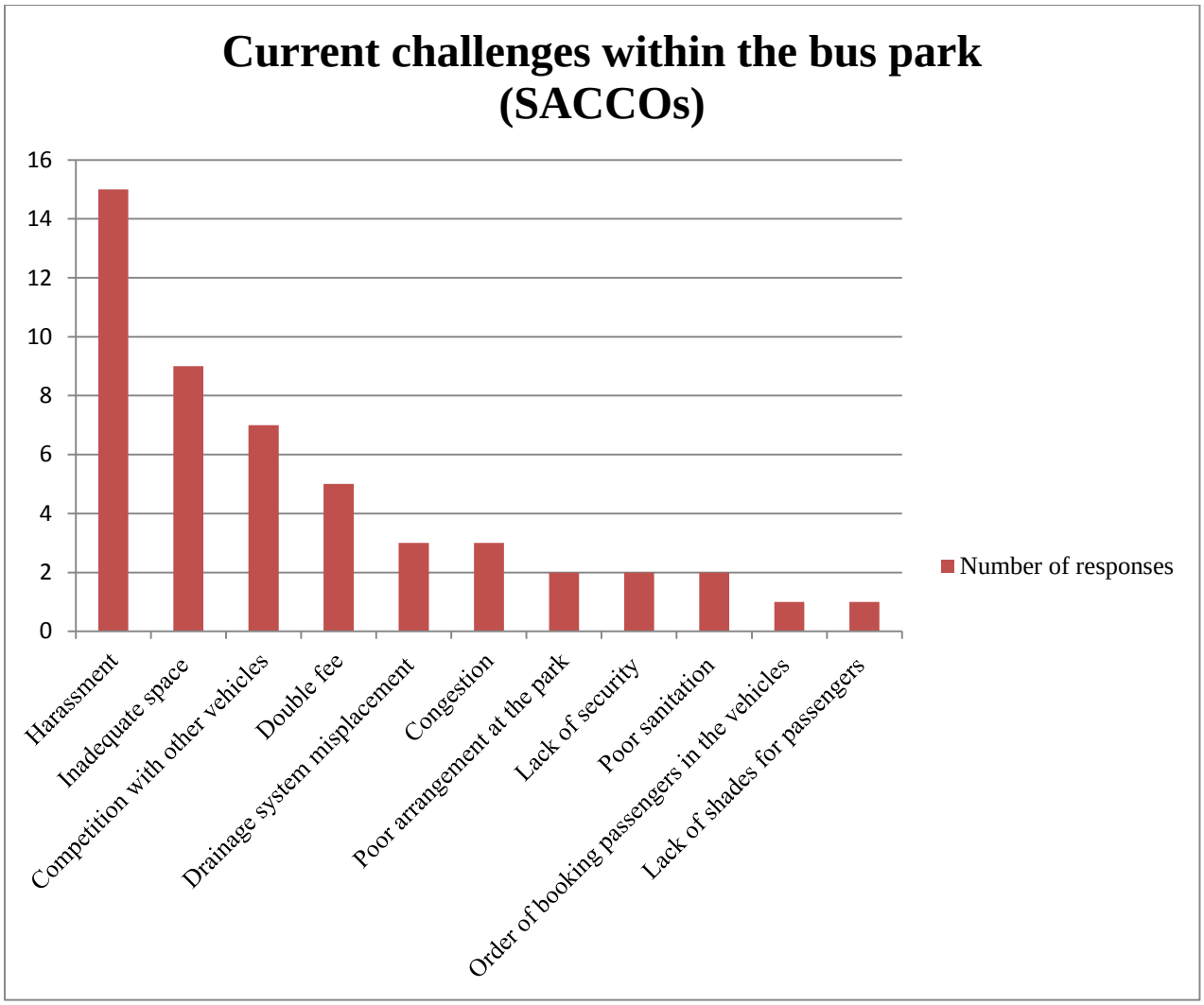

Figure 28. Current challenges within the bus park (SACCOs)

15 respondents identified harassment of passengers and vehicles from *touts*/*manambas* (*touts* that are possibly involved with criminal groups/activities) as a main challenge: "dominance by *touts*", "*touts* everywhere". I experienced one such situation personally. It is described in the Positionality section.

The second common challenge identified by the SACCOs representatives was inadequate space: too many vehicles are using too little space, "no space for our SACCO". Indeed, the bus park area is relatively small; however, alternative solutions to this issue can be found (for example proper management). Mentioned challenge number three was competition with non-compliant vehicles (*probox* – model of the car with five seats capacity, *tuk-tuk*, private cars). From the personal observation, the bus park is surrounded by all possible means of transport. Passengers have a big

variety of choices which creates competition with *matatus*. The next biggest challenge identified by respondents, which I still find difficult to understand is double fee: once the vehicle enters the bus park the driver has to pay, on the way out there is the same procedure. One of the reasons I could think of (from what I heard) is that sometimes vehicles are passing by the fee collection place too fast and try to "escape" from paying.

The following two responses were equally frequently used - drainage system misplacement, which leads to breakages of the vehicles, and congestion (that is caused by the big number of the vehicles in the small space). The following challenges were mentioned once or twice only; however it does not mean that these problems should not have a priority in the development planning: poor arrangement of vehicles at the bus park; lack of security; poor sanitation; order of booking passengers in respectful vehicles (sometimes some *touts* are more persuasive than the others or they just use a moment when the *touts* (who work for *matatus* which are in the queue before) are absent to bring the passengers to their respective vehicles); lack of shades for passengers (which makes passengers wait on the open for the sunrays areas).

It is interesting to see that corruption was not identified as one of the main issues at the bus park. The possible reason for that could be self-organization of the park, however, it should be investigated further.

In order to understand the transportation system of Kisumu better survey questionnaire had one more question about the challenges that SACCOs are facing, this time outside the bus park. The answers to this question are graphically presented below on the Figure 29.

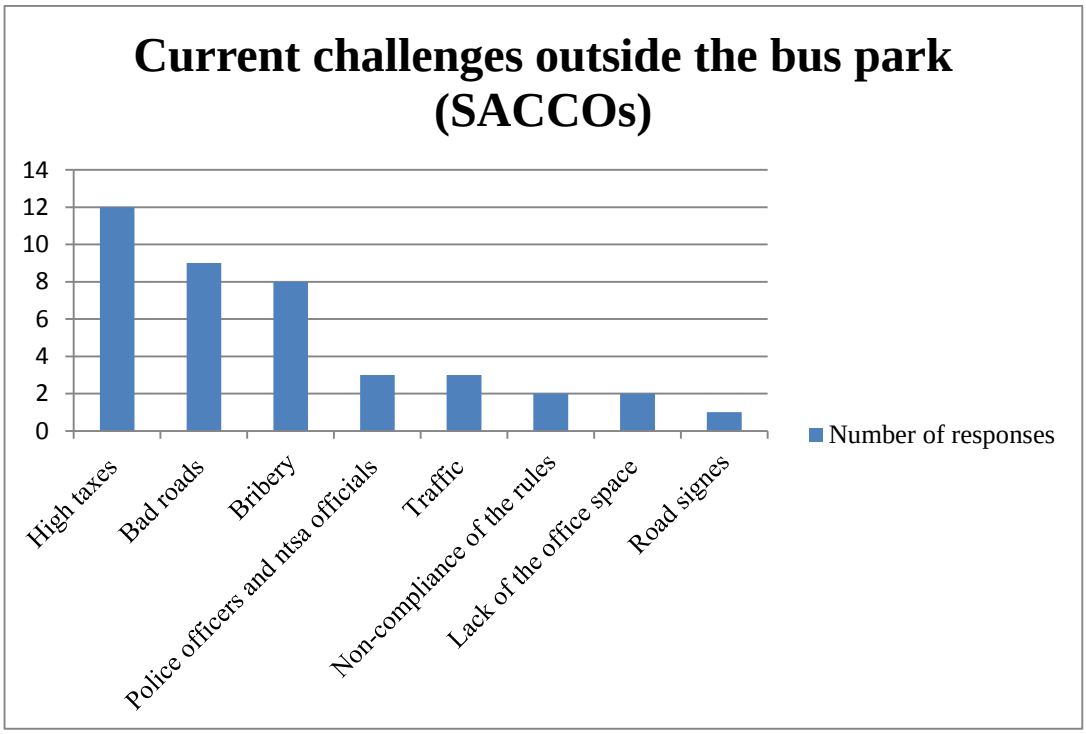

Figure 29. Current challenges outside the bus park (SACCOs)

The main three challenges were identified: high taxes, bad roads and bribery to traffic police ("Corruption from traffic officers is a big problem. Please act immediately!!"). The next responses had significantly lower frequency of appearance in the survey: constraints caused by police officers and NTSA officials; traffic; non-compliance of some of the rules on the road by drivers/conductors; lack of the office space for SACCOs; and road signs.

Travellers' perspective

During my stay in Kisumu I had a unique opportunity to investigate the experience of the foreign passengers in Kenya and Sweden due to the course Reality Studio in Kisumu. The results of survey and my personal observation while using services are presented below.

Getting around in Kisumu is quite easy. The city center is planned in a comprehensive way so looking at the map once is enough to understand where to go. It is also very common to ask people for help. Kenyans are very friendly. My first travel from the bus park without a local person was at the end of the stay and I already knew how the system works so once I entered the area I asked where do I find a bus to the destination I needed and when I found the place I was led by one of the *touts* to the corresponding *matatu*. People tend to think that there is no schedule in Kenya, but when I asked the driver when does *matatu* depart I got a very clear reply: "In 7 minutes".

Impressions of being a passenger going from the bus park can be different. As I learnt from the survey half of the people said it was easy to find your way, especially when you have a local with you or ask people around. Going on *matatu* also gives a lot of impressions for foreigners. A bus with 14 seats could have up to 25 passengers. One of the comments from the respondents was: "for the body it is quite uncomfortable; for the mind is quite nice".

Being at the bus park is one of the main highlights for all the foreigners. The location is very good. You can get there by all types of public transportation or by foot. Inside the bus park the first impression is very strong: "Chaos, chaos, chaos. I have gone there and turned around because it was too much", "I spent five minutes there and then I panicked and went out as soon as possible". Waiting for the vehicle to leave gives foreigners the opposite impression: "It is a "*pole-pole*" place" (slowly-slowly in *Luo*), "It takes tiiiiiiiime".

The general impressions of the bus park from the respondents of the survey were: "dirty", "dusty", "insecure", "congested", "no place for pedestrians".

Based on the conducted interviews, surveys, personal observation, as well as primary and secondary data, SWOT analysis was implemented (Table 4):

Table 4. SWOT analysis of the system within the bus park in Kisumu

Strengths	**Weaknesses**
– Location of the bus park – Variety of destinations – Information flow – Variety of available vehicle operators – Access to goods and services	– *Touts*' harassment – Inadequate space/Poor management of the vehicles – Competition with alternative means of transport – Double fee for vehicles – Overall condition of the bus park and vehicles – Congestion – Lack of security – Poor sanitation – Violation of the safety and road rules – Low reliability
Opportunities	**Threats**
– Improved management – Monitoring scheme – Possibility of *matatus* going formal – Education/training of staff/*touts* – Improved physical condition of the park and sanitation – Noted down and provided for passengers schedule	– Lack of investment – Lack of education/qualification – Lack of planning – Talking vs action – Public transport being provided by number of individual operators

The strongest side of the bus park is its central location and number of destinations offered by SACCOs. They cover the whole region, as well as national level. Moreover, different types of trading schemes allow fulfilling variety of customer's needs. Fast and open information flow provided by *touts* and passengers is a great advantage of Kenyan culture.

At the moment, weaknesses outnumber the strengths. *Touts*' harassment, inadequate management of the park, as well as poor sanitation create negative image among the passengers. The overall low-maintained condition of the park leads to breakages of the vehicles, congestion and low reliability of the services.

As been mentioned before, Kenya has similar threats in all areas of urban development: lack of education, financing, planning; long time between planning and implementation. However, the distinctive challenge within the bus park is transportation not being provided by the government, but by a number of individual operators, which would require creation of the policy in the nearest future.

The bus park has a lot of potential for the future development. There are a lot of different ways to improve the situation from different perspectives – starting from the land management, *matatus* going formal, up to improved services for passengers that would come along with education and trainings for staff involved in the operation of the bus park.

Based on the situation within the bus park described above, five main leverage points that will contribute to sustainable development can be identified: education, employment, management of the park, maintenance of the vehicles and the park, and position of the bus park in the society.

From informal talks in Kenya I learnt that education is one of the key issues in Kenyan society. During the British Colony times the main infrastructure systems belonged to British people. They were ran and led by them. Kenyans had lower positions, mostly as workers. When the country gained independence in 1963 the newly built societal system was in need of experts. Education became a priority for the country. For example, in order to be accepted for position of superintendent at the bus park or to be elected as a leader of SACCO one should have at least secondary education and be good at counting. In my opinion, the system would greatly benefit from having at least short-term trainings on the topics related to the work being done by people involved with the bus park.

The most sensitive topic of the bus park is related to the *touts*. On one hand they play a very important role at the park – they inform passengers about the vehicles and destinations, while on the other hand harassment by *touts* was mentioned by majority of the SACCO representatives and by passengers. It creates a negative perception of the *matatu* services among passengers and motivates them to use other means of transport. At the same time, *touts* represent a part of the population of Kisumu with fewer opportunities. For most of them this job is the main income and since they are paid from each vehicle, which they filled up with passengers it is in their interest to attract as many people as possible. However, from my observation the means they choose to do so are not always accepted in the society. This creates a big sensitive issue at the bus park. In my opinion, giving *touts* education and/or corresponding training would solve several problems: it will improve the services offered by the bus park, *touts* will get education. Making their employment official upon finishing education would facilitate societal development and change in culture and in the long term may lead to reduction of poverty, hunger and literacy, which is one of the UN goals.

Challenges connected to inadequate space, congestion, security, sanitation etc in my opinion can refer to the management of the park. These issues can be positively influenced by proper use of the available resources. Assessment of the situation at the park or basically monitoring the way the park is used would allow improving the logistics within the park, which will help dealing with land use, congestion and maybe even partly security. Sanitation deserves special attention at Kisumu bus park. Having one public rest room makes the bus park a source of diseases and reinforces the negative perception of the place.

Maintenance of the park and vehicles can be identified as another leverage point. These two aspects are controlled by different actors. The park is under municipal control, while the vehicles must be maintained by the SACCOs. Both types of maintenance require special attention, because they

ensure security, reliability and overall positive image of the park: create interest towards using provided services.

The last identified point for possible improvement is positioning of the bus park in the society. Harassment by *touts*, poor maintenance and management do not promote reliability of the *matatu* services. This also leads to the passengers' choice for alternative means of transport (boda-boda, piki-piki, tuk-tuk etc), thus reduces the number of *matatu* users and leads to economic degradation.

Gothenburg Centralen

From the travellers' perspective

When I came to Gothenburg by train first time, I was picked up by a friend; there was no need for looking for information. The area around looked busy with a lot of stores and cafeterias/restaurants. We walked to the place where I stayed, so I didn't get a chance to use public transportation that day.

The first travel alone was more interesting. Luckily I was told that I must have a ticket. It was new for me to use a ticket card that one can reuse and pop-up with the money needed. I found out that there are several types of tickets: a fixed term ticket (valid for a month, 6 months etc) or paid per ride ticket (valid for 90 minutes). At some point the validity of the ticket was also a nice surprise. Very often in the other countries the ticket is valid one ride in one mean of transport. It was unexpected to request the stops; otherwise bus/tram may not stop if there are no people waiting. These small things differ between the countries.

My first time at the railway station I felt a little confused. A lot of people were walking different directions and I was not so sure about the name of the stop I needed to go to so I ended up at the wrong exit.

Similar first impressions were mentioned by 2 interviewees – Kenyan students who do their exchange in Gothenburg. One of them was very confused his first time. He was used to informality and paying for everything in cash. First time on the bus he gave money to the driver, but was sent to the nearest place where he could buy a ticket. It was also confusing for him with the validity of the ticket.

The other student just spent several months in Norway so he was prepared for the digital world of hints on how to get around. He used a map and GPS to navigate as well as applications for the smartphone that show the schedule (Resplan, (Västtrafik, 2015)) and track the location of the buses and trams so the user can estimate the delays in the public transportation systems (Var är bussen, (Västtrafik, 2015)). This information can be also accessible from any device that has internet on it.

The convenient thing about Centralen Gothenburg is that it offers a lot of different means of transport: train, bus, tram, city bus, and taxi. Depending on what you need you can get any type of travel service directly from the station. The waiting areas are also nice, they offer a lot of additional services, for example food, drinks, press etc.

Based on the interviews, survey and literature review, SWOT analysis has been implemented (Table 5):

Table 5. SWOT analysis of the system within Centralen Gothenburg

Strengths	**Weaknesses**
– Location of the station – Variety of destinations – Variety of means of transport – Availability of information – Access to goods and services – Aesthetic view – Public involvement	– Large number of actors – Lack of cooperation between actors – Physical state of individual elements of the station
Opportunities	**Threats**
– Improvement in the maintenance and outlook of different parts of the station – Improved stakeholders management	– Insufficient communication between different actors – High power of individual stakeholders

The strong side of Centralen Gothenburg is its central location, "you step out of the train in the city center" (Isitt, 2015). It allows reaching a number of destinations (on the local, national and international levels) by different means of transport (bicycle, tram, local bus, taxi, intercity bus, and train). The information about the station, schedules and city is available online, in printed form, on the screens and at the help desks. Centralen has several stores and cafeterias but it is not overcrowded. The interior and exterior are very nice: "it is one of the best stations in Sweden" (Isitt, 2015). Moreover, in my opinion, the level of public involvement through the Älvrummet is uniquely high.

Large number of actors involved is a challenging issue for Centralen. Having variety of companies responsible for different elements and services makes coordination of their work complicated. That could be the reason for having separate elements of the different level of development.

Existing plans and refined physical state of the station as well as improved stakeholders management would increase sustainability performance and contribute to the River City (Hellberg, 2014) vision implementation.

Apart from the number of stakeholders involved in the operation and development of the station, some authorities have a lot more power in comparison to the others: "Jernhusen is a main player in the planning process in Sweden" (Isitt, 2015), "they (Jernhusen) are strong, they can influence the politicians" (Kain, 2015).

CHAPTER 4. DISCUSSION

4.1. Future methodologies in the planning process

Future methodologies are not obligatory elements of the planning work, however they could be of a great help. They allow seeing how the future could/should/would look like, thus the future becomes something clear. Using different visualization tools allows portraying the outcomes of the study, which helps to understand better the results for any group of stakeholders involved. When conducting such studies it is very important to figure out who your target stakeholders are, because it will affect how the results will be presented. The analyzed approaches of backcasting, foresighting and SymbioCity are used for the same purpose of assisting the planning process, but they require different information and sometimes different procedures. They may also outline new perspectives.

In spring 2015 backcasting was applied by the Challenge Lab students in the frame of their master thesis to "the low-carbon transition of West Sweden" (Challenge Lab, 2015). It was a benchmark of existing projects in Canada, the Netherlands and Sweden. The recommendations will be discussed with municipality which might help them to improve their work towards becoming a fossil-fuel-independent region. This is one of the recent examples of applications of backcasting methodology at a large scale. During the Challenge Lab course at Chalmers University of Technology the students applied it to the university campus development. That is an example of the small scale of the project. One can conclude that backcasting can be used at different levels: from the single unit until regional level.

Foresighting has a history of over 50 years. The main feature of this approach is that it is based on historical data and models several alternative futures based on the identified criteria. This gives planners a range of possible outcomes and may help in decision making processes. Foresighting can work both for small and large scale projects.

SymbioCity approach has a long developmental history but the final version of it was published in 2012. It has multiple large steps structure and requires expert work. Application of it requires a lot of detailed work. This greatly contributes to the final result – the strategy that can be applied in the planning process. Multidimensional perspective of the approach is often applied on the city level. Nevertheless, single elements can be used on a smaller scale than city.

Therefore, all three methodologies can be equally recommended to apply in the developmental process in general. Looking at the given context the following points arose.

Several authorities (Eising, 2015; Nzomo, 2015; Otieno1, 2015) working with city development mentioned during the interviews that it would be helpful to use foresighting or similar methodologies in their planning work. In Gothenburg one of the first applications of backcasting was implemented through Challenge Lab in 2014-2015 so it would be interesting to see application of these approaches in the other sectors of development planning (for example, transportation). There is no universal approach that would work for any environment. **It always depends on the local context.** That is why the three selected approaches are discussed below taking into account current state of the stations in Kenya and Sweden.

4.2. Planning processes in Kisumu and Gothenburg

Gothenburg and Kisumu have similar numbers of inhabitants as mentioned before. They have access to water: Gothenburg is located on the river and has a coastal line of the North Sea; Kisumu is situated on the Lake Victoria. Therefore both of them have a strategic advantage in the long term planning.

At one of the interviews Wim Eising (Eising, 2015) mentioned: "in Kenya tomorrow is already (the) future". People do not think long term, do not make goals for the distant future and adjust to continuously changing environment. Such flexibility is very good, especially when it comes to planning. When an unexpected event happens it is difficult to abort the plan and react according to the newly changed situation. Being reactive in Kisumu is very important. People responsible for planning in the city easily adapt to new circumstances and catch the chances when they occur. At the same time it could be a bit disturbing, because the regular everyday tasks often get postponed and remain on "pause" for a long time. Therefore, balance in this case would be the solution. Proper time management could possibly allow combining pending business with random projects. Planning long term will not necessarily help right away, because it requires cultural change which would take a lot of time. But it might be helpful to think that there is a future and people should not concentrate only on "us" here and now, but rather on "us" considering future generations.

On the contrary, Sweden has visions and development plans (City of Gothenburg, 2010; Hellberg, 2014; Göteborgs Stad, 2015). There are different time limits in the developmental projects depending on the aim (for example, Gothenburg has 400th anniversary in 2021 and a lot of projects are planned to be implemented by then).

Although the situation seems to be perfect, Mark Isitt (Isitt, 2015) mentions: "In Gothenburg there is a very strong tradition: you make the infrastructure plan first and then you build". It was interesting to see that a very similar expression was noted in Kenya as mentioned above: "first building comes and then people think what to do with it". Despite differences in cultures and historical background cities are facing similar problems. The reasons for that require closer investigation.

Number of actors involved in the development planning around the bus park in Kisumu and Centralen in Gothenburg is quite big, while the railway station in Kenya has only 3 big companies, government on the different levels, local citizens and media. Centralen and the bus park have two similar groups with large number of companies involved. For Centralen it is all the companies related to management of different parts of the station; for the bus park it is all the SACCOs that operate within the park. When the planning process requires contribution from the respective stakeholders it might be difficult to gather them together. In Kisumu additional challenge could be the language issue: there are people speaking *Luo, kiSwahili* and English. It would be very important to ensure mutual understanding by providing translators between these languages.

The most attention in the planning process in both countries would require the key companies (Kenya Railway Authority for the railway station and the bus park staff in Kisumu and Trafikverket in Gothenburg). Second most important actors would be city government. In both places they have

a lot of influence upon developmental projects. It is interesting to see that groups of stakeholders with high number of representatives as described in previous paragraph have different levels of power. While in Gothenburg all the small companies have a lot of power and they can influence the planning process a lot, SACCOs in Kisumu cannot do that. Possible reason for that could be their position in the transportation system. Big companies, like RVR and NTSA in Kisumu and Jernhusen in Gothenburg should be kept satisfied; they should see the progress in fulfillment of the goals. In both countries local citizens should be kept informed, although in Gothenburg they have much more power than in Kisumu. Minimum effort in the present two countries require different stakeholders: in Kisumu railway station it is national government and media, in the bus park MOA, police, media, conductors/drivers and touts, and in Centralen it is stores, cafeterias and media.

4.3. Pertinent issues in Kisumu and Gothenburg

Looking from a sustainability perspective, influencing the identified leverage points could positively affect the situation at the stations. In both countries contribution is possible for all three pillars of sustainability. Based on the amount of work required these improvements would have different extent.

Five issues were identified in Kisumu. Improvement in education and employment within the bus park will contribute to social dimension of sustainable development of the city. Proper management and maintenance of the bus park and vehicles can contribute to environmental dimension of the sustainable development of the city by reducing noise from the inappropriate queuing system, reducing congestion, improving security and sanitation. Maintenance of the vehicles will also contribute to social dimension by providing reliable and comfortable services, and economic dimension by spending less money on the continuous reparations and bringing more profit to the city government due to organized and well-planned management. Positive image of the bus park in the society would be a resulting point from all the other improvements, which would contribute to all three pillars of sustainability on the city scale.

Addressing these five issues in my opinion may support the development of the bus park and provide a better quality of services. As one can see from the stakeholder analysis graph (Figure 26), the most attention should be devoted to the government because it is the most influential in the system. The local government is responsible for planning, budget and implementation of the projects oriented towards improvement of the study objects.

On the city level, I believe, it would be beneficial to consider nationalization of the transportation system. The government would have more control over the system as well as taxes, and it would be possible to meet the national transportation development targets.

Graeff (Graeff, 2013) and Wainaina (Wainaina, 2013) discuss the possibility of *matatus* going formal on the national level. It has a number of advantages, among which are income for the government, control over vehicles and stations, security, and increased degree of accuracy in the reporting system. That might also help networking with other cities in Kenya to improve the local transport transformation.

From the brief exploration of Gothenburg situation, improvement of the physical look of the station as well as in management system would help to contribute to sustainable development of the station.

4.4. Comparison of travellers' perspective in Kisumu and Gothenburg

To complete the picture of the current state, travellers' perspectives on Kisumu bus park and Centralen have been investigated. A number of differences and similarities were identified.

Being a passenger in Gothenburg and Kisumu gives very different impressions and experiences. The bus park in Kisumu seems to be chaotic disorganized place, while Swedish Centralen Gothenburg gives perception of complete order, at first glance... Looking deeper into the topic shows that Kisumu is not as unplanned as it seems and Gothenburg also has its flaws.

Comparing the responses about the passenger experience in Gothenburg and Kisumu one can see that Central Station in Gothenburg is not always passenger friendly. There was one response: "it is difficult to get help in Gothenburg", while in Kisumu you get help from the *touts* even if you don't need it. In surveys it was also mentioned that Kenyan bus park has a better service (more customer friendly). As discussed in the section 2, Kisumu bus park does not give to the passengers feeling of security, while Gothenburg Centralen makes the customers feel safe and secure.

Digital development in Gothenburg is quite impressive; you can not only see the schedule, but also delays and position of the public transportation on the map. While being on the train the passenger can check online what is the current location and how long the delay is.

Delays are very common for both places. In Kenya it is part of the system. Not having schedule does not create any expectations: "you arrive when you arrive". In Sweden schedule and keeping time is very important. That is why the term "delay" is used in the system when the transport is behind the schedule. However, result is the same: you can never rely on the system 100 %. The difference in two environments is the perception of time.

The constructions and facilities are developed in a higher level in Gothenburg. Taking into account that the bus park in Kisumu is a self-organized unit, it is quite impressive how it combines everything necessary without thorough planning.

Another common point between the two objects under investigation is a feeling of chaos. Too many people are gathered in the limited space. However this is something that is happening often in such places. People are coming and leaving.

The number of alternative means of transport around both places in the two countries is a big advantage. One can decide how to proceed depending on the personal preferences. Kisumu has more options for taxi services: *boda-boda*, *piki-piki*, *tuk-tuk*, while Gothenburg provides options of public transportation: city buses and trams. This is a very interesting difference. On one hand it seems that Gothenburg is more inclusive city and tries to reduce the number of passengers per vehicle. On the other hand, Kisumu is perceived to have a priority for individual means of transport. In reality a lot of people share *piki-piki* (sometimes exceeding the number of passengers allowed per vehicle). It would be interesting to investigate further the social aspect of the people's choices.

Moreover, Kisumu provides unique sustainable taxi option – *boda-boda*. It is cheap, convenient, relatively fast and the most important – environmentally friendly.

One can see that Kisumu and Gothenburg have number of differences and similarities. All these aspects should be taken into consideration when looking at applicability of the future methodologies at the local context.

4.5. Future methodologies in the given context

Kisumu

Based on the assessment of future methodologies described above, only *foresighting* would be difficult to apply in Kisumu since it requires historical data, which is rarely documented. Thorough research on the previous performance would be necessary as the basis of the approach. It could be very difficult to collect information, because it is not necessarily the case that employees stay in the same position for several years. For example, the superintendent changed within the 7 weeks of my field study. The other two compared approaches (backcasting and SymbioCity) would be possible to apply in such environment. Their respective challenges and advantages are discussed below.

In case of *backcasting* the first step would be to gather key stakeholders for the workshop on creating a common vision. At the bus park these people would be: local governmental representatives (possibly city manager and city planner), county government authorities, superintendent and accountant of the bus park, NTSA, SACCOs, MOA and representatives of the local community. Different level of education could be a challenge in creating common ground. The leader of the workshop would need to ensure clear understanding of the subject and situation, which might require a translator from *Luo* to *kiSwahili* and back. As observed during the field study, sometimes it is difficult to gather people, especially the ones who are involved in the governmental positions, for a meeting. The case of the bus park makes it even more complex due to the high number of key stakeholders that are important for the workshop. On the second stage of backcasting methodology involvement of stakeholders is not crucial; the experts may need consultancy from related authorities in order to understand the current state. It would be helpful to have another workshop on the third stage of backcasting – envisioning of the future solutions. That is the space when experts can test their ideas and get feedback from the stakeholders. In this way the process will be inclusive, which is very important in the development planning.

Using *SymbioCity* approach is also possible given the conditions in Kisumu. It is mainly used for city development; however elements of the approach can be used on a smaller scale, like for the bus park. As for backcasting, it is favourable to involve key stakeholders into the process from the very beginning. During the assessment of the current state environmental, economical, social and spatial elements should be investigated, described, documented and illustrated. The land issue would be on top of the challenge list. Kisumu is a rapidly growing city and its transportation system is developing and evolving without control from the government. A variety of different means of transport creates bigger demand for their services. The bus park is growing informally too, which makes the users (passengers as well as drivers) think that the only solution is bigger space for the bus park (based on the interviews and the survey). This topic would be one of the most sensitive

among the stakeholders; hence it will require a better preparation from the team working with the project development.

Related to that, further challenges could be specification of the objectives, indicators and targets. From what I observed during the field study in general the challenge for working with sustainability questions in Kisumu is based on the level of awareness among different stakeholders. The ones who have a lot of power (municipal leaders) are usually aware of the sustainability topic, while people working on the small scale (for example employees of the bus park) are not familiar with the term and are "locked-in" to the number of problems they are facing every day. Therefore it might be difficult to explain the importance of sustainability question in the development planning.

In fact, SymbioCity suggests using backcasting at the final stages: developing alternative solutions, evaluating their impacts and integrating them further into the strategies.

If one is looking for solutions for the short term, SymbioCity could be a better option. Although it is a question of definition of "short term". While for one person short term is 50 years, for the other it could be only 10 years. Getting back to Kenyan perception of the future ("tomorrow"), SymbioCity approach could be more useful and easy to comprehend for the stakeholders.

Depending on the main reason for using future methodologies, the result could be a single solution or number of solutions. If one is looking for a single answer, one way to go – SymbioCity would be a good option. However, if the number of alternative solutions is required in order to better understand what are the possibilities and opportunities, backcasting would be a better option. Integration of backcasting tool into SymbioCity approach will increase the number of possible solutions.

To sum up, backcasting and SymbioCity approaches would be applicable in Kisumu conditions. When talking about development of the bus park, the scale is small in comparison to the city level (and deals mostly with one social problem despite the complexity); therefore it would be easier and more "user-friendly" to apply the backcasting approach.

Gothenburg

For Centralen in Gothenburg, SymbioCity approach would not be useful to apply. It has several dimensions which would not contribute to development, for example building design and architecture or urban landscape planning and ecosystems. The station already has all the necessary constructions and building something additional would be use of materials, while sustainability implies trying to avoid building new and using what already exists. However, the bigger scale projects, such as the River City would benefit from using SymbioCity approach.

Backcasting and foresighting would be applicable in the given conditions of Centralen. Advantages and disadvantages are described below.

Challenge for using backcasting would be involvement of stakeholders. Their number is very high and even having a meeting all together could be challenging. Nevertheless, backcasting provides creative solutions to existing problems and helps to avoid lock-ins. With the rapid development in

the Nordic countries backcasting would let to develop new ideas based on the possible trends, instead of relying on existing technologies.

Foresighting would work perfectly in Gothenburg in my opinion. However, since the results are based on the historical data and current state it might lead to unimaginative solutions.

Depending on what expectations from the future methodologies are Centralen could have foresighting in order to see what the possible future could look like or using backcasting what are the steps that should be undertaken to reach the envisioned future.

To conclude, backcasting would work for both cases: Centralen in Gothenburg and the bus park in Kisumu. The other approaches could be applied in different conditions depending on the local requirements.

CHAPTER 5. CONCLUSIONS

The planning process in Kenya and Sweden has defined procedures; however reality does not always correspond to the rules.

As described in Chapter 3.1. Kisumu railway station has a revival plan, which is at the first phase of implementation. Sustainability is integrated in the plan in the form of feasibility and environmental impact assessment studies. The bus park, on the contrary, is not managed by any level of government that is why it is unique in terms of self-development. There is no plan for its development yet that is why there is a chance of wide incorporation of sustainability principles. Several interviewees working with development planning mentioned the need for future methodologies in their work (Eising, 2015; Nzomo, 2015; Otieno1, 2015).

The transportation sector in Gothenburg has several approaches of sustainability integration on different levels (Figure 11). Nevertheless, I learnt from the literature review and interviews that planners are facing a number of challenges in their work.

Future methodologies can be applied to support the planning process. In Chapter 2.5. backcasting, foresighting and SymbioCity have been compared and their appropriateness in the planning process was analyzed and discussed in Chapter 4.1. Depending on the local context different approaches can be used.

In order to discuss the possibility of application of these methodologies in the case of Kisumu bus park there was a need to understand the system and its current state, which were described in Chapter 3.2. I found out that perceived lack of organization at the bus park is a myth. The place has a system, which is presented in unusual way for European people. Key actors in the planning process were identified as well as five pertinent sustainability issues: education, employment, management, maintenance and positioning of the park in the local community. Working closely with these aspects would improve sustainability issues from three perspectives: economic, social and environmental. It will bring profit to the station and improve economic performance at the city and county levels. Providing education and employment would solve several challenges at once. Paying special attention to the environmental aspects and encouraging sustainable means of transport would affect overall performance and perception among the citizens.

The situation of Gothenburg Centralen was analyzed in Chapter 3.2 in the same way. To complete the picture of the current state, travellers' perspectives have been investigated and compared for both stations. Surprisingly, Kisumu and Gothenburg have a lot in common: perception of chaos, delays in services and number of alternative means of transportation in the area. Level of development of the stations emphasizes the differences (security, facilities etc).

Taking into account planning process and current state of the stations, different future methodologies can be applied in different cities. Nevertheless, one of them would work in both cases – backcasting, since it can be applied on the small scale, provides creative solutions and has a high level of integration of stakeholders (as described in 2.5 and discussed in 4.5).

Possible future research questions

Looking into the past: how did transportation system in Kisumu evolve in time without interference with the government?

Looking into the present: mapping public transportation – long- and short-distance mobile options and destinations and their role in urban development.

Looking into the future: what is the potential of transportation system development? How could *matatus* going formal affect the system? Depending on the local context how to promote sustainable mobility?

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ANNEX A

LIST OF INTERVIEWEES

Göteborg, Sweden						
#	Name	Date	Position	Contact details	P*	CS*
1	Jaan-Henrik Kain	18.02.2015	Associate Professor/Reader, PhD, Architect, Planner, Department of Architecture, Chalmers University of Technology	+46 730 387060 kain@chalmers.se	x	x
2	Mark Isitt	18.02.2015	Journalist at Göteborgs-Posten; Dagens Nyheter; Arkitektur Magazine; Residence Magazine; Svenska Mässan (The Swedish Exhibition and Congress Centre); The Stockholm Furniture Fair; Torsten Söderbergs stiftelse; Antonia Ax:son Johnsons stiftelse	+46708 504 306 isitt@markisitt.se	x	x
Kisumu, Kenya						
3	Sohel Rana	26.02.2015	UNV - Urban planning & Design Officer at UN – HABITAT	+254733399703 sohel.rana@unhabitat.org	x	
4	anonymous	10.03.2015	Rift Valley railway employee			x
5	Rashid Dondu	10.03.2015	Buspark superintendent, Kisumu County	+254725785474		x

6	Beatrice N. Mbula	11.03.2015	Natural resource specialist. Lake Victoria Environmental Management Project – Phase II. Ministry of environment, water and natural resources	+254726770092 mbulabeatrice@yahoo.co.uk	x	x
7	Laban Onong'no	11.03.2015	Chief Technical Adviser – Kenya. United Nations Human Settlements Programme	+254722722929 laban.onongno@unhabitat.org		x
8	Wim Eising	11.03.2015	KUP coordinator, team leader of the Technical Assistance Team, Kisumu Urban Project (KUP)	+254728783412 Kup.coordinator@gmail.com	x	x
9	Thomas Nyasetia	16.03.2015	Manager of the Guardian bus station	+254724382473		x
10	Patrick S. Nzomo	16.03.2015	Estate Officer – Kenya Railways	+254712359858 pnzomo@krc.co.ke	x	x
11	Michael Mwalimu Disi	16.03.2015	Port Manager – Kenya Railways	+254721478330 mikedisi@yahoo.com	x	x
12	Thuranira Kinagwi	17.03.2015	General Manager Business Development and Corporate Planning at Kenya Railways	+25470990700	x	x
13	Evelyn Otieno	18.03.2015	City planner, Kisumu municipality	+254704266001	x	x
14	El-Abied Gilami	18.03.2015	Senior manager at Easy Coach	+254722904490		x
15	Samuel Otieno Ondola	20.03.2015	Chief Officer – Transport and Infrastructure at county Government of Kisumu	+254727612275 samuelondola@gmail.com	x	x

16	Luis Magana	27.03.2015	Bus driver at Zeira tour firm	+254721100617		x
17	George Dollae Andere	31.03.2015	Chairman of Ebenza Matatu Service and Credit	+254722263192		x
18	Francis Muga	31.03.2015	Buspark superintendent, Kisumu County (new)	+254724031890		x
19	Donner Oloya	31.03.2015	NTSN, Kenya Revenue Authority	+254729775066 donaoloya@gmail.com		x
20	Pius Odiwuor	31.03.2015	Chairman at KAMTCO – Kisumu Ahero Mowuok Transport Co Ltd.	+254721405629		x
21	Wylliffe Ocitieng	31.03.2015	Chairman of Kistag Sacco	+254724986782		x
22	Robert Rawinji	01.04.2015	Planning and environmental consultant, Director – Strevlan	+2540726687018 rrawinji@gmail.com	x	x
23	Maxwell Kevin Otieno	07.04.2015	Exchange student from Maseno University, Kisumu, Kenya	+46704215211 maxwelloti@gmail.com	x	x
24	Zablon Nyorgesa	08.04.2015	Police Inspector at the bus park	+254721908509		x
25	Bruce Mugola Watako	12.04.2015	Exchange student from JOOUST, Kenya	+2540735150791 brucemugola@gmail.com		x
26	Silas Maujih	13.04.2015	Consultant from UN-HABITAT	+254772240293 somaujih@yahoo.com	x	x

*P – planning process study

CS – current state study

ANNEX B

INTERVIEW GUIDELINES

1. Name, position and main responsibilities
2. Are you involved in the development planning process? How?
3. Are there any future methodologies used?
4. How does the planning process look like?
5. Who are the main actors and what is their role in the process?
6. What are the main challenges you are facing at your work?

ANNEX C

LIST OF SACCOS IN KISUMU

No.	SACCO Name	SACCOs presented at the meeting
1.	Best Line SACCO	
2	Uyoma Kisumu SACCO	
3	Kisumu Ahero Mowuok Transport Company	
4	Skies Connect Travellers Limited	x
5	Usenge Shuttle Company	
6	Homa Bay Matatu Owners SACCO	x
7	3kra	x
8	Kihomi Savings And Co-Operative Society Limited	
9	Express Prestige Shuttle Ltd	
10	Mambo Line SACCO	x
11	Sugar Zone SACCO	
12	Kitoma SACCO Society Limited	x
13	Kikasa SACCO	x
14	Lakebelt SACCO	
15	Nile Perch Matatu SACCO	x
16	Great Nyanza Travellers SACCO	x
17	Kibora SACCO	
18	Makoma SACCO	
19	K2bu	x
20	Busia Lakeside Travellers SACCO	x
21	Victoria Shuttle Group Limited	
22	Kistag Travellers SACCO	

23	Mamakon Company	x
24	Ebenezer Matatu Savings And Credit Co-Operative Society	x

LIST OF SACCOS IN WESTERN REGION

No.	Name Of SACCO	SACCOs presented at the meeting
1	Malaba Border SACCO Shuttle Ltd	
2	Western Travellers SACCO Ltd	
3	Western Matatu SACCO	
4	Mumias Shuttle SACCO	x
5	Western Safari SACCO	
6	Western Cross Express Company Limited	
7	Webuye Shuttle SACCO Ltd	
8	West Tours SACCO Ltd.	x
9	Kitale Travellers SACCO Limited	
10	Bungoma Transporters SACCO Ltd	
11	Kabras Line SACCO Ltd	
12	Western Shuttles SACCO Ltd.	
13	Sabatia Safaris SACCO	x
14	Bluemarks Shuttles SACCO Ltd.	
15	Mumias Safaris	
16	Bungoma Line SACCO	
17	Kanduyi Shuttle Savings	
18	Across Western SACCO	
19	Kakamega Shuttles	

LIST OF SACCOS IN KISII

No.	Name Of SACCO	SACCOs presented at the meeting
1	Premium Travellers Limited	x
2	Migori Matatu Cooperative SACCO	x
3	Transline Classic Ltd	x
4	Masaba Line Services SACCO Ltd	
5	Five Star Services SACCO	x
6	Sirare Line SACCO Ltd	
7	Nyangena Mzalendo Safaris SACCO	
8	Manchester Matatu SACCO	
9	Gucha Travellers SACCO Ltd	
10	M-Young Travellers SACCO	
11	Kollen Travellers SACCO Ltd.	
12	Wasafiri Travellers SACCO Ltd	
13	Nuru Travellers SACCO Limited	
14	Comfort Safaris SACCO	
15	Zioline Services SACCO Ltd	
16	Koke SACCO Ltd	
17	Kienya Travellers SACCO Ltd	
18	Famwena Ankuma SACCO Ltd	
19	Kimisahline Travellers SACCO Ltd	
20	Kilgoris Klassic SACCO Ltd	
21	Nyambunwa Matatu SACCO Ltd	
22	Smart Highways SACCO Ltd	
23	Kimawa Express SACCO Ltd	

24	Transline SACCO Ltd	
25	Kinyamo Transporters SACCO Ltd	
26	Kinyana Travellers SACCO	
27	Nyamache Transport Operators SACCO Ltd	
28	Ammotak Company Limited	
29	Ena Investments Limited	
30	Farasi Travellers SACCO Ltd	
31	Manga Nissan Team SACCO Ltd	

ANNEX D

QUESTIONS FOR SACCOS SURVEY

1. First name, Last name
2. Name of SACCO
3. Contact details
4. How many vehicles (14 seats) of your SACCO pass through the bus park in Kisumu every day?
5. How many vehicles (25-40 seats) of your SACCO pass through the bus park in Kisumu every day?
6. How many vehicles (60 seats) of your SACCO pass through the bus park in Kisumu every day?
7. What are the main challenges (problems) in your work at the bus park in Kisumu?
8. What are the other challenges (problems) you are facing as a SACCO outside the bus park?

ANNEX E

QUESTIONNAIRE FOR SURVEY FOR REALITY STUDIO:

1. Name and occupation
2. How do you feel traveling within Kisumu (county)?
3. How easy/difficult it is to find your way around?
4. Have you been to the bus park (bus station)?
5. If yes, what do you think works well?
6. What works not so good?
7. What are (if there are any) similarities with Central station in Gothenburg?
8. What are (if there are any) differences with Central station in Gothenburg?